

BHP Billiton Canada Inc.

Operator of the EKATI Diamond Mine

BHP Billiton #1102 4920-52nd Street Yellowknife NT Canada X1A 3T1 Tel 867 669 9292 Fax 867 669 9293 bhpbilliton.com

19 January, 2012

Aboriginal Affairs and Northern Development Canada South Mackenzie District Field Office 140 Bristol Avenue #16 Yellowknife Airport Yellowknife, NT X1A 3T2

Attention: Tracy Covey Resource Management Officer III

RE: 2011 Pumping Summary for Cell E (1616-30)

Dear Mr. Covey:

This letter provides the summary of pumping activities for Cell E (1616-30) for the 2011 season.

The information includes:

- a) measured flow rates;
- b) erosional issues encountered and mitigative actions taken (if required);
- c) results of water quality monitoring; and
- d) a summary of impacts to the environment.

Pre-discharge water samples were collected from Cell E (1616-30) on 21 June 2011 and submitted to ALS Laboratories for analysis of the pre-approval suite of parameters. Approval was granted on 4 July 2011 and pumping commenced on 5 July 2011.

Pumping from Cell E (1616-30) to Leslie Lake continued until 23 November 2011. The pump ran continuously between 5 July 2011 and 23 November 2011. During the pumping, discharge samples were collected on the following dates:

- 11 July
- 18 July
- 25 July
- 2 August
- 8 August
- 14 August
- 24 August

- 29 August
- 5 September
- 12 September
- 19 September
- 26 September
- 3 October
- 10 October

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- 17 October
- 24 October
- 31 October
- 7 November
- 10 November

- 14 November
- 17 November
- 21 November
- 23 November

The final elevation of Cell E on 23 November 2011 was 443.103 meters above sea level (masl).

Pumping Summary

Three pumps were used to pump water from Cell E (1616-30) to Leslie Lake in 2011:

Pump	Start Date	End Date	Volume (m ³)	
11FM102	5 July 2011	31 July 2011	1,915,997.40	
TTENTUZ	16 September 2011	1 October 2011	1,915,997.40	
11FM103	5 July 2011 16 September 2011		E E 21 200 9E	
	22 September 2011	24 November 2011	5,531,306.85	
11FM104 7 July 2011 31 July 2011		1,058,597.70		
То	8,505,901.95			

A summary of the pumping rate, volume and discharge conditions for Pump 11FM102 is found below:

Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
6-Jul-11	0	0.00			
7-Jul-11	2144	1,425.00	Clean, no erosion	N	NA
7-Jul-11	2175	19,787.50	Clean, no erosion	N	NA
8-Jul-11	2132	64,356.90	Clean, no erosion	N	NA
9-Jul-11	2147	108,449.70	Clean, no erosion	N	NA
10-Jul-11	2076	170,597.90	Clean, no erosion	N	NA
11-Jul-11	2155	22,155.20	Clean, no erosion	N	NA
12-Jul-11	2102	25,900.70	Clean, no erosion	N	NA
13-Jul-11	1550	325,517.50	Clean, no erosion	N	NA
14-Jul-11	1529	359,089.00	Clean, no erosion	N	NA
15-Jul-11	1510	384,044.40	Clean, no erosion	N	NA
16-Jul-11	1544	428,844.03	Clean, no erosion	N	NA
17-Jul-11	1551	455,059.67	Clean, no erosion	N	NA
18-Jul-11	1517	490,071.00	Clean, no erosion	Ν	NA

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Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
19-Jul-11	1452	525,164.10	Clean, no erosion	N	NA
20-Jul-11	3119	558,677.00	Clear, no erosion	N	NA
21-Jul-11	3069	643,247.10	Clear, no erosion	N	NA
22-Jul-11	3105	708,337.60	Clear, no erosion	N	NA
23-Jul-11	3032	769,606.50	Discharge is clear	N	NA
24-Jul-11	3069	855,735.40	Clear, no erosion	N	NA
25-Jul-11	3148	934,389.40	Clear, no erosion	N	NA
26-Jul-11	3172	990,065.90	ND	N	NA
27-Jul-11	2990	1,107,394.78	Clear, no erosion	N	NA
28-Jul-11	3051	1,159,870.00	Clear, no erosion	N	NA
29-Jul-11	3069	1,204,208.80	Clear, no erosion	N	NA
30-Jul-11	3023	1,280,625.20	Clear, no erosion	N	NA
31-Jul-11	2922	1,351,551.10	Clear, no erosion	N	NA
16-Sep-11	NA	1,388,235.30	Clear, no erosion	N	NA
17-Sep-11	1544	1,423,712.00	Clear, no erosion	N	NA
18-Sep-11	1538	1,463,507.10	Clear, no erosion	N	NA
19-Sep-11	946	1,498,855.00	Clear, no erosion	N	NA
20-Sep-11	ND	ND	ND	N	NA
21-Sep-11	2097	1593538.8	Clear, no erosion	N	NA
22-Sep-11	0	1,615,770.50	Not discharging	N	NA
23-Sep-11	1815	1,620,359.70	Clear	N	NA
24-Sep-11	850	1,655,197.00	Clear	N	NA
25-Sep-11	1990	1,682,043.40	Clear	Ν	NA
26-Sep-11	1731	1,730,408.20	Clear	Ν	NA
27-Sep-11	1866	1,776,368.50	Clear	Ν	NA
28-Sep-11	1723	1,806,743.30	Clear, no erosion	Ν	N/A
29-Sep-11	1732	1,858,063.40	Clear, no erosion	Ν	N/A
30-Sep-11	1557	1,882,718.40	Clear, no erosion	Ν	N/A
1-Oct-11	0	1,915,997.40			

ND - no data

Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
7-Jul-11	2160	1,451.00	Clean, no erosion	N	NA
7-Jul-11	2055	19,934.72	Clean, no erosion	Ν	NA
8-Jul-11	2102	63,544.24	Clean, no erosion	N	NA
9-Jul-11	1978	104,885.51	Clean, no erosion	N	NA
10-Jul-11	2017	162,899.00	Clean, no erosion	N	NA
11-Jul-11	2120	212,753.06	Clean, no erosion	N	NA
12-Jul-11	2115	250,223.90	Clean, no erosion	N	NA
13-Jul-11	1450	313,620.50	Clean, no erosion	N	NA
14-Jul-11	1575	346,891.00	Clean, no erosion	N	NA
15-Jul-11	1549	371,889.93	Clean, no erosion	N	NA
16-Jul-11	1539	417,811.24	Clean, no erosion	N	NA
17-Jul-11	1520	444,590.82	Clean, no erosion	N	NA
18-Jul-11	1518	480,175.04	Clean, no erosion	N	NA
19-Jul-11	1549	515,740.02	Clean, no erosion	N	NA
20-Jul-11	2830	581,485.00	Clear, no erosion	N	NA
21-Jul-11	2825	659,696.80	Clear, no erosion	N	NA
22-Jul-11	2856	719,592.75	Clear, no erosion	N	NA
23-Jul-11	2758	776,792.18	Discharge is clear	N	NA
24-Jul-11	2877	857,278.01	Clear, no erosion	N	NA
25-Jul-11	2877	931,156.47	Green	N	NA
26-Jul-11	2739	982,939.10	ND	N	NA
27-Jul-11	2865	1,061,167.80	Clear, no erosion	N	NA
28-Jul-11	2990	1,143,554.00	Clear, no erosion	N	NA
29-Jul-11	2950	1,186,916.62	Clear, no erosion	N	NA
30-Jul-11	2909	1,261,433.21	Clear, no erosion	N	NA
31-Jul-11	2928	1,329,733.48	Clear, no erosion	N	NA
1-Aug-11	1800	1,380,692.71	Clear, no erosion	N	NA
2-Aug-11	1829	1,416,885.95	Clear, no erosion	N	NA
3-Aug-11	1883	1,458,821.91	Clear, no erosion	N	NA
4-Aug-11	1827	1,505,609.02	Clear, no erosion	N	NA
5-Aug-11	1723	1,546,835.40	Clear, no erosion	N	NA
6-Aug-11	1745	1,589,128.20	Clear, no erosion	N	NA
7-Aug-11	1713	1,627,841.92	Clear, no erosion	Ν	NA

A summary of the pumping rate, volume and discharge conditions for Pump 11FM103 is found below:

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Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
8-Aug-11	1734	1,663,445.73	Clear, no erosion	N	NA
9-Aug-11	1781	1,709,486.27	Clear, no erosion	N	NA
10-Aug-11	1745	1,746,580.44	Clear, no erosion	N	NA
11-Aug-11	1853	1,785,426.60	Clear, no erosion	N	NA
12-Aug-11	1809	1,830,589.21	Clear, no erosion	N	NA
13-Aug-11	1851	1,886,748.12	Clear, no erosion	N	NA
14-Aug-11	1818	1,919,036.35	Clear, no erosion	N	NA
15-Aug-11	1721	1,958,574.31	Clear, no erosion	N	NA
16-Aug-11	1739	2,007,070.91	Clear, no erosion	Ν	NA
17-Aug-11	1775	2,046,016.28	Clear, no erosion	N	NA
18-Aug-11	1753	2,087,979.15	Greenish	N	NA
19-Aug-11	1835	2,130,787.51	Clear, no erosion	Ν	NA
20-Aug-11	1806	2,167,407.14	Clear, no erosion	N	NA
21-Aug-11	1800	2,216,399.94	Clear, no erosion	N	NA
22-Aug-11	1800	2,216,399.94	Clear, no erosion	N	NA
23-Aug-11	1774	2,302,447.00	OK	N	NA
24-Aug-11	1850	2,337,503.00	Clear, no erosion	N	NA
25-Aug-11	1790	2,370,789.49	OK	Ν	NA
26-Aug-11	1746	2,414,315.63	Clear, no erosion	N	NA
27-Aug-11	1805	2,450,321.17	Clear, no erosion	N	NA
28-Aug-11	1659	2,508,069.23	ND	Ν	NA
29-Aug-11	1656	2,531,149.82	Clear, no erosion	Ν	NA
30-Aug-11	1487	2,576,452.94	Clear, no erosion	N	NA
31-Aug-11	1350	2,609,655.29	Clear, no erosion	N	NA
1-Sep-11	1450	2,638,106.95	Clear, no erosion	Ν	NA
2-Sep-11	1359	2,672,524.84	Clear, no erosion	Ν	NA
3-Sep-11	1252	2,704,224.01	Clear, no erosion	Ν	NA
4-Sep-11	1125	2,728,432.76	Clear, no erosion	N	NA
5-Sep-11	1083	2,757,144.05	Clear, no erosion	N	NA
6-Sep-11	1840	2,781,192.68	Clear, no erosion	N	NA
7-Sep-11	1864	2,834,171.49	Clear, no erosion	N	NA
8-Sep-11	2074	2,877,675.56	Clear, no erosion	N	NA
9-Sep-11	1810	2,916,753.99	Clear, no erosion	N	NA
10-Sep-11	1641	2,966,120.70	Clear, no erosion	N	NA
11-Sep-11	1608	3,002,281.31	Clear, no erosion	N	NA
12-Sep-11	1512	3,038,559.18	Clear, no erosion	N	NA

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Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
13-Sep-11	1494	3,077,584.81	Clear, no erosion	N	NA
14-Sep-11	1373	3,100,653.79	Clear, no erosion	N	NA
15-Sep-11	1940	3,154,734.75	Clear, no erosion	N	NA
16-Sep-11	1047	3,178,776.41	Clear, no erosion	N	NA
22-Sep-11	0	3,181,815.23	Not discharging	N	NA
2-Oct-11	1854	3,181,815.23	ND	N	NA
2-Oct-11	2338	3,183,930.25	Clear, no erosion	N	NA
3-Oct-11	1667	3,232,027.53	Clear, no erosion	N	NA
4-Oct-11	1826	3,261,695.45	Clear, no erosion	N	NA
5-Oct-11	1842	3,312,750.13	Clear, no erosion	N	NA
6-Oct-11	1843	3,348,078.01	Clear, no erosion	N	NA
7-Oct-11	1628	3,386,739.80	Clear, no erosion	N	NA
8-Oct-11	1746	3,440,021.49	Clear, no erosion	N	NA
9-Oct-11	1895	3,477,169.93	Clear, no erosion	N	NA
10-Oct-11	1934	3,517,839.76	Clear, no erosion	N	NA
11-Oct-11	1972	3,570,412.10	Clear, no erosion	N	NA
12-Oct-11	2143	3,616,547.75	Clear	N	NA
13-Oct-11	2162	3,666,847.77	Clear	N	NA
14-Oct-11	2064	3,702,726.00	Clear	N	NA
15-Oct-11	2000	3,763,399.47	Clear	N	NA
16-Oct-11	1956	3,808,453.37	Good	N	NA
17-Oct-11	1920	3,852,070.43	Good	N	NA
18-Oct-11	1841	3,894,918.20	Clear, no erosion	N	NA
19-Oct-11	1804	3,938,324.14	Clear, no erosion	N	NA
20-Oct-11	1812	3,974,649.50	Clear	N	NA
21-Oct-11	1770	4,013,407.20	Clear	N	NA
22-Oct-11	1865	4,064,888.77	NA	Ν	NA
23-Oct-11	1804	4,099,813.70	unable to see	N	NA
24-Oct-11	1831	4,148,772.68	Clear, iced over	N	NA
25-Oct-11	1872	4,190,522.67	Clear, iced over	N	NA
26-Oct-11	1918	4,226,980.03	Clear, iced over	N	NA
27-Oct-11	1840	4,281,890.00	Winter conditions - can't get to discharge	N	NA
28-Oct-11	1844	4,315,525.06	Clear, no erosion	N	NA
29-Oct-11	1862	4,369,630.50	Clear, ends of pipe completely covered by ice	Ν	NA

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Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
30-Oct-11	1919	4,409,068.00	Clear, no erosion	N	NA
31-Oct-11	1870	4,454,267.76	Clear, no erosion	N	NA
1-Nov-11	1871	4,495,315.22	Clear, no erosion	N	NA
2-Nov-11	1877	4,547,759.14	Clear	N	NA
5-Nov-11	1930	4,673,199.00	Frozen Over	N	NA
6-Nov-11	1972	4,718,345.00	Frozen Over	N	NA
7-Nov-11	1950	4,773,655.00	Clear	N	NA
8-Nov-11	1759	4,813,992.84	Clear	N	NA
9-Nov-11	2045	4,870,351.00	Not inspected due to ice	N	NA
10-Nov-11	1982	4,907,075.54	Not inspected due to ice	N	NA
11-Nov-11	1969	4,954,204.06	Not inspected due to ice	N	NA
12-Nov-11	1950	5,012,045.00	Not inspected due to ice	N	NA
13-Nov-11	1975	5,055,879.37	Not inspected due to ice	N	NA
14-Nov-11	1949	5,099,605.10	Not inspected due to ice	N	NA
15-Nov-11	1838	5,139,185.71	Not inspected due to ice	N	NA
16-Nov-11	1943	5,198,632.98	Clear, no erosion	N	NA
17-Nov-11	1797	5,230,271.59	Clear, no erosion	N	NA
18-Nov-11	1799	5,278,843.20	ND	N	NA
19-Nov-11	1871	5,322,959.39	ND	N	NA
20-Nov-11	1813	5,366,399.30	ND	N	NA
21-Nov-11	1935	5,398,856.59	Clear, no erosion	N	NA
22-Nov-11	1973	5,452,245.23	Clear	N	NA
23-Nov-11	1995	5,496,433.99	Clear	N	NA
24-Nov-11		5,531,306.85		N	NA

ND - No Data

Cell E (1616-30) Pumping Summary 2011 BHP Billiton Canada Inc. 19 January 2012

Inspection Date	Flow Rate m3/Hour	Volume (m3)	Discharge Observations (Erosion, clarity etc.)	Leaks/spills Y/N	Description of any leaks/spills
7-Jul-11	0	0.00	NA	Y	When pump was turned on -a leak at the pump pipe connection and was shutdown until they replaced the pump seal.
10-Jul-11	0	582.20	Not discharging	Ν	NA
11-Jul-11	0	582.20	Not discharging	Ν	NA
12-Jul-11	0	582.20	Not discharging	Ν	NA
13-Jul-11	3200	25,956.29	Clear, No Erosion	N	NA
14-Jul-11	3200	96,890.00	Clear, No Erosion	Ν	NA
15-Jul-11	3231	150,138.00	Clear, No Erosion	Ν	NA
16-Jul-11	3224	247,425.55	Clear, No Erosion	N	NA
17-Jul-11	3235	304,665.38	Clear, No Erosion	N	NA
18-Jul-11	3288	381,364.70	Clear, No Erosion	Ν	NA
19-Jul-11	3159	457,070.76	Clear, No Erosion	N	NA
20-Jul-11	3189	537,059.00	Clear, No Erosion	Ν	NA
21-Jul-11	3172	625,049.80	Clear, No Erosion	N	NA
22-Jul-11	3165	692,699.76	Clear, No Erosion	N	NA
23-Jul-11	0	702,003.62	Not discharging	N	NA
24-Jul-11	0	727,703.16	Not discharging	N	NA
25-Jul-11	0	727,703.16	Not discharging	Ν	NA
26-Jul-11	0	727,703.16	Not discharging	N	NA
27-Jul-11	3219	740,567.83	Clear, No Erosion	Ν	NA
28-Jul-11	3103	829,471.00	Clear, No Erosion	Ν	NA
29-Jul-11	3109	874,957.46	Clear, No Erosion	Ν	NA
30-Jul-11	3051	952,228.46	Clear, No Erosion	Ν	NA
31-Jul-11	2978	1,022,537.18	Clear, No Erosion	Ν	NA
31-Jul	0	1,058,597.65			

A summary of the pumping rate, volume and discharge conditions for Pump 11FM104 is found below:

ND – No Data

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Water Quality Monitoring

Results from the pre-approval and discharge samples indicate there were no impacts on the receiving environment during the pumping interval, as the water samples were below the Water Licence discharge criteria. The water quality monitoring data is attached.

We trust the information meets with your requirements at this time. Please contact the undersigned at 867-880-2232 should there be any questions or concerns with this matter.

Yours truly, BHP Billiton Canada Inc.

Claudino Le

for Keith McLean Environment Superintendent - Operations EKATI Diamond Mine

- cc: Jason Brennan Aboriginal Affairs and Northern Development Canada Bruce Hanna – Department of Fisheries and Oceans Ryan Fequet – Wek''eezhii Land and Water Board
- Attached: Water Quality Data Cell E (1616-30) Laboratory Certificates of Analysis

1616-30		W2009L2-	001 Criteria	Pre-Approval	Discharge	Discharge	Discharge	Discharge	Discharge
Collection Date				21-Jun-2011	11-Jul-2011	18-Jul-2011	25-Jul-2011	2-Aug-2011	8-Aug-2011
Sample Number		Grab	Average	L1022350-1	L1031080-1	L1034607-1	L1038290-1	L1042744-1	L1042889-1
Air Temperature	Units			20.1	25.0	14.7	22.0	15.0	10.0
•	Deg C								19.0
Weather				Clear	Cloudy	Raining	Sunny	Partly Cloudy	Sunny
Wind Direction	Degree			90	250	150	270	49	112
Wind Speed	km/h			22	32	26	4	13	8
Field Temperature	Deg C			NC	16.8	15.1	16.27	14.75	16.42
Conductivity Field	uS/cm			NC	765	784	818	843	854
Field pH	pH			NC	7.97	8.18	8.18	8.1	8.47
Conductivity	uS/cm			835	747	761	818	816	846
Hardness (as CaCO3)	mg/L			169	150	149	157	149	159
рН	pH	6.0 - 9.0	6.0 - 9.0	7.62	7.87	7.79	7.66	7.82	7.71
Total Suspended Solids	mg/L	25	15	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L			461	456	475	478	467	518
Turbidity	NTU			0.86	0.73	0.75	0.68	0.64	0.66
Alkalinity, Total (as CaCO3)	mg/L			43	38.3	39.3	40.4	41.6	41.9
Ammonia (as N)	mg/L	4	2	<0.0050	<0.0050	0.0113	0.0095	0.0075	0.0055
Chloride (Cl)	mg/L			142	127	135	141	146	149
Nitrate and Nitrite (as N)	mg/L			3.84	3.36	3.58	4.03	4.21	4.08
Nitrate (as N)	mg/L			3.84	3.35	3.57	4.01	4.19	4.04
Nitrite (as N)	mg/L			<0.0050	0.008	0.01	0.02	0.017	0.032
Orthophosphate-Dissolved (as P)	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L			0.0061	0.006	0.0071	0.0073	0.0067	0.0059
Sulfate (SO4)	mg/L			122	109	115	122	120	122
Total Carbon	mg/L			12.5	11.4	10.8	12.1	11.4	12.6
Total Organic Carbon	mg/L			3.77	4.22	3.71	3.93	3.91	4.97
Aluminum (Al)-Total	mg/L	2	1	0.0351	0.0298	0.0205	0.0192	0.0262	0.0196
Antimony (Sb)-Total	mg/L			0.00118	0.00117	0.00116	0.00126	0.00125	0.00135
Arsenic (As)-Total	mg/L	1	0.5	0.00042	0.00045	0.00047	0.00054	0.00051	0.00062
Barium (Ba)-Total	mg/L			0.0882	0.0944	0.0753	0.0844	0.0763	0.0809
Beryllium (Be)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Total	mg/L			0.023	0.028	0.028	0.029	0.029	0.031
Cadmium (Cd)-Total	mg/L			<0.000040	0.000068	<0.000030	<0.000025	<0.000040	<0.000030
Calcium (Ca)-Total	mg/L			38.8	34.7	34.3	36	34	36.3
Chromium (Cr)-Total	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	0.2	0.1	0.00131	0.00156	0.00121	0.00135	0.00126	0.00146
Iron (Fe)-Total	mg/L	0.2	0.1	0.038	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
Lead (Pb)-Total	mg/L			<0.000050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Total	mg/L			0.00507	0.0052	0.00502	0.00564	0.00569	0.0061
Magnesium (Mg)-Total	mg/L			17.6	15.3	15.3	16.4	15.5	16.6
Manganese (Mn)-Total	-			0.00586	0.00395	0.00349	0.00356	0.0043	0.00457
Molybdenum (Mo)-Total	mg/L			0.00380	0.00393	0.00349	0.00350	0.0827	0.00437
	mg/L		0.45						
Nickel (Ni)-Total	mg/L	0.3	0.15	0.00556	0.00502	0.00457	0.00455	0.0046	0.0048
Phosphorus (P)-Total	mg/L			<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)-Total	mg/L			28.1	25.4	25.9	28	27.9	29.5
Selenium (Se)-Total	mg/L			0.00021	0.00019	0.00021	0.00024	0.00023	0.00023
Silicon (Si)-Total	mg/L			0.41	0.279	0.305	0.238	0.27	0.293
Silver (Ag)-Total	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L			86.7	82.1	83.7	91	86.4	95.2
Strontium (Sr)-Total	mg/L			0.74	0.67	0.668	0.725	0.772	0.77
Thallium (TI)-Total	mg/L			0.000029	0.000033	0.000033	0.000035	0.000038	0.000038
Tin (Sn)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Total	mg/L			0.000459	0.000477	0.000473	0.000502	0.000506	0.000536
Vanadium (V)-Total	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L			<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
BOD	mg/L		40	<5.0	NC	NC	NC	NC	NC
Oil and Grease	mg/L			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L			<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050
ortho-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes	mg/L			<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
TVH (C5-C10)	mg/L			<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TEH10-30	mg/L			<0.15	<0.15	<0.15	<0.16	<0.15	<0.15
TPH5-30	mg/L	5	3	<0.15	<0.15	<0.15	<0.25	<0.15	<0.15
Diethylene Glycol	mg/L		5	<0.25 NC	<5.0	<5.0	<5.0	<5.0	<5.0
Ethylene Glycol	mg/L			NC	<5.0	<5.0	<5.0	<5.0	<5.0

1616-30		W2009L2-	001 Criteria	Discharge	Discharge	Discharge	Discharge	Discharge	Discharge
Collection Date			1	14-Aug-2011	24-Aug-2011	29-Aug-2011	5-Sep-2011	12-Sep-2011	19-Sep-2017
Sample Number		Grab	Average	L1045930-1	L1051136-1	L1053212-1	L1055651-1	L1058050-1	L1063576-1
A:	Units			45.0		40.0			
Air Temperature	Deg C			15.8	NC	12.9	5.4	2.3	4.6
Weather				Overcast	NC	Clear	Fog	Cloudy	Fog
Wind Direction	Degree			150	NC	54	10	360	130
Wind Speed	km/h			4	NC	20	30	30	9
Field Temperature	Deg C			15	NC	NC	10.3	8.9	7.6
Conductivity Field	uS/cm			865	NC	NC	874	841	859
Field pH	pН			8.28	NC	NC	8.08	7.26	8.09
Conductivity	uS/cm			862	848	837	827	833	841
Hardness (as CaCO3)	mg/L			161	144	156	158	149	149
рΗ	рН	6.0 - 9.0	6.0 - 9.0	7.96	7.95	7.91	7.94	7.83	8.01
Total Suspended Solids	mg/L	25	15	<3.0	<3.0	4	<3.0	<3.0	3.2
Total Dissolved Solids	mg/L			519	509	497	512	509	510
Turbidity	NTU				1.14	0.83	1.68	1.24	0.99
Alkalinity, Total (as CaCO3)	mg/L			43.5	43.1	44.6	43.4	43.9	43.6
Ammonia (as N)	mg/L	4	2	0.0116	0.0162	0.0129	0.0095	0.0145	<0.0050
Chloride (Cl)	mg/L			150	140	142	141	142	138
Nitrate and Nitrite (as N)	mg/L			4.12	3.67	3.86	3.57	3.88	3.69
Nitrate (as N)	mg/L			4.1	3.67	3.84	3.56	3.87	3.68
Nitrite (as N)	mg/L			0.018	<0.010	0.021	0.0114	0.012	0.0134
Orthophosphate-Dissolved (as P)	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L			0.0054	0.0049	0.005	0.0063	0.0066	0.0068
Sulfate (SO4)	mg/L			123	122	122	122	124	120
Total Carbon	mg/L			11.7	13	13.4	12.4	11.7	12.5
Total Organic Carbon	mg/L			5.56	5.2	4.7	5.4	5.19	2.73
Aluminum (Al)-Total	mg/L	2	1	0.0217	0.0449	0.0329	0.0731	0.0347	0.0328
Antimony (Sb)-Total	mg/L	2	-	0.00134	0.00119	0.00129	0.00127	0.00124	0.00125
Arsenic (As)-Total	mg/L	1	0.5	0.00061	0.00057	0.00056	0.00059	0.00052	0.00053
Barium (Ba)-Total	mg/L	1	0.5	0.0805	0.0746	0.0809	0.0838	0.0783	0.0758
Beryllium (Be)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00050	<0.00010
()	-								
Boron (B)-Total	mg/L			0.029	0.026	0.027	0.03	0.027	0.026
Cadmium (Cd)-Total	mg/L			<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	0.00002
Calcium (Ca)-Total	mg/L			37.4	33.1	36.1	36	33.8	33.7
Chromium (Cr)-Total	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	<0.00050
Cobalt (Co)-Total	mg/L			<0.00010	< 0.00010	< 0.00010	< 0.00010	<0.00010	< 0.00010
Copper (Cu)-Total	mg/L	0.2	0.1	0.0013	0.00131	0.00132	0.00136	0.00122	0.00136
ron (Fe)-Total	mg/L			< 0.030	0.035	< 0.030	0.06	< 0.030	< 0.030
Lead (Pb)-Total	mg/L			<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Total	mg/L			0.00567	0.00561	0.00562	0.00665	0.0051	0.00422
Magnesium (Mg)-Total	mg/L			16.4	15	16	16.6	15.7	15.6
Manganese (Mn)-Total	mg/L			0.00493	0.00493	0.00484	0.00557	0.00497	0.0047
Molybdenum (Mo)-Total	mg/L			0.0881	0.0807	0.0887	0.0846	0.0797	0.0851
Nickel (Ni)-Total	mg/L	0.3	0.15	0.0047	0.00437	0.00447	0.00473	0.004	0.00432
Phosphorus (P)-Total	mg/L			<0.30	NC	NC	NC	NC	NC
Potassium (K)-Total	mg/L			29.6	25.9	29.2	29.4	28	28.5
Selenium (Se)-Total	mg/L			0.00028	0.00021	0.00024	0.00024	0.00021	0.00024
Silicon (Si)-Total	mg/L			0.272	0.278	0.179	0.263	0.132	0.158
Silver (Ag)-Total	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L			95.5	84.6	96.7	94.2	89.2	87
Strontium (Sr)-Total	mg/L			0.748	0.695	0.739	0.763	0.704	0.72
Thallium (TI)-Total	mg/L			0.000041	0.000037	0.000039	0.000039	0.000034	0.000036
Tin (Sn)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Jranium (U)-Total	mg/L			0.00054	0.000528	0.000548	0.000563	0.000528	0.000555
Vanadium (V)-Total	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L			<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
BOD	mg/L		40	NC	NC	NC	NC	<5.0	NC
Dil and Grease	mg/L			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Foluene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
ortho-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	-			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	mg/L								
TVH (C5-C10)	mg/L			<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
FEH10-30	mg/L			<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
			2	<0.25	<0.25	<0.25	<0.25	<0.25	< 0.25
	mg/L	5	3						
TPH5-30 Diethylene Glycol Ethylene Glycol	mg/L mg/L mg/L	5	3	<5.0 <5.0	<5.0 <5.0	<5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0

1616-30		W2009L2-0	001 Criteria	Discharge	Discharge	Discharge	Discharge	Discharge	Discharge
Collection Date				26-Sep-2011	3-Oct-2011	10-Oct-2011	17-Oct-2011	24-Oct-2011	31-Oct-201
Sample Number		Grab	Average	L1064541-1	L1069414-1	L1070509-1	L1073917-1	L1077796-1	L1080236-1
A '	Units			1.0		4.0		7.0	1.0
Air Temperature	Deg C			1.9	-0.2	-4.2	-2.9	-7.2	-1.3
Weather	_			Fog	Cloudy	Cloudy	Cloudy	Cloudy	Overcast
Wind Direction	Degree			80	230	100	14	23	34
Wind Speed	km/h			17	18.5	33	30	11	15
Field Temperature	Deg C			6.1	3.9	2.3	1.8	0.3	0.3
Conductivity Field	uS/cm			834	813.4	838	852.8	NC	809.7
Field pH	рН			8.51	8.07	8.64	8.18	8.39	8.11
Conductivity	uS/cm			818	803	825	862	837	854
Hardness (as CaCO3)	mg/L			159	147	151	153	157	155
рΗ	рН	6.0 - 9.0	6.0 - 9.0	7.89	7.83	7.91	7.92	7.89	7.83
Total Suspended Solids	mg/L	25	15	4	<3.0	<3.0	<3.0	<3.0	3
Total Dissolved Solids	mg/L			477	438	478	473	493	491
Turbidity	NTU			3.64	1.32	1.57	1.1	0.85	0.73
Alkalinity, Total (as CaCO3)	mg/L			42.5	42.3	44.5	44.8	45.7	44.1
Ammonia (as N)	mg/L	4	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0065
Chloride (Cl)	mg/L			140	133	138	142	142	161
Nitrate and Nitrite (as N)	mg/L			3.49	3.34	3.49	3.65	3.93	4.15
Nitrate (as N)	mg/L			3.46	3.33	3.47	3.63	3.92	4.14
Nitrite (as N)	mg/L			0.022	0.0115	0.02	0.013	0.014	0.014
Orthophosphate-Dissolved (as P)	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L			0.0085	0.0067	0.0067	0.0066	0.0103	0.0063
Sulfate (SO4)	mg/L			123	117	121	127	127	143
Total Carbon	mg/L			13.1	13.4	13.5	13	14.1	14.5
Total Organic Carbon	mg/L			4.3	5.19	4.92	4.89	4.84	4.66
Aluminum (AI)-Total	mg/L	2	1	0.182	0.0522	0.0391	0.0333	0.026	0.0239
Antimony (Sb)-Total	mg/L	2	-	0.00125	0.00118	0.00124	0.00127	0.00119	0.0233
Arsenic (As)-Total	mg/L	1	0.5	0.00058	0.00056	0.00054	0.00059	0.0006	0.0006
Barium (Ba)-Total	mg/L	1	0.5	0.0789	0.0734	0.0746	0.0765	0.0777	0.0794
Beryllium (Be)-Total	-			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
()	mg/L								
Boron (B)-Total	mg/L			0.027	0.026	0.028	0.027	0.026	0.033
Cadmium (Cd)-Total	mg/L			<0.000030	0.000033	0.000023	<0.000040	<0.000040	< 0.000040
Calcium (Ca)-Total	mg/L			36.4	34.3	34.7	35.5	35.5	35.8
Chromium (Cr)-Total	mg/L			0.00073	<0.00050	< 0.00050	<0.00050	< 0.00050	<0.00050
Cobalt (Co)-Total	mg/L			0.00018	<0.00010	< 0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	0.2	0.1	0.00144	0.00138	0.00129	0.00138	0.00126	0.00136
ron (Fe)-Total	mg/L			0.166	0.041	0.035	< 0.030	<0.030	< 0.030
Lead (Pb)-Total	mg/L			<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050
Lithium (Li)-Total	mg/L			0.00519	0.00498	0.00467	0.00474	0.00532	0.00606
Magnesium (Mg)-Total	mg/L			16.7	14.9	15.6	15.5	16.6	15.9
Manganese (Mn)-Total	mg/L			0.00696	0.00478	0.00401	0.00363	0.00251	0.00245
Molybdenum (Mo)-Total	mg/L			0.0882	0.0796	0.083	0.0875	0.0826	0.0851
Nickel (Ni)-Total	mg/L	0.3	0.15	0.00554	0.00417	0.00444	0.00436	0.0043	0.00422
Phosphorus (P)-Total	mg/L			NC	NC	NC	NC	NC	NC
Potassium (K)-Total	mg/L			29.4	27.2	28	28.8	30.4	29.4
Selenium (Se)-Total	mg/L			0.00024	0.00022	0.00024	0.00025	0.00026	0.00024
Silicon (Si)-Total	mg/L			0.609	0.305	0.319	0.341	0.359	0.366
Silver (Ag)-Total	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L			95.1	88.4	94.4	93.7	102	97.5
Strontium (Sr)-Total	mg/L			0.708	0.707	0.703	0.711	0.717	0.73
Thallium (TI)-Total	mg/L			0.000035	0.000034	0.000035	0.000035	0.000032	0.000032
Tin (Sn)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L			0.015	<0.010	<0.010	<0.010	<0.010	<0.010
Jranium (U)-Total	mg/L			0.000594	0.00057	0.000588	0.000626	0.000576	0.000585
Vanadium (V)-Total	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L			<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
3OD	mg/L		40	NC	NC	NC	NC	NC	NC
Dil and Grease	mg/L			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Foluene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
ortho-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
neta- & para-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	-			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	mg/L								
TVH (C5-C10)	mg/L			<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
FEH10-30	mg/L			<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
	mg/L	5	3	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
TPH5-30 Diethylene Glycol Ethylene Glycol	mg/L mg/L			<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0

1616-30		W2009L2-	001 Criteria	Discharge	Discharge	Discharge	Discharge
Collection Date				7-Nov-2011	14-Nov-2011	21-Nov-2011	23-Nov-201
Sample Number		Grab	Average	L1082977-1	L1086993-1	L1088426-1	L1089110-1
Air Tomporatura	Units			-9.7	-17.6	24.0	NC
Air Temperature Weather	Deg C			-9.7 Snow	-17.6 Snow	-34.0 Fog	NC
Weather Wind Direction	Degree			310w 14	6 510w	F0g NC	NC
Wind Speed	Degree km/h			35	19	5	NC
· ·				0.5		0.2	NC
Field Temperature	Deg C				1.94		
Conductivity Field	uS/cm			817.1	941	941	NC
Field pH	pH			6.99	7.55	8.05	NC
	uS/cm			868	917	924	922
Hardness (as CaCO3)	mg/L			159	144	158	155
oH	pH	6.0 - 9.0	6.0 - 9.0	7.77	7.84	7.9	7.81
Total Suspended Solids	mg/L	25	15	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L			500	517	527	529
Turbidity	NTU			1.31	0.61	1.26	1.13
Alkalinity, Total (as CaCO3)	mg/L			47.2	47.6	48.4	47.9
Ammonia (as N)	mg/L	4	2	0.0051	0.0123	0.0246	0.0212
Chloride (Cl)	mg/L			148	149	152	154
Nitrate and Nitrite (as N)	mg/L			3.88	4.24	4.36	4.12
Nitrate (as N)	mg/L			3.86	4.22	4.34	4.1
Nitrite (as N)	mg/L			0.016	0.017	0.014	0.015
Orthophosphate-Dissolved (as P)	mg/L			<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L			0.0069	0.0081	0.0077	0.0082
Sulfate (SO4)	mg/L			133	133	136	139
Total Carbon	mg/L			13.8	14.3	13	15
Total Organic Carbon	mg/L			4.8	4.94	4.24	5.49
Aluminum (AI)-Total	mg/L	2	1	0.0225	0.0199	<0.024	0.0196
Antimony (Sb)-Total	mg/L			0.0013	0.0013	0.00135	0.00135
Arsenic (As)-Total	mg/L	1	0.5	0.00068	0.0007	0.00075	0.00072
Barium (Ba)-Total	mg/L			0.0802	0.0788	0.0793	0.0814
Beryllium (Be)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Total	mg/L			0.034	0.034	0.036	0.034
Cadmium (Cd)-Total	mg/L			<0.000050	<0.000040	<0.000030	<0.000030
Calcium (Ca)-Total	mg/L			37	33	36.5	35.7
Chromium (Cr)-Total	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	0.2	0.1	0.00132	0.00124	0.00138	0.00158
ron (Fe)-Total	mg/L	0.2	0.1	< 0.030	<0.030	< 0.030	< 0.030
Lead (Pb)-Total	mg/L			<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Total	mg/L			0.00566	0.00488	0.00574	0.00585
Magnesium (Mg)-Total	mg/L			16.3	15	16.3	16
Manganese (Mn)-Total	mg/L			0.00217	0.00298	0.00355	0.00354
Molybdenum (Mo)-Total	mg/L			0.0901	0.0873	0.0856	0.0891
• • • •			0.45				
Nickel (Ni)-Total	mg/L	0.3	0.15	0.00504	0.00477	0.00532	0.005
Phosphorus (P)-Total	mg/L			NC	NC	NC 01.0	NC
Potassium (K)-Total	mg/L			30.7	29.5	31.3	32.3
Selenium (Se)-Total	mg/L			0.00026	0.00028	0.00028	0.00028
Silicon (Si)-Total	mg/L			0.451	0.471	0.568	0.549
Silver (Ag)-Total	mg/L			<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L			102	96.7	106	106
Strontium (Sr)-Total	mg/L			0.766	0.771	0.708	0.744
Thallium (TI)-Total	mg/L			0.000023	0.000033	0.000035	0.000034
Γin (Sn)-Total	mg/L			<0.00010	<0.00010	<0.00010	<0.00010
Fitanium (Ti)-Total	mg/L			<0.010	<0.010	<0.010	<0.010
Jranium (U)-Total	mg/L			0.000641	0.000584	0.000609	0.000598
Vanadium (V)-Total	mg/L			<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L			<0.0030	<0.0030	<0.0030	0.003
BOD	mg/L		40	NC	NC	NC	NC
Dil and Grease	mg/L			<5.0	<5.0	<5.0	<5.0
Benzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
Foluene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
ortho-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050
Xylenes	mg/L			<0.00075	<0.00075	<0.00075	<0.00075
у ГVН (C5-C10)	mg/L			<0.10	<0.10	<0.10	<0.10
ГЕН10-30	mg/L			<0.15	<0.15	<0.15	<0.15
ГРН5-30	mg/L	5	3	<0.25	<0.25	<0.25	<0.25
	mg/L		5	<5.0	<5.0	<5.0	<5.0
Diethylene Glycol	1110.001				-0.0		-0.0
Diethylene Glycol Ethylene Glycol	mg/L			<5.0	<5.0	<5.0	<5.0



BHP BILLITON CANADA INC.. ATTN: DAVID G. BRUCE / RICHARD EHLERT DAVID 1102 - 4920 52ND STREET YELLOWKNIFE NT X1A 3T1 Date Received:23-JUN-11Report Date:30-JUN-11 17:33 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1022350 BHP2001 68493 6200801716

Can Dang Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

L1022350 CONTD.... PAGE 2 of 6 30-JUN-11 17:33 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1022350-1 WATER 21-JUN-11 14:30 1616- 30_APPROVAL	L1022350-2 WATER 21-JUN-11 14:31 1616-121	L1022350-3 WATER 21-JUN-11 14:32 1616-494	L1022350-4 WATER 21-JUN-11 14:44 1616-301	
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	<mark>835</mark>	<2.0	<2.0	832	
	Hardness (as CaCO3) (mg/L)	<mark>169</mark>	<0.50	<0.50	168	
	рН (рН)	7.62	5.59	5.59	7.69	
	Total Suspended Solids (mg/L)	<mark><3.0</mark>	<3.0	5.8	5.8	
	Total Dissolved Solids (mg/L)	461	<10	<10	511	
	Turbidity (NTU)	0.86	<0.10	<0.10	0.90	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	43.0	<2.0	<2.0	42.4	
	Ammonia (as N) (mg/L)	<mark><0.0050</mark>	<0.0050	<0.0050	<0.0050	
	Chloride (Cl) (mg/L)	<mark>142</mark>	<0.50	<0.50	141	
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.84</mark>	<0.0051	<0.0051	3.80	
	Nitrate (as N) (mg/L)	<mark>3.84</mark>	<0.0050	<0.0050	3.80	
	Nitrite (as N) (mg/L)	<mark><0.0050</mark>	<0.0010	<0.0010	<0.0050	
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	0.0061	<0.0020	<0.0020	0.0061	
	Sulfate (SO4) (mg/L)	<mark>122</mark>	<0.50	<0.50	121	
Organic / Inorganic Carbon		12.5	<0.50	<0.50	11.5	
	Total Organic Carbon (mg/L)	3.77	<0.50	<0.50	3.73	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0351	<0.0030	<0.0030	0.0355	
	Antimony (Sb)-Total (mg/L)	0.00118	<0.00010	<0.00010	0.00120	
	Arsenic (As)-Total (mg/L)	0.00042	<0.00010	<0.00010	0.00043	
	Barium (Ba)-Total (mg/L)	0.0882	<0.000050	<0.000050	0.0879	
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L)	0.023	<0.010	<0.010	0.024 _{DLM}	
	Cadmium (Cd)-Total (mg/L)	<0.000040	<0.000010	<0.000010	<0.000040	
	Calcium (Ca)-Total (mg/L)	38.8	<0.050	<0.050	38.7	
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Total (mg/L)	0.00131	<0.00050	<0.00050	0.00128	
	Iron (Fe)-Total (mg/L)	0.038	<0.030	<0.030	0.034	
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	0.00507	<0.00050	<0.00050	0.00541	
	Magnesium (Mg)-Total (mg/L)	17.6	<0.10	<0.10	17.4	
	Manganese (Mn)-Total (mg/L)	0.00586	<0.000050	<0.000050	0.00587	
	Molybdenum (Mo)-Total (mg/L)	0.0770	<0.000050	<0.000050	0.0759	
	Nickel (Ni)-Total (mg/L)	0.00556	<0.00050	<0.00050	0.00561	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1022350 CONTD.... PAGE 3 of 6 30-JUN-11 17:33 (MT) Version: FINAL

Sample ID Description Sampled Date Sampled Time Client ID	L1022350-1 WATER 21-JUN-11 14:30 1616- 30_APPROVAL	L1022350-2 WATER 21-JUN-11 14:31 1616-121	L1022350-3 WATER 21-JUN-11 14:32 1616-494	L1022350-4 WATER 21-JUN-11 14:44 1616-301	
Analyte					
Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	
Potassium (K)-Total (mg/L)	28.1	<2.0	<2.0	28.0	
Selenium (Se)-Total (mg/L)	0.00021	<0.00010	<0.00010	0.00021	
Silicon (Si)-Total (mg/L)	0.410	<0.050	<0.050	0.412	
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium (Na)-Total (mg/L)	86.7	<2.0	<2.0	86.3	
Strontium (Sr)-Total (mg/L)	0.740	<0.00010	<0.00010	0.728	
Thallium (TI)-Total (mg/L)	0.000029	<0.000010	<0.000010	0.000028	
Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
Uranium (U)-Total (mg/L)	0.000459	<0.000010	<0.000010	0.000449	
Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030	
BOD (mg/L)	<5.0	<5.0	<5.0	<5.0	
Oil and Grease (mg/L)	<mark><5.0</mark>	<5.0	<5.0	<5.0	
Benzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	<0.00050	<0.00050	<0.00050	<0.00050	
	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	<mark><0.0010</mark>	<0.0010	<0.0010	<0.0010	
ortho-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
meta- & para-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	<mark><0.00075</mark>	<0.00075	<0.00075	<0.00075	
-	<mark>100</mark>	96	96	89	
Surrogate: 1,4-Difluorobenzene (SS) (%)	<mark>101</mark>	100	101	100	
	<mark><0.10</mark>	<0.10	<0.10	<0.10	
TEH10-30 (mg/L)	<mark><0.15</mark>	<0.15	<0.15	<0.15	
TPH5-30 (mg/L)	<mark><0.25</mark>	<0.25	<0.25	<0.25	
	Description Sampled Date Sampled Time Client ID Analyte Phosphorus (P)-Total (mg/L) Potassium (K)-Total (mg/L) Selenium (Se)-Total (mg/L) Silicon (Si)-Total (mg/L) Silicon (Si)-Total (mg/L) Sodium (Na)-Total (mg/L) Strontium (Sr)-Total (mg/L) Thallium (TI)-Total (mg/L) Titanium (Ti)-Total (mg/L) Titanium (Ti)-Total (mg/L) Vanadium (V)-Total (mg/L) Zinc (Zn)-Total (mg/L) BOD (mg/L) Oil and Grease (mg/L) Benzene (mg/L) Toluene (mg/L) Toluene (mg/L) ortho-Xylene (mg/L) warea & para-Xylene (mg/L) Xylenes (mg/L) Surrogate: 1,4-Difluorobenzene (SS) (%) Surrogate: 1,4-Difluorobenzene (SS) (%)	Description Sampled Date Sampled Time Client ID WATER 21-JUN-11 14:30 (21-JUN-11) Analyte - Phosphorus (P)-Total (mg/L) <0.30 28.1 Potassium (K)-Total (mg/L) <0.00021	Description Sampled Time Client ID WATER 21-JUN-11 14.30 1895 WATER 21-JUN-11 14.31 1816-121 Analyte Client ID WATER 21-JUN-11 14.31 1816-121 Analyte Phosphorus (P)-Total (mg/L) Potassium (K)-Total (mg/L) Selenium (Se)-Total (mg/L) Solum (Na)-Total (mg/L) Titanium (Ti)-Total (mg/L) Uranium (V)-Total (mg/L) Vanadium (V)-Total (mg/L) Uranium (Ti)-Total (mg/L) Uranium (V)-Total (mg/L) BoD (mg/L)	Description Sampled Date Sampled Date Sampled Date Discription Client ID WATER 21-JUN-11 14:30 1616-121 WATER 21-JUN-11 14:32 1616-494 Analyte Male 14:32 1616-494 WATER 21-JUN-11 14:32 1616-121 WATER 21-JUN-11 14:32 1616-121 WATER 21-JUN-11 14:32 1616-121 Analyte Composition (Not Client ID) Composition (Not Client ID) WATER 21-JUN-11 WATER 21-JUN-11 WATER 21-JUN-11 Analyte Composition (Not Client ID) Composition (Not Client ID) WATER 21-JUN-11 WATER 21-JUN-11 Phosphorus (P)-Total (mg/L) Composition (S)-Total (mg/L) WATER 28.1 Composition (S)-Total (mg/L) Composition (S)-Composition (S)-Total (mg/L) Composition (S)-Composition (S)-Composition (S)-Composition (C)-Dotal (mg/L) Composition (S)-Composi	Description Sampled Data Sampled Time Client ID WATER 21-JUN-11 (143) 1618-121 WATER 21-JUN-11 14:31 1618-121 WATER 21-JUN-11 14:32 1618-121 WATER 21-JUN-11 14:43 1618-121 WATER 21-JUN-11 14:43 1618-121 WATER 21-JUN-11 14:43 1618-121 WATER 21-JUN-11 14:43 1618-121 WATER 21-JUN-11 14:43 1618-121 WATER 21-JUN-11 14:44 WATER 14:44 WATER 14:44 WATER 14:44 WATER 14:44 WATER 14:44 WATER 14:44 Parametric Subme

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Qualifiers for Individual Parameters Listed:

Qualifier	Description		
DLM	Detection Limit Adjus	ted For Sample Matrix Effects	
MS-B	Matrix Spike recovery	could not be accurately calculated due to h	igh analyte background in sample.
est Method R	eferences:		
ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2
This analysis is colourimetric m			kalinity". Total Alkalinity is determined using the methyl orange
ANIONS-CL-IC-	/A Water	Chloride by Ion Chromatography	APHA 4110 B.
		edures adapted from APHA Method 4110 B. Determination of Inorganic Anions by Ion C	. "Ion Chromatography with Chemical Suppression of Eluent hromatography".
NIONS-N+N-C	ALC-VA Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nitr	ite (as N) is a calculate	d parameter. Nitrate and Nitrite (as N) = Nitr	rite (as N) + Nitrate (as N).
NIONS-NO2-IC	-VA Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is detected by UV		edures adapted from EPA Method 300.0 "De	etermination of Inorganic Anions by Ion Chromatography". Nitrite is
NIONS-NO3-IC	-VA Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is detected by UV		edures adapted from EPA Method 300.0 "De	etermination of Inorganic Anions by Ion Chromatography". Nitrate is
NIONS-SO4-IC	-VA Water	Sulfate by Ion Chromatography	APHA 4110 B.
		edures adapted from APHA Method 4110 B. Determination of Inorganic Anions by Ion C	. "Ion Chromatography with Chemical Suppression of Eluent hromatography".
S-T-CCMS-VA	Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Publi States Environr	c Health Association, a mental Protection Agen	nd with procedures adapted from "Test Met cy (EPA). The procedures may involve pre	the Examination of Water and Wastewater" published by the hods for Evaluating Solid Waste" SW-846 published by the United liminary sample treatment by acid digestion, using hotblock, or pupled plasma - mass spectrometry (modifed from EPA Method
BOD5-VA	Water	Biochemical Oxygen Demand- 5 day	APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND
oxygen demand dissolved oxyge	d (BOD) are determined en meter. Dissolved BC	by diluting and incubating a sample for a s	- "Biochemical Oxygen Demand (BOD)". All forms of biochemical pecified time period, and measuring the oxygen depletion using a sample through a glass fibre filter prior to dilution. Carbonaceous prior to incubation.
BOD5-VA	Water	Biochemical Oxygen Demand- 5 day	APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND
oxygen demand dissolved oxyge	d (BOD) are determined en meter. Dissolved BC	by diluting and incubating a sample for a s	- "Biochemical Oxygen Demand (BOD)". All forms of biochemical pecified time period, and measuring the oxygen depletion using a sample through a glass fibre filter prior to dilution. Carbonaceous prior to incubation.
ARBONS-TC-V	A Water	Total carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	carried out using proce	edures adapted from APHA Method 5310 "T	otal Organic Carbon (TOC)".
ARBONS-TOC	-VA Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	carried out using proce	edures adapted from APHA Method 5310 "T	otal Organic Carbon (TOC)".
C-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is electrode.	carried out using proce	edures adapted from APHA Method 2510 "C	Conductivity". Conductivity is determined using a conductivity
PH-LL-SF-FID-		EPH in Waters by GCFID	BCMOE EPH GCFID
Contaminated S entire water sar with flame ioniz	Sites "Extractable Petro nple with dichloromethe	leum Hydrocarbons in Water by GC/FID" (V ane. The extract is then solvent exchanged D). EPH results include Polycyclic Aromatic	vironment, Lands and Parks (BCMELP) Analytical Method for /ersion 2.1, July 1999). The procedure involves extraction of the to toluene and analysed by capillary column gas chromatography Hydrocarbons (PAH) and are therefore not equivalent to Light and
ARDNESS-CA	LC-VA Water	Hardness	APHA 2340B
		ncentrations are preferentially used for the I	and Magnesium concentrations, expressed in CaCO3 equivalents. hardness calculation.

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. OGG-SF-VA Water Oil & Grease by Gravimetric BCMOE GRAVIMETRIC This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. **PH-MAN-VA** Water pH by Manual Meter APHA 4500-H "pH Value" This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode. It is recommended that this analysis be conducted in the field. APHA 4500-H pH Value PH-MAN-VA Water pH by Manual Meter This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode. It is recommended that this analysis be conducted in the field. PH-PCT-VA pH by Meter (Automated) APHA 4500-H "pH Value" Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PH-PCT-VA APHA 4500-H pH Value Water pH by Meter (Automated) This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Water Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

APHA 2130 "Turbidity"

Turbidity by Meter

Water

TURBIDITY-VA

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity"	'. Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried ou	t using proce	edures adapted from APHA Method 2130 "Turbidity"	Turbidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flam	e-ionization o	e extraction of the sample prior to analysis for Volatil detection (GC/FID). The VH analysis is carried out ir ELP) Analytical Method for Contaminated Sites "Vola	
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 8260, 5035A, 5021
• •	0	s, is heated in a sealed vial to equilibrium. The head neasured using mass spectrometry detection.	space from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 8260B, BCMELP CSR METHOD
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Calculation of Total Xylene	es		
		ntrations of the ortho, meta, and para Xylene isomers lue no less than the square root of the sum of the so	s. Results below detection limit (DL) are treated as zero. puares of the DLs of the individual Xylenes.
** ALS test methods may inc	orporate mo	difications from specified reference methods to impr	ove performance.
The last two letters of the a	bove test co	de(s) indicate the laboratory that performed analytica	al analysis for that test. Refer to the list below:
Laboratory Definition Cod	e Labor	atory Location	

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

mg/kg - milligrams per kilogram based on dry weight of sample.

- mg/kg wwt milligrams per kilogram based on wet weight of sample.
- mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
- mg/L milligrams per litre.

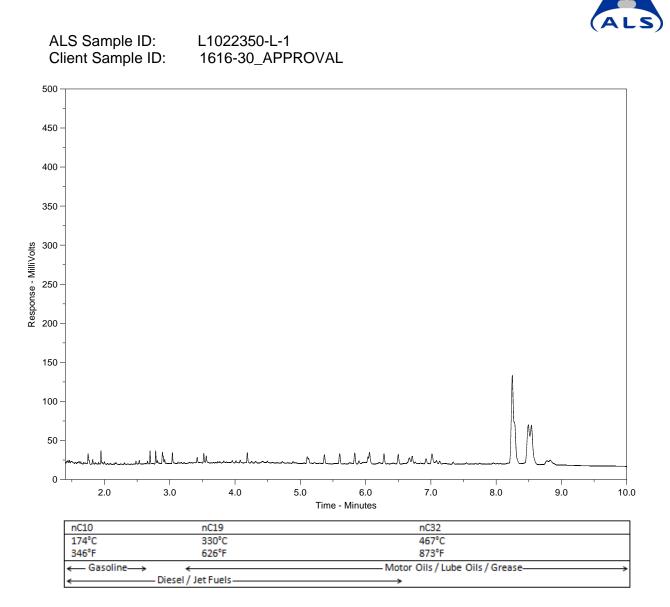
< - Less than.

VA

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

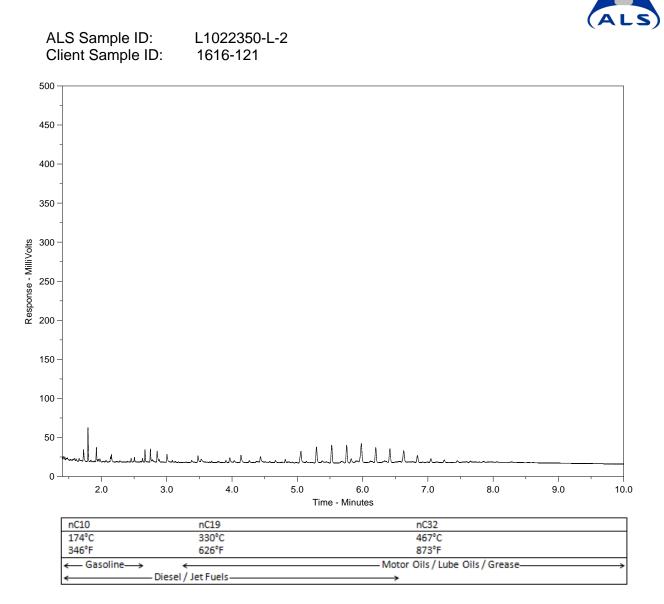
Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

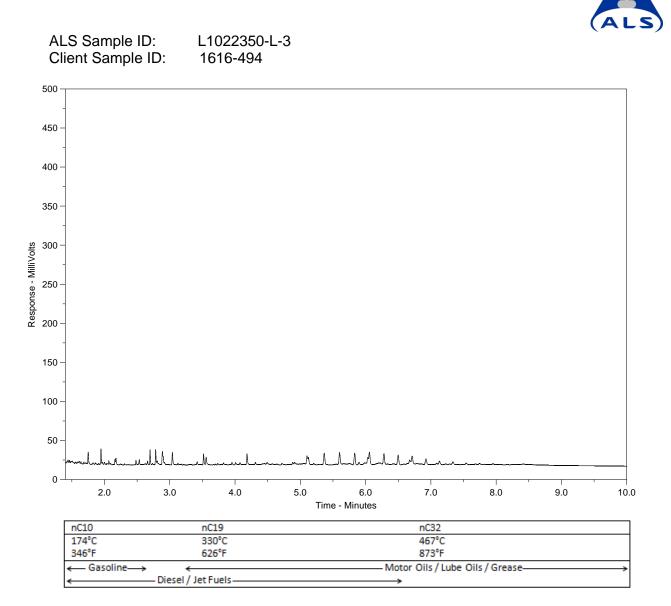
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



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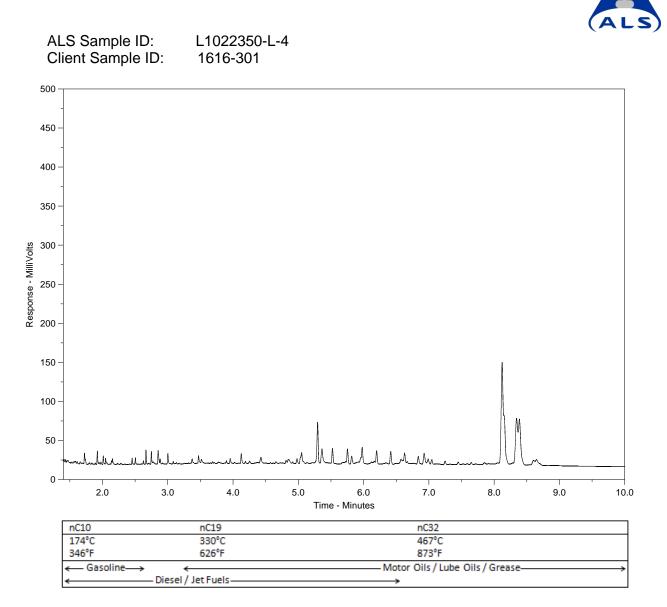
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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS Laboratory Grou

ANALYTICAL CHEMISTRY & TESTING SERVICES

RUSH

Form 68493

BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

BHP Contacts: David Bruce/ Richard EhlertDavid

Tel: 867-880-2157 Fax: 867-880-4012

-bhpbittiton

Priority	processing
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8081 Lougheed Highway . Suite 100 . Burnaby,

Tet: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700 ALS Contact: Can Dang

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ALS Contact: Can Dang			-	57		NS		5		· · · · ·			
L1022350	As, Se By CCMS	BODS	UII and Grease	SNP-0013 Major Ions	SNP-0013 Physical Parameters	SNP-0013 Total Metals	TDS	Total Organic Carbon	TPH	TSS	ı		
For Lab Use Station ID Matrix Date Time Init	CMS		:ase 	ar Ions	ysical brs trients	Metals		Carbon onia			I		
1616-30_Approval Water 21-Jun-2011 02:30 PM JP 1 1616-121 Water 21-Jun-2011 02:31 PM JP 1 1616-494 Water 21-Jun-2011 02:32 PM JP 1 1616-301 Water 21-Jun-2011 02:32 PM JP 1 1616-301 Water 21-Jun-2011 02:44 PM JP 1 1 616-301 Water 21-Jun-2011 02:44 PM JP 1 3	1 1 1 1 1 1 1 1	1 1 1 1	1 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1 1	1 1 1 1	1 1 1 1	L 1 L 1 L 1 E 1	ВНР2 ВНР2 ВНР2 ВНР2 ВНР2			
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Billing Code: BHP2001			!	'				•	1	USE ONLY			
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				.complian	ce.team@b	opollite	111.COM;-		6	600	lers	in to	tal.
					-	/D ·	6, 5	5.9	, 6	, 7.9	, /0.3	in to: 36.5	

CHAIN OF CUSTODY FORM



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 13-JUL-11 Report Date: 27-JUL-11 16:06 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1031080 BHP2001 68533 6200801716 68533

Comments: No glycols bottle was received for sample ID 1616-494. Glycols analysis could not be performed.

Can Dang Senior Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

Environmental 💭

www.alsglobal.com

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ALS ENVIRONMENTAL ANALYTICAL REPORT

L1031080 CONTD.... PAGE 2 of 6 27-JUL-11 16:06 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1031080-1 WATER 11-JUL-11 (16:04) (16:6- 30_DISCHARGE	L1031080-2 WATER 11-JUL-11 16:04 1616-121	L1031080-3 WATER 11-JUL-11 16:04 1616-494	L1031080-4 WATER 11-JUL-11 16:15 1616-302	
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	747	<2.0	<2.0	748	
	Hardness (as CaCO3) (mg/L)	<mark>150</mark>	<0.50	<0.50	148	
	рН (рН)	7.87	5.74	5.71	7.80	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	<mark>456</mark>	<10	<10	472	
	Turbidity (NTU)	0.73	<0.10	<0.10	0.74	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	38.3	<2.0	<2.0	37.5	
	Ammonia (as N) (mg/L)	<mark><0.0050</mark>	<0.0050	<0.0050	0.0077	
	Chloride (Cl) (mg/L)	<mark>127</mark>	<0.50	<0.50	127	
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.36</mark>	<0.0051	<0.0051	3.36	
	Nitrate (as N) (mg/L)	<mark>3.35</mark>	<0.0050	<0.0050	3.35	
	Nitrite (as N) (mg/L)	0.0080	<0.0010	<0.0010	0.0084	
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	0.0060	<0.0020	<0.0020	0.0070	
	Sulfate (SO4) (mg/L)	<mark>109</mark>	<0.50	<0.50	109	
Organic / Inorganic Carbon		11.4	<0.50	<0.50	11.8	
	Total Organic Carbon (mg/L)	4.22	0.87	<0.50	3.99	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0298	<0.0030	<0.0030	0.0260	
	Antimony (Sb)-Total (mg/L)	0.00117	<0.00010	<0.00010	0.00116	
	Arsenic (As)-Total (mg/L)	0.00045	<0.00010	<0.00010	0.00043	
	Barium (Ba)-Total (mg/L)	0.0944	<0.000050	<0.000050	0.0841	
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L)	0.028	<0.010	<0.010	0.027	
	Cadmium (Cd)-Total (mg/L)	0.000068	<0.000010	<0.000010	0.000031	
	Calcium (Ca)-Total (mg/L)	34.7	<0.050	<0.050	34.4	
	Chromium (Cr)-Total (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Total (mg/L)	0.00156	<0.00050	<0.00050	0.00128	
	Iron (Fe)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	0.00520	<0.00050	<0.00050	0.00524	
	Magnesium (Mg)-Total (mg/L)	15.3	<0.10	<0.10	15.1	
	Manganese (Mn)-Total (mg/L)	0.00395	<0.000050	<0.000050	0.00349	
	Molybdenum (Mo)-Total (mg/L)	<mark>0.0710</mark>	<0.000050	<0.000050	0.0719	
	Nickel (Ni)-Total (mg/L)	0.00502	<0.00050	<0.00050	0.00450	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1031080 CONTD.... PAGE 3 of 6 27-JUL-11 16:06 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1031080-1 WATER (11-JUL-11) (16:04) (1616- (30_DISCHARGE)	L1031080-2 WATER 11-JUL-11 16:04 1616-121	L1031080-3 WATER 11-JUL-11 16:04 1616-494	L1031080-4 WATER 11-JUL-11 16:15 1616-302	
Grouping	Analyte					
WATER						
Total Metals	Phosphorus (P)-Total (mg/L)	<mark><0.30</mark>	<0.30	<0.30	<0.30	
	Potassium (K)-Total (mg/L)	25.4	<2.0	<2.0	25.2	
	Selenium (Se)-Total (mg/L)	0.00019	<0.00010	<0.00010	0.00018	
	Silicon (Si)-Total (mg/L)	0.279	<0.050	<0.050	0.279	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	82.1	<2.0	<2.0	80.3	
	Strontium (Sr)-Total (mg/L)	0.670	<0.00010	<0.00010	0.681	
	Thallium (TI)-Total (mg/L)	0.000033	<0.000010	<0.000010	0.000033	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	0.000477	<0.000010	<0.000010	0.000470	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030	
Aggregate Organics	Oil and Grease (mg/L)	< <u>5.0</u>	<5.0	<5.0	<5.0	
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Ethylbenzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Styrene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Toluene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	ortho-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	meta- & para-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	<mark>.98</mark>	86	100	101	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	<mark>.98</mark>	99	100	100	
Hydrocarbons	TVH (C5-C10) (mg/L)	<mark><0.10</mark>	<0.10	<0.10	<0.10	
	TEH10-30 (mg/L)	<mark><0.15</mark>	<0.15	<0.15	<0.15	
	TPH5-30 (mg/L)	<mark><0.25</mark>	<0.25	<0.25	<0.25	
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>	<5.0		<5.0	
	Ethylene Glycol (mg/L)	<mark><5.0</mark>	<5.0		<5.0	
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>	<5.0		<5.0	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Qualifiers for Individual Parameters Listed:

Qualifier	Description		
MB-LOR	Method Blank excee analysis is required.	ds ALS DQO. LORs adjusted for samples	with positive hits below 5 times blank level. Please contact ALS if re-
est Method Re	eferences:		
ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated	I) APHA 310.2
This analysis is colourimetric m	0.	edures adapted from EPA Method 310.2	Alkalinity". Total Alkalinity is determined using the methyl orange
ANIONS-CL-IC-	A Water	Chloride by Ion Chromatography	APHA 4110 B.
		edures adapted from APHA Method 4110 "Determination of Inorganic Anions by Ion	B. "Ion Chromatography with Chemical Suppression of Eluent Chromatography".
ANIONS-N+N-C	ALC-VA Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nitri	te (as N) is a calculate	ed parameter. Nitrate and Nitrite (as N) = N	Vitrite (as N) + Nitrate (as N).
NIONS-NO2-IC	-VA Water	Nitrite in Water by Ion Chromatograph	y EPA 300.0
This analysis is detected by UV		edures adapted from EPA Method 300.0	Determination of Inorganic Anions by Ion Chromatography". Nitrite is
NIONS-NO3-IC	-VA Water	Nitrate in Water by Ion Chromatograph	EPA 300.0
This analysis is detected by UV		edures adapted from EPA Method 300.0 '	Determination of Inorganic Anions by Ion Chromatography". Nitrate is
NIONS-SO4-IC	-VA Water	Sulfate by Ion Chromatography	APHA 4110 B.
		edures adapted from APHA Method 4110 "Determination of Inorganic Anions by Ion	B. "Ion Chromatography with Chemical Suppression of Eluent Chromatography".
S-T-CCMS-VA	Water	Total Arsenic in Water by CRC ICPMS	S APHA 3030 B&E / EPA SW-846 6020A
American Public States Environm	c Health Association, a nental Protection Ager	and with procedures adapted from "Test M ncy (EPA). The procedures may involve p	for the Examination of Water and Wastewater" published by the lethods for Evaluating Solid Waste" SW-846 published by the United reliminary sample treatment by acid digestion, using hotblock, or coupled plasma - mass spectrometry (modifed from EPA Method
CARBONS-TC-V	A Water	Total carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	carried out using proc	edures adapted from APHA Method 5310	"Total Organic Carbon (TOC)".
C-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is electrode.	carried out using proc	edures adapted from APHA Method 2510	"Conductivity". Conductivity is determined using a conductivity
PH-LL-SF-FID-	VA Water	EPH in Waters by GCFID	BCMOE EPH GCFID
Contaminated S entire water sar with flame ioniz	Sites "Extractable Petron nple with dichlorometh ation detection (GC/FI	oleum Hydrocarbons in Water by GC/FID" nane. The extract is then solvent exchange	Environment, Lands and Parks (BCMELP) Analytical Method for (Version 2.1, July 1999). The procedure involves extraction of the ed to toluene and analysed by capillary column gas chromatography ic Hydrocarbons (PAH) and are therefore not equivalent to Light and
LY-WAT-FID-V	A Water	Glycols in Water by GCFID	SW-846, METHOD 8015B, EPA
United States E chloride to form	nvironmental Protection the corresponding be	on Agency (EPA). The procedure involves	valuating Solid Waste" SW-846, Method 8015B, published by the s treatment of the sample with a strong base (NaOH) and benzoyl nen extracted with iso-octane and the extract is analyzed by capillary
ARDNESS-CAI	-C-VA Water	Hardness	APHA 2340B
,		ess) is calculated from the sum of Calciur oncentrations are preferentially used for th	n and Magnesium concentrations, expressed in CaCO3 equivalents. e hardness calculation.
ET-T-CCMS-V	A Water	Total Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Publi States Environr	c Health Association, a nental Protection Ager	and with procedures adapted from "Test M ncy (EPA). The procedures may involve p	for the Examination of Water and Wastewater" published by the lethods for Evaluating Solid Waste" SW-846 published by the United reliminary sample treatment by acid digestion, using hotblock, or coupled plasma - mass spectrometry (modifed from EPA Method
IET-TOT-ICP-V	A Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
This analysis is			for the Examination of Water and Wastewater" published by the lethods for Evaluating Solid Waste" SW-846 published by the United

		(EPA). The procedures may involve preliminary samp Instrumental analysis is by inductively coupled plasma	
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an determine Oil and Grease.	extraction of	the entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion	01	ures adapted from APHA Method 4500-P "Phosphorus e.	". Total Phosphorous is determined colourimetrically
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H "pH Value"
This analysis is carried out electrode.	using proced	ures adapted from APHA Method 4500-H "pH Value". 1	Γhe pH is determined in the laboratory using a pH
It is recommended that this	analysis be o	conducted in the field.	
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H pH Value
This analysis is carried out electrode.	using proced	ures adapted from APHA Method 4500-H "pH Value". 1	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using proced	ures adapted from APHA Method 4500-H "pH Value". 1	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be o	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using proced	ures adapted from APHA Method 4500-H "pH Value". 1	Γhe pH is determined in the laboratory using a pH
It is recommended that this	analysis be	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus een lab or field filtered through a 0.45 micron membran	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ection Agency	ures adapted from "Standard Methods for the Examina d with procedures adapted from "Test Methods for Eval r (EPA). The procedures may involve preliminary samp I analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids ole through a glass fibre filter, TDS is determined by eva	
тос-тх	Water	Total Organic Carbon in Water	EPA 415.1 TOTAL ORGANIC CARBON (TOC)
	ion or wet ch	Method 415.1 - Total Organic Carbon in Water. Orgar emical oxidation. The CO2 formed can be measured dir on detector.	
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proced	ures adapted from APHA Method 2130 "Turbidity". Turl	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using proced	ures adapted from APHA Method 2130 "Turbidity". Turl	bidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD

This procedure involves the headspace extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999).

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021					
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.								
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021					
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION					
Calculation of Total Xylenes								

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA
ТХ	ALS ENVIRONMENTAL - HOUSTON, TEXAS, USA

Chain of Custody Numbers:

68533

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Short Holding Time ^{'P}

Rush Processing

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50:38225

(ALS)



Send Analytical Results to:

●**●** bhpbilliton

BHP Billiton Diamonds Inc. ONPOILUI # 1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012

CHAIN OF CUSTODY FORM BHP Contacts: David Bruce/ Richard EhlertDavid

Contact: C	an Dang									:	SN	<u>s</u> s	INS	ļ		a i			ı İ	1			ļ
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compliance.team@bhpbilliton.com;



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:21-JUL-11Report Date:02-AUG-11 11:40 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1034607 BHP2001 68547 6200801716 68547

Can Dang Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1034607-1 WATER 18-JUL-11 10:25 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	761		
	Hardness (as CaCO3) (mg/L)	149		
	рН (рН)	7.79		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	475		
	Turbidity (NTU)	0.75		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	<mark>39.3</mark>		
	Ammonia (as N) (mg/L)	0.0113		
	Chloride (Cl) (mg/L)	<mark>135</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.58</mark>		
	Nitrate (as N) (mg/L)	<mark>3.57</mark>		
	Nitrite (as N) (mg/L)	0.010		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0071		
	Sulfate (SO4) (mg/L)	<mark>115</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>10.8</mark>		
	Total Organic Carbon (mg/L)	<mark>3.71</mark>		
Total Metals	Aluminum (Al)-Total (mg/L)	<mark>0.0205</mark>		
	Antimony (Sb)-Total (mg/L)	0.00116		
	Arsenic (As)-Total (mg/L)	0.00047		
	Barium (Ba)-Total (mg/L)	<mark>0.0753</mark>		
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.028 _{DLM}		
	Cadmium (Cd)-Total (mg/L)	<0.000030		
	Calcium (Ca)-Total (mg/L)	34.3		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00121		
	Iron (Fe)-Total (mg/L)	<0.030		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00502		
	Magnesium (Mg)-Total (mg/L)	15.3		
	Manganese (Mn)-Total (mg/L)	0.00349		
	Molybdenum (Mo)-Total (mg/L)	0.0758		
	Nickel (Ni)-Total (mg/L)	0.00457		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1034607 CONTD.... PAGE 3 of 6 02-AUG-11 11:40 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1034607-1 WATER 18-JUL-11 10:25 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Total Metals	Phosphorus (P)-Total (mg/L)	<0.30		
	Potassium (K)-Total (mg/L)	25.9		
	Selenium (Se)-Total (mg/L)	0.00021		
	Silicon (Si)-Total (mg/L)	0.305		
	Silver (Ag)-Total (mg/L)	<0.000010		
	Sodium (Na)-Total (mg/L)	83.7		
	Strontium (Sr)-Total (mg/L)	0.668		
	Thallium (TI)-Total (mg/L)	0.000033		
	Tin (Sn)-Total (mg/L)	<0.00010		
	Titanium (Ti)-Total (mg/L)	<0.010		
	Uranium (U)-Total (mg/L)	0.000473		
	Vanadium (V)-Total (mg/L)	<0.0010		
	Zinc (Zn)-Total (mg/L)	<0.0030		
Aggregate Organics	Oil and Grease (mg/L)	<5.0		
Volatile Organic Compounds	Benzene (mg/L)	<0.00050		
	Ethylbenzene (mg/L)	<0.00050		
	Styrene (mg/L)	<0.00050		
	Toluene (mg/L)	<0.00050		
	ortho-Xylene (mg/L)	<0.00050		
	meta- & para-Xylene (mg/L)	<0.00050		
	Xylenes (mg/L)	<0.00075		
	Surrogate: 4-Bromofluorobenzene (SS) (%)	94		
	Surrogate: 1,4-Difluorobenzene (SS) (%)	97		
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10		
	TEH10-30 (mg/L)	<0.15		
	TPH5-30 (mg/L)	<0.25		
Glycols	Diethylene Glycol (mg/L)	<5.0		
	Ethylene Glycol (mg/L)	<5.0		
	1,2-Propylene Glycol (mg/L)	<5.0		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Qualifiers for Individual Parameters Listed:

Qualifier Description DLM Detection Limit Adjusted For Sample Matrix Effects **Test Method References: ALS Test Code** Matrix Method Reference** **Test Description** ALK-COL-VA Water Alkalinity by Colourimetric (Automated) APHA 310.2 This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. ANIONS-CL-IC-VA APHA 4110 B. Water Chloride by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". ANIONS-N+N-CALC-VA Water Nitrite & Nitrate in Water (Calculation) EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). ANIONS-NO2-IC-VA Water Nitrite in Water by Ion Chromatography FPA 300.0 This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. FPA 300.0 ANIONS-NO3-IC-VA Water Nitrate in Water by Ion Chromatography This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". AS-T-CCMS-VA Water Total Arsenic in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). CARBONS-TC-VA Water Total carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC) This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". APHA 5310 TOTAL ORGANIC CARBON (TOC) **CARBONS-TOC-VA** Water Total organic carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc. This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. **EPH-LL-SF-FID-VA** Water EPH in Waters by GCFID BCMOE EPH GCFID This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). APHA 2340B HARDNESS-CALC-VA Water Hardness Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. **MET-T-CCMS-VA** Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp nstrumental analysis is by inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an e determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out a after persulphate digestion of		ures adapted from APHA Method 4500-P "Phosphorus'	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus" een lab or field filtered through a 0.45 micron membrand	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	ociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
	01	•	are determined gravimetrically. Total Dissolved Solids aporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turb	pidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turk	oidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame-	ionization de	extraction of the sample prior to analysis for Volatile Hy tection (GC/FID). The VH analysis is carried out in accord P) Analytical Method for Contaminated Sites "Volatile H	ordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
•	-	is heated in a sealed vial to equilibrium. The headspac asured using mass spectrometry detection.	e from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero.

The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
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ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68547

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. mg/kg - milligrams per kilogram based on dry weight of sample. mg/kg wwt - milligrams per kilogram based on wet weight of sample. mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

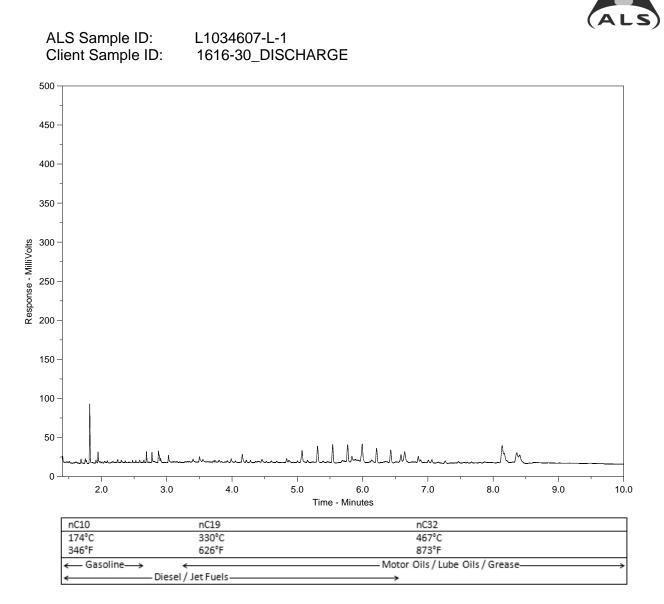
mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

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ANALYTICAL CHEMISTRY & TESTING SERVICES



Form 68547

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	lighway • Suite 100 • Burnaby, 3 Toll Free: 1-800-665-0243 FAX: 604-253-6700	CHAIN O	F CUSTODY		Contacts: David Bruce/ Richard EhlertDav	/id
			1			
ALS Contact: Ca	Station ID Matrix Date Time	Giycols BTEX+TVH As, Se By CCMS	SNP-0013 Total Metals SNP-0013 Physical Parameters SNP-0013 Nutrients , SNP-0013 Major Ions Oil and Grease	TPH 7 Total Organic Carbon Total Ammonia 1 TDS 7	TSS .	
	1616-30_Discharge 🗸 Water 18-Jui-2011 10:25 AM		1 1 1 1	1 1 1 1 1	BHP2	
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Special Instruc	equired: 1 Week Rush on All Results tions (Billing details, QC reporting, etc): BHP2001] No [N/A	Received by:	

compliance.team@bhpbilliton.com;



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 29-JUL-11 Report Date: 09-AUG-11 17:53 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1038290

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68560 68560 6200801716

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	Sample ID Description Sampled Date Sampled Time Client ID	L1038290-1 WATER 25-JUL-11 16:45 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	<mark>818</mark>		
	Hardness (as CaCO3) (mg/L)	157		
	рН (рН)	7.66		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	478		
	Turbidity (NTU)	0.68		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	40.4		
	Ammonia (as N) (mg/L)	0.0095		
	Chloride (Cl) (mg/L)	<mark>141</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>4.03</mark>		
	Nitrate (as N) (mg/L)	<mark>4.01</mark>		
	Nitrite (as N) (mg/L)	0.020		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0073		
	Sulfate (SO4) (mg/L)	<mark>122</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	12.1		
	Total Organic Carbon (mg/L)	<mark>3.93</mark>		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0192		
	Antimony (Sb)-Total (mg/L)	0.00126		
	Arsenic (As)-Total (mg/L)	0.00054		
	Barium (Ba)-Total (mg/L)	<mark>0.0844</mark>		
	Beryllium (Be)-Total (mg/L)	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<mark><0.00050</mark>		
	Boron (B)-Total (mg/L)	0.029 DLM		
	Cadmium (Cd)-Total (mg/L)	<0.000025		
	Calcium (Ca)-Total (mg/L)	<mark>36.0</mark>		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00135		
	Iron (Fe)-Total (mg/L)	<0.030		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00564		
	Magnesium (Mg)-Total (mg/L)	16.4		
	Manganese (Mn)-Total (mg/L)	0.00356		
	Molybdenum (Mo)-Total (mg/L)	0.0811		
	Nickel (Ni)-Total (mg/L)	0.00455		

L1038290 CONTD.... PAGE 3 of 6 09-AUG-11 17:53 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1038290-1 WATER 25-JUL-11 16:45 1616- 30_DISCHARGE
Grouping	Analyte	
WATER		
Total Metals	Phosphorus (P)-Total (mg/L)	<0.30
	Potassium (K)-Total (mg/L)	28.0
	Selenium (Se)-Total (mg/L)	0.00024
	Silicon (Si)-Total (mg/L)	0.238
	Silver (Ag)-Total (mg/L)	<0.000010
	Sodium (Na)-Total (mg/L)	91.0
	Strontium (Sr)-Total (mg/L)	0.725
	Thallium (TI)-Total (mg/L)	0.000035
	Tin (Sn)-Total (mg/L)	<mark><0.00010</mark>
	Titanium (Ti)-Total (mg/L)	<mark><0.010</mark>
	Uranium (U)-Total (mg/L)	0.000502
	Vanadium (V)-Total (mg/L)	<mark><0.0010</mark>
	Zinc (Zn)-Total (mg/L)	<mark><0.0030</mark>
Aggregate Organics	Oil and Grease (mg/L)	<mark><5.0</mark>
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>
	Ethylbenzene (mg/L)	<0.00050
	Styrene (mg/L)	<0.00050
	Toluene (mg/L)	<0.00050
	ortho-Xylene (mg/L)	<0.00050
	meta- & para-Xylene (mg/L)	<0.00050
	Xylenes (mg/L)	<0.00075
	Surrogate: 4-Bromofluorobenzene (SS) (%)	102
	Surrogate: 1,4-Difluorobenzene (SS) (%)	101
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10
	TEH10-30 (mg/L)	оль <0.16
	TPH5-30 (mg/L)	<0.25
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>
	Ethylene Glycol (mg/L)	<mark><5.0</mark>
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>

Qualifiers for Individual Parameters Listed:

Qualifier	Description		
DLB	Detection limit was ra	ised due to detection of analyte at comparable	level in Method Blank.
DLM	Detection Limit Adjus	ted For Sample Matrix Effects	
est Method F	References:		
ALS Test Code	e Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2
This analysis i colourimetric r	01	dures adapted from EPA Method 310.2 "Alkalin	nity". Total Alkalinity is determined using the methyl orange
ANIONS-CL-IC	-VA Water	Chloride by Ion Chromatography	APHA 4110 B.
		edures adapted from APHA Method 4110 B. "lo Determination of Inorganic Anions by Ion Chror	n Chromatography with Chemical Suppression of Eluent natography".
ANIONS-N+N-C	CALC-VA Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nit	trite (as N) is a calculate	d parameter. Nitrate and Nitrite (as N) = Nitrite ((as N) + Nitrate (as N).
ANIONS-NO2-I	C-VA Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis i detected by U		edures adapted from EPA Method 300.0 "Detern	mination of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-I	C-VA Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis i detected by U	01	edures adapted from EPA Method 300.0 "Detern	mination of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-I	C-VA Water	Sulfate by Ion Chromatography	APHA 4110 B.
		dures adapted from APHA Method 4110 B. "lo Determination of Inorganic Anions by Ion Chror	n Chromatography with Chemical Suppression of Eluent natography".
AS-T-CCMS-VA	A Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
States Enviror	nmental Protection Agen	cy (EPA). The procedures may involve prelimin	s for Evaluating Solid Waste" SW-846 published by the United hary sample treatment by acid digestion, using hotblock, or ed plasma - mass spectrometry (modifed from EPA Method
CARBONS-TC-		Total carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis i	is carried out using proce	edures adapted from APHA Method 5310 "Total	Organic Carbon (TOC)".
CARBONS-TO	C-VA Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis i	is carried out using proce	edures adapted from APHA Method 5310 "Total	Organic Carbon (TOC)".
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis i electrode.	is carried out using proce	edures adapted from APHA Method 2510 "Conc	luctivity". Conductivity is determined using a conductivity
EPH-LL-SF-FID	D-VA Water	EPH in Waters by GCFID	BCMOE EPH GCFID
Contaminated entire water sa with flame ioni	Sites "Extractable Petro ample with dichlorometha	leum Hydrocarbons in Water by GC/FID" (Versi ane. The extract is then solvent exchanged to to 0). EPH results include Polycyclic Aromatic Hyd	nment, Lands and Parks (BCMELP) Analytical Method for ion 2.1, July 1999). The procedure involves extraction of the pluene and analysed by capillary column gas chromatography lrocarbons (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-	VA Water	Glycols in Water by GCFID	SW-846, METHOD 8015B, EPA
United States chloride to form	Environmental Protectio m the corresponding ber	n Agency (EPA). The procedure involves treatr	ing Solid Waste" SW-846, Method 8015B, published by the ment of the sample with a strong base (NaOH) and benzoyl tracted with iso-octane and the extract is analyzed by capillary
HARDNESS-CA	ALC-VA Water	Hardness	APHA 2340B
		ess) is calculated from the sum of Calcium and incentrations are preferentially used for the hard	Magnesium concentrations, expressed in CaCO3 equivalents. Iness calculation.
MET-T-CCMS-\	VA Water	Total Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Pub States Enviror	lic Health Association, a nmental Protection Agen	nd with procedures adapted from "Test Method cy (EPA). The procedures may involve prelimir	Examination of Water and Wastewater" published by the s for Evaluating Solid Waste" SW-846 published by the United hary sample treatment by acid digestion, using hotblock, or ed plasma - mass spectrometry (modifed from EPA Method

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health Ass States Environmental Prote	ociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp nstrumental analysis is by inductively coupled plasma -	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			I J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an education determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion	0.	ures adapted from APHA Method 4500-P "Phosphorus"	'. Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	he pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	he pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus" en lab or field filtered through a 0.45 micron membrane	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids le through a glass fibre filter, TDS is determined by eva	
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
Solids (TSS) are determined	using procedu d by filtering a	ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	are determined gravimetrically. Total Suspended by drying the filter at 104 degrees celsius.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turb	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turb	idity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame-	ionization de	extraction of the sample prior to analysis for Volatile Hydrection (GC/FID). The VH analysis is carried out in accord p) Analytical Method for Contaminated Sites "Volatile H	ordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		is heated in a sealed vial to equilibrium. The headspace asured using mass spectrometry detection.	e from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code Laboratory Location

VA

ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68560

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

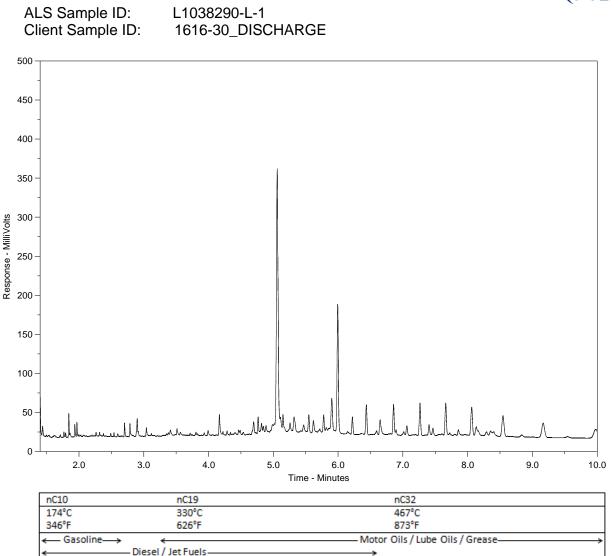
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



P A	$ \leq 0 $	38239		Form 68560	ěé(bbobillito
D81 Lougheed Highway • Suite 100 • Burnaby, el: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700	CHAIN OF	CUSTODY	FORM	# 1102 4920 52nd Street, * Tel: 867-880-2157 Fax: 8 BHP Contacts: David Bru	Yellowknife, NT X1A 3T1 367-880-4012
LS Contact: Can Dang For Lab Use Station ID Matrix Date Time	As, Se By CCMS	SNP-0013 Total Metalş SNP-0013 Physical Parameters SNP-0013 Nutrients - SNP-0013 Major Ions Oil and Grease	Total Ammonia - TDS		
Turn around Required: Regular two week turnaround Special Instructions (Billing details, QC reporting, etc): Billing Code: BHP2001			Date Time Date Time act upon receipt?		Time

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BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:10-AUG-11Report Date:22-AUG-11 14:05 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1042744

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

BHP2001 68573

6200801716

Nicole Thibault Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1042744-1 WATER 02-AUG-11 12:00 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	816		
	Hardness (as CaCO3) (mg/L)	149		
	рН (рН)	7.82		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	467		
	Turbidity (NTU)	0.64		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	41.6		
	Ammonia (as N) (mg/L)	0.0075		
	Chloride (Cl) (mg/L)	146		
	Nitrate and Nitrite (as N) (mg/L)	4.21		
	Nitrate (as N) (mg/L)	<mark>4.19</mark>		
	Nitrite (as N) (mg/L)	0.017		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010		
	Phosphorus (P)-Total (mg/L)	0.0067		
	Sulfate (SO4) (mg/L)	120		
Drganic / norganic Carbon	Total Carbon (mg/L)	11.4		
	Total Organic Carbon (mg/L)	<mark>3.91</mark>		
otal Metals	Aluminum (Al)-Total (mg/L)	0.0262		
	Antimony (Sb)-Total (mg/L)	0.00125		
	Arsenic (As)-Total (mg/L)	0.00051		
	Barium (Ba)-Total (mg/L)	0.0763		
	Beryllium (Be)-Total (mg/L)	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.029		
	Cadmium (Cd)-Total (mg/L)	<0.000040		
	Calcium (Ca)-Total (mg/L)	<mark>34.0</mark>		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<mark><0.00010</mark>		
	Copper (Cu)-Total (mg/L)	0.00126		
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00569		
	Magnesium (Mg)-Total (mg/L)	<mark>15.5</mark>		
	Manganese (Mn)-Total (mg/L)	0.00430		
	Molybdenum (Mo)-Total (mg/L)	0.0827		
	Nickel (Ni)-Total (mg/L)	0.00460		

L1042744 CONTD.... PAGE 3 of 6 22-AUG-11 14:05 (MT) Version: FINAL

	Sample ID Description Sampled Date	L1042744-1 WATER 02-AUG-11 12:00
	Sampled Time Client ID	1616- 30_DISCHARGE
Grouping	Analyte	
WATER		
Total Metals	Phosphorus (P)-Total (mg/L)	<0.30
	Potassium (K)-Total (mg/L)	27.9
	Selenium (Se)-Total (mg/L)	0.00023
	Silicon (Si)-Total (mg/L)	0.270
	Silver (Ag)-Total (mg/L)	<0.000010
	Sodium (Na)-Total (mg/L)	86.4
	Strontium (Sr)-Total (mg/L)	0.772
	Thallium (TI)-Total (mg/L)	0.000038
	Tin (Sn)-Total (mg/L)	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010
	Uranium (U)-Total (mg/L)	0.000506
	Vanadium (V)-Total (mg/L)	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0030
Aggregate Organics	Oil and Grease (mg/L)	<5.0
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>
-	Ethylbenzene (mg/L)	<0.00050
	Styrene (mg/L)	<0.00050
	Toluene (mg/L)	<0.00050
	ortho-Xylene (mg/L)	<0.00050
	meta- & para-Xylene (mg/L)	<0.00050
	Xylenes (mg/L)	<0.00075
	Surrogate: 4-Bromofluorobenzene (SS) (%)	103
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10
	TEH10-30 (mg/L)	<0.15
	TPH5-30 (mg/L)	<0.25
Glycols	Diethylene Glycol (mg/L)	<5.0
	Ethylene Glycol (mg/L)	<5.0
	1,2-Propylene Glycol (mg/L)	< <u>5.0</u>

Qualifiers for Individual Parameters Listed:

	Description					
DLA	Detection Limit Adjusted For required dilution					
DLM		djusted For Sampl				
LCS-ND	Lab Control Sam	ple recovery was s	lightly outside ALS DQO. Re	ported non-detect results for associated samples were unaffected.		
est Method R	eferences:					
ALS Test Code	Matr	ix Test Desc	ription	Method Reference**		
ALK-COL-VA	Wate	r Alkalinity b	y Colourimetric (Automated)	APHA 310.2		
This analysis is colourimetric m		procedures adapte	d from EPA Method 310.2 "Al	alinity". Total Alkalinity is determined using the methyl orange		
ANIONS-CL-IC-	VA Wate	r Chloride by	lon Chromatography	APHA 4110 B.		
			d from APHA Method 4110 B. of Inorganic Anions by Ion C	"Ion Chromatography with Chemical Suppression of Eluent romatography".		
ANIONS-N+N-C	ALC-VA Wate	r Nitrite & Nit	trate in Water (Calculation)	EPA 300.0		
Nitrate and Nitr	ite (as N) is a calcu	ulated parameter. N	Nitrate and Nitrite (as N) = Nitr	te (as N) + Nitrate (as N).		
ANIONS-NO2-IC	-VA Wate	r Nitrite in W	ater by Ion Chromatography	EPA 300.0		
This analysis is detected by UV	01	procedures adapte	d from EPA Method 300.0 "De	termination of Inorganic Anions by Ion Chromatography". Nitrite is		
ANIONS-NO3-IC	-VA Wate	r Nitrate in W	ater by Ion Chromatography	EPA 300.0		
This analysis is detected by UV	01	procedures adapte	d from EPA Method 300.0 "De	termination of Inorganic Anions by Ion Chromatography". Nitrate is		
ANIONS-SO4-IC	-VA Wate	r Sulfate by I	on Chromatography	APHA 4110 B.		
			d from APHA Method 4110 B. of Inorganic Anions by Ion C	"Ion Chromatography with Chemical Suppression of Eluent rromatography".		
AS-T-CCMS-VA	Wate	r Total Arser	nic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A		
States Environ	mental Protection A	Agency (EPA). The imental analysis is	e procedures may involve prel by collision cell inductively co	nods for Evaluating Solid Waste" SW-846 published by the United minary sample treatment by acid digestion, using hotblock, or upled plasma - mass spectrometry (modifed from EPA Method		
CARBONS-TC-\			n by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)		
This analysis is	carried out using	procedures adapte	d from APHA Method 5310 "T	otal Organic Carbon (TOC)".		
CARBONS-TOC	-VA Wate	r Total organ	ic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)		
This analysis is	carried out using	procedures adapte	d from APHA Method 5310 "T	otal Organic Carbon (TOC)".		
EC-PCT-VA	Wate	r Conductivit	y (Automated)	APHA 2510 Auto. Conduc.		
This analysis is electrode.	carried out using	procedures adapte	d from APHA Method 2510 "C	onductivity". Conductivity is determined using a conductivity		
EPH-LL-SF-FID-	-VA Wate	r EPH in Wa	ters by GCFID	BCMOE EPH GCFID		
Contaminated s entire water san with flame ioniz	Sites "Extractable F mple with dichloror ation detection (G	Petroleum Hydroca nethane. The extra	rbons in Water by GC/FID" (V ct is then solvent exchanged t s include Polycyclic Aromatic	ironment, Lands and Parks (BCMELP) Analytical Method for ersion 2.1, July 1999). The procedure involves extraction of the o toluene and analysed by capillary column gas chromatography Hydrocarbons (PAH) and are therefore not equivalent to Light and		
GLY-WAT-FID-V	A Wate	r Glycols in \	Water by GCFID	SW-846, METHOD 8015B, EPA		
United States E chloride to form	Environmental Prote the corresponding	ection Agency (EP	 A). The procedure involves transformed to the procedure involves the procedure of the procedure involves the procedure of the pro	uating Solid Waste" SW-846, Method 8015B, published by the eatment of the sample with a strong base (NaOH) and benzoyl extracted with iso-octane and the extract is analyzed by capillary		
HARDNESS-CA	LC-VA Wate	r Hardness		APHA 2340B		
			ed from the sum of Calcium a repreferentially used for the h	nd Magnesium concentrations, expressed in CaCO3 equivalents. ardness calculation.		
MET-T-CCMS-V	A Wate	r Total Metal	s in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A		
American Publi States Environ	c Health Association	on, and with proced Agency (EPA). The	dures adapted from "Test Met e procedures may involve prel	the Examination of Water and Wastewater" published by the lods for Evaluating Solid Waste" SW-846 published by the United minary sample treatment by acid digestion, using hotblock, or upled plasma - mass spectrometry (modifed from EPA Method		

L1042744 CONTD PAGE 5 of 6 22-AUG-11 14:05 (MT) Version: FINAL

60204)

6020A).			
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health As States Environmental Prote	sociation, and	dures adapted from "Standard Methods for the Examina d with procedures adapted from "Test Methods for Eval y (EPA). The procedures may involve preliminary samp Instrumental analysis is by inductively coupled plasma	luating Solid Waste" SW-846 published by the United ble treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society e levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an determine Oil and Grease.	extraction of	the entire water sample with hexane. This extract is th	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion		dures adapted from APHA Method 4500-P "Phosphorus e.	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using proced	lures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using proced	lures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		lures adapted from APHA Method 4500-P "Phosphorus een lab or field filtered through a 0.45 micron membran	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health As States Environmental Prote	sociation, an	dures adapted from "Standard Methods for the Examina d with procedures adapted from "Test Methods for Eval y (EPA). The procedures may involve preliminary samp al analysis is by collision cell inductively coupled plasma	luating Solid Waste" SW-846 published by the United ble treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
			s are determined gravimetrically. Total Dissolved Solids aporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		dures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proced	lures adapted from APHA Method 2130 "Turbidity". Tur	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using proced	dures adapted from APHA Method 2130 "Turbidity". Tur	bidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame	-ionization de	extraction of the sample prior to analysis for Volatile Hy etection (GC/FID). The VH analysis is carried out in acc P) Analytical Method for Contaminated Sites "Volatile H	cordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		, is heated in a sealed vial to equilibrium. The headspace easured using mass spectrometry detection.	ce from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021

XYLENES-CALC-VA

Sum of Xylene Isomer Concentrations

CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

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Laboratory Definition Code	Laboratory Location			

VA

ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on ury weight of sample.

Water

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

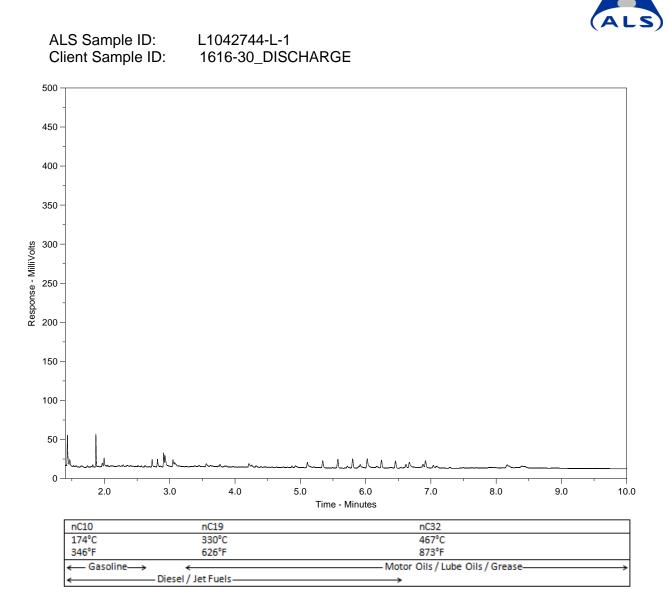
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

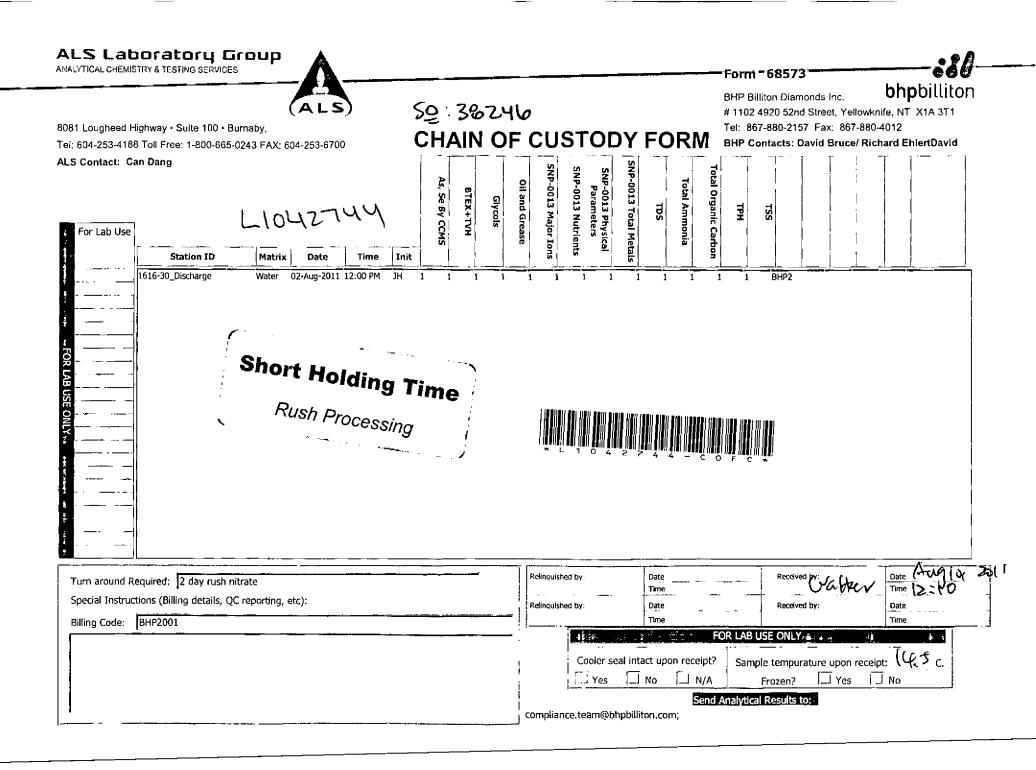
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.





BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 10-AUG-11 Report Date: 01-SEP-11 15:27 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1042889

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

BHP2001 68589

6200801716

Can Dang Senior Account Manager

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L1042889 CONTD.... PAGE 2 of 6 01-SEP-11 15:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1042889-1 WATER 08-AUG-11 10:35 1616- 30_DISCHARGE	L1042889-2 WATER 08-AUG-11 10:43 1616-121	L1042889-3 WATER 08-AUG-11 10:43 1616-494	L1042889-4 WATER 08-AUG-11 10:43 1616-302	
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	<mark>846</mark>	<2.0	<2.0	841	
	Hardness (as CaCO3) (mg/L)	159	<0.50	<0.50	157	
	рН (рН)	7.71	5.65	5.71	7.88	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	3.1	
	Total Dissolved Solids (mg/L)	<mark>518</mark>	<10	<10	508	
	Turbidity (NTU)	0.66	<0.10	<0.10	0.64	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	41.9	<2.0	<2.0	42.7	
	Ammonia (as N) (mg/L)	0.0055	0.0117	0.0087	0.0200	
	Chloride (Cl) (mg/L)	<mark>149</mark>	<0.50	<0.50	150	
	Nitrate and Nitrite (as N) (mg/L)	<mark>4.08</mark>	<0.0051	<0.0051	4.11	
	Nitrate (as N) (mg/L)	4.04	<0.0050	<0.0050	4.08	
	Nitrite (as N) (mg/L)	0.032	<0.0010	<0.0010	0.026	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	0.0059	<0.0020	<0.0020	0.0057	
	Sulfate (SO4) (mg/L)	<mark>122</mark>	<0.50	<0.50	122	
Organic / Inorganic Carbon		12.6	<0.50	<0.50	12.6	
Tatal Mariala	Total Organic Carbon (mg/L)	4.97	0.88	<0.50	4.75	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0196	<0.0030	<0.0030	0.0216	
	Antimony (Sb)-Total (mg/L)	0.00135	<0.00010	<0.00010	0.00132	
	Arsenic (As)-Total (mg/L)	0.00062	<0.00010	<0.00010	0.00062	
	Barium (Ba)-Total (mg/L)	0.0809	<0.000050	<0.000050	0.0801	
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L) Boron (B)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Cadmium (Cd)-Total (mg/L)	0.031	<0.010	<0.010	0.029 DLM	
	Calcium (Ca)-Total (mg/L)	<0.000030	<0.000010	<0.000010	<0.000030	
	Chromium (Cr)-Total (mg/L)	36.3	<0.050	<0.050	36.0	
	Cobalt (Co)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Copper (Cu)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Iron (Fe)-Total (mg/L)	0.00146	<0.00050	<0.00050	0.00135	
	Lead (Pb)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	
	Lithium (Li)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Magnesium (Mg)-Total (mg/L)	0.00610	<0.00050	<0.00050	0.00575	
	Magnese (Mn)-Total (mg/L)	16.6	<0.10	<0.10	16.4	
	Molybdenum (Mo)-Total (mg/L)	0.00457	<0.000050	<0.000050	0.00383	
	Nickel (Ni)-Total (mg/L)	0.0870	<0.000050	<0.000050	0.0850	
		0.00480	<0.00050	<0.00050	0.00476	

L1042889 CONTD.... PAGE 3 of 6 01-SEP-11 15:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1042889-1 WATER 08-AUG-11 (10:35) (1616- 30_DISCHARGE	L1042889-2 WATER 08-AUG-11 10:43 1616-121	L1042889-3 WATER 08-AUG-11 10:43 1616-494	L1042889-4 WATER 08-AUG-11 10:43 1616-302	
Grouping	Analyte					
WATER						
Total Metals	Phosphorus (P)-Total (mg/L)	<mark><0.30</mark>	<0.30	<0.30	<0.30	
	Potassium (K)-Total (mg/L)	29.5	<2.0	<2.0	28.7	
	Selenium (Se)-Total (mg/L)	0.00023	<0.00010	<0.00010	0.00024	
	Silicon (Si)-Total (mg/L)	0.293	<0.050	<0.050	0.279	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	95.2	<2.0	<2.0	93.0	
	Strontium (Sr)-Total (mg/L)	0.770	<0.00010	<0.00010	0.753	
	Thallium (TI)-Total (mg/L)	0.000038	<0.000010	<0.000010	0.000037	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	0.000536	<0.000010	<0.000010	0.000528	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030	
Aggregate Organics	Oil and Grease (mg/L)	<5.0	<5.0	<5.0	<5.0	
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Ethylbenzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Styrene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Toluene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	ortho-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	meta- & para-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	101	109	102	107	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	101	101	100	101	
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10	<0.10	<0.10	<0.10	
	TEH10-30 (mg/L)	<mark><0.15</mark>	<0.15	<0.15	<0.15	
	TPH5-30 (mg/L)	<0.25	<0.25	<0.25	<0.25	
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>	<5.0	<5.0	<5.0	
	Ethylene Glycol (mg/L)	<mark><5.0</mark>	<5.0	<5.0	<5.0	
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>	<5.0	<5.0	<5.0	

QC Samples with Qualifiers & Comments:

QC Type Description				
		Parameter	Qualifier	Applies to Sample Number(s)
Duplicate		Cadmium (Cd)-Total	DLM	L1042889-1, -4
Laboratory Control Sample		1,2-Propylene Glycol	LCS-ND	L1042889-1, -2, -3, -4
Laboratory Control Sample		Diethylene Glycol	LCS-ND	L1042889-1, -2, -3, -4
Laboratory Control Sample		Ethylene Glycol	LCS-ND	L1042889-1, -2, -3, -4
Matrix Spike		Nitrate (as N)	MS-B	L1042889-1, -2, -3, -4
Qualifiers for Individual P	arameters	Listed:		
Qualifier Description	'n			
DLM Detection	Limit Adjust	ed For Sample Matrix Effects		
LCS-ND Lab Contro	ol Sample re	ecovery was slightly outside ALS DQC	D. Reported non-c	letect results for associated samples were unaffected.
MS-B Matrix Spil	ke recovery	could not be accurately calculated du	e to high analyte b	background in sample.
est Method References:	:			
ALS Test Code	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automa	ted)	APHA 310.2
This analysis is carried out colourimetric method.	using proce	dures adapted from EPA Method 310	.2 "Alkalinity". Tot	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography		APHA 4110 B.
		dures adapted from APHA Method 41 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-CALC-VA	Water	Nitrite & Nitrate in Water (Calculation	on)	EPA 300.0
Nitrate and Nitrite (as N) is	a calculated	d parameter. Nitrate and Nitrite (as N)	= Nitrite (as N) +	Nitrate (as N).
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatogra	aphy	EPA 300.0
This analysis is carried out detected by UV absorbance		dures adapted from EPA Method 300	.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatogr	aphy	EPA 300.0
This analysis is carried out detected by UV absorbance		dures adapted from EPA Method 300	.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography		APHA 4110 B.
		dures adapted from APHA Method 41 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC ICP	MS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass	sociation, ar	nd with procedures adapted from "Tes cy (EPA). The procedures may involve	t Methods for Eva e preliminary sam	ation of Water and Wastewater" published by the luating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or
filtration (APHA 3030B&E). 6020A).	. mstrument	ai analysis is by collision cell inductive	ely coupled plasm	a - mass spectrometry (modifed from EPA Method
filtration (APHA 3030B&E). 6020A).	Water	Total carbon by combustion	ely coupled plasm	a - mass spectrometry (modifed from EPA Method APHA 5310 TOTAL ORGANIC CARBON (TOC)
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA	Water			APHA 5310 TOTAL ORGANIC CARBON (TOC)
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA This analysis is carried out	Water	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA This analysis is carried out EC-PCT-VA	Water using proce Water	Total carbon by combustion dures adapted from APHA Method 53 Conductivity (Automated)	10 "Total Organic	APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)".
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA This analysis is carried out EC-PCT-VA This analysis is carried out	Water using proce Water	Total carbon by combustion dures adapted from APHA Method 53 Conductivity (Automated)	10 "Total Organic	APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)". APHA 2510 Auto. Conduc.
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA This analysis is carried out EC-PCT-VA This analysis is carried out electrode. EPH-LL-SF-FID-VA This analysis is carried out Contaminated Sites "Extrace entire water sample with did	Water using proce Water using proce Water in accordan ctable Petrol chlorometha tion (GC/FID	Total carbon by combustion edures adapted from APHA Method 53 Conductivity (Automated) edures adapted from APHA Method 25 EPH in Waters by GCFID ace with the British Columbia Ministry of leum Hydrocarbons in Water by GC/F ane. The extract is then solvent exchar b). EPH results include Polycyclic Aror	10 "Total Organic 10 "Conductivity". of Environment, La ID" (Version 2.1, J nged to toluene ar	APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)". APHA 2510 Auto. Conduc. Conductivity is determined using a conductivity
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA This analysis is carried out EC-PCT-VA This analysis is carried out electrode. EPH-LL-SF-FID-VA This analysis is carried out Contaminated Sites "Extrac entire water sample with did with flame ionization detect	Water using proce Water using proce Water in accordan ctable Petrol chlorometha tion (GC/FID	Total carbon by combustion edures adapted from APHA Method 53 Conductivity (Automated) edures adapted from APHA Method 25 EPH in Waters by GCFID ace with the British Columbia Ministry of leum Hydrocarbons in Water by GC/F ane. The extract is then solvent exchar b). EPH results include Polycyclic Aror	10 "Total Organic 10 "Conductivity". of Environment, La ID" (Version 2.1, J nged to toluene ar	APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)". APHA 2510 Auto. Conduc. Conductivity is determined using a conductivity BCMOE EPH GCFID ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the analysed by capillary column gas chromatography
filtration (APHA 3030B&E). 6020A). CARBONS-TC-VA This analysis is carried out EC-PCT-VA This analysis is carried out electrode. EPH-LL-SF-FID-VA This analysis is carried out Contaminated Sites "Extrac entire water sample with did with flame ionization detect Heavy Extractable Petroleu GLY-WAT-FID-VA This analysis is carried out United States Environmenta	Water using proce Water using proce Water in accordan ctable Petrol chlorometha tion (GC/FID um Hydrocar Water using proce tal Protectior ponding benz	Total carbon by combustion adures adapted from APHA Method 53 Conductivity (Automated) adures adapted from APHA Method 25 EPH in Waters by GCFID ace with the British Columbia Ministry of leum Hydrocarbons in Water by GC/F ane. The extract is then solvent exchar b). EPH results include Polycyclic Aror bons (LEPH/HEPH). Glycols in Water by GCFID adures adapted from "Test Methods for a Agency (EPA). The procedure invol- zoate esters. The benzoate esters are	10 "Total Organic 10 "Conductivity". of Environment, La ID" (Version 2.1, J nged to toluene ar natic Hydrocarbor r Evaluating Solid ves treatment of ti	APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)". APHA 2510 Auto. Conduc. Conductivity is determined using a conductivity BCMOE EPH GCFID ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the analysed by capillary column gas chromatography is (PAH) and are therefore not equivalent to Light and

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents.

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Total Metals in Water by ICPOES EPA SW-846 3005A/6010B Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et OGG-SF-VA BCMOE (2010), EPA1664A Water Oil & Grease by Gravimetric The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Total P in Water by Colour APHA 4500-P Phosphorous Water This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value" This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. pH by Meter (Automated) APHA 4500-H pH Value PH-PCT-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined

colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A SE-T-CCMS-VA Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TOC-TX Water Total Organic Carbon in Water EPA 415.1 TOTAL ORGANIC CARBON (TOC) This analysis is carried out following EPA Method 415.1 - Total Organic Carbon in Water. Organic carbon in a sample is converted to carbon dioxide (CO2) by catalytic combustion or wet chemical oxidation. The CO2 formed can be measured directly by an infrared detector or converted to methane (CH4) and measured by a flame ionization detector. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. **TURBIDITY-VA** Water Turbidity by Meter APHA 2130 "Turbidity' This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

MET-T-CCMS-VA

Total Metals in Water by CRC ICPMS Water

APHA 3030 B&E / EPA SW-846 6020A

APHA 2130 Turbidity

TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD				
chromatography with flame	-ionization de	extraction of the sample prior to analysis for Volatile H etection (GC/FID). The VH analysis is carried out in ac .P) Analytical Method for Contaminated Sites "Volatile	cordance with the British Columbia Ministry of				
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021				
	The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.						
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021				
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION				
Calculation of Total Xylene	S						

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA
ТХ	ALS ENVIRONMENTAL - HOUSTON, TEXAS, USA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

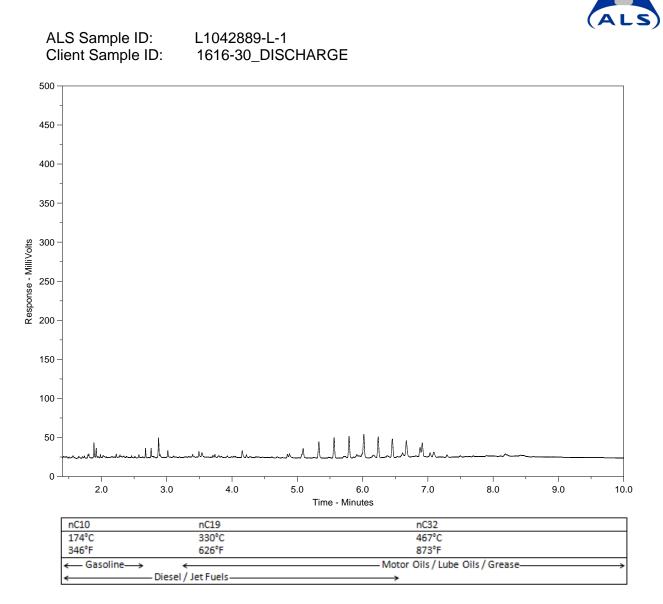
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

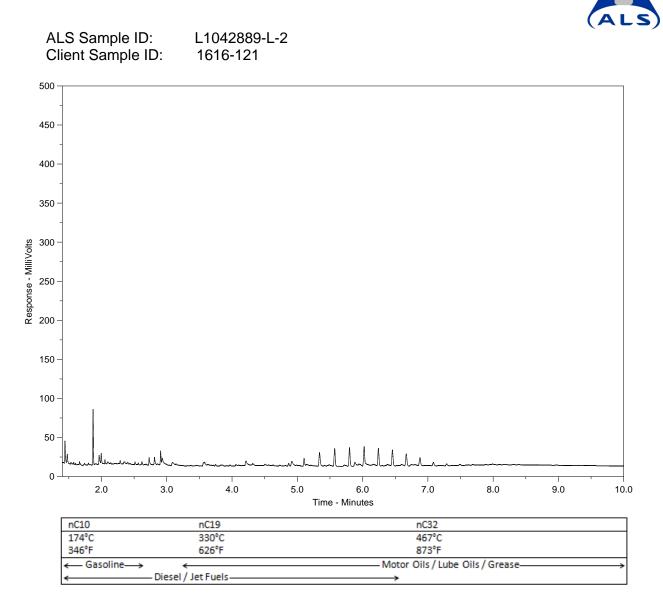
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

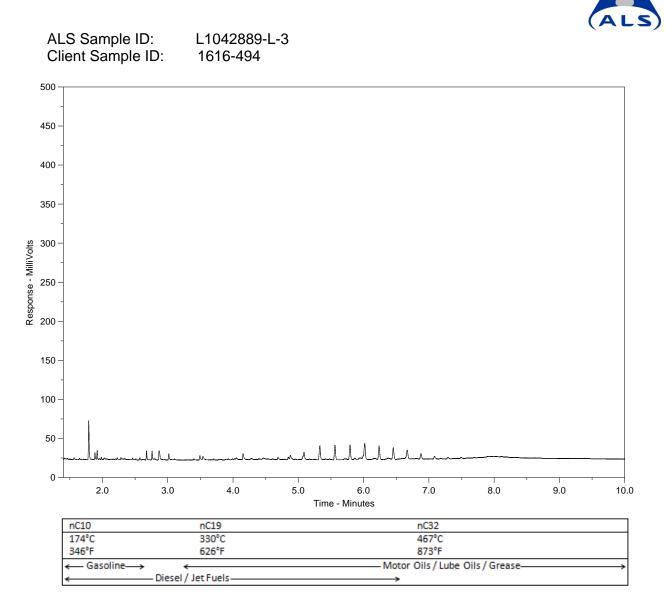
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



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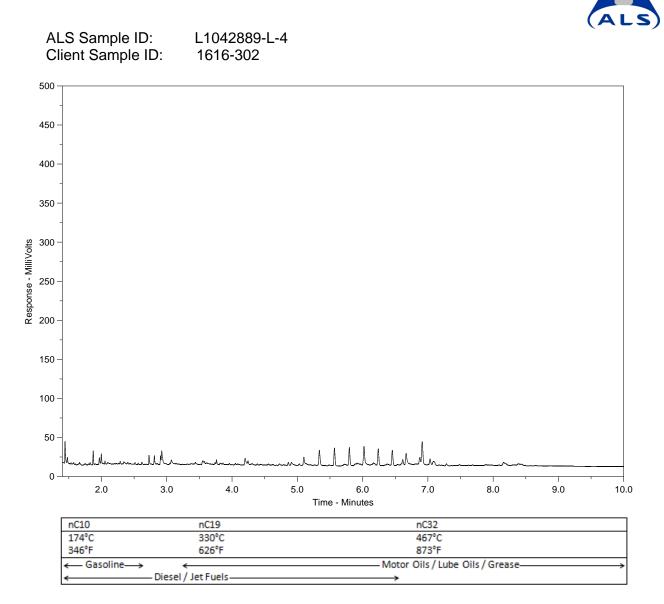
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ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



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CHAIN OF CUSTODY FORM BHP Contacts: David Bruce/ Richard EhlertDavid SNP-0013 Physical Parameters SNP-0013 Total Metals Total SNP-0013 Major Ions SNP-0013 Nutrients ß Total **Oil and Grease** BTEX+TVH **Organic Carbon** Se By CCMS Glycols ថ្ល Ammonia Ŧ SSI L1042889. For Lab Use Time Init Station ID Matrix Date 08-Aug-2011 10:35 AM BHP2 1616-30 Discharge Water \$S 1 1 1 1 1 1 1 1 1 1 1 1 1 BHP2 08-Aug-2011 10:43 AM SS 1 1616-121 Water 1 1 1 1 1 1 1 1 1 1 1 1 1616-494 BHP2 08-Aug-2011 10:43 AM ·SS 'Water 1 1 -1 1 1 1 1 1 1 1 1 1 1 1616-302 Water 08-Aug-2011 10:43 AM SS -1 1 BHP2 1 1 Short Holding Time Rush Processing LAB 0,20 Relinguished by: 409 Date Received by: Date Turn around Required: Please rush all parameters 1 week TAT Martin Time Time Special Instructions (Billing details, QC reporting, etc): Relinguished by: Received by: Date Date Time Dime BHP2001 Billing Code: FOR LAB USE ONLY N. 01

50#38253

Cooler seal intact upon receipt? I Sample tempurature upon receipt:
Yes No N/A Frozen? Yes No
Send Analytical Results to:
compliance.team@bhpbilliton.com;



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 17-AUG-11 Report Date: 03-OCT-11 16:41 (MT) Version: FINAL REV. 2

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1045930

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68600

6200801716

Comments: ADDITIONAL 03-OCT-11 12:31

03-OCT-11:

Revision 2: This revision include additional Hardness. Hardness was calculated from the original metals analysis.

Can Dang Senior Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1045930-1 WATER 14-AUG-11 11:50 1616- 30_DISCHARGE
Grouping	Analyte	
WATER		
Physical Tests	Conductivity (uS/cm)	862
	Hardness (as CaCO3) (mg/L)	161
	рН (рН)	7.96
	Total Suspended Solids (mg/L)	<3.0
	Total Dissolved Solids (mg/L)	519
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	43.5
	Ammonia (as N) (mg/L)	0.0116
	Chloride (Cl) (mg/L)	150
	Nitrate and Nitrite (as N) (mg/L)	4.12
	Nitrate (as N) (mg/L)	4.10
	Nitrite (as N) (mg/L)	0.018
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010
	Phosphorus (P)-Total (mg/L)	0.0054
	Sulfate (SO4) (mg/L)	123
Organic /	Total Carbon (mg/L)	11.7
Inorganic Carbon	Total Organic Carbon (mg/L)	5.56
Total Metals	Aluminum (AI)-Total (mg/L)	0.0217
	Antimony (Sb)-Total (mg/L)	0.00134
	Arsenic (As)-Total (mg/L)	0.00061
	Barium (Ba)-Total (mg/L)	0.0805
	Beryllium (Be)-Total (mg/L)	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050
	Boron (B)-Total (mg/L)	0.029
	Cadmium (Cd)-Total (mg/L)	<0.029 DLM <0.000040
	Calcium (Ca)-Total (mg/L)	37.4
	Chromium (Cr)-Total (mg/L)	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00030
	Copper (Cu)-Total (mg/L)	0.00130
	Iron (Fe)-Total (mg/L)	<0.030
	Lead (Pb)-Total (mg/L)	
	Lithium (Li)-Total (mg/L)	<0.000050
	Magnesium (Mg)-Total (mg/L)	0.00567
	Manganese (Mn)-Total (mg/L)	16.4
	Molybdenum (Mo)-Total (mg/L)	0.00493
	Nickel (Ni)-Total (mg/L)	0.0881
	Phosphorus (P)-Total (mg/L)	0.00470
		<mark><0.30</mark>

		Sample ID Description Sampled Date Sampled Time Client ID	L1045930-1 WATER 14-AUG-11 11:50 1616- 30_DISCHARGE
Grouping	Analyte		
WATER			
Total Metals	Potassium (K)-Total (mg/L)		29.6
	Selenium (Se)-Total (mg/L)		0.00028
	Silicon (Si)-Total (mg/L)		0.272
	Silver (Ag)-Total (mg/L)		<0.000010
	Sodium (Na)-Total (mg/L)		95.5
	Strontium (Sr)-Total (mg/L)		0.748
	Thallium (TI)-Total (mg/L)		0.000041
	Tin (Sn)-Total (mg/L)		<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010
	Uranium (U)-Total (mg/L)		0.000540
	Vanadium (V)-Total (mg/L)		<mark><0.0010</mark>
	Zinc (Zn)-Total (mg/L)		<0.0030
Aggregate Organics	Oil and Grease (mg/L)		<mark><5.0</mark>
Volatile Organic Compounds	Benzene (mg/L)		<mark><0.00050</mark>
	Ethylbenzene (mg/L)		<0.00050
	Styrene (mg/L)		<0.00050
	Toluene (mg/L)		<0.00050
	ortho-Xylene (mg/L)		<0.00050
	meta- & para-Xylene (mg/L)		<0.00050
	Xylenes (mg/L)		<0.00075
	Surrogate: 4-Bromofluorobenze	ene (SS) (%)	101
	Surrogate: 1,4-Difluorobenzene	e (SS) (%)	101
Hydrocarbons	TVH (C5-C10) (mg/L)		<0.10
	TEH10-30 (mg/L)		<0.15
	TPH5-30 (mg/L)		<0.25
Glycols	Diethylene Glycol (mg/L)		<5.0
	Ethylene Glycol (mg/L)		<5.0
	1,2-Propylene Glycol (mg/L)		<5.0

QC Samples with Qualifiers & Comments: QC Type Description Parameter Qualifier Applies to Sample Number(s) Duplicate Cadmium (Cd)-Total DLM L1045930-1 **Qualifiers for Individual Parameters Listed:** Qualifier Description DLM Detection Limit Adjusted For Sample Matrix Effects Test Method References: ALS Test Code Matrix **Test Description** Method Reference** ALK-COL-VA Water Alkalinity by Colourimetric (Automated) APHA 310.2 This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. ANIONS-CL-IC-VA Water Chloride by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". ANIONS-N+N-CALC-VA Water Nitrite & Nitrate in Water (Calculation) EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). ANIONS-NO2-IC-VA Nitrite in Water by Ion Chromatography EPA 300.0 Water This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. Nitrate in Water by Ion Chromatography EPA 300.0 ANIONS-NO3-IC-VA Water This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. APHA 4110 B. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Total Arsenic in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A AS-T-CCMS-VA Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A) **CARBONS-TC-VA** Water Total carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC) This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". APHA 5310 TOTAL ORGANIC CARBON (TOC) CARBONS-TOC-VA Water Total organic carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto, Conduc, This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. **EPH-LL-SF-FID-VA** EPH in Waters by GCFID BCMOE EPH GCFID Water This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

		y (EPA). The procedures may involve preliminary sam al analysis is by collision cell inductively coupled plasm	
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health As States Environmental Prot	sociation, an ection Agenc	dures adapted from "Standard Methods for the Examin id with procedures adapted from "Test Methods for Eva y (EPA). The procedures may involve preliminary sam Instrumental analysis is by inductively coupled plasma	aluating Solid Waste" SW-846 published by the United uple treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			m J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society e levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an determine Oil and Grease.		the entire water sample with hexane. This extract is the	hen evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion		dures adapted from APHA Method 4500-P "Phosphoru le.	s". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	t using proce	dures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	s analysis be	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
electrode		dures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	s analysis be	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		dures adapted from APHA Method 4500-P "Phosphoru been lab or field filtered through a 0.45 micron membra	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health As States Environmental Prot	sociation, an ection Agenc	dures adapted from "Standard Methods for the Examin ad with procedures adapted from "Test Methods for Eva by (EPA). The procedures may involve preliminary sam al analysis is by collision cell inductively coupled plasm	aluating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out (TDS) are determined by fi	t using proce	dures adapted from APHA Method 2540 "Solids". Solid ple through a glass fibre filter, TDS is determined by e	Is are determined gravimetrically. Total Dissolved Solids vaporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		dures adapted from APHA Method 2540 "Solids". Solid a sample through a glass fibre filter, TSS is determine	
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame	e-ionization d	extraction of the sample prior to analysis for Volatile H etection (GC/FID). The VH analysis is carried out in ac LP) Analytical Method for Contaminated Sites "Volatile	cordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
• •	•	a, is heated in a sealed vial to equilibrium. The headspa easured using mass spectrometry detection.	ace from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Calculation of Total Xylene	s		

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code Laboratory Location

ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

VA

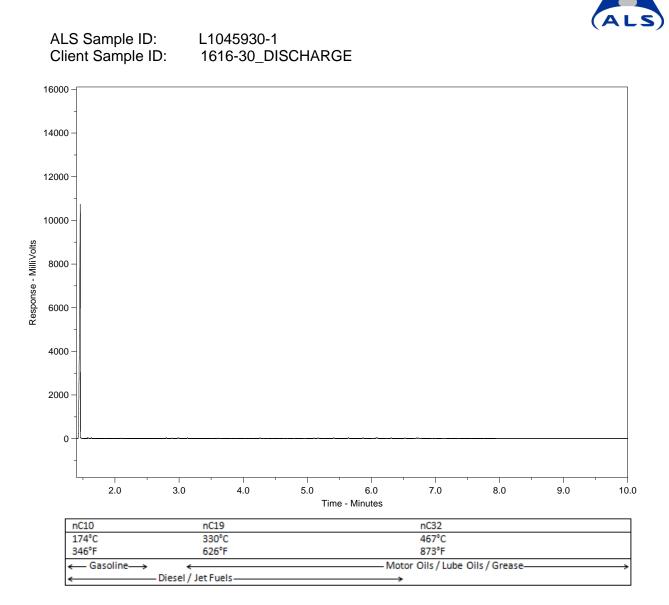
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS Laboratory Group



8081 Lougheed Highway • Suite 100 • Burnaby,

Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700

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Form 68600



BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012

CHAIN OF CUSTODY FORM

BHP Contacts: David Bruce/ Richard EhlertDavid

ALS Contact: Ca		10459	30		As, Se By CCMS	BTEX+TVH	Glycols	Oil and Grease	SNP-0013 Major lons	SNP-0013 Nutrients	SNP-0013 Physical Parameters	SNP-0013 Total Metals	TDS	Total Ammonia	Total Organic Carbon	ТРН	TSS							
	Station ID 1616-30_Discharge	Matrix Dat	e Time	Init SS			1								5 1	1		HP20 [.]		į				
FOR LAB USE ONLY						1			*	L 1														
	equired: 1 week rush tu			<u> </u>					Relinguisi	hed by:			Date Time				_	Receive	d by:			Date Time		
	tions (Billing details, QC r BHP2001	reporting, etc):	<u> </u>						Relinguisl	hed by:			Date Time					Receive	d by: -	Sl		Date A Time		
	g										oler s	eal int	act up No		eipt? N/A	OR LAB San Analytic	nple te Froz	empur zen?		ipon r Yes	eceipt	•	<u>1 '</u> c	

compliance.team@bhpbilliton.com;





BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 29-AUG-11 Report Date: 09-SEP-11 16:25 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1051136

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

Can Dang Senior Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1051136-1 WATER 24-AUG-11 16:45 1616- 30_DISCHARGE	
Grouping	Analyte		
WATER			
Physical Tests	Conductivity (uS/cm)	848	
	Hardness (as CaCO3) (mg/L)	144	
	рН (рН)	7.95	
	Total Suspended Solids (mg/L)	<3.0	
	Total Dissolved Solids (mg/L)	509	
	Turbidity (NTU)	1.14	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	43.1	
	Ammonia (as N) (mg/L)	0.0162	
	Chloride (CI) (mg/L)	<mark>140</mark>	
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.67</mark>	
	Nitrate (as N) (mg/L)	<mark>3.67</mark>	
	Nitrite (as N) (mg/L)	<mark><0.010</mark>	
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>	
	Phosphorus (P)-Total (mg/L)	<mark>0.0049</mark>	
	Sulfate (SO4) (mg/L)	<mark>122</mark>	
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>13.0</mark>	
	Total Organic Carbon (mg/L)	<mark>5.20</mark>	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0449	
	Antimony (Sb)-Total (mg/L)	0.00119	
	Arsenic (As)-Total (mg/L)	0.00057	
	Barium (Ba)-Total (mg/L)	<mark>0.0746</mark>	
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>	
	Bismuth (Bi)-Total (mg/L)	<mark><0.00050</mark>	
	Boron (B)-Total (mg/L)	0.026	
	Cadmium (Cd)-Total (mg/L)	<0.000040	
	Calcium (Ca)-Total (mg/L)	<mark>33.1</mark>	
	Chromium (Cr)-Total (mg/L)	<0.00050	
	Cobalt (Co)-Total (mg/L)	<0.00010	
	Copper (Cu)-Total (mg/L)	0.00131	
	Iron (Fe)-Total (mg/L)	0.035	
	Lead (Pb)-Total (mg/L)	<0.000050	
	Lithium (Li)-Total (mg/L)	0.00561	
	Magnesium (Mg)-Total (mg/L)	15.0	
	Manganese (Mn)-Total (mg/L)	0.00493	
	Molybdenum (Mo)-Total (mg/L)	0.0807	
	Nickel (Ni)-Total (mg/L)	0.00437	

L1051136 CONTD.... PAGE 3 of 6 09-SEP-11 16:25 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	24-AUG-11 16:45	
Grouping	Analyte		
WATER			
Total Metals	Potassium (K)-Total (mg/L)	25.9	
	Selenium (Se)-Total (mg/L)	0.00021	
	Silicon (Si)-Total (mg/L)	0.278	
	Silver (Ag)-Total (mg/L)	<0.000010	
	Sodium (Na)-Total (mg/L)	84.6	
	Strontium (Sr)-Total (mg/L)	0.695	
	Thallium (TI)-Total (mg/L)	0.000037	
	Tin (Sn)-Total (mg/L)	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	
	Uranium (U)-Total (mg/L)	0.000528	
	Vanadium (V)-Total (mg/L)	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0030	
Aggregate Organics	Oil and Grease (mg/L)	<5.0	
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	
	Ethylbenzene (mg/L)	<mark><0.00050</mark>	
	Styrene (mg/L)	<0.00050	
	Toluene (mg/L)	<mark><0.00050</mark>	
	ortho-Xylene (mg/L)	<mark><0.00050</mark>	
	meta- & para-Xylene (mg/L)	<mark><0.00050</mark>	
	Xylenes (mg/L)	<mark><0.00075</mark>	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	92	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100	
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10	
	TEH10-30 (mg/L)	<0.15	
	TPH5-30 (mg/L)	<0.25	
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>	
	Ethylene Glycol (mg/L)	<5.0	
	1,2-Propylene Glycol (mg/L)	< <u>5.0</u>	

Qualifiers for Individual Parameters Listed:

Qualifier	Description			
DLM	Detection Limit	Adjusted I	For Sample Matrix Effects	
est Method F	References:			
ALS Test Code	e Ma	trix T	est Description	Method Reference**
ALK-COL-VA	Wa	ter A	Ikalinity by Colourimetric (Automated)	APHA 310.2
This analysis i colourimetric r		g procedure	es adapted from EPA Method 310.2 "Alkalinity". Tota	al Alkalinity is determined using the methyl orange
NIONS-CL-IC	-VA Wa	ter C	Chloride by Ion Chromatography	APHA 4110 B.
			es adapted from APHA Method 4110 B. "Ion Chroma ermination of Inorganic Anions by Ion Chromatograp	
NIONS-N+N-C	CALC-VA Wa	ter N	litrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nit	rrite (as N) is a cal	culated pa	rameter. Nitrate and Nitrite (as N) = Nitrite (as N) + I	Nitrate (as N).
NIONS-NO2-I	C-VA Wa	ter N	litrite in Water by Ion Chromatography	EPA 300.0
	s carried out using V absorbance.	g procedure	es adapted from EPA Method 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
NIONS-NO3-I	C-VA Wa	ter N	litrate in Water by Ion Chromatography	EPA 300.0
	s carried out using V absorbance.	g procedure	es adapted from EPA Method 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
NIONS-SO4-I	C-VA Wa	ter S	Sulfate by Ion Chromatography	APHA 4110 B.
			es adapted from APHA Method 4110 B. "Ion Chroma ermination of Inorganic Anions by Ion Chromatograp	
S-T-CCMS-VA	A Wa	ter T	otal Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Pub States Enviror	lic Health Associa	tion, and w Agency (E	es adapted from "Standard Methods for the Examina vith procedures adapted from "Test Methods for Eva EPA). The procedures may involve preliminary sam inalysis is by collision cell inductively coupled plasm	Iluating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or
ARBONS-TC-	VA Wa	ter T	otal carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis i	s carried out using	g procedure	es adapted from APHA Method 5310 "Total Organic	: Carbon (TOC)".
ARBONS-TO	C-VA Wa	ter T	otal organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis i	s carried out using	g procedure	es adapted from APHA Method 5310 "Total Organic	: Carbon (TOC)".
C-PCT-VA	Wa	ter C	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis i electrode.	s carried out using	g procedure	es adapted from APHA Method 2510 "Conductivity".	. Conductivity is determined using a conductivity
PH-LL-SF-FIC	D-VA Wa	ter E	PH in Waters by GCFID	BCMOE EPH GCFID
Contaminated entire water sa with flame ioni	Sites "Extractable ample with dichlore	e Petroleun omethane. GC/FID). E	PH results include Polycyclic Aromatic Hydrocarbor	
LY-WAT-FID-	VA Wa	ter G	Blycols in Water by GCFID	SW-846, METHOD 8015B, EPA
United States chloride to form	Environmental Pro	otection Ag	es adapted from "Test Methods for Evaluating Solid gency (EPA). The procedure involves treatment of the te esters. The benzoate esters are then extracted w hization detection (FID).	
ARDNESS-CA	ALC-VA Wa	ter H	lardness	APHA 2340B
			is calculated from the sum of Calcium and Magnesi ntrations are preferentially used for the hardness cal	um concentrations, expressed in CaCO3 equivalents. lculation.
ET-T-CCMS-\	VA Wa	ter T	otal Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Pub States Enviror	lic Health Associa mental Protection	tion, and w Agency (E	es adapted from "Standard Methods for the Examina vith procedures adapted from "Test Methods for Eva EPA). The procedures may involve preliminary sam inalysis is by collision cell inductively coupled plasm	Iluating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or

MET-TOT-ICP-VA

EPA SW-846 3005A/6010B

American Public Health Ass States Environmental Prote	ociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp nstrumental analysis is by inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an e determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out a after persulphate digestion of		ures adapted from APHA Method 4500-P "Phosphorus"	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". 1	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
РН-РСТ-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". 1	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out colourimetrically on a samp	using procedu le that has be	ures adapted from APHA Method 4500-P "Phosphorus en lab or field filtered through a 0.45 micron membran	". Dissolved Orthophosphate is determined e filter.
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	ociation, and ction Agency	ures adapted from "Standard Methods for the Examinar with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
			are determined gravimetrically. Total Dissolved Solids aporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turb	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turk	bidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame-	ionization de	extraction of the sample prior to analysis for Volatile Hy tection (GC/FID). The VH analysis is carried out in accord P) Analytical Method for Contaminated Sites "Volatile H	ordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
• •	•	is heated in a sealed vial to equilibrium. The headspac asured using mass spectrometry detection.	e from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero.

The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
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ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68626

GLOSSARY OF REPORT TERMS

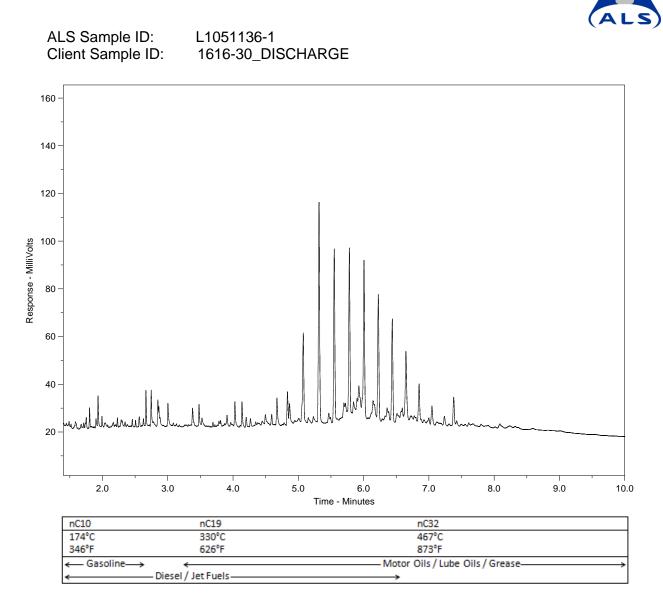
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. mg/kg - milligrams per kilogram based on dry weight of sample. mg/kg wwt - milligrams per kilogram based on wet weight of sample. mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample. mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

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Form 68676

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BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 01-SEP-11 Report Date: 14-SEP-11 17:28 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1053212

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

BHP2001 68635

6200801716

Can Dang Senior Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1053212-1 WATER 29-AUG-11 18:25 1616- 30_DISCHARGE
Grouping	Analyte	
WATER		
Physical Tests	Conductivity (uS/cm)	837
	Hardness (as CaCO3) (mg/L)	156
	рН (рН)	7.91
	Total Suspended Solids (mg/L)	4.0
	Total Dissolved Solids (mg/L)	497
	Turbidity (NTU)	0.83
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	44.6
	Ammonia (as N) (mg/L)	0.0129
	Chloride (Cl) (mg/L)	<mark>142</mark>
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.86</mark>
	Nitrate (as N) (mg/L)	<mark>3.84</mark>
	Nitrite (as N) (mg/L)	0.021
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010
	Phosphorus (P)-Total (mg/L)	<mark>0.0050</mark>
	Sulfate (SO4) (mg/L)	122
Organic / Inorganic Carbon	Total Carbon (mg/L)	13.4
	Total Organic Carbon (mg/L)	<mark>4.70</mark>
Total Metals	Aluminum (Al)-Total (mg/L)	0.0329
	Antimony (Sb)-Total (mg/L)	0.00129
	Arsenic (As)-Total (mg/L)	0.00056
	Barium (Ba)-Total (mg/L)	0.0809
	Beryllium (Be)-Total (mg/L)	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050
	Boron (B)-Total (mg/L)	0.027
	Cadmium (Cd)-Total (mg/L)	<0.000040
	Calcium (Ca)-Total (mg/L)	36.1
	Chromium (Cr)-Total (mg/L)	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00010
	Copper (Cu)-Total (mg/L)	0.00132
	Iron (Fe)-Total (mg/L)	<0.030
	Lead (Pb)-Total (mg/L)	<0.000050
	Lithium (Li)-Total (mg/L)	0.00562
	Magnesium (Mg)-Total (mg/L)	16.0
	Manganese (Mn)-Total (mg/L)	0.00484
	Molybdenum (Mo)-Total (mg/L)	0.0887
	Nickel (Ni)-Total (mg/L)	0.00447

	Sa	Sample ID Description ampled Date ampled Time Client ID	L1053212-1 WATER 29-AUG-11 18:25 1616- 30_DISCHARGE
Grouping	Analyte		
WATER			
Total Metals	Potassium (K)-Total (mg/L)		29.2
	Selenium (Se)-Total (mg/L)		0.00024
	Silicon (Si)-Total (mg/L)		0.179
	Silver (Ag)-Total (mg/L)		<0.000010
	Sodium (Na)-Total (mg/L)		96.7
	Strontium (Sr)-Total (mg/L)		0.739
	Thallium (TI)-Total (mg/L)		0.000039
	Tin (Sn)-Total (mg/L)		<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010
	Uranium (U)-Total (mg/L)		0.000548
	Vanadium (V)-Total (mg/L)		<mark><0.0010</mark>
	Zinc (Zn)-Total (mg/L)		<mark><0.0030</mark>
Aggregate Organics	Oil and Grease (mg/L)		<mark><5.0</mark>
Volatile Organic Compounds	Benzene (mg/L)		<mark><0.00050</mark>
	Ethylbenzene (mg/L)		<0.00050
	Styrene (mg/L)		<0.00050
	Toluene (mg/L)		<0.00050
	ortho-Xylene (mg/L)		<0.00050
	meta- & para-Xylene (mg/L)		<0.00050
	Xylenes (mg/L)		<0.00075
	Surrogate: 4-Bromofluorobenzen	ne (SS) (%)	84
	Surrogate: 1,4-Difluorobenzene ((SS) (%)	100
Hydrocarbons	TVH (C5-C10) (mg/L)		<mark><0.10</mark>
	TEH10-30 (mg/L)		<mark><0.15</mark>
	TPH5-30 (mg/L)		<mark><0.25</mark>
Glycols	Diethylene Glycol (mg/L)		<5.0
	Ethylene Glycol (mg/L)		<5.0
	1,2-Propylene Glycol (mg/L)		<mark><5.0</mark>

Qualifiers for Individual Parameters Listed:

Qualifier Description DLM Detection Limit Adjusted For Sample Matrix Effects Test Method References: **ALS Test Code** Matrix Method Reference** **Test Description** Alkalinity by Colourimetric (Automated) ALK-COL-VA Water APHA 310.2 This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. APHA 4110 B. ANIONS-CL-IC-VA Water Chloride by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite & Nitrate in Water (Calculation) ANIONS-N+N-CALC-VA Water EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). EPA 300.0 ANIONS-NO2-IC-VA Water Nitrite in Water by Ion Chromatography This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. EPA 300.0 ANIONS-NO3-IC-VA Water Nitrate in Water by Ion Chromatography This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Total Arsenic in Water by CRC ICPMS AS-T-CCMS-VA Water APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A) APHA 5310 TOTAL ORGANIC CARBON (TOC) **CARBONS-TC-VA** Water Total carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". **CARBONS-TOC-VA** APHA 5310 TOTAL ORGANIC CARBON (TOC) Water Total organic carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc. This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. **EPH-LL-SF-FID-VA** Water EPH in Waters by GCFID BCMOE EPH GCFID This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. APHA 3030 B&E / EPA SW-846 6020A MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examina I with procedures adapted from "Test Methods for Eval (EPA). The procedures may involve preliminary samp nstrumental analysis is by inductively coupled plasma	uating Solid Waste" SW-846 published by the United ble treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an e determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out a after persulphate digestion of		ures adapted from APHA Method 4500-P "Phosphorus e.	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using proced	ures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using proced	ures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus een lab or field filtered through a 0.45 micron membran	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examina I with procedures adapted from "Test Methods for Eval (EPA). The procedures may involve preliminary samp I analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United ble treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
			are determined gravimetrically. Total Dissolved Solids aporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proced	ures adapted from APHA Method 2130 "Turbidity". Tur	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using proced	ures adapted from APHA Method 2130 "Turbidity". Tur	bidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame-	ionization de	extraction of the sample prior to analysis for Volatile Hy tection (GC/FID). The VH analysis is carried out in acc P) Analytical Method for Contaminated Sites "Volatile H	ordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		is heated in a sealed vial to equilibrium. The headspace asured using mass spectrometry detection.	e from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero.

The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

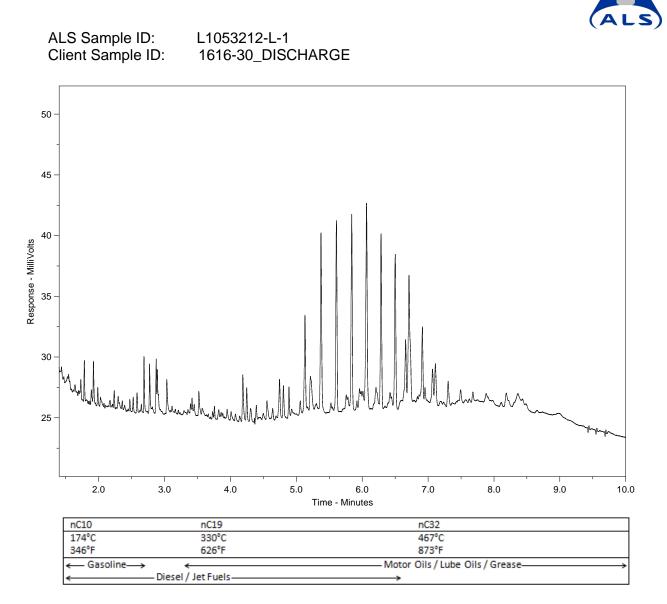
< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



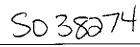
The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

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1102 4920 52nd Street, Yellowknife, NT X1A 3T1 Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

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compliance.team@bhpbilliton.com;



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:08-SEP-11Report Date:20-SEP-11 18:01 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1055651

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68651 68651 6200801716

Comments: Please note the following conformances regarding the samples client identify as "1616-121" and "1616-494":

- The vials for Glycol analysis were not received;

- The bottles for Oil and Grease analysis were received;

- The chain of custody form requested Glycols analysis instead of Oil and grease analysis.

Oil and Grease analysis was performed on these sample instead of Glycols analysis as requested.

Can Dang Senior Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

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	Sample ID Description Sampled Date Sampled Time Client ID	L1055651-1 WATER 05-SEP-11 12:24 1616- 30_DISCHARGE	L1055651-2 WATER 05-SEP-11 12:25 1616-121	L1055651-3 WATER 05-SEP-11 12:26 1616-494	L1055651-4 WATER 05-SEP-11 12:36 1616-302	
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	827	<2.0	<2.0	823	
	Hardness (as CaCO3) (mg/L)	158	<0.50	<0.50	159	
	pH (pH)	7.94	6.07	5.65	7.91	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	512	<10	<10	496	
	Turbidity (NTU)	1.68	<0.10	<0.10	1.79	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	43.4	<2.0	<2.0	43.5	
	Ammonia (as N) (mg/L)	0.0095	<0.0050	0.0063	0.0111	
	Chloride (Cl) (mg/L)	<mark>141</mark>	<0.50	<0.50	143	
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.57</mark>	<0.0051	<0.0051	3.66	
	Nitrate (as N) (mg/L)	<mark>3.56</mark>	<0.0050	<0.0050	3.66	
	Nitrite (as N) (mg/L)	0.0114	<0.0010	<0.0010	<0.010	
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	0.0063	<0.0020	<0.0020	0.0065	
	Sulfate (SO4) (mg/L)	<mark>122</mark>	<0.50	<0.50	122	
Organic / Inorganic Carbon		12.4	<0.50	<0.50	12.3	
	Total Organic Carbon (mg/L)	<mark>5.40</mark>	1.03	<0.50	4.92	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0731	<0.0030	<0.0030	0.0962	
	Antimony (Sb)-Total (mg/L)	0.00127	<0.00010	<0.00010	0.00125	
	Arsenic (As)-Total (mg/L)	0.00059	<0.00010	<0.00010	0.00056	
	Barium (Ba)-Total (mg/L)	0.0838	<0.000050	<0.000050	0.0845	
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L) Cadmium (Cd)-Total (mg/L)	0.030	<0.010	<0.010	0.029 DLM	
		<0.000040	<0.000010	<0.000010	<0.000040	
	Calcium (Ca)-Total (mg/L)	36.0	<0.050	<0.050	36.1	
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	0.00054	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00011	
	Copper (Cu)-Total (mg/L)	0.00136	<0.00050	<0.00050	0.00134	
	Iron (Fe)-Total (mg/L)	0.060	<0.030	<0.030	0.082	
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	0.00665	<0.00050	<0.00050	0.00655	
	Magnesium (Mg)-Total (mg/L)	16.6	<0.10	<0.10	16.6	
	Manganese (Mn)-Total (mg/L)	0.00557	<0.000050	<0.000050	0.00583	
	Molybdenum (Mo)-Total (mg/L)	0.0846	<0.000050	<0.000050	0.0848	
	Nickel (Ni)-Total (mg/L)	0.00473	<0.00050	<0.00050	0.00487	

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n (K)-Total (mg/L) (Se)-Total (mg/L) i)-Total (mg/L))-Total (mg/L) Na)-Total (mg/L) (Sr)-Total (mg/L) (Sr)-Total (mg/L) TI)-Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) n (V)-Total (mg/L) Total (mg/L) rease (mg/L)	29.4 0.00024 0.263 <0.000010 94.2 0.763 0.000039 <0.00010 <0.000563 <0.0010 <0.000563 <0.0010	<2.0 <0.00010 <0.050 <0.000010 <2.0 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010	<2.0 <0.00010 <0.050 <0.000010 <2.0 <0.00010 <0.000010 <0.0010 <0.010	29.1 0.00023 0.345 <0.000010 94.0 0.755 0.000037 <0.00010 <0.010
(Se)-Total (mg/L) i)-Total (mg/L))-Total (mg/L) (Sr)-Total (mg/L) (TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) h (V)-Total (mg/L) Total (mg/L)	0.00024 0.263 <0.000010 94.2 0.763 0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.00010 <0.050 <0.000010 <2.0 <0.00010 <0.00010 <0.00010 <0.010 <0.00010	<0.00010 <0.050 <0.000010 <2.0 <0.00010 <0.000010 <0.00010 <0.010	0.00023 0.345 <0.000010 94.0 0.755 0.000037 <0.00010
(Se)-Total (mg/L) i)-Total (mg/L))-Total (mg/L) (Sr)-Total (mg/L) (TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) h (V)-Total (mg/L) Total (mg/L)	0.00024 0.263 <0.000010 94.2 0.763 0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.00010 <0.050 <0.000010 <2.0 <0.00010 <0.00010 <0.00010 <0.010 <0.00010	<0.00010 <0.050 <0.000010 <2.0 <0.00010 <0.000010 <0.00010 <0.010	0.00023 0.345 <0.000010 94.0 0.755 0.000037 <0.00010
i)-Total (mg/L))-Total (mg/L) Na)-Total (mg/L) (Sr)-Total (mg/L) (TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) U)-Total (mg/L) n (V)-Total (mg/L) Total (mg/L)	0.00024 0.263 <0.000010 94.2 0.763 0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.050 <0.000010 <2.0 <0.00010 <0.000010 <0.00010 <0.010 <0.00010	<0.050 <0.000010 <2.0 <0.00010 <0.000010 <0.00010 <0.010	0.345 <0.000010 94.0 0.755 0.000037 <0.00010
)-Total (mg/L) Na)-Total (mg/L) (Sr)-Total (mg/L) TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) Total (mg/L)	<0.000010 94.2 0.763 0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.000010 <2.0 <0.00010 <0.00010 <0.00010 <0.010 <0.00010	<0.000010 <2.0 <0.00010 <0.000010 <0.00010 <0.010	<0.000010 94.0 0.755 0.000037 <0.00010
Na)-Total (mg/L) (Sr)-Total (mg/L) (TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) (V)-Total (mg/L) Total (mg/L)	94.2 0.763 0.000039 <0.00010 <0.010 0.000563 <0.0010	<2.0 <0.00010 <0.00010 <0.00010 <0.010 <0.000010	<2.0 <0.00010 <0.000010 <0.00010 <0.010	94.0 0.755 0.000037 <0.00010
(Sr)-Total (mg/L) TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) (V)-Total (mg/L) Total (mg/L)	94.2 0.763 0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.00010 <0.000010 <0.00010 <0.010 <0.000010	<0.00010 <0.000010 <0.00010 <0.010	0.755 0.000037 <0.00010
TI)-Total (mg/L) Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) (V)-Total (mg/L) Total (mg/L)	0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.000010 <0.00010 <0.010 <0.000010	<0.000010 <0.00010 <0.010	0.000037 <0.00010
Total (mg/L) (Ti)-Total (mg/L) (U)-Total (mg/L) n (V)-Total (mg/L) Total (mg/L)	0.000039 <0.00010 <0.010 0.000563 <0.0010	<0.00010 <0.010 <0.000010	<0.00010 <0.010	<0.00010
(Ti)-Total (mg/L) (U)-Total (mg/L) h (V)-Total (mg/L) Total (mg/L)	<0.00010 <0.010 0.000563 <0.0010	<0.010 <0.000010	<0.010	
U)-Total (mg/L) n (V)-Total (mg/L) Total (mg/L)	0.000563 <0.0010	<0.000010		<0.010
n (V)-Total (mg/L) Total (mg/L)	<0.0010		-0.000010	40.010
Total (mg/L)		<0.0010	<0.000010	0.000561
	<0.0030	<0.0010	<0.0010	<0.0010
rease (mg/L)		<0.0030	<0.0030	<0.0030
	<5.0	<5.0	<5.0	<5.0
(mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050
ene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
ng/L)	<0.00050	<0.00050	<0.00050	<0.00050
mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
ene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
ara-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
mg/L)	<0.00075	<0.00075	<0.00075	<0.00075
: 4-Bromofluorobenzene (SS) (%)	<mark>98</mark>	97	101	100
: 1,4-Difluorobenzene (SS) (%)	100	100	99	99
C10) (mg/L)	<mark><0.10</mark>	<0.10	<0.10	<0.10
) (mg/L)	<mark><0.15</mark>	<0.15	<0.15	<0.15
(mg/L)	<mark><0.25</mark>	<0.25	<0.25	<0.25
e Glycol (mg/L)	<5.0			<5.0
Glycol (mg/L)	<5.0			<5.0
lene Glycol (mg/L)	<5.0			<5.0
	4-Bromofluorobenzene (SS) (%) 1,4-Difluorobenzene (SS) (%) 10) (mg/L) (mg/L) mg/L) Glycol (mg/L) lycol (mg/L)	4-Bromofluorobenzene (SS) (%) 98 1,4-Difluorobenzene (SS) (%) 100 10) (mg/L) <0.10	4-Bromofluorobenzene (SS) (%) 98 97 1,4-Difluorobenzene (SS) (%) 100 100 10) (mg/L) <0.10	4-Bromofluorobenzene (SS) (%) 98 97 101 1,4-Difluorobenzene (SS) (%) 100 100 99 10) (mg/L) <0.10

QC Samples with Qualifiers & Comments:

QC Type Descri	ption	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Cont	rol Sample	1,2-Propylene Glycol	LCS-ND	L1055651-1, -4
Laboratory Cont	rol Sample	Diethylene Glycol	LCS-ND	L1055651-1, -4
Laboratory Cont	rol Sample	Ethylene Glycol	LCS-ND	L1055651-1, -4
Matrix Spike		Total Organic Carbon	MS-B	L1055651-1, -3, -4
Qualifiers for In	ndividual Parameters	Listed:		
Qualifier	Description			
DLM	Detection Limit Adjust	ed For Sample Matrix Effects		
LCS-ND		·	O. Reported non-c	letect results for associated samples were unaffected.
MS-B	•	could not be accurately calculated d	•	I
ant Mathad Da		,		
est Method Re ALS Test Code	Matrix	Test Description		Method Reference**
			votod)	
ALK-COL-VA	Water	Alkalinity by Colourimetric (Autom	,	APHA 310.2
colourimetric me	01	dures adapted from EPA Method 31	0.2 "Alkalinity". Tot	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-V	A Water	Chloride by Ion Chromatography		APHA 4110 B.
		dures adapted from APHA Method 4 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-CA	ALC-VA Water	Nitrite & Nitrate in Water (Calcula	tion)	EPA 300.0
Nitrate and Nitri	ite (as N) is a calculated	d parameter. Nitrate and Nitrite (as N	I) = Nitrite (as N) +	Nitrate (as N).
ANIONS-NO2-IC	-VA Water	Nitrite in Water by Ion Chromatog	raphy	EPA 300.0
This analysis is detected by UV	01	dures adapted from EPA Method 30	0.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC	-VA Water	Nitrate in Water by Ion Chromatog	graphy	EPA 300.0
This analysis is detected by UV		dures adapted from EPA Method 30	0.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC	-VA Water	Sulfate by Ion Chromatography		APHA 4110 B.
		dures adapted from APHA Method 4 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC IC	PMS	APHA 3030 B&E / EPA SW-846 6020A
American Public States Environn	c Health Association, an nental Protection Agend	nd with procedures adapted from "Te cy (EPA). The procedures may invol	est Methods for Eva	ation of Water and Wastewater" published by the luating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
CARBONS-TC-V	A Water	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	carried out using proce	dures adapted from APHA Method 5	5310 "Total Organic	Carbon (TOC)".
CARBONS-TOC-	-VA Water	Total organic carbon by combusti	on	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	carried out using proce	dures adapted from APHA Method 5		
EC-PCT-VA	Water	Conductivity (Automated)		APHA 2510 Auto. Conduc.
	carried out using proce	,	2510 "Conductivity"	Conductivity is determined using a conductivity
EPH-LL-SF-FID-	VA Water	EPH in Waters by GCFID		BCMOE EPH GCFID
This analysis is Contaminated S entire water san with flame ioniza	carried out in accordan Sites "Extractable Petrol nple with dichlorometha	ice with the British Columbia Ministry leum Hydrocarbons in Water by GC/ ane. The extract is then solvent excha-). EPH results include Polycyclic Ard	FID" (Version 2.1, anged to toluene ar	ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the nd analysed by capillary column gas chromatography ns (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-V	-	Glycols in Water by GCFID		SW-846, METHOD 8015B, EPA
This analysis is United States E chloride to form	carried out using proce invironmental Protection the corresponding ben	dures adapted from "Test Methods f Agency (EPA). The procedure invo	olves treatment of t	Waste" SW-846, Method 8015B, published by the he sample with a strong base (NaOH) and benzoyl vith iso-octane and the extract is analyzed by capillary

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HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
		s) is calculated from the sum of Calcium and Magnesiu entrations are preferentially used for the hardness calc	
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examina with procedures adapted from "Test Methods for Eval (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examina with procedures adapted from "Test Methods for Eval (EPA). The procedures may involve preliminary samp nstrumental analysis is by inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an e determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion	01	ures adapted from APHA Method 4500-P "Phosphorus	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	Γhe pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	onducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	onducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus en lab or field filtered through a 0.45 micron membran	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examina with procedures adapted from "Test Methods for Eval (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
			are determined gravimetrically. Total Dissolved Solids aporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turl	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using procedu	ures adapted from APHA Method 2130 "Turbidity". Turl	bidity is determined by the nephelometric method.
TVH-HSFID-VA		TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
		extraction of the sample prior to analysis for Volatile Hy tection (GC/FID). The VH analysis is carried out in acc	

Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999).

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		is heated in a sealed vial to equilibrium. The headspac assured using mass spectrometry detection.	e from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION
O I I I I I I I I I I			

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68651

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

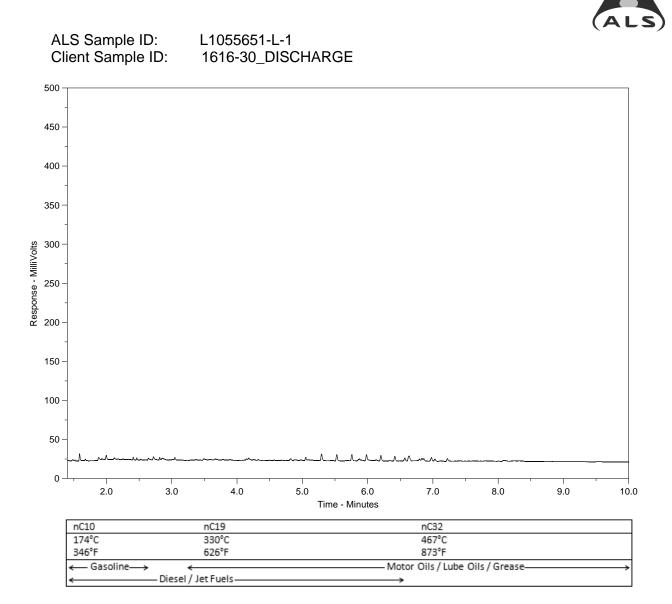
mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

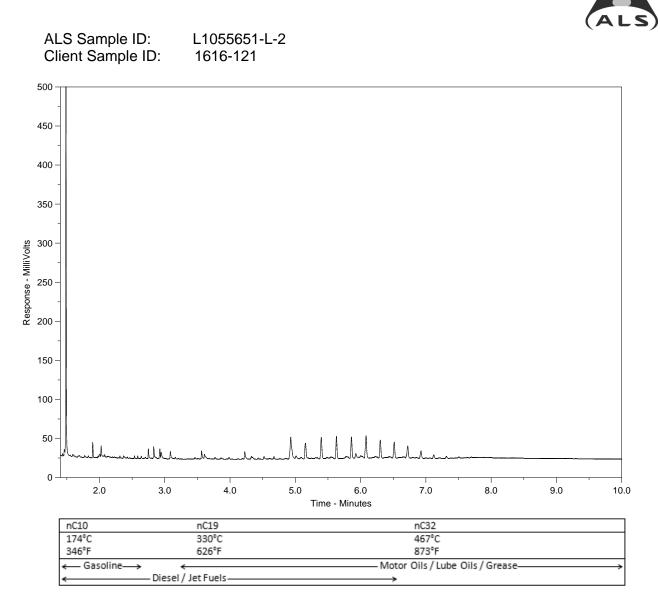
Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

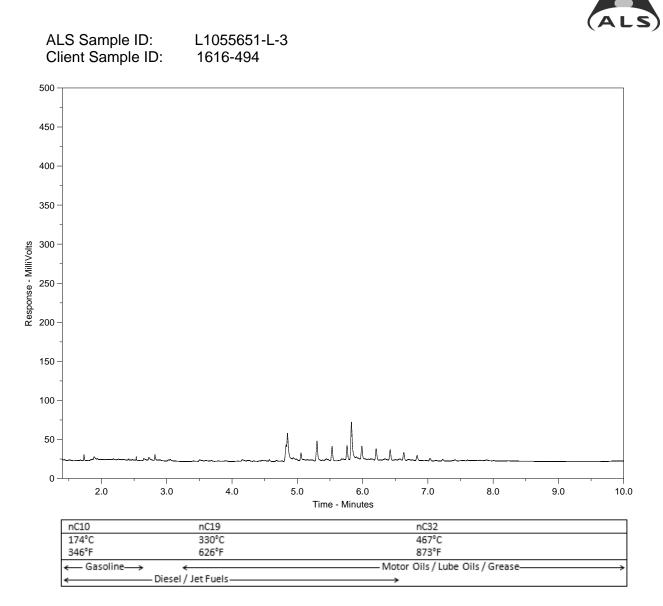
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



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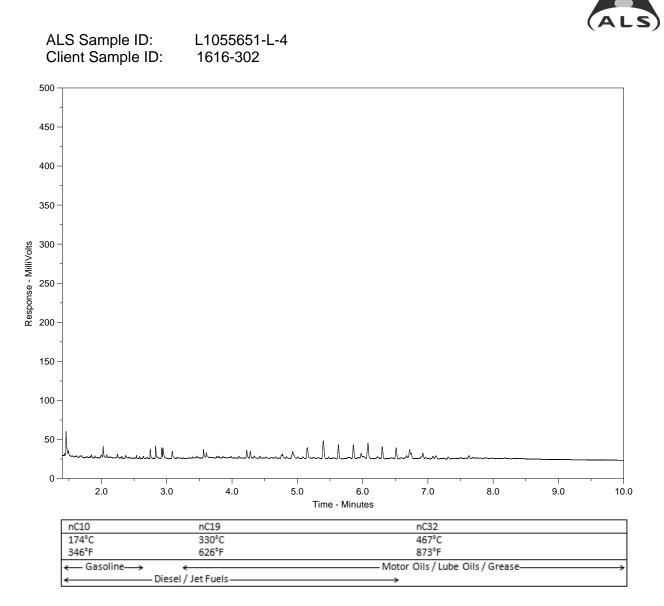
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



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ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

8081 Lougheed Highway • Suite 100 • Burnaby,

Form 68651

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BHP Billiton Diamonds Inc.



L1055651 SE:38278

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(ALS)

CHAIN OF CUSTODY FORM

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1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012

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BHP Contacts: David Bruce/ Richard EhlertDavid

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Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700

ALS Contact: Can Dang

For Lab Use				
		<u> </u>		
1616-30_Discharge Water 05-Sep-2011 12:24 PM KJ 1	BHP2 BHP2			
1616-494 Water 105-Sep-2011 12:26 PM KJ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	BHP2		:	
1616-302 Water 05-Sep-2011 12:36 PM KJ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	BHP2			
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Turn around Required: RUSH. 1-week turnaroud. Forward results by 12 Sep 2011	Relinquishe	ed by:	Date Time	Received by:	Date
Special Instructions (Billing details, QC reporting, etc):	Relinguishe	ed by:	Date	Received by:	Date SPACE
Billing Code: BHP2001			Time FO	R LAB USE ONLY	
		Cooler seal int	tact upon receipt?	Sample tempurature upon re Frozen? J Yes	ecceipt:C.
	_compliane	ce.team@bhpbill		nalytical Results to:	



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:14-SEP-11Report Date:29-SEP-11 18:59 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1058050

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

Comments:

Can Dang Senior Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

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	Sample ID Description Sampled Date Sampled Time Client ID	L1058050-1 WATER 12-SEP-11 14:06 1616- 30_QUARTERLY		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	833		
	Hardness (as CaCO3) (mg/L)	149		
	рН (рН)	7.83		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	509		
	Turbidity (NTU)	1.24		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	43.9		
	Ammonia (as N) (mg/L)	0.0145		
	Chloride (Cl) (mg/L)	<mark>142</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.88</mark>		
	Nitrate (as N) (mg/L)	<mark>3.87</mark>		
	Nitrite (as N) (mg/L)	0.012		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0066		
	Sulfate (SO4) (mg/L)	<mark>124</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>11.7</mark>		
	Total Organic Carbon (mg/L)	<mark>5.19</mark>		
Bacteriological Tests	Escherichia Coli (MPN/100mL)	<mark><1</mark>		
	Total Coliforms (MPN/100mL)	31		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0347		
	Antimony (Sb)-Total (mg/L)	0.00124		
	Arsenic (As)-Total (mg/L)	0.00052		
	Barium (Ba)-Total (mg/L)	0.0783		
	Beryllium (Be)-Total (mg/L)	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.027 DLM		
	Cadmium (Cd)-Total (mg/L)	<0.000040		
	Calcium (Ca)-Total (mg/L)	<mark>33.8</mark>		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00122		
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00510		
	Magnesium (Mg)-Total (mg/L)	15.7		
	Manganese (Mn)-Total (mg/L)	0.00497		

L1058050 CONTD.... PAGE 3 of 6 29-SEP-11 18:59 (MT) Version: FINAL

WATER Total Metals Moly Nick Pota Sele Silic Silic Sod Stro That Tital Urar Van Zinc Aggregate Organics BOD Oil a	nalyte ybdenum (Mo)-Total (mg/L) xel (Ni)-Total (mg/L) assium (K)-Total (mg/L) enium (Se)-Total (mg/L) con (Si)-Total (mg/L) er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) ontium (Sr)-Total (mg/L) lium (TI)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) c (Zn)-Total (mg/L) and Grease (mg/L)	0.0797 0.00400 28.0 0.00021 0.132 <0.000010 89.2 0.704 0.000034 <0.00010 <0.0010 <0.0010 <0.0010 <0.0010 <0.0010		
Total Metals Moly Nick Nick Pota Sele Silic Silic Silic Silic Sod Stro Thal Tin Tin Tital Urar Van Zince BOE Organics Oil a	kel (Ni)-Total (mg/L) assium (K)-Total (mg/L) enium (Se)-Total (mg/L) con (Si)-Total (mg/L) er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) nium (Sr)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) e (Zn)-Total (mg/L) c (mg/L)	0.00400 28.0 0.00021 0.132 <0.000010 89.2 0.704 0.000034 <0.00010 <0.0010 0.000528 <0.0010 <0.0010 <0.00030 <5.0		
Nick Pota Sele Silic Silve Sod Stro Thai Tin Tita Urar Van Zinc Aggregate Organics BOD Oil a	kel (Ni)-Total (mg/L) assium (K)-Total (mg/L) enium (Se)-Total (mg/L) con (Si)-Total (mg/L) er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) nium (Sr)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) e (Zn)-Total (mg/L) c (mg/L)	0.00400 28.0 0.00021 0.132 <0.000010 89.2 0.704 0.000034 <0.00010 <0.0010 0.000528 <0.0010 <0.0010 <0.00030 <5.0		
Pota Sele Silic Silve Sod Stro Thal Tin o Tita Urar Van Zinc Aggregate Organics Oil a Volatile Organic Ben	assium (K)-Total (mg/L) enium (Se)-Total (mg/L) eon (Si)-Total (mg/L) er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) ontium (Sr)-Total (mg/L) llium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) eadium (V)-Total (mg/L) e (Zn)-Total (mg/L) D (mg/L)	0.00400 28.0 0.00021 0.132 <0.000010 89.2 0.704 0.000034 <0.00010 <0.0010 0.000528 <0.0010 <0.0010 <0.00030 <5.0		
Sele Silic Silve Sod Stro Thai Tin Urar Van Zinc Aggregate Organics Oil a Volatile Organic Ben	enium (Se)-Total (mg/L) con (Si)-Total (mg/L) er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) nium (Sr)-Total (mg/L) llium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (U)-Total (mg/L) edium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	28.0 0.00021 0.132 <0.000010 89.2 0.704 0.000034 <0.00010 <0.0010 0.000528 <0.0010 <0.0030 <5.0		
Silic Silve Sod Stro Thai Tin t Urar Van Zinc Aggregate Organics Oil a Volatile Organic Ben	con (Si)-Total (mg/L) er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) entium (Sr)-Total (mg/L) llium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) eadium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	0.00021 0.132 <0.000010 89.2 0.704 0.000034 <0.00010 <0.0010 0.000528 <0.0010 <0.0030 <5.0		
Silve Sod Stro Thai Tita Urar Van Zinc Aggregate Organics Oil a Volatile Organic Ben	er (Ag)-Total (mg/L) lium (Na)-Total (mg/L) ontium (Sr)-Total (mg/L) llium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	<0.000010 89.2 0.704 0.000034 <0.00010 <0.010 0.000528 <0.0010 <0.0030 <5.0		
Sod Stro Thai Tin (Titar Urar Van Zinc Aggregate Organics Oil a Volatile Organic Ben	lium (Na)-Total (mg/L) ontium (Sr)-Total (mg/L) Ilium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	89.2 0.704 0.000034 <0.0010 <0.010 0.000528 <0.0010 <0.0030 <5.0		
Stro Thai Tin (Titar Urar Van Zinc Aggregate BOE Organics Oil a Volatile Organic Ben	entium (Sr)-Total (mg/L) Ilium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	0.704 0.000034 <0.00010 <0.010 0.000528 <0.0010 <0.0030 <5.0		
Thai Tin (Titau Urar Van Zinc Aggregate BOE Organics Oil a Volatile Organic Ben	llium (TI)-Total (mg/L) (Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	0.000034 <0.00010 <0.010 0.000528 <0.0010 <0.0030 <5.0		
Tin (Tita) Urar Van Zinc Aggregate BOE Organics Oil a Volatile Organic Ben	(Sn)-Total (mg/L) nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	<0.00010 <0.010 0.000528 <0.0010 <0.0030 <5.0		
Tita Urar Van Zinc Aggregate BOE Organics Oil a Volatile Organic Ben	nium (Ti)-Total (mg/L) nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	<0.010 0.000528 <0.0010 <0.0030 <5.0		
Urar Van Zinc Aggregate BOE Organics Oil a Volatile Organic Ben	nium (U)-Total (mg/L) adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	0.000528 <0.0010 <0.0030 <5.0		
Van Zinc Aggregate BOD Organics Oil a Volatile Organic Ben	adium (V)-Total (mg/L) c (Zn)-Total (mg/L) D (mg/L)	<0.0010 <0.0030 <5.0		
Aggregate BOE Organics Oil a Volatile Organic Ben	c (Zn)-Total (mg/L) D (mg/L)	<0.0030 <5.0		
Aggregate BOD Organics Oil a Volatile Organic Ben	D (mg/L)	<5.0		
Organics Oil a Volatile Organic Ben				
Volatile Organic Ben	and Grease (mg/L)			
		<mark><5.0</mark>		
Compounds	zene (mg/L)	<0.00050		
	ylbenzene (mg/L)	<0.00050		
	rene (mg/L)	<mark><0.00050</mark>		
	uene (mg/L)	<mark><0.00050</mark>		
	o-Xylene (mg/L)	<mark><0.00050</mark>		
	a- & para-Xylene (mg/L)	<mark><0.00050</mark>		
	enes (mg/L)	<mark><0.00075</mark>		
	rogate: 4-Bromofluorobenzene (SS) (%)	<mark>108</mark>		
	rogate: 1,4-Difluorobenzene (SS) (%)	<mark>.99</mark>		
•	I (C5-C10) (mg/L)	<mark><0.10</mark>		
	110-30 (mg/L)	<mark><0.15</mark>		
	15-30 (mg/L)	<mark><0.25</mark>		
	hylene Glycol (mg/L)	<mark><5.0</mark>		
	/lene Glycol (mg/L)	<mark><5.0</mark>		
1,2-	Propylene Glycol (mg/L)	<mark><5.0</mark>		

QC Samples with Qualifiers & Comments:

	ption	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank		Benzene	MB-LOR	L1058050-1
Matrix Spike		Total Organic Carbon	MS-B	L1058050-1
Matrix Spike		Total Organic Carbon	MS-B	L1058050-1
Qualifiers for In	ndividual Parameters	Listed:		
Qualifier	Description			
DLM	Detection Limit Adjust	ted For Sample Matrix Effects		
MB-LOR	Method Blank exceed analysis is required.	s ALS DQO. LORs adjusted for sample	les with positive hi	ts below 5 times blank level. Please contact ALS if re-
MS-B	Matrix Spike recovery	could not be accurately calculated du	e to high analyte b	background in sample.
est Method Re	eferences:			
ALS Test Code	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automa	ited)	APHA 310.2
This analysis is colourimetric m	01	dures adapted from EPA Method 310	.2 "Alkalinity". Tota	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-V	/A Water	Chloride by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method 41 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-CA	ALC-VA Water	Nitrite & Nitrate in Water (Calculation	on)	EPA 300.0
Nitrate and Nitri	te (as N) is a calculated	d parameter. Nitrate and Nitrite (as N)	= Nitrite (as N) + N	Nitrate (as N).
ANIONS-NO2-IC	-VA Water	Nitrite in Water by Ion Chromatogra	aphy	EPA 300.0
This analysis is detected by UV		dures adapted from EPA Method 300	.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC		Nitrate in Water by Ion Chromatogr	aphy	EPA 300.0
This analysis is detected by UV		dures adapted from EPA Method 300	.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC	-VA Water	Sulfate by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method 41 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC ICP	MS	APHA 3030 B&E / EPA SW-846 6020A
American Public States Environn	c Health Association, ar	nd with procedures adapted from "Tes	t Methods for Eval	ation of Water and Wastewater" published by the luating Solid Waste" SW-846 published by the United
filtration (APHA 6020A).				ple treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
			ely coupled plasma	a - mass spectrometry (modifed from EPA Method
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo	ely coupled plasma ay 210 B - "Biochemic or a specified time ng the sample thro	a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin	ely coupled plasma ay 210 B - "Biochemic or a specified time ng the sample thro ample prior to incul	a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is BOD5-VA This analysis is oxygen demand dissolved oxyge	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding Water carried out using proce d (BOD) are determined en meter. Dissolved BO	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo	ely coupled plasma ay 210 B - "Biochemic or a specified time ng the sample throi ample prior to incul ay 210 B - "Biochemic or a specified time ng the sample throi	 a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin	ely coupled plasma ay 210 B - "Biochemic or a specified time ng the sample throi ample prior to incul ay 210 B - "Biochemic or a specified time ng the sample throi	 a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is CARBONS-TC-V	3030B&E). Instrument Water carried out using proce d (BOD) are determined an meter. Dissolved BO s determined by adding Water carried out using proce d (BOD) are determined an meter. Dissolved BO s determined by adding Water	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa	ely coupled plasma ay 210 B - "Biochemic or a specified time or a specified time ample prior to incut ay 210 B - "Biochemic or a specified time ng the sample thro ample prior to incut	 a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5310 TOTAL ORGANIC CARBON (TOC)
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is CARBONS-TC-V This analysis is	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding Water carried out using proce	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fr D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Total carbon by combustion	ely coupled plasma ay 210 B - "Biochemic or a specified time ing the sample throi ample prior to incut ay 210 B - "Biochemic or a specified time ing the sample throi ample prior to incut 310 "Total Organic	 a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5310 TOTAL ORGANIC CARBON (TOC)
6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is CARBONS-TC-V This analysis is CARBONS-TOC-	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO a determined by adding Water carried out using proce d (BOD) are determined en meter. Dissolved BO a determined by adding VA Water carried out using proce -VA Water	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Total carbon by combustion edures adapted from APHA Method 53	ely coupled plasma ay 210 B - "Biochemic or a specified time ng the sample throi ample prior to incut ay 210 B - "Biochemic or a specified time ng the sample throi ample prior to incut 310 "Total Organic n	 a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" al Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND and Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND and Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5310 TOTAL ORGANIC CARBON (TOC) CARBON (TOC)".
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6020A). BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is BOD5-VA This analysis is oxygen demand dissolved oxyge BOD (CBOD) is CARBONS-TC-V This analysis is CARBONS-TOC- This analysis is EC-PCT-VA	3030B&E). Instrument Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding Water carried out using proce d (BOD) are determined en meter. Dissolved BO s determined by adding VA Water carried out using proce -VA Water carried out using proce Water	tal analysis is by collision cell inductive Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Biochemical Oxygen Demand- 5 da edures adapted from APHA Method 52 I by diluting and incubating a sample fo D (SOLUBLE) is determined by filterin a nitrification inhibitor to the diluted sa Total carbon by combustion edures adapted from APHA Method 53 Total organic carbon by combustior edures adapted from APHA Method 53 Conductivity (Automated)	ely coupled plasma ay 210 B - "Biochemic or a specified time ing the sample throi ample prior to incut 210 B - "Biochemic or a specified time ing the sample throi ample prior to incut 310 "Total Organic n 310 "Total Organic	 a - mass spectrometry (modifed from EPA Method APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND" cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND cal Oxygen Demand (BOD)". All forms of biochemical operiod, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND (period, and measuring the oxygen depletion using a ugh a glass fibre filter prior to dilution. Carbonaceous bation. APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)".

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the

L1058050 CONTD PAGE 5 of 6 29-SEP-11 18:59 (MT) Version[.] FINAI

entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. **MET-T-CCMS-VA** Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry. "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

Ammonia in Water by Fluorescence

Oil & Grease by Gravimetric BCMOE (2010), EPA1664A **OGG-SF-VA** Water The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease.

P-T-COL-VA Water Total P in Water by Colour This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

pH by Meter (Automated) This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

Water

Water

NH3-F-VA

PH-PCT-VA

PH-PCT-VA Water pH by Meter (Automated)

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SE-T-CCMS-VA Water Total Selenium in Water by CRC ICPMS

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

TC,EC-QT97-YL Water Total Coliform and E.coli

The analysis of Total Coliform (TC) & Escherichia coli (EC) is processed by Quanti-tray (QT): Two substrates, ONPG for TC detection and MUG for EC detection are used. The substrates are added to the 100 ml sample dispensed into the 51 well tray. The tray is incubated at 35 Celcius for 24 hours. A colour reaction develops to indicate a positve reaction (presence of TC, EC). The number of positive wells are counted and converted to Most Probable Number Units (MPNU) per 100 ml. This test is also called 'rapid MPN method', therefore, the MPN results are derived from a statistical table with a 95% confidence and report as MPN units. The QT detection limit for a negative result is reported as zero.

J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

APHA 4500-P Phosphorous

APHA 4500-H "pH Value"

APHA 4500-H pH Value

APHA 4500-P Phosphorous

APHA 3030 B&E / EPA SW-846 6020A

APHA 9223

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		edures adapted from APHA Method 2540 "Solids". S g a sample through a glass fibre filter, TSS is determ	Solids are determined gravimetrically. Total Suspended nined by drying the filter at 104 degrees celsius.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proc	edures adapted from APHA Method 2130 "Turbidity"	. Turbidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using proc	edures adapted from APHA Method 2130 "Turbidity"	. Turbidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame	-ionization	e extraction of the sample prior to analysis for Volati detection (GC/FID). The VH analysis is carried out ir ELP) Analytical Method for Contaminated Sites "Vola	
1999).			
	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
1999). VOC7-HSMS-VA The water sample, with add	ded reagen	, , ,	,
1999). VOC7-HSMS-VA The water sample, with add	ded reagen	ts, is heated in a sealed vial to equilibrium. The head	,
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr	ded reagent ations are i	ts, is heated in a sealed vial to equilibrium. The heac measured using mass spectrometry detection.	dspace from the vial is transfered into a gas chromatograph
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr VOC7/VOC-SURR-MS-VA	ded reagent rations are i Water Water	ts, is heated in a sealed vial to equilibrium. The heac measured using mass spectrometry detection. VOC7 and/or VOC Surrogates for Waters	dspace from the vial is transfered into a gas chromatograph EPA8260B, 5021
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr VOC7/VOC-SURR-MS-VA XYLENES-CALC-VA Calculation of Total Xylene: Total Xylenes is the sum of	ded reagent rations are in Water Water s f the conce	ts, is heated in a sealed vial to equilibrium. The head measured using mass spectrometry detection. VOC7 and/or VOC Surrogates for Waters Sum of Xylene Isomer Concentrations	dspace from the vial is transfered into a gas chromatograph EPA8260B, 5021 CALCULATION s. Results below detection limit (DL) are treated as zero.
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr VOC7/VOC-SURR-MS-VA XYLENES-CALC-VA Calculation of Total Xylenes Total Xylenes is the sum of The DL for Total Xylenes is	ded reagen rations are i Water Water s f the concer s set to a va	ts, is heated in a sealed vial to equilibrium. The head measured using mass spectrometry detection. VOC7 and/or VOC Surrogates for Waters Sum of Xylene Isomer Concentrations	dspace from the vial is transfered into a gas chromatograph EPA8260B, 5021 CALCULATION s. Results below detection limit (DL) are treated as zero. quares of the DLs of the individual Xylenes.
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr VOC7/VOC-SURR-MS-VA XYLENES-CALC-VA Calculation of Total Xylenes Total Xylenes is the sum of The DL for Total Xylenes is ** ALS test methods may inco	ded reagent rations are n Water Water s f the conce s set to a va prporate mo	ts, is heated in a sealed vial to equilibrium. The head measured using mass spectrometry detection. VOC7 and/or VOC Surrogates for Waters Sum of Xylene Isomer Concentrations ntrations of the ortho, meta, and para Xylene isomers alue no less than the square root of the sum of the so	dspace from the vial is transfered into a gas chromatograph EPA8260B, 5021 CALCULATION s. Results below detection limit (DL) are treated as zero. quares of the DLs of the individual Xylenes. rove performance.
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr VOC7/VOC-SURR-MS-VA XYLENES-CALC-VA Calculation of Total Xylenes Total Xylenes is the sum of The DL for Total Xylenes is ** ALS test methods may inco	ded reagen rations are r Water Water s f the concer s set to a va proporate mo	ts, is heated in a sealed vial to equilibrium. The head measured using mass spectrometry detection. VOC7 and/or VOC Surrogates for Waters Sum of Xylene Isomer Concentrations ntrations of the ortho, meta, and para Xylene isomer alue no less than the square root of the sum of the sc bdifications from specified reference methods to impr	dspace from the vial is transfered into a gas chromatograph EPA8260B, 5021 CALCULATION s. Results below detection limit (DL) are treated as zero. quares of the DLs of the individual Xylenes. rove performance.
1999). VOC7-HSMS-VA The water sample, with add Target compound concentr VOC7/VOC-SURR-MS-VA XYLENES-CALC-VA Calculation of Total Xylenes Total Xylenes is the sum of The DL for Total Xylenes is ** ALS test methods may inco The last two letters of the ab	ded reagen rations are i Water Water s f the concer s set to a va proorate mo poove test co back to a va back to a va to a va back to a va to a va t	ts, is heated in a sealed vial to equilibrium. The head measured using mass spectrometry detection. VOC7 and/or VOC Surrogates for Waters Sum of Xylene Isomer Concentrations nutrations of the ortho, meta, and para Xylene isomer alue no less than the square root of the sum of the sc polifications from specified reference methods to impr rde(s) indicate the laboratory that performed analytica	dspace from the vial is transfered into a gas chromatograph EPA8260B, 5021 CALCULATION s. Results below detection limit (DL) are treated as zero. quares of the DLs of the individual Xylenes. rove performance.

Chain of Custody Numbers:

68665

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

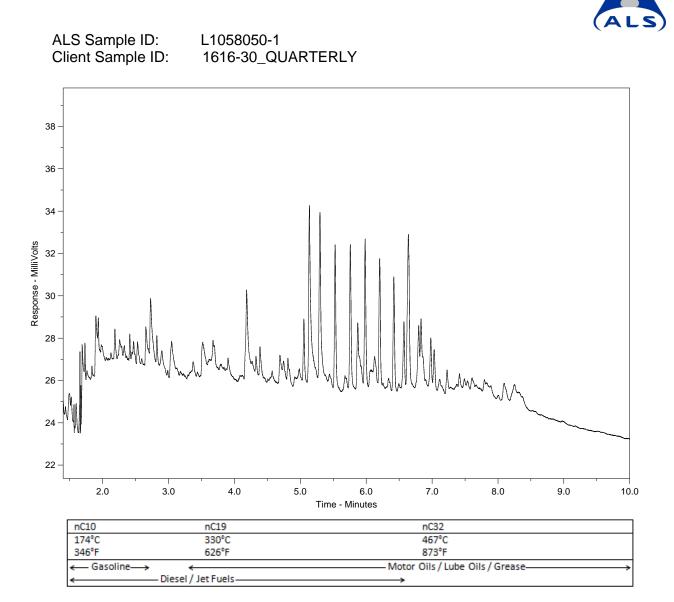
mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES

BHP175 ALS)

8081 Lougheed Highway • Suite 100 • Burnaby,

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ALS Contact: Can Dang

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LAB USE Ċ



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Form 68665

BHP Billiton Diamonds Inc.

bhpbilliton

CHAIN OF CUSTODY FORM

Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

SNP-0013 Total SNP-0013 Major Jons SNP-0013 I Parame Total Organic Carbon SNP-0013 Nutrients Total Phosphorus Aş, Escherichia col <u></u> Total Ammonia Total Coliforms L1058050 BTEX+TVH Se By CCMS Glycols and Grease BOD5 BTEX 몃 SQL TPH SSL Physical For Lab Use Meta Time Init Station ID Matrix Date 1616-30_Quarterly 12-Sep-2011 02:06 PM ٠JP 1 11 .1 BHP2001 Water 1 1 11 ŧ 1 :1 -1 :1 11 1 1 1 C j1 ú 1 Relinguished by: Date Received by: Date

Special Instructions (Billing details, QC reporting, etc.): Refinquished by: Date Date Date	Remitplished by.	te (ecelved by,)	
Billing Code: BHP2001 Analyze Bacteriology at YK Lab, Please forward the remainder of sample to ALS burnaby Attn: Can Dang Cooler seal intact upon receipt? Sample tempurature upon receipt? C. Yes No N/A Frozen? Yes No Send Analytical Results to: compliance.team@bhpbilliton.com;	Please forward the remainder of sample to ALS burnaby Attn: Can Cooler seal intact	FOR LAB USE ONLY Upon receipt? Sample tempurature upon receipt? N/A Frozen? Yes Yes Send Analytical Results to:	/ 9 c.



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 26-SEP-11 Report Date: 07-OCT-11 17:24 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1063576

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68673

6200801716

Can Dang Senior Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1063576-1 WATER 19-SEP-11 (13:10) (1616-) 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	841		
	Hardness (as CaCO3) (mg/L)	149		
	pH (pH)	8.01		
	Total Suspended Solids (mg/L)	3.2		
	Total Dissolved Solids (mg/L)	510		
	Turbidity (NTU)	0.99		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	43.6		
	Ammonia (as N) (mg/L)	<0.0050		
	Chloride (Cl) (mg/L)	<mark>138</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.69</mark>		
	Nitrate (as N) (mg/L)	<mark>3.68</mark>		
	Nitrite (as N) (mg/L)	<mark>0.0134</mark>		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0068		
	Sulfate (SO4) (mg/L)	<mark>120</mark>		
Drganic / norganic Carbon		<mark>12.5</mark>		
	Total Organic Carbon (mg/L)	<mark>2.73</mark>		
otal Metals	Aluminum (Al)-Total (mg/L)	<mark>0.0328</mark>		
	Antimony (Sb)-Total (mg/L)	0.00125		
	Arsenic (As)-Total (mg/L)	0.00053		
	Barium (Ba)-Total (mg/L)	<mark>0.0758</mark>		
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.026		
	Cadmium (Cd)-Total (mg/L)	0.000020		
	Calcium (Ca)-Total (mg/L)	33.7		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00136		
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00422		
	Magnesium (Mg)-Total (mg/L)	15.6		
	Manganese (Mn)-Total (mg/L)	0.00470		
	Molybdenum (Mo)-Total (mg/L)	<mark>0.0851</mark>		
	Nickel (Ni)-Total (mg/L)	0.00432		

L1063576 CONTD.... PAGE 3 of 6 07-OCT-11 17:24 (MT) Version: FINAL

WATER 28.5 Selenium (Se)-Total (mg/L) 0.00024 Silicon (Si)-Total (mg/L) 0.158 Silver (Ag)-Total (mg/L) 0.158 Silver (Ag)-Total (mg/L) 0.000010 Sodium (Na)-Total (mg/L) 87.0 Strontium (Sr)-Total (mg/L) 0.720 Thallium (TI)-Total (mg/L) 0.000036 Tin (Sn)-Total (mg/L) <0.00010 Uranium (U)-Total (mg/L) <0.00010 Uranium (U)-Total (mg/L) <0.00055 Vanadium (V)-Total (mg/L) <0.00010 Zinc (Zn)-Total (mg/L) <0.0030 Aggregate Oil and Grease (mg/L) <5.0		Sample ID Description Sampled Date Sampled Time Client ID	L1063576-1 WATER 19-SEP-11 13:10 1616- 30_DISCHARGE		
Total Metals Potassium (K)-Total (mg/L) 28.5 Selenium (Se)-Total (mg/L) 0.00024 Silicon (Si)-Total (mg/L) 0.158 Silver (Ag)-Total (mg/L) 67.00 Sodum (Na)-Total (mg/L) 67.00 Strontium (Sr)-Total (mg/L) 0.720 Thallium (Th)-Total (mg/L) 0.000286 Tin (Sn)-Total (mg/L) 0.0000365 Tin (Sn)-Total (mg/L) 40.0010 Uranium (V)-Total (mg/L) 40.0010 Zinc (Zr)-Total (mg/L) 40.0010 Zinc (Zr)-Total (mg/L) 40.0010 Zinc (Zr)-Total (mg/L) 40.00050 Volatile Organic Benzene (mg/L) <65.0 Compounds Ethylbenzene (mg/L) 40.00050 Styrene (mg/L) 40.00050 Totalene (mg/L) 40.00050 Surogate: 1.4-Difluorobenzene (SS) (%) 85 Surogate: 1.4-Difluorobenzene (SS) (%) 85 Mydrocarbons TVH (CS-C10) (mg/L) 40.10 TeH1-030 (mg/L) 40.15 TeH5-30 (mg/L) 40.15	Grouping	Analyte			
Selenium (Se)-Total (mg/L) 0.00024 Silicon (Si)-Total (mg/L) 0.158 Silver (Ag)-Total (mg/L) 67.0 Sodium (Na)-Total (mg/L) 87.0 Strontium (Sr)-Total (mg/L) 0.720 Thallium (TI)-Total (mg/L) 0.00028 Tin (Sn)-Total (mg/L) 0.000038 Uranium (U)-Total (mg/L) 0.000055 Vanadium (V)-Total (mg/L) 0.0000555 Vanadium (V)-Total (mg/L) 0.000555 Valatile Organic Benzene (mg/L) <0.00050	WATER				
Silicon (Si)-Total (mg/L) 0.158 Silver (Ag)-Total (mg/L) 60.000010 Sodium (Na)-Total (mg/L) 87.0 Strontium (Sr)-Total (mg/L) 0.720 Thallium (TI)-Total (mg/L) 0.000036 Tin (Sn)-Total (mg/L) 0.000036 Tin (Sn)-Total (mg/L) 60.010 Uranium (U)-Total (mg/L) 0.000055 Vanadium (V)-Total (mg/L) 0.000050 Zinc (Zn)-Total (mg/L) 0.000050 Zinc (Zn)-Total (mg/L) 0.000050 Styrene (mg/L) <0.00050	Total Metals	Potassium (K)-Total (mg/L)	28.5		
Silver (Ag)-Total (mg/L) c0.000010 Sodium (Na)-Total (mg/L) 67.0 Strontium (Sr)-Total (mg/L) 0.720 Thallium (TI)-Total (mg/L) 0.000036 Tin (Sn)-Total (mg/L) c0.0010 Uranium (U)-Total (mg/L) c0.00001 Uranium (U)-Total (mg/L) c0.000055 Vanadium (U)-Total (mg/L) c0.00005 Vanadium (U)-Total (mg/L) c0.0000 Zinc (Zn)-Total (mg/L) c0.00005 Vanadium (U)-Total (mg/L) c0.00005 Volati Organics Benzene (mg/L) Styrene (mg/L) c0.00050 Styrene (mg/L) c0.00050 Styrene (mg/L) c0.00050 ortho-Xylene (mg/L) c0.00050 intho-Xylene (mg/		Selenium (Se)-Total (mg/L)	0.00024		
Sodium (Na)-Total (mg/L) 87.0 Strontium (Sr)-Total (mg/L) 0.720 Thallium (Ti)-Total (mg/L) 0.000036 Tin (Sn)-Total (mg/L) <0.0010		Silicon (Si)-Total (mg/L)	0.158		
Strontium (Sr)-Total (mg/L) 0.720 Thallium (TI)-Total (mg/L) 0.000036 Tin (Sn)-Total (mg/L) <0.00010		Silver (Ag)-Total (mg/L)	<0.000010		
Thallium (T)-Total (mg/L) 0.00036 Tin (Sn)-Total (mg/L) <0.00010		Sodium (Na)-Total (mg/L)	87.0		
Tin (Sn)-Total (mg/L) <0.0000		Strontium (Sr)-Total (mg/L)	0.720		
Titanium (Ti)-Total (mg/L) C0.010 Uranium (U)-Total (mg/L) C0.0010 Zinc (Zn)-Total (mg/L) C0.0030 Aggregate Oil and Grease (mg/L) C0.00050 Volatile Organics Benzene (mg/L) C0.00050 Ethylbenzene (mg/L) C0.00050 Styrene (mg/L) C0.00050 Toluene (mg/L) C0.00050 Styrene (mg/L) C0.00050 Toluene (mg/L) C0.00050 Styrene (mg/L) C0.00050 meta- & para-Xylene (mg/L) C0.00050 Surrogate: 1,4-Difluorobenzene (SS) (%) 85 Surrogate: 1,4-Difluorobenzene (SS) (%) 85 Hydrocarbons TVH (C5-C10) (mg/L) C0.10 TEH10-30 (mg/L) C0.10 TEH10-30 (mg/L) C0.25 Glycols Diethylene Glycol (mg/L) C5.0 Ethylene Glycol (mg/L) C5.0 Ethylene Glycol (mg/L) C5.0		Thallium (TI)-Total (mg/L)	0.000036		
Uranium (U)-Total (mg/L) 0.000555 Vanadium (V)-Total (mg/L) 0.00010 Zinc (Zn)-Total (mg/L) 0.00050 Aggregate Oil and Grease (mg/L) 0.00050 Volatile Organics Benzene (mg/L) 0.00050 Volatile Organic Benzene (mg/L) 0.00050 Styrene (mg/L) 0.00050 0.00050 Toluene (mg/L) 0.00050 0.00050 Organics Organics 0.00050 Styrene (mg/L) 0.00050 0.00050 Styrene (mg/L) 0.00050 0.00050 ortho-Xylene (mg/L) 0.00050 0.00050 weta & para-Xylene (mg/L) 0.00050 0.00050 Surrogate: 4-Bromofluorobenzene (SS) (%) 85 0.00050 Yelnes (mg/L) 0.00050 0.00050 Surrogate: 1.4-Difluorobenzene (SS) (%) 85 0.00050 Hydrocarbons TVH (C5-C10) (mg/L) 0.010 TEH10-30 (mg/L) 0.015 0.015 TPH5-30 (mg/L) 0.025 0.015 Glycols Diethylene Glycol (mg/L) 0.025 Ethylene Glycol (mg/L) 0.025 0.015 </td <td></td> <td>Tin (Sn)-Total (mg/L)</td> <td><0.00010</td> <td></td> <td></td>		Tin (Sn)-Total (mg/L)	<0.00010		
Vanadium (V)-Total (mg/L) <0.0010		Titanium (Ti)-Total (mg/L)	<0.010		
Zinc (Zn)-Total (mg/L) <0.0030		Uranium (U)-Total (mg/L)	0.000555		
Aggregate Organics Oil and Grease (mg/L) < Volatile Organic Compounds Benzene (mg/L) <0.00050		Vanadium (V)-Total (mg/L)	<0.0010		
Organics Compounds Volatile Organic Compounds Benzene (mg/L) <0.00050		Zinc (Zn)-Total (mg/L)	<0.0030		
Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050	Aggregate Organics	Oil and Grease (mg/L)	<5.0		
Styrene (mg/L) <0.00050		Benzene (mg/L)	<0.00050		
Toluene (mg/L) <0.00050		Ethylbenzene (mg/L)	<0.00050		
ortho-Xylene (mg/L) <0.00050			<0.00050		
meta- & para-Xylene (mg/L) <0.00050		Toluene (mg/L)	<0.00050		
Xylenes (mg/L) <0.00075			<0.00050		
Surrogate: 4-Bromofluorobenzene (SS) (%) 85 Surrogate: 1,4-Difluorobenzene (SS) (%) 100 Hydrocarbons TVH (C5-C10) (mg/L) <0.10			<mark><0.00050</mark>		
Surrogate: 1,4-Difluorobenzene (SS) (%) 100 Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15 TPH5-30 (mg/L) <0.25 Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0			<mark><0.00075</mark>		
Hydrocarbons TVH (C5-C10) (mg/L) <0.10			85		
TEH10-30 (mg/L) <0.15			<mark>100</mark>		
TPH5-30 (mg/L) <0.25	Hydrocarbons		<mark><0.10</mark>		
Glycols Diethylene Glycol (mg/L) <5.0			<mark><0.15</mark>		
Ethylene Glycol (mg/L) <5.0			<mark><0.25</mark>		
	Glycols		<mark><5.0</mark>		
1,2-Propylene Glycol (mg/L) <<5.0			<mark><5.0</mark>		
		1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>		

L1063576 CONTD.... PAGE 4 of 6 07-OCT-11 17:24 (MT) Version: FINAL

QC Samples with Qualifiers & Comments: QC Type Description Parameter Qualifier Applies to Sample Number(s) Matrix Spike **Total Organic Carbon** MS-B L1063576-1 **Qualifiers for Individual Parameters Listed:** Qualifier Description MS-B Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. Test Method References: ALS Test Code Method Reference** Matrix **Test Description** ALK-COL-VA Water Alkalinity by Colourimetric (Automated) APHA 310.2 This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. ANIONS-CL-IC-VA Water Chloride by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". ANIONS-N+N-CALC-VA Water Nitrite & Nitrate in Water (Calculation) EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). ANIONS-NO2-IC-VA Nitrite in Water by Ion Chromatography EPA 300.0 Water This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. Nitrate in Water by Ion Chromatography EPA 300.0 ANIONS-NO3-IC-VA Water This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. APHA 4110 B. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Total Arsenic in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A AS-T-CCMS-VA Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A) **CARBONS-TC-VA** Water Total carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC) This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". **CARBONS-TOC-VA** APHA 5310 TOTAL ORGANIC CARBON (TOC) Water Total organic carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto, Conduc, This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. **EPH-LL-SF-FID-VA** EPH in Waters by GCFID BCMOE EPH GCFID Water This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. **MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

		y (EPA). The procedures may involve preliminary sam al analysis is by collision cell inductively coupled plasma	
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health As States Environmental Prot	sociation, an ection Agenc	dures adapted from "Standard Methods for the Examina d with procedures adapted from "Test Methods for Eva y (EPA). The procedures may involve preliminary sam Instrumental analysis is by inductively coupled plasma	luating Solid Waste" SW-846 published by the United ole treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society e levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an determine Oil and Grease.		the entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion		dures adapted from APHA Method 4500-P "Phosphorus le.	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using procee	dures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	s analysis be	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using procee	dures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	s analysis be	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		dures adapted from APHA Method 4500-P "Phosphorus been lab or field filtered through a 0.45 micron membrar	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health As States Environmental Prot	sociation, an ection Agenc	dures adapted from "Standard Methods for the Examina d with procedures adapted from "Test Methods for Eva y (EPA). The procedures may involve preliminary sam al analysis is by collision cell inductively coupled plasma	luating Solid Waste" SW-846 published by the United ole treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
			s are determined gravimetrically. Total Dissolved Solids raporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		dures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proce	dures adapted from APHA Method 2130 "Turbidity". Tur	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
	using procee	dures adapted from APHA Method 2130 "Turbidity". Tur	
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame	e-ionization d	extraction of the sample prior to analysis for Volatile Hy etection (GC/FID). The VH analysis is carried out in acc P) Analytical Method for Contaminated Sites "Volatile I	cordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		, is heated in a sealed vial to equilibrium. The headspace easured using mass spectrometry detection.	ce from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021

XYLENES-CALC-VA

Sum of Xylene Isomer Concentrations

CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location		

VA

ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on dry weight of sample.

Water

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

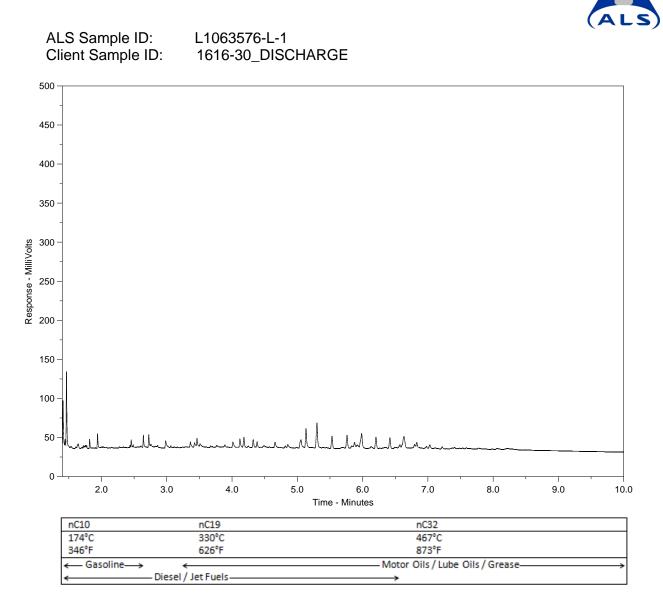
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES

8081 Lougheed Highway • Suite 100 • Burnaby,

6663576

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BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

CHAIN OF CUSTODY FORM

SNP-

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SNP

SNP-0

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Tel: 604-253-4188 Toll Free: 1-800-665-0243 EAV: 604-253-6700 ALS Contact: Can Di



(ALS)

For Lab Use		5 3 5 7		F C 1		Se By CCMS	BTEX+TVH	Glycols	l and Grease	0013 Major Ions	0013 Nutrients	-0013 Physical Parameters	013 Total Me	TDS	tal Ammonia	Organic Carbon	ТРН	TSS						
	Station ID	Matrix	Date	Time	Init					ŝ	ŝ	<u> </u>	Metals			Š		1	ļ	!		:	;	
	616-30_Discharge	Water	19-Sep-2011	1 2:00 PM 1'31 o PM	NA	1.1	. 1	<u>,</u> <u>,</u>		<u> </u>	1	. 1	1	.1	1	1	1	BHP	2				<u> </u>	
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Billing Code: BHP2001

Please Rush Nitrate Analysis

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	ZI Yes	<u>No</u>	N/A		Frozen?	🛄 Yes	No			
	Send Analytical Results to:									
complian	ce.team@bhpl	pilliton.co	im;							



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 28-SEP-11 Report Date: 11-OCT-11 14:56 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1064541

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

Can Dang Senior Account Manager

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RIGHT SOLUTIONS RIGHT PARTNER

	Sample ID Description Sampled Date Sampled Time Client ID	L1064541-1 WATER 26-SEP-11 14:31 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	818		
	Hardness (as CaCO3) (mg/L)	159		
	рН (рН)	7.89		
	Total Suspended Solids (mg/L)	4.0		
	Total Dissolved Solids (mg/L)	477		
	Turbidity (NTU)	3.64		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	42.5		
	Ammonia (as N) (mg/L)	<0.0050		
	Chloride (Cl) (mg/L)	<mark>140</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.49</mark>		
	Nitrate (as N) (mg/L)	<mark>3.46</mark>		
	Nitrite (as N) (mg/L)	0.022		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0085		
	Sulfate (SO4) (mg/L)	<mark>123</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>13.1</mark>		
-	Total Organic Carbon (mg/L)	4.30		
Total Metals	Aluminum (Al)-Total (mg/L)	0.182		
	Antimony (Sb)-Total (mg/L)	0.00125		
	Arsenic (As)-Total (mg/L)	0.00058		
	Barium (Ba)-Total (mg/L)	0.0789		
	Beryllium (Be)-Total (mg/L)	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.027		
	Cadmium (Cd)-Total (mg/L)	<0.000030		
	Calcium (Ca)-Total (mg/L)	36.4		
	Chromium (Cr)-Total (mg/L)	0.00073		
	Cobalt (Co)-Total (mg/L)	0.00018		
	Copper (Cu)-Total (mg/L)	0.00144		
	Iron (Fe)-Total (mg/L)	0.166		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00519		
	Magnesium (Mg)-Total (mg/L)	16.7		
	Manganese (Mn)-Total (mg/L)	0.00696		
	Molybdenum (Mo)-Total (mg/L)	0.0882		
	Nickel (Ni)-Total (mg/L)	0.00554		

L1064541 CONTD.... PAGE 3 of 6 11-OCT-11 14:56 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1064541-1 WATER 26-SEP-11 (14:31) 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Total Metals	Potassium (K)-Total (mg/L)	29.4		
	Selenium (Se)-Total (mg/L)	0.00024		
	Silicon (Si)-Total (mg/L)	0.609		
	Silver (Ag)-Total (mg/L)	<0.000010		
	Sodium (Na)-Total (mg/L)	95.1		
	Strontium (Sr)-Total (mg/L)	0.708		
	Thallium (TI)-Total (mg/L)	0.000035		
	Tin (Sn)-Total (mg/L)	<0.00010		
	Titanium (Ti)-Total (mg/L)	0.015		
	Uranium (U)-Total (mg/L)	0.000594		
	Vanadium (V)-Total (mg/L)	<0.0010		
	Zinc (Zn)-Total (mg/L)	<0.0030		
Aggregate Organics	Oil and Grease (mg/L)	<5.0		
Volatile Organic Compounds	Benzene (mg/L)	<0.00050		
	Ethylbenzene (mg/L)	<0.00050		
	Styrene (mg/L)	<0.00050		
	Toluene (mg/L)	<0.00050		
	ortho-Xylene (mg/L)	<0.00050		
	meta- & para-Xylene (mg/L)	<0.00050		
	Xylenes (mg/L)	<0.00075		
	Surrogate: 4-Bromofluorobenzene (SS) (%)	102		
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100		
Hydrocarbons	TVH (C5-C10) (mg/L)	<mark><0.10</mark>		
	TEH10-30 (mg/L)	<mark><0.15</mark>		
	TPH5-30 (mg/L)	<mark><0.25</mark>		
Glycols	Diethylene Glycol (mg/L)	< <u>5.0</u>		
	Ethylene Glycol (mg/L)	<5.0		
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>		

QC Samples with Qualifiers & Comments:

QC Type Descrip	otion	Parameter	Qualifier	Applies to Sample Number(s)				
Duplicate		Aluminum (AI)-Total	DLA	L1064541-1				
Duplicate		Antimony (Sb)-Total	DLA	L1064541-1				
Duplicate		Beryllium (Be)-Total	DLA	L1064541-1				
Duplicate		Bismuth (Bi)-Total	DLA	L1064541-1				
Duplicate		Cadmium (Cd)-Total	DLA	L1064541-1				
Duplicate		Cobalt (Co)-Total	DLA	L1064541-1				
Duplicate		Lead (Pb)-Total	DLA	L1064541-1				
Duplicate		Silver (Ag)-Total	DLA	L1064541-1				
Duplicate		Thallium (TI)-Total	DLA	L1064541-1				
Duplicate		Tin (Sn)-Total	DLA	L1064541-1				
Duplicate		Vanadium (V)-Total	DLA	L1064541-1				
Duplicate		Selenium (Se)-Total	DLA	L1064541-1				
Matrix Spike		Nitrate (as N)	MS-B	L1064541-1				
Qualifiers for Individual Parameters Listed:								
Qualifier	Description							
DLA	Detection Limit Adjusted	For required dilution						

DLM Detection Limit Adjusted For Sample Matrix Effects

MS-B Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**					
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2					
This analysis is carried out colourimetric method.	t using proce	dures adapted from EPA Method 310.2 "Alkalinity". Tot	al Alkalinity is determined using the methyl orange					
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.					
This analysis is carried out Conductivity" and EPA Me	t using proce thod 300.0 "[dures adapted from APHA Method 4110 B. "Ion Chrom Determination of Inorganic Anions by Ion Chromatograp	atography with Chemical Suppression of Eluent ohy".					
ANIONS-N+N-CALC-VA	Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0					
Nitrate and Nitrite (as N) is	a calculated	I parameter. Nitrate and Nitrite (as N) = Nitrite (as N) +	Nitrate (as N).					
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0					
This analysis is carried out detected by UV absorbanc		dures adapted from EPA Method 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is					
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0					
This analysis is carried out detected by UV absorbanc		dures adapted from EPA Method 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is					
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.					
		dures adapted from APHA Method 4110 B. "Ion Chrom Determination of Inorganic Anions by Ion Chromatograp						
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A					
This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).								
CARBONS-TC-VA	Water	Total carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)					
This analysis is carried out	t using proce	dures adapted from APHA Method 5310 "Total Organic	c Carbon (TOC)".					
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)					
This analysis is carried out	t using proce	dures adapted from APHA Method 5310 "Total Organic	c Carbon (TOC)".					
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.					
This analysis is carried out electrode.	t using proce	dures adapted from APHA Method 2510 "Conductivity"	. Conductivity is determined using a conductivity					
EPH-LL-SF-FID-VA	Water	EPH in Waters by GCFID	BCMOE EPH GCFID					

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl

Glycols in Water by GCFID

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SW-846, METHOD 8015B, EPA

chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. **MET-T-CCMS-VA** Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC NH3-F-VA Water This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. Oil & Grease by Gravimetric BCMOE (2010), EPA1664A Water The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically pH by Meter (Automated) APHA 4500-H "pH Value" Water It is recommended that this analysis be conducted in the field. Water APHA 4500-H pH Value pH by Meter (Automated) This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Water Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

TDS-VA

Water Total Dissolved Solids by Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

Total Suspended Solids by Gravimetric Water

APHA 2540 D - GRAVIMETRIC

APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

OGG-SF-VA

GLY-WAT-FID-VA

P-T-COL-VA

after persulphate digestion of the sample.

PH-PCT-VA

Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

Water

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA

TSS-VA

PO4-DO-COL-VA

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"						
This analysis is carried out	t using proce	dures adapted from APHA Method 2130 "Turbidity". 1	Furbidity is determined by the nephelometric method.						
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity						
This analysis is carried out	t using proce	dures adapted from APHA Method 2130 "Turbidity". 1	Furbidity is determined by the nephelometric method.						
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD						
chromatography with flame									
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021						
		s, is heated in a sealed vial to equilibrium. The headsp neasured using mass spectrometry detection.	bace from the vial is transfered into a gas chromatograph.						
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021						
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION						
Calculation of Total Xylene	es								
Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.									
** ALS test methods may inc	orporate mod	difications from specified reference methods to improv	/e performance.						
The last two letters of the al	bove test cod	le(s) indicate the laboratory that performed analytical	analysis for that test. Refer to the list below:						

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA
Chain of Custody Numbers:	

68683

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

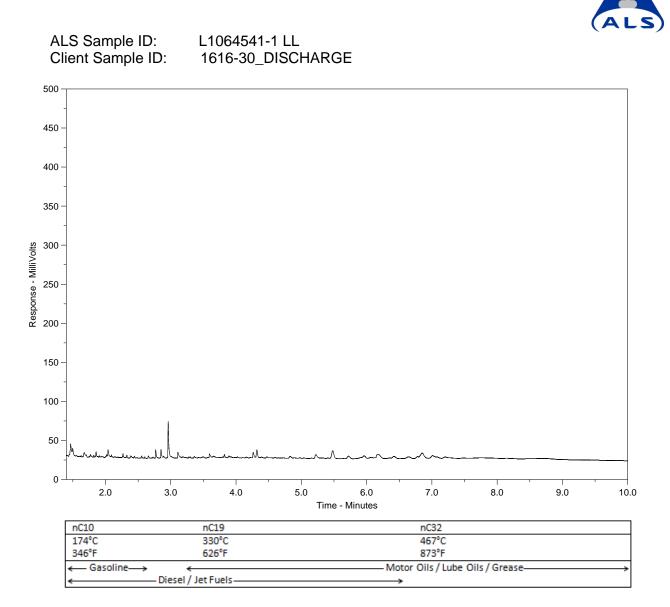
< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS L ANALYTICAL

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L1064341 50:4010

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Form 68683

BHP Billiton Diamonds Inc.



CHAIN OF CUSTODY FORM

Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

04-253-4188 Toll Free: 1-800-665-024	3 FAX: 6	504-253-67	00			AIP				2101	JT	гU	L I NI	Bł	HP Co	ntacts:	David E	Bruce/	Richard	Ehlert)avie
Contact: Can Dang					As, Se I	втех	Gly	Oil and	SNP-0013 Major Ions	SNP-001	SNP-0013 Total Metals	-	Total A	Total Organic Carbon							
or Lab Use					By CCMS	BTEX+TVH	Glycols	Oil and Grease	Major Io	SNP-0013 Physical Parameters SNP-0013 Nutrients	Total Met	TDS	Total Ammonia	anic Carbo	TPL	TSS					
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BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:07-OCT-11Report Date:20-OCT-11 17:51 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1069414

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

BHP2001 68699

6200801716

Can Dang Senior Account Manager

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L1069414 CONTD.... PAGE 2 of 6 20-OCT-11 17:51 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1069414-1 WATER 03-OCT-11 15:21 1616- 30_DISCHARGE	L1069414-2 WATER 03-OCT-11 16:01 1616-11	L1069414-3 WATER 03-OCT-11 16:02 1616-121	L1069414-4 WATER 03-OCT-11 16:06 1616-494	L1069414-5 WATER 03-OCT-11 16:05 1616-103
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	803				
	Hardness (as CaCO3) (mg/L)	147				
	рН (рН)	7.83	6.69	5.60	5.69	6.65
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	4.7
	Total Dissolved Solids (mg/L)	438				
	Turbidity (NTU)	1.32				
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	42.3				
	Ammonia (as N) (mg/L)	<mark><0.0050</mark>	<0.0050	<0.0050	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<mark>133</mark>				
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.34</mark>				
	Nitrate (as N) (mg/L)	<mark>3.33</mark>				
	Nitrite (as N) (mg/L)	0.0115				
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>				
	Phosphorus (P)-Total (mg/L)	0.0067				
	Sulfate (SO4) (mg/L)	<mark>117</mark>				
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>13.4</mark>				
	Total Organic Carbon (mg/L)	<mark>5.19</mark>				
Total Metals	Aluminum (Al)-Total (mg/L)	0.0522				
	Antimony (Sb)-Total (mg/L)	0.00118				
	Arsenic (As)-Total (mg/L)	0.00056				
	Barium (Ba)-Total (mg/L)	<mark>0.0734</mark>				
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>				
	Bismuth (Bi)-Total (mg/L)	<mark><0.00050</mark>				
	Boron (B)-Total (mg/L)	0.026				
	Cadmium (Cd)-Total (mg/L)	0.000033				
	Calcium (Ca)-Total (mg/L)	<mark>34.3</mark>				
	Chromium (Cr)-Total (mg/L)	<mark><0.00050</mark>				
	Cobalt (Co)-Total (mg/L)	<mark><0.00010</mark>				
	Copper (Cu)-Total (mg/L)	0.00138				
	Iron (Fe)-Total (mg/L)	0.041				
	Lead (Pb)-Total (mg/L)	<0.000050				
	Lithium (Li)-Total (mg/L)	0.00498				
	Magnesium (Mg)-Total (mg/L)	<mark>14.9</mark>				
	Manganese (Mn)-Total (mg/L)	0.00478				
	Molybdenum (Mo)-Total (mg/L)	<mark>0.0796</mark>				
	Nickel (Ni)-Total (mg/L)	0.00417				

L1069414 CONTD.... PAGE 3 of 6 20-OCT-11 17:51 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	WATER 03-OCT-11 15:21	L1069414-2 WATER 03-OCT-11 16:01 1616-11	L1069414-3 WATER 03-OCT-11 16:02 1616-121	L1069414-4 WATER 03-OCT-11 16:06 1616-494	L1069414-5 WATER 03-OCT-11 16:05 1616-103
Grouping	Analyte					
WATER						
Total Metals	Potassium (K)-Total (mg/L)	- 27.2				
	Selenium (Se)-Total (mg/L)	0.00022				
	Silicon (Si)-Total (mg/L)	0.305				
	Silver (Ag)-Total (mg/L)	<0.000010				
	Sodium (Na)-Total (mg/L)	88.4				
	Strontium (Sr)-Total (mg/L)	0.707				
	Thallium (TI)-Total (mg/L)	0.000034				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	<0.010				
	Uranium (U)-Total (mg/L)	0.000570				
	Vanadium (V)-Total (mg/L)	<0.0010				
	Zinc (Zn)-Total (mg/L)	<0.0030				
Aggregate Organics	Oil and Grease (mg/L)	<5.0				
Volatile Organic Compounds	Benzene (mg/L)	<0.00050				
	Ethylbenzene (mg/L)	<0.00050				
	Styrene (mg/L)	<0.00050				
	Toluene (mg/L)	<0.00050				
	ortho-Xylene (mg/L)	<0.00050				
	meta- & para-Xylene (mg/L)	<0.00050				
	Xylenes (mg/L)	<0.00075				
	Surrogate: 4-Bromofluorobenzene (SS) (%)	98.9				
	Surrogate: 1,4-Difluorobenzene (SS) (%)	102.1				
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10				
	TEH10-30 (mg/L)	<0.15				
	TPH5-30 (mg/L)	<0.25				
Glycols	Diethylene Glycol (mg/L)	<5.0				
	Ethylene Glycol (mg/L)	<5.0				
	1,2-Propylene Glycol (mg/L)	<5.0				

Qualifier

Applies to Sample Number(s)

Parameter

QC Samples with Qualifiers & Comments:

QC Type Description

ae Type Beeen	iption	T arameter	Quanner	Applies to Cample Hamber(5)
Laboratory Con	trol Sample	1,2-Propylene Glycol	LCS-ND	L1069414-1
Laboratory Con	trol Sample	Diethylene Glycol	LCS-ND	L1069414-1
Matrix Spike		Sulfate (SO4)	MS-B	L1069414-1
Qualifiers for I	Individual Parameters	s Listed:		
Qualifier	Description			
LCS-ND	Lab Control Sample	recovery was slightly outside ALS DO	QO. Reported non-d	detect results for associated samples were unaffected.
MS-B	Matrix Spike recover	y could not be accurately calculated	due to high analyte t	background in sample.
	`			
est Method R		Toot Decerintien		Mothod Deference**
	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Autor	,	APHA 310.2
This analysis is colourimetric m	0.	edures adapted from EPA Method 3	10.2 "Alkalinity". Tota	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-	VA Water	Chloride by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method "Determination of Inorganic Anions b		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-C	ALC-VA Water	Nitrite & Nitrate in Water (Calcula	ation)	EPA 300.0
Nitrate and Nitr	tite (as N) is a calculate	ed parameter. Nitrate and Nitrite (as I	N) = Nitrite (as N) + I	Nitrate (as N).
ANIONS-NO2-IC	-VA Water	Nitrite in Water by Ion Chromato	oraphy	EPA 300.0
				of Inorganic Anions by Ion Chromatography". Nitrite is
detected by UV				
ANIONS-NO3-IC		Nitrate in Water by Ion Chromato	0 1 9	EPA 300.0
This analysis is detected by UV		edures adapted from EPA Method 3	00.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC		Sulfate by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method "Determination of Inorganic Anions b		atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC I	CPMS	APHA 3030 B&E / EPA SW-846 6020A
American Publi States Environ	ic Health Association, a mental Protection Age	and with procedures adapted from "T ncy (EPA). The procedures may invo	est Methods for Eva	ation of Water and Wastewater" published by the Iluating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
CARBONS-TC-\	/A Water	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	s carried out using proc	edures adapted from APHA Method	5310 "Total Organic	: Carbon (TOC)".
CARBONS-TOC	-VA Water	Total organic carbon by combust	tion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		edures adapted from APHA Method		
) Mater		-	
EC-PCT-VA	Water	Conductivity (Automated)	2510 "Conductivity"	APHA 2510 Auto. Conduc. . Conductivity is determined using a conductivity
electrode.	camed out using proc	equies adapted from AFTIA Method	2510 Conductivity .	
EPH-LL-SF-FID-	-VA Water	EPH in Waters by GCFID		BCMOE EPH GCFID
Contaminated s entire water san with flame ioniz	Sites "Extractable Petr mple with dichloromether	oleum Hydrocarbons in Water by GC nane. The extract is then solvent excl D). EPH results include Polycyclic A	/FID" (Version 2.1, J nanged to toluene an	ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the nd analysed by capillary column gas chromatography ns (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-V	A Water	Glycols in Water by GCFID		SW-846, METHOD 8015B, EPA
	Environmental Protection	on Agency (EPA). The procedure inv nzoate esters. The benzoate esters	olves treatment of th	Waste" SW-846, Method 8015B, published by the he sample with a strong base (NaOH) and benzoyl vith iso-octane and the extract is analyzed by capillary
chloride to form	romatography with flan	ne ionization detection (FID).		
chloride to form	romatography with flan	Hardness		APHA 2340B

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp nstrumental analysis is by inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an e determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion		ures adapted from APHA Method 4500-P "Phosphorus'	'. Total Phosphorous is determined colourimetrically
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H "pH Value"
This analysis is carried out electrode.	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	he pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H pH Value
This analysis is carried out electrode.	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	he pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	he pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	using procedu	ures adapted from APHA Method 4500-H "pH Value". T	he pH is determined in the laboratory using a pH
It is recommended that this	analysis be c	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus' een lab or field filtered through a 0.45 micron membrane	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Prote	sociation, and ction Agency	ures adapted from "Standard Methods for the Examinat with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United le treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids le through a glass fibre filter, TDS is determined by eva	
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity							
This analysis is carried our	t using proce	dures adapted from APHA Method 213	0 "Turbidity". Turbidity is determined by the nephelometric method.							
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD							
This procedure involves the headspace extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999).										
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace	GCMS EPA8260B, 5021							
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.										
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Wa	aters EPA8260B, 5021							
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentration	s CALCULATION							
Calculation of Total Xylene	es									
			lene isomers. Results below detection limit (DL) are treated as zero um of the squares of the DLs of the individual Xylenes.).						
** ALS test methods may inc	orporate mod	difications from specified reference mether	nods to improve performance.							
The last two letters of the a	bove test cod	le(s) indicate the laboratory that perforn	ned analytical analysis for that test. Refer to the list below:							
Laboratory Definition Cod	e Labor	atory Location								
VA	ALS E	NVIRONMENTAL - VANCOUVER, BC,	CANADA							

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For

applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample. mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

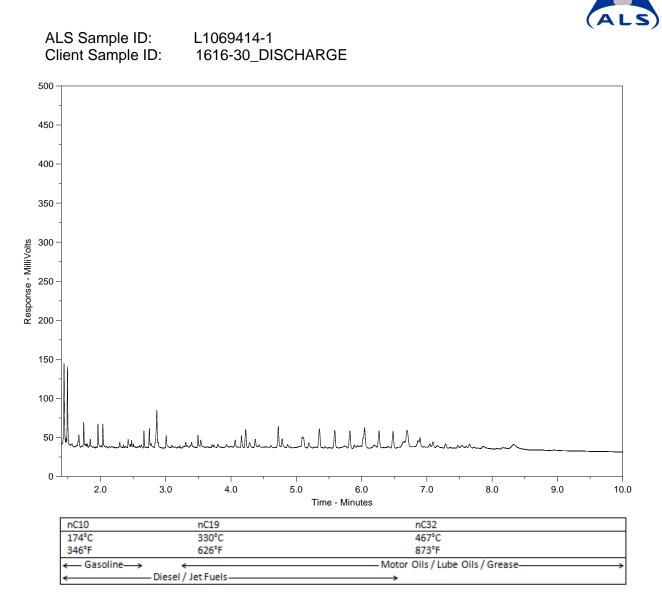
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

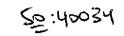
ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



8081 Lougheed Highway • Suite 100 • Burnaby,

Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700



CHAIN OF CUSTODY FORM

Form 68699



BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012

Sample tempurature upon receipt:

Frozen?

Send Analytical Results to:

🗍 Yes

J. No

BHP Contacts: David Bruce/ Richard EhlertDavid

ALS Contact: Ca	in Dang L (06°	१५(५		As, Se By CCMS	BTEX+TVH	Glycols	pH Oil and Grease	SNP-0013 Major Ions	SNP-0013 Physical Parameters SNP-0013 Nutrients	SNP-0013 Total Metals	Total Ammonia TDS	Total Organic Carbon	ТРН	TSS				
	Station ID	Matrix Date	Time Init	<u> </u>				ŝ	# <u>-</u>	tals		2						
	1616-30_Discharge 1616-11 1616-121 1616-494 1616-103	Water 03-Oct-2011 Water 03-Oct-2011 Water 03-Oct-2011 Water 03-Oct-2011 Water 03-Oct-2011 Water 03-Oct-2011	04:01 PM KJ 04:02 PM KJ 04:06 PM KJ	1	1 1	1	1 1 1 1	:1	1 1	.1	.1 ;1 ;1 1 1	1 1	1 1 1 1 1	ВНР2 ВНР2 ВНР2 ВНР2 ВНР2 ВНР2 ВНР2	÷ ÷	تلهم	a fore	רא
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billing code.	JBHP2001						- '					OR LAB	USE ON	VLY				

Cooler seal intact upon receipt?

No No

Yes

compliance.team@bhpbilliton.com;

🗔 N/A



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:12-OCT-11Report Date:24-OCT-11 17:43 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1070509

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

BHP2001 68700

6200801716

Can Dang Senior Account Manager

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L1070509 CONTD.... PAGE 2 of 6 24-OCT-11 17:43 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1070509-1 WATER 10-OCT-11 13:30 1616- 30_DISCHARGE	L1070509-2 WATER 10-OCT-11 13:31 1616-121	L1070509-3 WATER 10-OCT-11 13:32 1616-494	L1070509-4 WATER 10-OCT-11 14:00 1616-302	
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	825	<2.0	<2.0	825	
	Hardness (as CaCO3) (mg/L)	151	<0.50	<0.50	145	
	pH (pH)	7.91	5.61	5.74	7.91	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	478	<10	<10	486	
	Turbidity (NTU)	1.57	0.20	<0.10	1.31	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	44.5	<2.0	<2.0	44.4	
	Ammonia (as N) (mg/L)	<mark><0.0050</mark>	<0.0050	0.0159	<0.0050	
	Chloride (Cl) (mg/L)	<mark>138</mark>	<0.50	<0.50	139	
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.49</mark>	<0.0051	<0.0051	3.51	
	Nitrate (as N) (mg/L)	<mark>3.47</mark>	<0.0050	<0.0050	3.48	
	Nitrite (as N) (mg/L)	0.020	<0.0010	<0.0010	0.022	
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	<mark>0.0067</mark>	<0.0020	<0.0020	0.0068	
	Sulfate (SO4) (mg/L)	<mark>121</mark>	<0.50	<0.50	120	
Organic / Inorganic Carbor		<mark>13.5</mark>	<0.50	<0.50	13.7	
-	Total Organic Carbon (mg/L)	<mark>4.92</mark>	<0.50	<0.50	4.93	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0391	<0.0030	<0.0030	0.0387	
	Antimony (Sb)-Total (mg/L)	0.00124	<0.00010	<0.00010	0.00117	
	Arsenic (As)-Total (mg/L)	0.00054	<0.00010	<0.00010	0.00052	
	Barium (Ba)-Total (mg/L)	<mark>0.0746</mark>	<0.000050	<0.000050	0.0720	
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L)	0.028	<0.010	<0.010	0.027 DLM	
	Cadmium (Cd)-Total (mg/L)	0.000023	<0.000010	<0.000010	<0.000040	
	Calcium (Ca)-Total (mg/L)	<mark>34.7</mark>	<0.050	<0.050	33.5	
	Chromium (Cr)-Total (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Total (mg/L)	0.00129	<0.00050	<0.00050	0.00135	
	Iron (Fe)-Total (mg/L)	0.035	<0.030	<0.030	0.031	
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	0.00467	<0.00050	<0.00050	0.00483	
	Magnesium (Mg)-Total (mg/L)	<mark>15.6</mark>	<0.10	<0.10	15.0	
	Manganese (Mn)-Total (mg/L)	0.00401	<0.000050	<0.000050	0.00405	
	Molybdenum (Mo)-Total (mg/L)	<mark>0.0830</mark>	<0.000050	<0.000050	0.0809	
	Nickel (Ni)-Total (mg/L)	0.00444	<0.00050	<0.00050	0.00430	

L1070509 CONTD.... PAGE 3 of 6 24-OCT-11 17:43 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1070509-1 WATER 10-OCT-11 13:30 1616- 30_DISCHARGE	L1070509-2 WATER 10-OCT-11 13:31 1616-121	L1070509-3 WATER 10-OCT-11 13:32 1616-494	L1070509-4 WATER 10-OCT-11 14:00 1616-302	
Grouping	Analyte					
WATER						
Total Metals	Potassium (K)-Total (mg/L)	28.0	<2.0	<2.0	27.0	
	Selenium (Se)-Total (mg/L)	0.00024	<0.00010	<0.00010	0.00023	
	Silicon (Si)-Total (mg/L)	0.319	<0.050	<0.050	0.278	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	94.4	<2.0	<2.0	90.7	
	Strontium (Sr)-Total (mg/L)	0.703	<0.00010	<0.00010	0.685	
	Thallium (TI)-Total (mg/L)	0.000035	<0.000010	<0.000010	0.000035	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	0.000588	<0.000010	<0.000010	0.000584	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030	
Aggregate Organics	Oil and Grease (mg/L)	<5.0	<5.0	<5.0	<5.0	
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Ethylbenzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Styrene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Toluene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	ortho-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	meta- & para-Xylene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Xylenes (mg/L)	<mark><0.00075</mark>	<0.00075	<0.00075	<0.00075	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	<mark>97.6</mark>	96.7	95.0	98.6	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	<mark>99.4</mark>	99.5	99.3	99.0	
Hydrocarbons	TVH (C5-C10) (mg/L)	<mark><0.10</mark>	<0.10	<0.10	<0.10	
	TEH10-30 (mg/L)	<mark><0.15</mark>	<0.15	<0.15	<0.15	
	TPH5-30 (mg/L)	<mark><0.25</mark>	<0.25	<0.25	<0.25	
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>			<5.0	
	Ethylene Glycol (mg/L)	<mark><5.0</mark>			<5.0	
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>			<5.0	

QC Samples with Qualifiers & Comments:

QC Type Descri	ption	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike		Nitrate (as N)	MS-B	L1070509-1, -2, -3, -4
Matrix Spike		Sulfate (SO4)	MS-B	L1070509-1, -2, -3, -4
Qualifiers for In	ndividual Parameters I	Listed:		
Qualifier	Description			
DLM	Detection Limit Adjust	ed For Sample Matrix Effects		
MS-B	Matrix Spike recovery	could not be accurately calcula	ted due to high analyte	background in sample.
est Method Re	ferences:			
ALS Test Code	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (A	utomated)	APHA 310.2
			,	tal Alkalinity is determined using the methyl orange
colourimetric me	01			
ANIONS-CL-IC-V	A Water	Chloride by Ion Chromatogra	phy	APHA 4110 B.
		dures adapted from APHA Metl Determination of Inorganic Anio		atography with Chemical Suppression of Eluent ohy".
ANIONS-N+N-CA		Nitrite & Nitrate in Water (Ca	,	EPA 300.0
Nitrate and Nitri	te (as N) is a calculated	parameter. Nitrate and Nitrite	(as N) = Nitrite (as N) +	Nitrate (as N).
ANIONS-NO2-IC	-VA Water	Nitrite in Water by Ion Chrom	atography	EPA 300.0
This analysis is detected by UV			0 1 9	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC	-VA Water	Nitrate in Water by Ion Chror	natography	EPA 300.0
This analysis is detected by UV		dures adapted from EPA Metho	od 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC-	-VA Water	Sulfate by Ion Chromatograp	hy	APHA 4110 B.
		dures adapted from APHA Metl Determination of Inorganic Anio		atography with Chemical Suppression of Eluent ohy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CR	C ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public States Environm	c Health Association, ar nental Protection Agenc	d with procedures adapted from y (EPA). The procedures may	n "Test Methods for Eva involve preliminary sam	ation of Water and Wastewater" published by the aluating Solid Waste" SW-846 published by the United pple treatment by acid digestion, using hotblock, or na - mass spectrometry (modifed from EPA Method
CARBONS-TC-V	A Water	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	carried out using proce	dures adapted from APHA Met	nod 5310 "Total Organic	c Carbon (TOC)".
CARBONS-TOC-	-VA Water	Total organic carbon by com	bustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		dures adapted from APHA Met		
	01	·	Ū	
EC-PCT-VA	Water	Conductivity (Automated)		APHA 2510 Auto. Conduc.
electrode.	carried out using proce	dures adapted from APHA Meti	nod 2510 "Conductivity"	. Conductivity is determined using a conductivity
EPH-LL-SF-FID-	VA Water	EPH in Waters by GCFID		BCMOE EPH GCFID
Contaminated S entire water san with flame ioniza	Sites "Extractable Petrol nple with dichlorometha	eum Hydrocarbons in Water by ne. The extract is then solvent). EPH results include Polycycli	GC/FID" (Version 2.1, exchanged to toluene a	ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the nd analysed by capillary column gas chromatography ns (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-V	A Water	Glycols in Water by GCFID		SW-846, METHOD 8015B, EPA
United States E chloride to form	nvironmental Protection the corresponding benz	Agency (EPA). The procedure	e involves treatment of t	I Waste" SW-846, Method 8015B, published by the he sample with a strong base (NaOH) and benzoyl with iso-octane and the extract is analyzed by capillary
HARDNESS-CAL	-C-VA Water	Hardness		APHA 2340B
		ss) is calculated from the sum on acentrations are preferentially us		ium concentrations, expressed in CaCO3 equivalents. Iculation.
MET-T-CCMS-VA	A Water	Total Metals in Water by CR		APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. OGG-SF-VA Water Oil & Grease by Gravimetric BCMOE (2010), EPA1664A The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. pH by Manual Meter APHA 4500-H "pH Value" PH-MAN-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode. It is recommended that this analysis be conducted in the field. APHA 4500-H pH Value **PH-MAN-VA** Water pH by Manual Meter This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode. It is recommended that this analysis be conducted in the field. PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value" This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Total Selenium in Water by CRC ICPMS Water APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. **TURBIDITY-VA** Water Turbidity by Meter APHA 2130 "Turbidity'

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame	e-ionization d	extraction of the sample prior to analysis for Volatile etection (GC/FID). The VH analysis is carried out in P) Analytical Method for Contaminated Sites "Volati	
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location

VA

ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For

applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

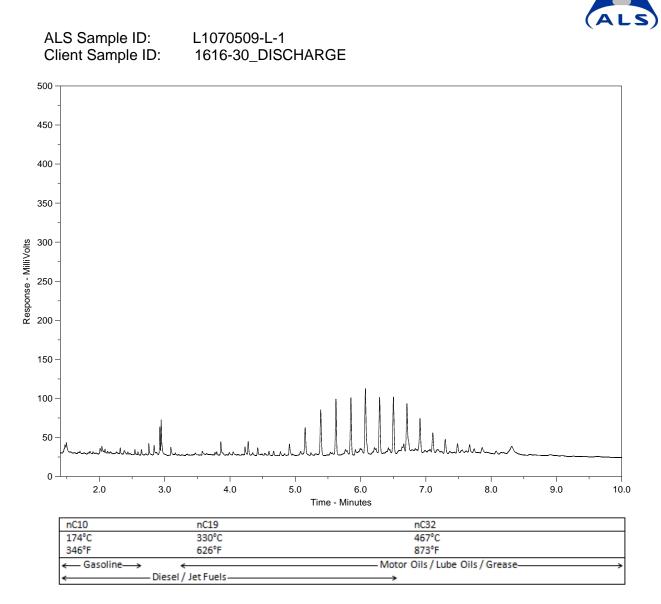
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

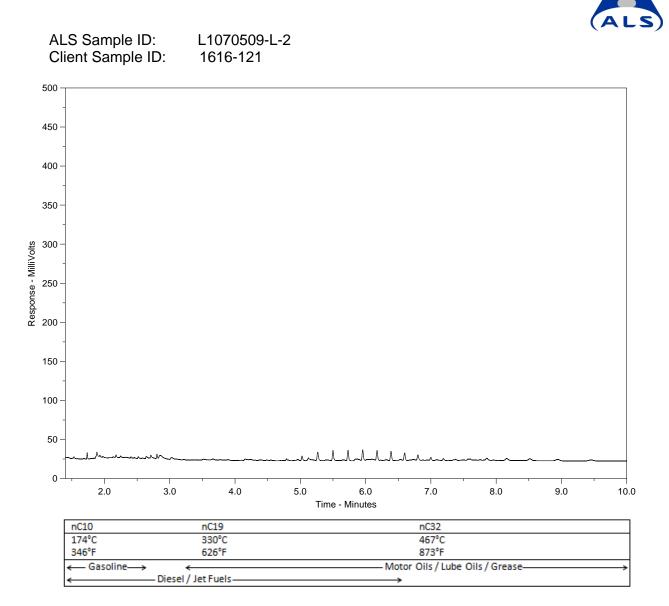
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

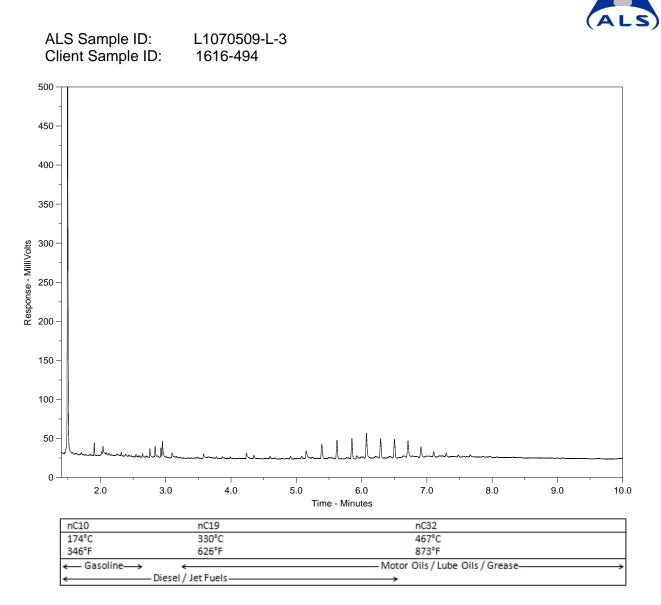
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



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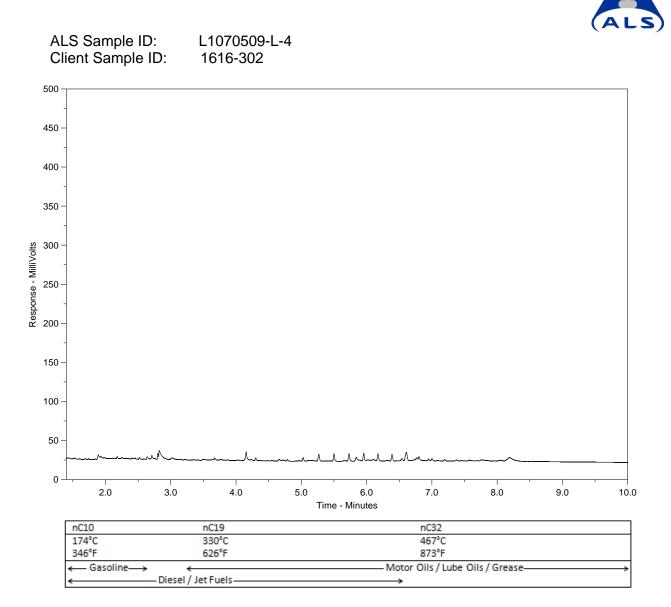
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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



8081 Lougheed Highway • Suite 100 • Burnaby,

Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700 AL

Form 68700

BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

S Contact: Ca	-	7050 Matrix Date	Time	Init	As, Se By CCMS	BTEX+TVH	Glycols	Oil and Grease	SNP-0013 Major Ions	SNP-0013 Physical Parameters SNP-0013 Nutrients	SNP-0013 Total Metals	TDS	Total Ammonia	Total Organic Carbon	ТРН	TSS				
	1616-30_Discharge 1616-121 1616-494 1616-302	Water 10-Oct-201 Water 10-Oct-201	1 01:30 PM 1 01:31 PM 1 01:32 PM 1 02:00 PM	HO 1 HO 1 HO 1 HO 1	1 1 1 1	1 1 1 1		1 1 1 1			1 1 1 1	1 1 1 1	1 1 1 1			BHP2 BHP2 BHP2 BHP2 BHP2				
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	equired: 2 Day Rush on 1 tions (Billing details, QC rep BHP2001		ase					Reli	nguishe nguishe OC	<u>(</u> 10 ∞by;	al intac	Date f Time f t upor	yzc recei	(} -) ; FOI pt? /A	R LAB Sam	Receive Receive USE ONLY ple tempul Frozen?	rature up	on rec	Time Date Time	$\frac{2c + .12}{10^{13}8}$

CHAIN OF CUSTODY FORM





BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 19-OCT-11 Report Date: 26-OCT-11 17:03 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1073917

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68703 6200801716

Can Dang Senior Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

Environmental 💭

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RIGHT SOLUTIONS RIGHT PARTNER

	Sample ID Description Sampled Date Sampled Time Client ID	L1073917-1 WATER 17-OCT-11 15:00 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	862		
	Hardness (as CaCO3) (mg/L)	153		
	рН (рН)	7.92		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	473		
	Turbidity (NTU)	1.10		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	44.8		
	Ammonia (as N) (mg/L)	<mark><0.0050</mark>		
	Chloride (Cl) (mg/L)	<mark>142</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.65</mark>		
	Nitrate (as N) (mg/L)	<mark>3.63</mark>		
	Nitrite (as N) (mg/L)	0.016		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010		
	Phosphorus (P)-Total (mg/L)	0.0066		
	Sulfate (SO4) (mg/L)	<mark>127</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	13.0		
	Total Organic Carbon (mg/L)	<mark>4.89</mark>		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0333		
	Antimony (Sb)-Total (mg/L)	0.00127		
	Arsenic (As)-Total (mg/L)	0.00059		
	Barium (Ba)-Total (mg/L)	0.0765		
	Beryllium (Be)-Total (mg/L)	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<mark><0.00050</mark>		
	Boron (B)-Total (mg/L)	0.027		
	Cadmium (Cd)-Total (mg/L)	<0.000040		
	Calcium (Ca)-Total (mg/L)	<mark>35.5</mark>		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<mark><0.00010</mark>		
	Copper (Cu)-Total (mg/L)	0.00138		
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00474		
	Magnesium (Mg)-Total (mg/L)	<mark>15.5</mark>		
	Manganese (Mn)-Total (mg/L)	0.00363		
	Molybdenum (Mo)-Total (mg/L)	0.0875		
	Nickel (Ni)-Total (mg/L)	0.00436		

	Sample Descripti Sampled Da Sampled Tin Client	on WATER ate <u>17-OCT-11</u> ne <u>15:00</u>
Grouping	Analyte	
WATER		
Total Metals	Potassium (K)-Total (mg/L)	28.8
	Selenium (Se)-Total (mg/L)	0.00025
	Silicon (Si)-Total (mg/L)	0.341
	Silver (Ag)-Total (mg/L)	<0.000010
	Sodium (Na)-Total (mg/L)	93.7
	Strontium (Sr)-Total (mg/L)	0.711
	Thallium (TI)-Total (mg/L)	0.000035
	Tin (Sn)-Total (mg/L)	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010
	Uranium (U)-Total (mg/L)	0.000626
	Vanadium (V)-Total (mg/L)	<mark><0.0010</mark>
	Zinc (Zn)-Total (mg/L)	<0.0030
Aggregate Organics	Oil and Grease (mg/L)	<mark><5.0</mark>
Volatile Organic Compounds	Benzene (mg/L)	<0.00050
	Ethylbenzene (mg/L)	<0.00050
	Styrene (mg/L)	<0.00050
	Toluene (mg/L)	<0.00050
	ortho-Xylene (mg/L)	<0.00050
	meta- & para-Xylene (mg/L)	<0.00050
	Xylenes (mg/L)	<0.00075
	Surrogate: 4-Bromofluorobenzene (SS) (%) 95.0
	Surrogate: 1,4-Difluorobenzene (SS) (%)	<mark>100.2</mark>
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10
	TEH10-30 (mg/L)	<mark><0.15</mark>
	TPH5-30 (mg/L)	<0.25
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>
	Ethylene Glycol (mg/L)	<mark><5.</mark> 0
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>

QC Samples with Qualifiers & Comments:

QC Type Description Duplicate		_	_	
Dunlicate		Parameter	Qualifier	Applies to Sample Number(s)
•		Cadmium (Cd)-Total	DLM	L1073917-1
Method Blank		Silver (Ag)-Total	MB-LOR	L1073917-1
Method Blank		Tin (Sn)-Total	MB-LOR	L1073917-1
Qualifiers for Individual	Parameters	Listed:		
Qualifier Descript	tion			
DLM Detection	on Limit Adjust	ted For Sample Matrix Effects		
	Blank exceed is required.	s ALS DQO. LORs adjusted for sam	ples with positive hi	ts below 5 times blank level. Please contact ALS if re-
est Method Reference	es:			
ALS Test Code	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Autom	nated)	APHA 310.2
This analysis is carried of colourimetric method.	ut using proce	dures adapted from EPA Method 31	10.2 "Alkalinity". Tota	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method 4 Determination of Inorganic Anions b		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-CALC-VA	Water	Nitrite & Nitrate in Water (Calcula	tion)	EPA 300.0
Nitrate and Nitrite (as N)	is a calculated	d parameter. Nitrate and Nitrite (as N	l) = Nitrite (as N) + I	Nitrate (as N).
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatog	jraphy	EPA 300.0
This analysis is carried or detected by UV absorbar		dures adapted from EPA Method 30	0.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromato	graphy	EPA 300.0
This analysis is carried or detected by UV absorbar		dures adapted from EPA Method 30	0.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method 4 Determination of Inorganic Anions by		atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC IC	PMS	APHA 3030 B&E / EPA SW-846 6020A
		edures adapted from "Standard Meth	ods for the Examina	tion of Water and Wastewater" published by the
This analysis is carried of American Public Health A States Environmental Pro	Association, an otection Agene	nd with procedures adapted from "Te cy (EPA). The procedures may invo	est Methods for Eva	luating Solid Waste" SW-846 published by the United ole treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
This analysis is carried of American Public Health A States Environmental Pro filtration (APHA 3030B&E	Association, an otection Agene	nd with procedures adapted from "Te cy (EPA). The procedures may invo	est Methods for Eva	ble treatment by acid digestion, using hotblock, or
This analysis is carried or American Public Health A States Environmental Pro filtration (APHA 3030B&E 6020A). CARBONS-TC-VA	Association, an otection Agend E). Instrument Water	nd with procedures adapted from "Te cy (EPA). The procedures may invo tal analysis is by collision cell inducti	est Methods for Eva lve preliminary sam ively coupled plasma	ole treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method APHA 5310 TOTAL ORGANIC CARBON (TOC)
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This analysis is carried of American Public Health A States Environmental Pro- filtration (APHA 3030B&E 6020A). CARBONS-TC-VA This analysis is carried of CARBONS-TOC-VA This analysis is carried of EC-PCT-VA This analysis is carried of electrode. EPH-LL-SF-FID-VA This analysis is carried of Contaminated Sites "Extr entire water sample with with flame ionization dete Heavy Extractable Petrolo GLY-WAT-FID-VA This analysis is carried of United States Environme chloride to form the corre	Association, and betection Agend E). Instrument Water ut using proce Water ut using proce Water ut using proce Water ut in accordar catable Petro dichlorometha action (GC/FIE eum Hydrocar Water ut using proce ntal Protection sponding ben	nd with procedures adapted from "Te cy (EPA). The procedures may invo tal analysis is by collision cell inducti Total carbon by combustion edures adapted from APHA Method & Total organic carbon by combusti edures adapted from APHA Method & Conductivity (Automated) edures adapted from APHA Method & EPH in Waters by GCFID nee with the British Columbia Ministry leum Hydrocarbons in Water by GC/ ane. The extract is then solvent exch)). EPH results include Polycyclic Arr rbons (LEPH/HEPH). Glycols in Water by GCFID edures adapted from "Test Methods for n Agency (EPA). The procedure invo	est Methods for Eva lve preliminary samp ively coupled plasma 5310 "Total Organic 5310 "Total Organic 5310 "Total Organic 2510 "Conductivity". 2510 "Conductivity". 2510 (Version 2.1, J anged to toluene an omatic Hydrocarbon for Evaluating Solid olves treatment of th	 ble treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)". APHA 5310 TOTAL ORGANIC CARBON (TOC) Carbon (TOC)". APHA 2510 Auto. Conduc. Conductivity is determined using a conductivity BCMOE EPH GCFID ands and Parks (BCMELP) Analytical Method for uly 1999). The procedure involves extraction of the d analysed by capillary column gas chromatography s (PAH) and are therefore not equivalent to Light and

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations. expressed in CaCO3 equivalents.

Total Metals in Water by CRC ICPMS

MET-T-CCMS-VA

Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Total Metals in Water by ICPOES EPA SW-846 3005A/6010B Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). Ammonia in Water by Fluorescence NH3-F-VA Water J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater". Roslyn J. Waston et OGG-SF-VA Oil & Grease by Gravimetric BCMOE (2010), EPA1664A Water The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value" This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. pH by Meter (Automated) APHA 4500-H pH Value PH-PCT-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the

American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids", Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. **TURBIDITY-VA** Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Turbidity by Meter Water

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

APHA 2130 Turbidity

EPA 8260B. BCMELP CSR METHOD

TVH-HSFID-VA Water TVH by headspace GCFID

This procedure involves the headspace extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July

Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. APHA 3030 B&E / EPA SW-846 6020A

1999).

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		, is heated in a sealed vial to equilibrium. The headspa easured using mass spectrometry detection.	ce from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Calculation of Total Xylene	s		

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68703

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

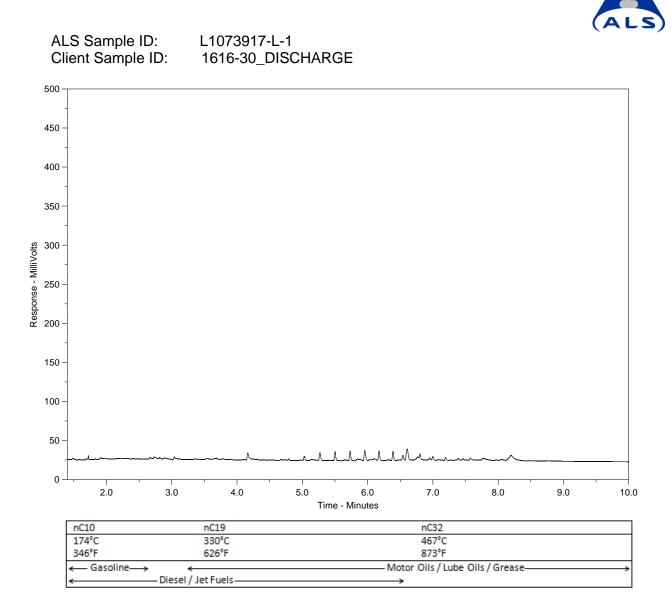
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Hydrocarbon Distribution Report



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES

50.40039

L1073917

Form 68703

BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

BHP Contacts: David Bruce/ Richard EhlertDavid

Tel: 867-880-2157 Fax: 867-880-4012

bhpbilliton

8081 Lougheed Highway • Suite 100 • Burnaby,

Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700

(ALS)

ALS Contact: Can Dang

For Lab Use

FORICAB

USE ONLY

CHAIN OF CUSTODY FORM

SNP-0013 Total SNP-0013 Major Ions SNP-0013 Physical Parameters SNP-0013 Nutrients **fotal Organic Carbon** Ąş, **Total Ammonia** Oil and Grease BTEX+TVH Se By CCMS Glycols SQL Ŧ₽ SSL Metals Station ID Matrix Date Time Init 17-Oct-2011 03:00 PM ĴР 1616-30_Discharge Water 1 11 11 11 11 1 11 1 11 1 11 1 1 BHP2

Turn around Required: 1 week rush turnaround	Relinquished	by:	Date Time	Received by:	Date Oct. 19 Time 13: 19
Special Instructions (Billing details, QC reporting, etc):	Refinquished	by:	Date	Received by:	Date
Billing Code: BHP2001			Time		Time
		illia ani di an	FOR	R LAB USE ONLY	one s. dilles - tradi
			act upon receipt? No 🔲 N/A	Sample tempurature upon re Frozen? Yes	ceipt: <u>3</u> c.
			Send An	alytical Results to:	
	compliance	e.team@bhpbillit	on.com;		



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 27-OCT-11 Report Date: 02-NOV-11 17:15 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1077796

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68704

6200801716

Can Dang Senior Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1077796-1 WATER 24-OCT-11 (16:05) (1616-) 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	837		
	Hardness (as CaCO3) (mg/L)	157		
	рН (рН)	7.89		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	493		
	Turbidity (NTU)	0.85		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	45.7		
	Ammonia (as N) (mg/L)	<0.0050		
	Chloride (Cl) (mg/L)	<mark>142</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.93</mark>		
	Nitrate (as N) (mg/L)	<mark>3.92</mark>		
	Nitrite (as N) (mg/L)	0.014		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0103		
	Sulfate (SO4) (mg/L)	<mark>127</mark>		
Organic / Inorganic Carbon		<mark>14.1</mark>		
	Total Organic Carbon (mg/L)	<mark>4.84</mark>		
Total Metals	Aluminum (Al)-Total (mg/L)	<mark>0.0260</mark>		
	Antimony (Sb)-Total (mg/L)	0.00119		
	Arsenic (As)-Total (mg/L)	0.00060		
	Barium (Ba)-Total (mg/L)	<mark>0.0777</mark>		
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.026		
	Cadmium (Cd)-Total (mg/L)	<0.000040		
	Calcium (Ca)-Total (mg/L)	35.5		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00126		
	Iron (Fe)-Total (mg/L)	<0.030		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00532		
	Magnesium (Mg)-Total (mg/L)	16.6		
	Manganese (Mn)-Total (mg/L)	0.00251		
	Molybdenum (Mo)-Total (mg/L)	0.0826		
	Nickel (Ni)-Total (mg/L)	0.00430		

L1077796 CONTD.... PAGE 3 of 6 02-NOV-11 17:15 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1077796-1 WATER 24-OCT-11 16:05 1616- 30_DISCHARGE
Grouping	Analyte	
WATER		
Total Metals	Potassium (K)-Total (mg/L)	30.4
	Selenium (Se)-Total (mg/L)	0.00026
	Silicon (Si)-Total (mg/L)	0.359
	Silver (Ag)-Total (mg/L)	<0.000010
	Sodium (Na)-Total (mg/L)	102
	Strontium (Sr)-Total (mg/L)	0.717
	Thallium (TI)-Total (mg/L)	0.000032
	Tin (Sn)-Total (mg/L)	<0.00010
	Titanium (Ti)-Total (mg/L)	<mark><0.010</mark>
	Uranium (U)-Total (mg/L)	0.000576
	Vanadium (V)-Total (mg/L)	<0.0010
	Zinc (Zn)-Total (mg/L)	<mark><0.0030</mark>
Aggregate Organics	Oil and Grease (mg/L)	<mark><5.0</mark>
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>
	Ethylbenzene (mg/L)	<0.00050
	Styrene (mg/L)	<0.00050
	Toluene (mg/L)	<0.00050
	ortho-Xylene (mg/L)	<0.00050
	meta- & para-Xylene (mg/L)	<0.00050
	Xylenes (mg/L)	<0.00075
	Surrogate: 4-Bromofluorobenzene (SS) (%)	<mark>99.5</mark>
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100.7
Hydrocarbons	TVH (C5-C10) (mg/L)	<mark><0.10</mark>
	TEH10-30 (mg/L)	<mark><0.15</mark>
	TPH5-30 (mg/L)	<0.25
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>
	Ethylene Glycol (mg/L)	<mark><5.0</mark>
	1,2-Propylene Glycol (mg/L)	< <u>5.0</u>

L1077796 CONTD.... PAGE 4 of 6 02-NOV-11 17:15 (MT) Version: FINAL

QC Samples with Qualifiers & Comments:

QC Type Descrip		Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Contro	ol Sample	1,2-Propylene Glycol	LCS-H	L1077796-1
Qualifiers for In	dividual Parameters	Listed:		
Qualifier	Description			
DLM	Detection Limit Adius	ted For Sample Matrix Effects		
LCS-H	•	•	n-detected sample re	esults are considered reliable. Other results, if reported
est Method Ref	ferences:			
ALS Test Code	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Auto	mated)	APHA 310.2
This analysis is o colourimetric me	01	edures adapted from EPA Method 3	310.2 "Alkalinity". Tot	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-V	A Water	Chloride by Ion Chromatography	/	APHA 4110 B.
		edures adapted from APHA Method Determination of Inorganic Anions		atography with Chemical Suppression of Eluent ohy".
ANIONS-N+N-CA	LC-VA Water	Nitrite & Nitrate in Water (Calcul	ation)	EPA 300.0
Nitrate and Nitrite	e (as N) is a calculate	d parameter. Nitrate and Nitrite (as	N) = Nitrite (as N) +	Nitrate (as N).
ANIONS-NO2-IC-	VA Water	Nitrite in Water by Ion Chromato	ography	EPA 300.0
This analysis is o detected by UV a		•	0 1 9	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC-		Nitrate in Water by Ion Chromat	ography	EPA 300.0
This analysis is on detected by UV a	carried out using proce absorbance.	edures adapted from EPA Method 3	300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC-	VA Water	Sulfate by Ion Chromatography		APHA 4110 B.
		edures adapted from APHA Method Determination of Inorganic Anions		atography with Chemical Suppression of Eluent ohy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC I	CPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public States Environm	Health Association, a ental Protection Agen	nd with procedures adapted from " cy (EPA). The procedures may inv	Test Methods for Eva olve preliminary sam	ation of Water and Wastewater" published by the aluating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
CARBONS-TC-VA	Water	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is o	carried out using proce	edures adapted from APHA Method	I 5310 "Total Organic	: Carbon (TOC)".
CARBONS-TOC-\	A Water	Total organic carbon by combus	tion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is o	carried out using proce	edures adapted from APHA Method	I 5310 "Total Organic	c Carbon (TOC)".
EC-PCT-VA	Water	Conductivity (Automated)		APHA 2510 Auto. Conduc.
This analysis is o electrode.	carried out using proce	edures adapted from APHA Method	2510 "Conductivity"	. Conductivity is determined using a conductivity
EPH-LL-SF-FID-V	A Water	EPH in Waters by GCFID		BCMOE EPH GCFID
Contaminated Si entire water sam with flame ioniza	tes "Extractable Petro ple with dichloromethe	leum Hydrocarbons in Water by G0 ane. The extract is then solvent exc D). EPH results include Polycyclic A	C/FID" (Version 2.1, hanged to toluene ar	ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the nd analysed by capillary column gas chromatography ns (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-VA	Water	Glycols in Water by GCFID		SW-846, METHOD 8015B, EPA
United States En chloride to form t	vironmental Protectio	n Agency (EPA). The procedure in	volves treatment of t	Waste" SW-846, Method 8015B, published by the he sample with a strong base (NaOH) and benzoyl vith iso-octane and the extract is analyzed by capillary
HARDNESS-CAL	C-VA Water	Hardness		APHA 2340B
		ess) is calculated from the sum of C ncentrations are preferentially used		um concentrations, expressed in CaCO3 equivalents. Iculation.
MET-T-CCMS-VA	Water	Total Metals in Water by CRC IC		APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). 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P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. pH by Meter (Automated) APHA 4500-H "pH Value" PH-PCT-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PH-PCT-VA Water APHA 4500-H pH Value pH by Meter (Automated) This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Water Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC Water This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity" This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. **TURBIDITY-VA** Water Turbidity by Meter APHA 2130 Turbidity This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. **TVH-HSFID-VA** TVH by headspace GCFID EPA 8260B, BCMELP CSR METHOD Water This procedure involves the headspace extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). VOC7-HSMS-VA Water BTEX/MTBE/Styrene by Headspace GCMS EPA8260B, 5021

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph.

Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

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Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

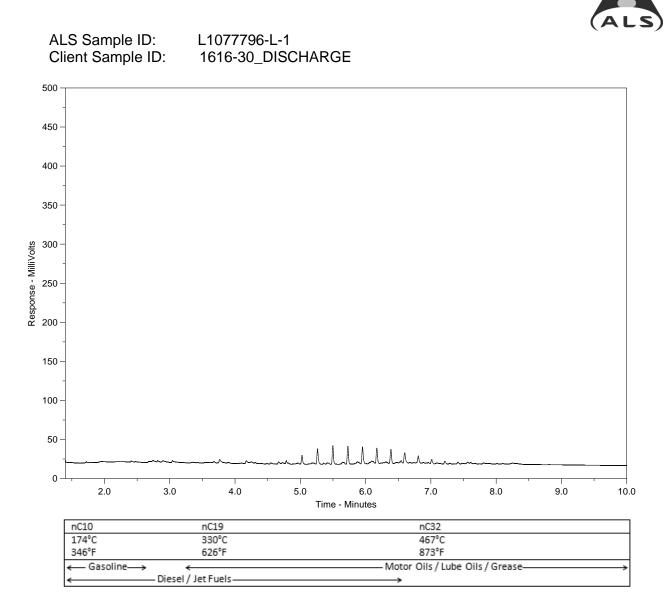
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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Hydrocarbon Distribution Report



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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



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Form 68704



BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1 Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

Sample tempurature upon receipt: \mathcal{O} C.

I No

🗔 Yes

Frozen?

CHAIN OF CUSTODY FORM

tact: Can Dang	LIC	9,1,	77	٩k	>				As. Se By CCMS	Glycols	Oil and Grease	SNP-0013 Major Ions	SNP-0013 Physical Parameters SNP-0013 Nutrients	SNP-0013 Total Metals	TDS	Total Ammonia	Total Organic Carbon	ТРН						
S	itation ID	•	Matrix	Date		Time	Init					lons	nts	etals			bon				j	l 		
1616-30_	Discharge		Water	24-Oct-20	011 0	4:05 PM	:KJ	:1	:1	1	1	1 1	:1	1 :	1	i1	1	1	BHP2					
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	Send Analytical Results to:
compliance.team@bhpbilliton.com;	

N/A

Cooler-seal intact upon receipt?

🗔 No

2 Yes



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 02-NOV-11 Report Date: 10-NOV-11 17:34 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1080236

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

Can Dang Senior Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company



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	Sample ID Description Sampled Date Sampled Time Client ID	L1080236-1 WATER 31-OCT-11 14:55 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	854		
	Hardness (as CaCO3) (mg/L)	155		
	рН (рН)	7.83		
	Total Suspended Solids (mg/L)	3.0		
	Total Dissolved Solids (mg/L)	491		
	Turbidity (NTU)	0.73		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	44.1		
	Ammonia (as N) (mg/L)	0.0065		
	Chloride (CI) (mg/L)	<mark>161</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>4.15</mark>		
	Nitrate (as N) (mg/L)	<mark>4.14</mark>		
	Nitrite (as N) (mg/L)	0.014		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0063		
	Sulfate (SO4) (mg/L)	<mark>143</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	14.5		
	Total Organic Carbon (mg/L)	<mark>4.66</mark>		
Total Metals	Aluminum (Al)-Total (mg/L)	<mark>0.0239</mark>		
	Antimony (Sb)-Total (mg/L)	0.00123		
	Arsenic (As)-Total (mg/L)	0.00060		
	Barium (Ba)-Total (mg/L)	<mark>0.0794</mark>		
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.033		
	Cadmium (Cd)-Total (mg/L)	<0.000040		
	Calcium (Ca)-Total (mg/L)	<mark>35.8</mark>		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00136		
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00606		
	Magnesium (Mg)-Total (mg/L)	15.9		
	Manganese (Mn)-Total (mg/L)	0.00245		
	Molybdenum (Mo)-Total (mg/L)	0.0851		
	Nickel (Ni)-Total (mg/L)	0.00422		

L1080236 CONTD.... PAGE 3 of 6 10-NOV-11 17:34 (MT) Version: FINAL

WATER 29.4 Total Metals Potassium (K)-Total (mg/L) 29.4 Selenium (Se)-Total (mg/L) 0.00024 Silicon (Si)-Total (mg/L) 0.366 Silver (Ag)-Total (mg/L) c0.000010 Sodium (Na)-Total (mg/L) 97.5 Strontium (Sr)-Total (mg/L) 0.730 Thallium (TI)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) c0.00010 Uranium (U)-Total (mg/L) c0.0010 Uranium (V)-Total (mg/L) c0.0010 Zinc (Zn)-Total (mg/L) c0.00030 Aggregate Organics Oil and Grease (mg/L) c0.00050 Volatile Organic Compounds Benzene (mg/L) c0.00050 Ethylbenzene (mg/L) c0.00050 c5.0 Toluene (mg/L) c0.00050 <th></th> <th>Sample ID Description Sampled Date Sampled Time Client ID</th> <th>L1080236-1 WATER 31-OCT-11 14:55 1616- 30_DISCHARGE</th> <th></th>		Sample ID Description Sampled Date Sampled Time Client ID	L1080236-1 WATER 31-OCT-11 14:55 1616- 30_DISCHARGE	
Total Metals Potassium (K)-Total (mg/L) 28.4 Selenium (Se)-Total (mg/L) 0.00024 Silicon (Si)-Total (mg/L) 0.366 Silver (Ag)-Total (mg/L) 0.366 Sodium (Na)-Total (mg/L) 97.5 Strontium (Sr)-Total (mg/L) 0.730 Thallium (Ti)-Total (mg/L) 0.00032 Tin (Sn)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) 0.000585 Vanadium (V)-Total (mg/L) 0.000585 Vanadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) <0.00050	Grouping	Analyte		
Selenium (Se)-Total (mg/L) 0.00024 Silicon (Si)-Total (mg/L) 0.366 Silver (Ag)-Total (mg/L) 0.750 Sodium (Na)-Total (mg/L) 0.730 Sotium (Sr)-Total (mg/L) 0.730 Thallium (Ti)-Total (mg/L) 0.00032 Tin (Sn)-Total (mg/L) 0.00032 Tin (Sn)-Total (mg/L) <0.00010	WATER			
Silicon (Si)-Total (mg/L) 0.366 Silver (Ag)-Total (mg/L) 0.306 Sodium (Na)-Total (mg/L) 97.5 Strontium (Sr)-Total (mg/L) 0.730 Thallium (TI)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) 0.0000585 Vanadium (V)-Total (mg/L) 0.000585 Vanadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) 0.00050 Volatile Organic Benzene (mg/L) <0.00050	Total Metals	Potassium (K)-Total (mg/L)	<mark>29.4</mark>	
Silver (Ag)-Total (mg/L) <0.000010		Selenium (Se)-Total (mg/L)	0.00024	
Sodium (Na)-Total (mg/L) 97.5 Strontium (Sr)-Total (mg/L) 0.730 Thallium (TI)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) <0.00010		Silicon (Si)-Total (mg/L)	0.366	
Strontium (Sr)-Total (mg/L) 0.730 Thallium (TI)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) <0.00010		Silver (Ag)-Total (mg/L)	<0.000010	
Thallium (TI)-Total (mg/L) 0.000032 Tin (Sn)-Total (mg/L) <0.00010		Sodium (Na)-Total (mg/L)	<mark>97.5</mark>	
Tin (Sn)-Total (mg/L) <0.00010		Strontium (Sr)-Total (mg/L)	0.730	
Titanium (Ti)-Total (mg/L) <0.010		Thallium (TI)-Total (mg/L)	0.000032	
Uranium (U)-Total (mg/L) 0.000585 Vanadium (V)-Total (mg/L) <0.0010		Tin (Sn)-Total (mg/L)	<0.00010	
Vanadium (V)-Total (mg/L) <0.0010		Titanium (Ti)-Total (mg/L)	<0.010	
Zinc (Zn)-Total (mg/L) < Aggregate Organics Oil and Grease (mg/L) <<0.0030		Uranium (U)-Total (mg/L)	0.000585	
Aggregate Organics Oil and Grease (mg/L) <5.0 Volatile Organic Compounds Benzene (mg/L) <0.00050		Vanadium (V)-Total (mg/L)	<0.0010	
Organics (0.00050) Volatile Organic Compounds Benzene (mg/L) <0.00050			<mark><0.0030</mark>	
Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050		Oil and Grease (mg/L)	<mark><5.0</mark>	
Styrene (mg/L) <0.00050		Benzene (mg/L)	<mark><0.00050</mark>	
Toluene (mg/L) <0.00050		Ethylbenzene (mg/L)	<0.00050	
ortho-Xylene (mg/L) <0.00050		Styrene (mg/L)	<0.00050	
meta- & para-Xylene (mg/L) <0.00050		Toluene (mg/L)	<0.00050	
Xylenes (mg/L) <0.00075		ortho-Xylene (mg/L)	<0.00050	
Surrogate: 4-Bromofluorobenzene (SS) (%) 89.9 Surrogate: 1,4-Difluorobenzene (SS) (%) 99.0 Hydrocarbons TVH (C5-C10) (mg/L) <0.10		meta- & para-Xylene (mg/L)	<0.00050	
Surrogate: 1,4-Difluorobenzene (SS) (%) 99.0 Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15 TPH5-30 (mg/L) <0.25 Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0		Xylenes (mg/L)	<0.00075	
Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15		Surrogate: 4-Bromofluorobenzene (SS) (%)	<mark>89.9</mark>	
TEH10-30 (mg/L) <0.15		Surrogate: 1,4-Difluorobenzene (SS) (%)	<mark>99.0</mark>	
TPH5-30 (mg/L) <0.25	Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10	
Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0			<mark><0.15</mark>	
Ethylene Glycol (mg/L) <			<0.25	
	Glycols		<5.0	
1,2-Propylene Glycol (mg/L) < <u><5.0</u>		Ethylene Glycol (mg/L)	<5.0	
		1,2-Propylene Glycol (mg/L)	<5.0	

Qualifier

MB-LOR

DLM

Applies to Sample Number(s)

L1080236-1

L1080236-1

QC Samples with Qualifiers & Comments:

Parameter

Cadmium (Cd)-Total

Chromium (Cr)-Total

QC Type Description

Duplicate

Method Blank

Methou Blank			Chiomuni (Cr)-rotai	NID-LOK	E1080230-1
Method Blank			Manganese (Mn)-Total	MB-LOR	L1080236-1
Method Blank			Molybdenum (Mo)-Total	MB-LOR	L1080236-1
Method Blank			Nickel (Ni)-Total	MB-LOR	L1080236-1
Method Blank			Iron (Fe)-Total	MB-LOR	L1080236-1
Matrix Spike			Sulfate (SO4)	MS-B	L1080236-1
Qualifiers for I	Individual Par	rameters L	_isted:		
Qualifier	Description				
DLM	Detection Li	mit Adjuste	ed For Sample Matrix Effects		
MB-LOR	Method Blar analysis is re		ALS DQO. LORs adjusted for samples	with positive hi	ts below 5 times blank level. Please contact ALS if re-
MS-B	Matrix Spike	recovery	could not be accurately calculated due to	o high analyte b	background in sample.
Fest Method R	eferences:				
ALS Test Code		Matrix	Test Description		Method Reference**
ALK-COL-VA	١	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2
This analysis is colourimetric m		sing proced	dures adapted from EPA Method 310.2 "	Alkalinity". Tota	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-	VA \	Nater	Chloride by Ion Chromatography		APHA 4110 B.
			dures adapted from APHA Method 4110 Determination of Inorganic Anions by Ion		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-C	ALC-VA	Nater	Nitrite & Nitrate in Water (Calculation)		EPA 300.0
Nitrate and Nitr	rite (as N) is a	calculated	parameter. Nitrate and Nitrite (as N) = N	litrite (as N) + I	Nitrate (as N).
ANIONS-NO2-IC	-VA \	Nater	Nitrite in Water by Ion Chromatograph	у	EPA 300.0
This analysis is detected by UV		sing proced	dures adapted from EPA Method 300.0 "	Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC	-VA	Nater	Nitrate in Water by Ion Chromatograph	ıy	EPA 300.0
This analysis is detected by UV		sing proced	dures adapted from EPA Method 300.0 "	Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC	-VA \	Nater	Sulfate by Ion Chromatography		APHA 4110 B.
This analysis is Conductivity" a	s carried out us nd EPA Metho	sing proced od 300.0 "E	dures adapted from APHA Method 4110 Determination of Inorganic Anions by Ion	B. "Ion Chroma Chromatograp	atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA		Nater	Total Arsenic in Water by CRC ICPMS	5	APHA 3030 B&E / EPA SW-846 6020A
American Publi States Environ	ic Health Asso mental Protect	ciation, an tion Agenc	d with procedures adapted from "Test M y (EPA). The procedures may involve p	ethods for Eva	ation of Water and Wastewater" published by the luating Solid Waste" SW-846 published by the United ple treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
CARBONS-TC-\	/A \	Nater	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	s carried out us	sing proced	dures adapted from APHA Method 5310	"Total Organic	Carbon (TOC)".
CARBONS-TOC	-VA \	Water	Total organic carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is	s carried out us	sing proced	dures adapted from APHA Method 5310	"Total Organic	Carbon (TOC)".
EC-PCT-VA	١	Nater	Conductivity (Automated)		APHA 2510 Auto. Conduc.
This analysis is electrode.	s carried out us	sing proced	dures adapted from APHA Method 2510	"Conductivity".	Conductivity is determined using a conductivity
EPH-LL-SF-FID	-VA \	Nater	EPH in Waters by GCFID		BCMOE EPH GCFID
Contaminated s entire water sat with flame ioniz	Sites "Extracta mple with dich ation detection	able Petrole loromethat n (GC/FID)	eum Hydrocarbons in Water by GC/́FID" ne. The extract is then solvent exchange	(Version 2.1, J d to toluene an	ands and Parks (BCMELP) Analytical Method for luly 1999). The procedure involves extraction of the id analysed by capillary column gas chromatography is (PAH) and are therefore not equivalent to Light and

Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). GLY-WAT-FID-VA Water Glycols in Water by GCFID

SW-846, METHOD 8015B, EPA

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846. Method 8015B. published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Hardness APHA 2340B Water Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. MET-T-CCMS-VA Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. OGG-SF-VA Water Oil & Grease by Gravimetric BCMOE (2010), EPA1664A The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Total P in Water by Colour APHA 4500-P Phosphorous Water This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. pH by Meter (Automated) APHA 4500-H "pH Value" PH-PCT-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA APHA 4500-P Phosphorous Water Diss. Orthophosphate in Water by Colour This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Water Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **TDS-VA** Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. APHA 2130 "Turbidity" **TURBIDITY-VA** Water Turbidity by Meter This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. Water

TURBIDITY-VA

APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

chromatography with flame-ionizatio Environment, Lands and Parks (BCN 1999). VOC7-HSMS-VA Water	n detection (GC/FID). The VH analysis is carried on MELP) Analytical Method for Contaminated Sites "	olatile Hydrocarbons (VH) by capillary column gas out in accordance with the British Columbia Ministry of Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July
	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
, · · · · · · · · · · · · · · · · · · ·	ents, is heated in a sealed vial to equilibrium. The l e measured using mass spectrometry detection.	headspace from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA Water	Sum of Xylene Isomer Concentrations	CALCULATION
Calculation of Total Xylenes		
	centrations of the ortho, meta, and para Xylene iso value no less than the square root of the sum of th	omers. Results below detection limit (DL) are treated as zero. The squares of the DLs of the individual Xylenes.
** ALS test methods may incorporate n	nodifications from specified reference methods to	improve performance.
The last two letters of the above test of	code(s) indicate the laboratory that performed ana	lytical analysis for that test. Refer to the list below:
Laboratory Definition Code Lab	poratory Location	
VA ALS		24

Chain of Custody Numbers:

68706

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

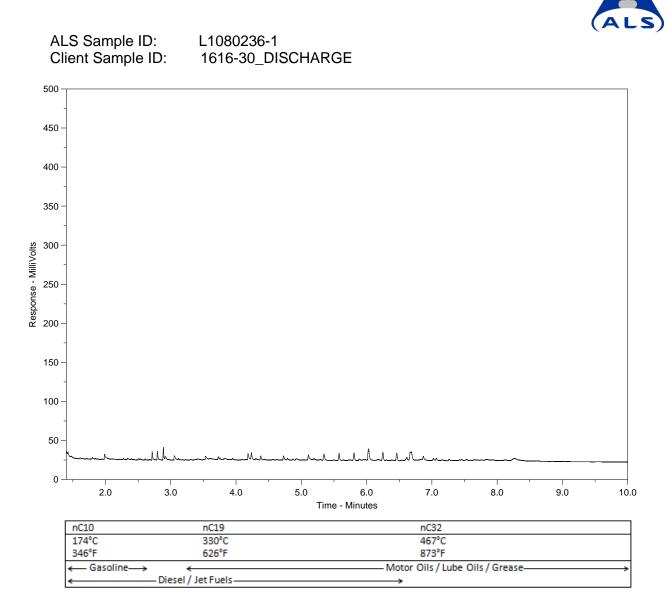
< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Hydrocarbon Distribution Report



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.



- Form - 68706

bhpbilliton

BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1 Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

SNP-0013 Total Metals SNP-0013 Major Ions SNP-0013 Physical Parameters Fotal SNP-0013 Nutrients As, Se By CCMS Oil and Grease Total Ammonia l Organic BTEX+TVH Glycols SQL ΤPΗ TSS For Lab Use Carbon Station ID Matrix Date Time Init 1616-30 Discharge 31-Oct-2011 03:20 PM Water iΚJ **1** 1 ·1 1 ·1 1 1 1 .1 1 BHP2 1 1 1 FOR LAB USE ON Date 31 (120+11 Relinguished the Received by: Date NIA17

Special Instructions (Billing details, QC reporting, etc):	Relinguished by: Date	Received by: Date
Billing Code: BHP2001	Time	Time
	FOR LAB	USE ONLY
	Cooler seal intact upon receipt? Sam	nple tempurature upon receipt: $- \begin{pmatrix} 1 \\ - \end{pmatrix} = C.$
	Yes No N/A	Frozen? Yes No
	·	al Results to:
•	compliance.team@bhpbilliton.com;	

CHAIN OF CUSTODY FORM



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:09-NOV-11Report Date:17-NOV-11 17:47 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1082977

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

Can Dang Senior Account Manager

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Environmental 💭

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	Sample ID Description Sampled Date Sampled Time Client ID	L1082977-1 WATER 07-NOV-11 14:00 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	868		
	Hardness (as CaCO3) (mg/L)	159		
	рН (рН)	7.77		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	500		
	Turbidity (NTU)	1.31		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	47.2		
	Ammonia (as N) (mg/L)	0.0051		
	Chloride (Cl) (mg/L)	<mark>148</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>3.88</mark>		
	Nitrate (as N) (mg/L)	<mark>3.86</mark>		
	Nitrite (as N) (mg/L)	<mark>0.016</mark>		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	<mark>0.0069</mark>		
	Sulfate (SO4) (mg/L)	<mark>133</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>13.8</mark>		
	Total Organic Carbon (mg/L)	<mark>4.80</mark>		
Total Metals	Aluminum (Al)-Total (mg/L)	<mark>0.0225</mark>		
	Antimony (Sb)-Total (mg/L)	0.00130		
	Arsenic (As)-Total (mg/L)	0.00068		
	Barium (Ba)-Total (mg/L)	<mark>0.0802</mark>		
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>		
	Bismuth (Bi)-Total (mg/L)	<mark><0.00050</mark>		
	Boron (B)-Total (mg/L)	0.034 _{DLM}		
	Cadmium (Cd)-Total (mg/L)	<0.000050		
	Calcium (Ca)-Total (mg/L)	<mark>37.0</mark>		
	Chromium (Cr)-Total (mg/L)	<mark><0.00050</mark>		
	Cobalt (Co)-Total (mg/L)	<mark><0.00010</mark>		
	Copper (Cu)-Total (mg/L)	0.00132		
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>		
	Lead (Pb)-Total (mg/L)	<mark><0.000050</mark>		
	Lithium (Li)-Total (mg/L)	0.00566		
	Magnesium (Mg)-Total (mg/L)	<mark>16.3</mark>		
	Manganese (Mn)-Total (mg/L)	0.00217		
	Molybdenum (Mo)-Total (mg/L)	0.0901		
	Nickel (Ni)-Total (mg/L)	0.00504		

L1082977 CONTD.... PAGE 3 of 6 17-NOV-11 17:47 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1082977-1 WATER 07-NOV-11 14:00 1616- 30_DISCHARGE	
Grouping	Analyte		
WATER			
Total Metals	Potassium (K)-Total (mg/L)	<mark>30.7</mark>	
	Selenium (Se)-Total (mg/L)	0.00026	
	Silicon (Si)-Total (mg/L)	0.451	
	Silver (Ag)-Total (mg/L)	<0.000010	
	Sodium (Na)-Total (mg/L)	<mark>102</mark>	
	Strontium (Sr)-Total (mg/L)	0.766	
	Thallium (TI)-Total (mg/L)	0.000023	
	Tin (Sn)-Total (mg/L)	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	
	Uranium (U)-Total (mg/L)	0.000641	
	Vanadium (V)-Total (mg/L)	<0.0010	
	Zinc (Zn)-Total (mg/L)	<0.0030	
Aggregate Organics	Oil and Grease (mg/L)	<5.0	
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>	
	Ethylbenzene (mg/L)	<0.00050	
	Styrene (mg/L)	<0.00050	
	Toluene (mg/L)	<0.00050	
	ortho-Xylene (mg/L)	<0.00050	
	meta- & para-Xylene (mg/L)	<0.00050	
	Xylenes (mg/L)	<0.00075	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	<mark>94.3</mark>	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100.1	
Hydrocarbons	TVH (C5-C10) (mg/L)	<0.10	
	TEH10-30 (mg/L)	<0.15	
	TPH5-30 (mg/L)	<0.25	
Glycols	Diethylene Glycol (mg/L)	<5.0	
	Ethylene Glycol (mg/L)	<5.0	
	1,2-Propylene Glycol (mg/L)	<5.0	

QC Samples with Qualifiers & Comments: QC Type Description Parameter Qualifier Applies to Sample Number(s) Duplicate Cadmium (Cd)-Total DLM L1082977-1 **Qualifiers for Individual Parameters Listed:** Qualifier Description DLM Detection Limit Adjusted For Sample Matrix Effects Test Method References: ALS Test Code Matrix **Test Description** Method Reference** ALK-COL-VA Water Alkalinity by Colourimetric (Automated) APHA 310.2 This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. ANIONS-CL-IC-VA Water Chloride by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". ANIONS-N+N-CALC-VA Water Nitrite & Nitrate in Water (Calculation) EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). ANIONS-NO2-IC-VA Nitrite in Water by Ion Chromatography EPA 300.0 Water This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. Nitrate in Water by Ion Chromatography EPA 300.0 ANIONS-NO3-IC-VA Water This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. APHA 4110 B. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Total Arsenic in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A AS-T-CCMS-VA Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A) **CARBONS-TC-VA** Water Total carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC) This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". APHA 5310 TOTAL ORGANIC CARBON (TOC) CARBONS-TOC-VA Water Total organic carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto, Conduc, This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. **EPH-LL-SF-FID-VA** EPH in Waters by GCFID BCMOE EPH GCFID Water This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. **MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

		cy (EPA). The procedures may involve preliminary same al analysis is by collision cell inductively coupled plasmed analysis is by collision cell inductively coupled plasmed analysis is by collision cell inductively coupled plasmed analysis in the procedures may involve preliminary same analysis in the procedures may involve preliminary same analysis in the procedures may involve preliminary same analysis is by collision cell inductively coupled plasmed analysis is by collision cell inductively coupled analysis is by collision cell inductively coupled and analysis is by collision cell inductively coupled analysis inductively c	
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Public Health As States Environmental Prot	ssociation, ar	dures adapted from "Standard Methods for the Examin ad with procedures adapted from "Test Methods for Eva cy (EPA). The procedures may involve preliminary sam Instrumental analysis is by inductively coupled plasma	aluating Solid Waste" SW-846 published by the United apple treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			om J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society e levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an determine Oil and Grease.		f the entire water sample with hexane. This extract is t	hen evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out after persulphate digestion		dures adapted from APHA Method 4500-P "Phosphoru le.	s". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out electrode	t using proce	dures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	s analysis be	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out electrode	t using proce	dures adapted from APHA Method 4500-H "pH Value".	The pH is determined in the laboratory using a pH
It is recommended that this	s analysis be	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		dures adapted from APHA Method 4500-P "Phosphoru been lab or field filtered through a 0.45 micron membra	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health As States Environmental Prot	ssociation, ar	dures adapted from "Standard Methods for the Examin ad with procedures adapted from "Test Methods for Eva cy (EPA). The procedures may involve preliminary sam al analysis is by collision cell inductively coupled plasm	aluating Solid Waste" SW-846 published by the United apple treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
			Is are determined gravimetrically. Total Dissolved Solids vaporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		dures adapted from APHA Method 2540 "Solids". Solic a sample through a glass fibre filter, TSS is determine	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	t using proce	dures adapted from APHA Method 2130 "Turbidity". Tu	urbidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
,	01	dures adapted from APHA Method 2130 "Turbidity". Tu	
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame	e-ionization d	e extraction of the sample prior to analysis for Volatile H letection (GC/FID). The VH analysis is carried out in ac LP) Analytical Method for Contaminated Sites "Volatile	cordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
		s, is heated in a sealed vial to equilibrium. The headspaneasured using mass spectrometry detection.	ace from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021

XYLENES-CALC-VA

Sum of Xylene Isomer Concentrations

CALCULATION

Calculation of Total Xylenes

Water

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68709

GLOSSARY OF REPORT TERMS

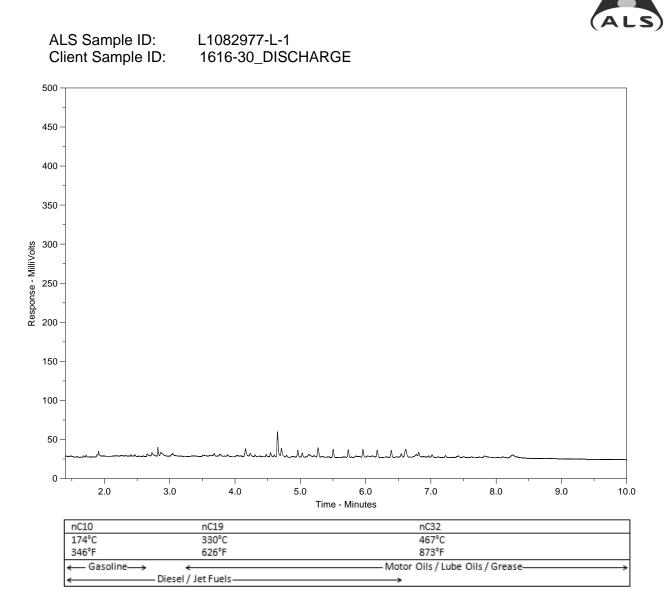
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. mg/kg - milligrams per kilogram based on dry weight of sample. mg/kg wwt - milligrams per kilogram based on wet weight of sample. mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample. mg/L - milligrams per litre. < - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Hydrocarbon Distribution Report



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

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L1082977

ALS

5.0.40044

CHAIN OF CUSTODY FORM

Form 68709

BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

bhpbilliton

Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid

ALS Contact: Can Dang SNP-0013 Total Metals Parameters SNP-0013 Nutrients **Total Organic Carbon** SNP-0013 Major Ions SNP-0013 Physical Ąs, Total Ammonia Oil and Grease BTEX+TVH Se By CCMS Glycols SQL TPH SSL For Lab Use Station ID Matrix Date Time Init 1616-30 Discharge Water 07-Nov-2011 02:00 PM INA 11 $\mathbf{1}$ 11 11 11 11 11 11 11 11 BHP2 11 1 11 9 Ъ USE <u>CN</u> Relinquished by: Turn around Required: 2-day RUSH nitrate analysis; remainder of analyses 1-week RUSH. Date Received by: Date Time Time Special Instructions (Billing details, QC reporting, etc): Relinguished by: Received by: Date Date Billing Code: BHP2001 Time Time FOR LAB USE ONLY Sample tempurature upon receipt: 5.6 c. Cooler seal intact upon receipt? ____ Yes □ N/A Yes No Frozen? Send Analytical Results to:

compliance.team@bhpbilliton.com;



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received:21-NOV-11Report Date:01-DEC-11 16:38 (MT)Version:FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1086993

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

BHP2001 68713

6200801716

Can Dang Senior Account Manager

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	Sample ID Description Sampled Date Sampled Time Client ID	L1086993-1 WATER 14-NOV-11 (14:55) (1616- 30_DISCHARGE			
Grouping	Analyte				
WATER					
Physical Tests	Conductivity (uS/cm)	<mark>917</mark>			
	Hardness (as CaCO3) (mg/L)	144			
	рН (рН)	7.84			
	Total Suspended Solids (mg/L)	<3.0			
	Total Dissolved Solids (mg/L)	<mark>517</mark>			
	Turbidity (NTU)	0.61			
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	47.6			
	Ammonia (as N) (mg/L)	0.0123			
	Chloride (Cl) (mg/L)	<mark>149</mark>			
	Nitrate and Nitrite (as N) (mg/L)	<mark>4.24</mark>			
	Nitrate (as N) (mg/L)	<mark>4.22</mark>			
	Nitrite (as N) (mg/L)	0.017			
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>			
	Phosphorus (P)-Total (mg/L)	0.0081			
	Sulfate (SO4) (mg/L)	<mark>133</mark>			
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>14.3</mark>			
	Total Organic Carbon (mg/L)	<mark>4.94</mark>			
Total Metals	Aluminum (Al)-Total (mg/L)	0.0199			
	Antimony (Sb)-Total (mg/L)	0.00130			
	Arsenic (As)-Total (mg/L)	0.00070			
	Barium (Ba)-Total (mg/L)	0.0788			
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>			
	Bismuth (Bi)-Total (mg/L)	<mark><0.00050</mark>			
	Boron (B)-Total (mg/L)	0.034 _{DLM}			
	Cadmium (Cd)-Total (mg/L)	<mark><0.000040</mark>			
	Calcium (Ca)-Total (mg/L)	<mark>33.0</mark>			
	Chromium (Cr)-Total (mg/L)	<mark><0.00050</mark>			
	Cobalt (Co)-Total (mg/L)	<mark><0.00010</mark>			
	Copper (Cu)-Total (mg/L)	0.00124			
	Iron (Fe)-Total (mg/L)	<mark><0.030</mark>			
	Lead (Pb)-Total (mg/L)	<0.000050			
	Lithium (Li)-Total (mg/L)	0.00488			
	Magnesium (Mg)-Total (mg/L)	<mark>15.0</mark>			
	Manganese (Mn)-Total (mg/L)	0.00298			
	Molybdenum (Mo)-Total (mg/L)	<mark>0.0873</mark>			
	Nickel (Ni)-Total (mg/L)	0.00477			

L1086993 CONTD.... PAGE 3 of 6 01-DEC-11 16:38 (MT) Version: FINAL

Grouping Analyte WATER 29.5 Total Metals Potassium (K)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.471 Silicon (Si)-Total (mg/L) co.000010 Sodium (Na)-Total (mg/L) co.000010 Sodium (Na)-Total (mg/L) co.000010 Strontium (Sr)-Total (mg/L) 0.771 Thallium (TI)-Total (mg/L) co.00010 Tin (Sn)-Total (mg/L) co.00010 Uranium (U)-Total (mg/L) co.00010 Zinc (Zn)-Total (mg/L) co.00010 Vanadum (V)-Total (mg/L) co.00010 Zinc (Zn)-Total (mg/L) co.00010 Zinc (Zn)-Total (mg/L) co.00010 Zinc (Zn)-Total (mg/L) co.00050 Zinc (Zn)-Total (mg/L) co.00050 Zinc (Zn)-Total (mg/L) co.00050 Styrene (mg/L) co.00050 Styrene (mg/L) co.00050 Styrene (mg/L) co.00050 ortho-Xylene (mg/L) co.00050 Styrene (mg/L) co.00050 Styrene (mg/L) co.00050 Surrogate:		Sample ID Description Sampled Date Sampled Time Client ID	14-NOV-11 14:55		
Total Metals Potassium (K)-Total (mg/L) 29.5 Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.471 Silver (Ag)-Total (mg/L) 0.471 Sodium (Na)-Total (mg/L) 96.7 Strontium (Sr)-Total (mg/L) 0.771 Thalium (Ti)-Total (mg/L) 0.000033 Tin (Sn)-Total (mg/L) <0.00010 Uranium (U)-Total (mg/L) <0.00010 Uranium (U)-Total (mg/L) <0.00010 Zinc (Zn)-Total (mg/L) <0.00010 Zinc (Zn)-Total (mg/L) <0.00050 Volatile Organic Benzene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Toluene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.0005	Grouping	Analyte			
Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.471 Silver (Ag)-Total (mg/L) 0.471 Sodium (Na)-Total (mg/L) 0.00003 Strontium (Sr)-Total (mg/L) 0.771 Thallium (Ti)-Total (mg/L) 0.000033 Tin (Sn)-Total (mg/L) 0.0000584 Varadium (V)-Total (mg/L) <0.00010	WATER				
Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.471 Silver (Ag)-Total (mg/L) \$6.000010 Sodium (Na)-Total (mg/L) 96.7 Strontium (Sr)-Total (mg/L) 0.7711 Thallium (TI)-Total (mg/L) 0.000033 Tin (Sn)-Total (mg/L) \$0.00010 Ttanium (TI)-Total (mg/L) \$0.00010 Uranium (U)-Total (mg/L) \$0.00010 Zinc (Zn)-Total (mg/L) \$0.00010 Zinc (Zn)-Total (mg/L) \$0.00010 Zinc (Zn)-Total (mg/L) \$0.000584 Volatile Organic Oil and Grease (mg/L) \$0.00050 Compounds Benzene (mg/L) \$0.00050 Styrene (mg/L) \$0.00050 \$0.00050 Styrene (mg/L) \$0.00050 \$0.00050 Toluene (mg/L) \$0.00050 \$0.00050 Styrene (mg/L) \$0.00050 \$0.00050 Styrene (mg/L) \$0.00050 \$0.00050 Toluene (mg/L) \$0.00050 \$0.00050 Surrogate: 1.4-Difluorobenzene (SS) (%) \$9.8 Hydrocarbons TVH (C5-C10) (mg/L)	Total Metals	Potassium (K)-Total (mg/L)	29.5		
Silver (Ag)-Total (mg/L) <0.000010		Selenium (Se)-Total (mg/L)			
Sodium (Na)-Total (mg/L) 96.7 Strontium (Sr)-Total (mg/L) 0.7711 Thallium (TI)-Total (mg/L) 0.000033 Tin (Sn)-Total (mg/L) <0.00010		Silicon (Si)-Total (mg/L)	0.471		
Strontium (Sr)-Total (mg/L) 0.771 Thallium (TI)-Total (mg/L) 0.000033 Tin (Sn)-Total (mg/L) <0.00010		Silver (Ag)-Total (mg/L)	<0.000010		
Thallium (TI)-Total (mg/L) 0.000033 Tin (Sn)-Total (mg/L) <0.0010		Sodium (Na)-Total (mg/L)	96.7		
Tin (Sn)-Total (mg/L) <0.00010		Strontium (Sr)-Total (mg/L)	0.771		
Titanium (Ti)-Total (mg/L) <0.010		Thallium (TI)-Total (mg/L)	0.000033		
Uranium (U)-Total (mg/L) 0.000584 Vanadium (V)-Total (mg/L) <0.0010		Tin (Sn)-Total (mg/L)	<0.00010		
Vanadium (V)-Total (mg/L) <0.0010		Titanium (Ti)-Total (mg/L)	<0.010		
Zinc (Zn)-Total (mg/L) < Aggregate Organics Oil and Grease (mg/L) <<0.0030		Uranium (U)-Total (mg/L)	0.000584		
Aggregate Organics Oil and Grease (mg/L) <5.0 Volatile Organic Compounds Benzene (mg/L) <0.00050		Vanadium (V)-Total (mg/L)	<0.0010		
Organics Compounds Volatile Organic Compounds Benzene (mg/L) <0.00050		Zinc (Zn)-Total (mg/L)	<0.0030		
Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050		Oil and Grease (mg/L)	<5.0		
Styrene (mg/L) <0.00050		Benzene (mg/L)	<0.00050		
Toluene (mg/L) <0.00050		Ethylbenzene (mg/L)	<0.00050		
ortho-Xylene (mg/L) <0.00050		Styrene (mg/L)			
meta- & para-Xylene (mg/L) <0.00050		Toluene (mg/L)	<0.00050		
meta- & para-Xylene (mg/L) <0.00050		ortho-Xylene (mg/L)	<0.00050		
Xylenes (mg/L) <0.00075		meta- & para-Xylene (mg/L)			
Surrogate: 4-Bromofluorobenzene (SS) (%) 94.6 Surrogate: 1,4-Difluorobenzene (SS) (%) 99.8 Hydrocarbons TVH (C5-C10) (mg/L) <0.10		Xylenes (mg/L)			
Surrogate: 1,4-Difluorobenzene (SS) (%) 99.8 Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15 TPH5-30 (mg/L) <0.25 Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0		Surrogate: 4-Bromofluorobenzene (SS) (%)			
Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15		Surrogate: 1,4-Difluorobenzene (SS) (%)			
TEH10-30 (mg/L) <0.15	Hydrocarbons	TVH (C5-C10) (mg/L)			
TPH5-30 (mg/L) <0.25		TEH10-30 (mg/L)			
Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0		TPH5-30 (mg/L)			
Ethylene Glycol (mg/L) <5.0	Glycols	Diethylene Glycol (mg/L)			
		Ethylene Glycol (mg/L)			
		1,2-Propylene Glycol (mg/L)	<5.0		

Qualifiers for Individual Parameters Listed: Qualifier Description DLM Detection Limit Adjusted For Sample Matrix Effects Test Method References: **ALS Test Code** Matrix Method Reference** **Test Description** Alkalinity by Colourimetric (Automated) ALK-COL-VA Water APHA 310.2 This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. APHA 4110 B. ANIONS-CL-IC-VA Water Chloride by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite & Nitrate in Water (Calculation) ANIONS-N+N-CALC-VA Water EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). EPA 300.0 ANIONS-NO2-IC-VA Water Nitrite in Water by Ion Chromatography This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. EPA 300.0 ANIONS-NO3-IC-VA Water Nitrate in Water by Ion Chromatography This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Total Arsenic in Water by CRC ICPMS AS-T-CCMS-VA Water APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A) APHA 5310 TOTAL ORGANIC CARBON (TOC) **CARBONS-TC-VA** Water Total carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". **CARBONS-TOC-VA** APHA 5310 TOTAL ORGANIC CARBON (TOC) Water Total organic carbon by combustion This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc. This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. **EPH-LL-SF-FID-VA** Water EPH in Waters by GCFID BCMOE EPH GCFID This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH). **GLY-WAT-FID-VA** Water Glycols in Water by GCFID SW-846, METHOD 8015B, EPA This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID). HARDNESS-CALC-VA Water Hardness APHA 2340B Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. APHA 3030 B&E / EPA SW-846 6020A **MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method

Water Total Metals in Water by ICPOES

6020A). MET-TOT-ICP-VA

EPA SW-846 3005A/6010B

American Public Health Ass States Environmental Protect	ociation, and ction Agency	ures adapted from "Standard Methods for the Examina with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp instrumental analysis is by inductively coupled plasma	uating Solid Waste" SW-846 published by the United ole treatment by acid digestion, using either hotblock or
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
			n J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society levels of ammonium in seawater", Roslyn J. Waston et
OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A
The procedure involves an e determine Oil and Grease.	extraction of t	he entire water sample with hexane. This extract is the	en evaporated to dryness, and the residue weighed to
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out u after persulphate digestion of		ures adapted from APHA Method 4500-P "Phosphorus"	". Total Phosphorous is determined colourimetrically
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out u electrode	using proced	ures adapted from APHA Method 4500-H "pH Value". 1	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be o	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out u electrode	using proced	ures adapted from APHA Method 4500-H "pH Value". 1	The pH is determined in the laboratory using a pH
It is recommended that this	analysis be d	conducted in the field.	
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous
		ures adapted from APHA Method 4500-P "Phosphorus een lab or field filtered through a 0.45 micron membran	
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public Health Ass States Environmental Protect	ociation, and ction Agency	ures adapted from "Standard Methods for the Examinar with procedures adapted from "Test Methods for Evalu (EPA). The procedures may involve preliminary samp analysis is by collision cell inductively coupled plasma	uating Solid Waste" SW-846 published by the United ole treatment by acid digestion, using hotblock, or
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
,	01	•	are determined gravimetrically. Total Dissolved Solids aporating the filtrate to dryness at 180 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
		ures adapted from APHA Method 2540 "Solids". Solids a sample through a glass fibre filter, TSS is determined	
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out u	using proced	ures adapted from APHA Method 2130 "Turbidity". Tur	bidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out u	using proced	ures adapted from APHA Method 2130 "Turbidity". Turk	bidity is determined by the nephelometric method.
TVH-HSFID-VA	Water	TVH by headspace GCFID	EPA 8260B, BCMELP CSR METHOD
chromatography with flame-	ionization de	extraction of the sample prior to analysis for Volatile Hy tection (GC/FID). The VH analysis is carried out in accord P) Analytical Method for Contaminated Sites "Volatile H	ordance with the British Columbia Ministry of
VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
•	-	is heated in a sealed vial to equilibrium. The headspac asured using mass spectrometry detection.	e from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero.

The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

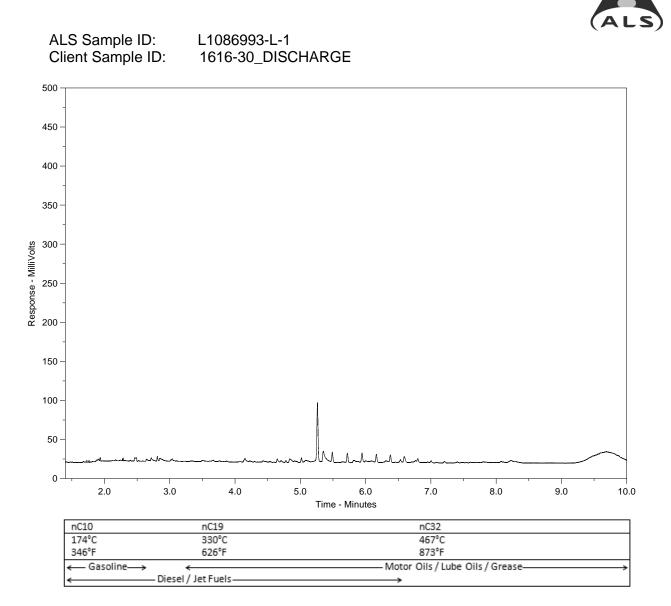
< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



8081 Lougheed Highway • Suite 100 • Burnaby,

CHAIN OF CUSTODY FORM Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700 BHP Contacts: David Bruce/ Richard EhlertDavid ALS Contact: Can Dang SNP-0013 Physical Parameters SNP-0013 Nutrients SNP-0013 Total Metals Total Organic Carbon SNP-0013 Major Ions As, Se By CCMS Total Ammonia Oil and Grease BTEX+TVH Glycols L1086993 문 SQ1 SSL For Lab Use Station ID Matrix Date Time Init 1616-30 Discharge Water 14-Nov-2011 02:55 PM 'NA 1 1 1 !1 1 1 11 11 11 11 11 11 11 BHP2 ÇH LAB USE ONLY Y-Nov-1 Nove Received by: Relinguished by Date Turn around Required: 2-day Rush for Nitrate Analysis Date 5:40 Time Time Special Instructions (Billing details, QC reporting, etc): Relinquished by: Date Received by: Date Billing Code: BHP2001 Time Time FOR LAB USE ONLY 11/2 20 1000 One BTEX Bottle Broke During sampling, only one in shipment Cooler seal intact upon receipt? Sample tempurature upon receipt: Ċ. Yes I No 🔲 N/A T Yes Frozen? Send Analytical Results to:>

compliance.team@bhpbilliton.com:

Form 68713

bhpbilliton

BHP Billiton Diamonds Inc. # 1102 4920 52nd Street, Yellowknife, NT X1A 3T1

Tel: 867-880-2157 Fax: 867-880-4012



BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 24-NOV-11 Report Date: 06-DEC-11 17:36 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1088426

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc: BHP2001 68717

6200801716

Can Dang Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1088426-1 WATER 21-NOV-11 14:35 1616- 30_DISCHARGE		
Grouping	Analyte			
WATER				
Physical Tests	Conductivity (uS/cm)	<mark>924</mark>		
	Hardness (as CaCO3) (mg/L)	158		
	рН (рН)	7.90		
	Total Suspended Solids (mg/L)	<3.0		
	Total Dissolved Solids (mg/L)	527		
	Turbidity (NTU)	1.26		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	48.4		
	Ammonia (as N) (mg/L)	0.0246		
	Chloride (Cl) (mg/L)	<mark>152</mark>		
	Nitrate and Nitrite (as N) (mg/L)	<mark>4.36</mark>		
	Nitrate (as N) (mg/L)	<mark>4.34</mark>		
	Nitrite (as N) (mg/L)	0.014		
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>		
	Phosphorus (P)-Total (mg/L)	0.0077		
	Sulfate (SO4) (mg/L)	<mark>136</mark>		
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>13.0</mark>		
	Total Organic Carbon (mg/L)	4.24 DLB		
Total Metals	Aluminum (Al)-Total (mg/L)	<mark><0.024</mark>		
	Antimony (Sb)-Total (mg/L)	0.00135		
	Arsenic (As)-Total (mg/L)	0.00075		
	Barium (Ba)-Total (mg/L)	<mark>0.0793</mark>		
	Beryllium (Be)-Total (mg/L)	<mark><0.00010</mark>		
	Bismuth (Bi)-Total (mg/L)	<0.00050		
	Boron (B)-Total (mg/L)	0.036 _{DLM}		
	Cadmium (Cd)-Total (mg/L)	<0.000030		
	Calcium (Ca)-Total (mg/L)	<mark>36.5</mark>		
	Chromium (Cr)-Total (mg/L)	<0.00050		
	Cobalt (Co)-Total (mg/L)	<0.00010		
	Copper (Cu)-Total (mg/L)	0.00138		
	Iron (Fe)-Total (mg/L)	<0.030		
	Lead (Pb)-Total (mg/L)	<0.000050		
	Lithium (Li)-Total (mg/L)	0.00574		
	Magnesium (Mg)-Total (mg/L)	<mark>16.3</mark>		
	Manganese (Mn)-Total (mg/L)	0.00355		
	Molybdenum (Mo)-Total (mg/L)	<mark>0.0856</mark>		
	Nickel (Ni)-Total (mg/L)	0.00532		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1088426 CONTD.... PAGE 3 of 6 06-DEC-11 17:36 (MT) Version: FINAL

VATER 9tassium (K)-Total (mg/L) 31.3 Fotal Metals Potassium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.5688 Silver (Ag)-Total (mg/L) 0.5688 Silver (Ag)-Total (mg/L) 0.00035 Strontium (Sr)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.00000000000000000000000000000000000	WATER 31.3 Total Metals Potassium (K)-Total (mg/L) 31.3 Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.568 Silver (Ag)-Total (mg/L) 0.708 Sodium (Na)-Total (mg/L) 0.708 Thallium (Ti)-Total (mg/L) 0.00029 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.0000035 Tin (Sn)-Total (mg/L) 0.000009 Vanadium (V)-Total (mg/L) 0.000069 Vanadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) <0.00050 Zinc (Zn)-Total (mg/L) <0.00050 Volatile Organic Benzene (mg/L) <0.00050 Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Toluene (mg/L) <0.00050 Metals Surogate: 4-Bromofluorobenzene (SS) (%) 109.8 May est 4-Bromofluorobenzene (SS) (%) 109.8 May est 4-Bromofluorobenzene (SS) (%) 100.3 Hydrocarbons TVH (C5-C10) (mg/L)		Sample ID Description Sampled Date Sampled Time Client ID	21-NOV-11		
Fotal Metals Potassium (K)-Total (mg/L) 31.3 Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.5688 Silver (Ag)-Total (mg/L) 0.60010 Sodium (Na)-Total (mg/L) 0.708 Thallium (Ti)-Total (mg/L) 0.000235 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000035 Vanadium (V)-Total (mg/L) 0.000069 Vanadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) <0.00050 Vanadium (V)-Total (mg/L) <0.00050 Zinc (Zn)-Total (mg/L) <0.00050 Vanadium (V)-Total (mg/L) <0.00050 Zinc (Zn)-Total (mg/L) <0.00050 Zinc (Zn)-Total (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Toluene (mg/L) <0.00050 ortho-Xylene (mg/L) <0.00050 Surrogate: 1.4-Bromofluorobenzene (SS) (%) 109.8 Surrogate: 1.4-Difluorobenzene (SS) (%)<	Total Metals Potassium (K)-Total (mg/L) 31.3 Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.5668 Silver (Ag)-Total (mg/L) 0.00010 Sodium (Na)-Total (mg/L) 0.708 Strontium (Sr)-Total (mg/L) 0.000035 Thallium (Ti)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000069 Variadium (V)-Total (mg/L) 0.000609 Variadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) 0.00050 Volatile Organic Benzene (mg/L) <0.00050 Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Toluene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Totale (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 Styrene (mg/L) <0.00050 <th>Grouping</th> <th>Analyte</th> <th></th> <th></th> <th></th>	Grouping	Analyte			
Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.568 Siliver (Ag)-Total (mg/L) 0.00028 Sodium (Na)-Total (mg/L) 105 Strontium (Sr)-Total (mg/L) 0.708 Thallium (TI)-Total (mg/L) 0.00028 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.0000609 Vanadium (V)-Total (mg/L) 0.000509 Vanadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) 0.00050 Volatile Organic Benzene (mg/L) <0.00050	Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.568 Silver (Ag)-Total (mg/L) 0.00028 Sodium (Na)-Total (mg/L) 0.708 Strontium (Sr)-Total (mg/L) 0.000035 Thallium (TI)-Total (mg/L) 0.00028 Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000089 Vanadium (V)-Total (mg/L) 0.000089 Vanadium (V)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) 0.00050 Zinc (Zn)-Total (mg/L) 0.00050 Organics Oil and Grease (mg/L) <0.00050	WATER				
Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.568 Silver (Ag)-Total (mg/L) 0.00010 Sodium (Na)-Total (mg/L) 0.708 Thallium (Ti)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000009 Uranium (U)-Total (mg/L) 0.000009 Vanadium (V)-Total (mg/L) 0.000009 Zinc (Zn)-Total (mg/L) <0.00000	Selenium (Se)-Total (mg/L) 0.00028 Silicon (Si)-Total (mg/L) 0.5688 Silver (Ag)-Total (mg/L) 0.000010 Sodium (Na)-Total (mg/L) 106 Strontium (Sr)-Total (mg/L) 0.708 Thallium (Ti)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) 0.000035 Uranium (U)-Total (mg/L) 0.000000 Vanadium (V)-Total (mg/L) 0.000010 Zinc (Zn)-Total (mg/L) 0.000050 Zinc (Zn)-Total (mg/L) <0.00050	Total Metals	Potassium (K)-Total (mg/L)	- 31.3		
Silver (Ag)-Total (mg/L) c0.000010 Sodium (Na)-Total (mg/L) 106 Strontium (Sr)-Total (mg/L) 0.708 Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) c0.0010 Titanium (Ti)-Total (mg/L) c0.0010 Uranium (U)-Total (mg/L) c0.0010 Vanadium (V)-Total (mg/L) c0.0010 Zinc (Zn)-Total (mg/L) c0.0030 Aggregate Oil and Grease (mg/L) c0.00050 Compounds Ethylbenzene (mg/L) c0.00050 Styrene (mg/L) c0.00050 c0.00050 Toluene (mg/L) c0.00050 c0.00050 Toluene (mg/L) c0.00050 c0.00050 ortho-Xylene (mg/L) c0.00050 c0.00050 meta- & para-Xylene (mg/L) c0.00050 c0.00050 meta- & para-Xylene (mg/L) c0.00050 c0.00050 Xylenes (mg/L) c0.00050 c0.00050 Surrogate: 1,4-Difluorobenzene (SS) (%) 109,8 c0.00050 Surrogate: 1,4-Difluorobenzene (SS) (%) 100,3 c0.25 Surrogate: 1,4-Difluorobenzene (Silver (Ag)-Total (mg/L) <0.000010		Selenium (Se)-Total (mg/L)			
Sodium (Na)-Total (mg/L) 106 Strontium (Sr)-Total (mg/L) 0.708 Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) <0.0010	Sodium (Na)-Total (mg/L) 106 Strontium (Sr)-Total (mg/L) 0.708 Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) <0.00010		Silicon (Si)-Total (mg/L)			
Strontium (Sr)-Total (mg/L) 0.708 Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) <0.0010	Strontium (Sr)-Total (mg/L) 0.708 Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) <0.0010		Silver (Ag)-Total (mg/L)	<0.000010		
Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) <0.00010	Thallium (TI)-Total (mg/L) 0.000035 Tin (Sn)-Total (mg/L) <0.00010		Sodium (Na)-Total (mg/L)	106		
Tin (Sn)-Total (mg/L) <0.00010	Tin (Sn)-Total (mg/L) <0.00010		Strontium (Sr)-Total (mg/L)	0.708		
Titanium (Ti)-Total (mg/L) <0.010	Titanium (Ti)-Total (mg/L) <0.010		Thallium (TI)-Total (mg/L)	0.000035		
Uranium (U)-Total (mg/L) 0.000609 Vanadium (V)-Total (mg/L) <0.0010	Uranium (U)-Total (mg/L) 0.000609 Vanadium (V)-Total (mg/L) <0.0010		Tin (Sn)-Total (mg/L)	<0.00010		
Vanadium (V)-Total (mg/L) <0.0010	Vanadium (V)-Total (mg/L) <0.0010		Titanium (Ti)-Total (mg/L)	<0.010		
Zinc (Zn)-Total (mg/L) <0.0030 Aggregate Organics Oil and Grease (mg/L) <5.0	Zinc (Zn)-Total (mg/L) <0.0030 Aggregate Organics Oil and Grease (mg/L) <5.0		Uranium (U)-Total (mg/L)	0.000609		
Aggregate OrganicsOil and Grease (mg/L)<5.0Jolatile Organic CompoundsBenzene (mg/L)<0.00050	Aggregate Organics Oil and Grease (mg/L) <5.0 Volatile Organic Compounds Benzene (mg/L) <0.00050		Vanadium (V)-Total (mg/L)	<0.0010		
Organics Volatile Organic Compounds Benzene (mg/L) <0.00050	Organics Volatile Organic Compounds Benzene (mg/L) <0.00050		Zinc (Zn)-Total (mg/L)	<0.0030		
Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050	Compounds Ethylbenzene (mg/L) <0.00050 Styrene (mg/L) <0.00050		Oil and Grease (mg/L)	<5.0		
Styrene (mg/L) <0.00050	Styrene (mg/L) <0.00050		Benzene (mg/L)	<0.00050		
Toluene (mg/L) <0.00050	Toluene (mg/L) <0.00050		Ethylbenzene (mg/L)	<0.00050		
ortho-Xylene (mg/L) <0.00050	ortho-Xylene (mg/L) <0.00050		Styrene (mg/L)	<mark><0.00050</mark>		
meta- & para-Xylene (mg/L) <0.00050	meta- & para-Xylene (mg/L) <0.00050		Toluene (mg/L)	<mark><0.00050</mark>		
Xylenes (mg/L) <0.00075	Xylenes (mg/L)<0.00075Surrogate: 4-Bromofluorobenzene (SS) (%)109.8Surrogate: 1,4-Difluorobenzene (SS) (%)100.3HydrocarbonsTVH (C5-C10) (mg/L)<0.10		ortho-Xylene (mg/L)	<mark><0.00050</mark>		
Surrogate: 4-Bromofluorobenzene (SS) (%) 109.8 Surrogate: 1,4-Difluorobenzene (SS) (%) 100.3 Hydrocarbons TVH (C5-C10) (mg/L) <0.10	Surrogate: 4-Bromofluorobenzene (SS) (%) 109.8 Surrogate: 1,4-Difluorobenzene (SS) (%) 100.3 Hydrocarbons TVH (C5-C10) (mg/L) <0.10		meta- & para-Xylene (mg/L)	<0.00050		
Surrogate: 1,4-Difluorobenzene (SS) (%) 100.3 Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15 TPH5-30 (mg/L) <0.25 Bigcols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0	Surrogate: 1,4-Difluorobenzene (SS) (%) 100.3 Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15 TPH5-30 (mg/L) <0.25 Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0		Xylenes (mg/L)	<0.00075		
Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15	Hydrocarbons TVH (C5-C10) (mg/L) <0.10 TEH10-30 (mg/L) <0.15		Surrogate: 4-Bromofluorobenzene (SS) (%)	109.8		
TEH10-30 (mg/L) <0.15	TEH10-30 (mg/L) <0.15		Surrogate: 1,4-Difluorobenzene (SS) (%)			
TPH5-30 (mg/L) <0.25	TPH5-30 (mg/L) <0.25	Hydrocarbons	TVH (C5-C10) (mg/L)	<mark><0.10</mark>		
Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0	Glycols Diethylene Glycol (mg/L) <5.0 Ethylene Glycol (mg/L) <5.0		TEH10-30 (mg/L)	<mark><0.15</mark>		
Ethylene Glycol (mg/L) < <u><5.0</u>	Ethylene Glycol (mg/L) <5.0		TPH5-30 (mg/L)	<0.25		
		Glycols	Diethylene Glycol (mg/L)	<5.0		
			Ethylene Glycol (mg/L)			
(i) 2 i i op (iii o i i) coi (ii o			1,2-Propylene Glycol (mg/L)			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

QC Samples with Qualifiers & Comments:

QC Type Description	n	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank		Aluminum (AI)-Total	MB-LOR	L1088426-1
Method Blank		Chromium (Cr)-Total	MB-LOR	L1088426-1
Qualifiers for Indiv	vidual Parameters I	Listed:		
Qualifier De	escription			
DLB De	tection limit was rais	sed due to detection of analyte at	comparable level in N	lethod Blank.
DLM De	etection Limit Adjuste	ed For Sample Matrix Effects		
	ethod Blank exceeds alysis is required.	SALS DQO. LORs adjusted for sa	mples with positive hi	ts below 5 times blank level. Please contact ALS if re-
est Method Refer	ences:			
ALS Test Code	Matrix	Test Description		Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Auto	omated)	APHA 310.2
This analysis is carr colourimetric metho	0.	dures adapted from EPA Method	310.2 "Alkalinity". Tota	al Alkalinity is determined using the methyl orange
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatograph	у	APHA 4110 B.
		dures adapted from APHA Method Determination of Inorganic Anions		atography with Chemical Suppression of Eluent hy".
ANIONS-N+N-CALC		Nitrite & Nitrate in Water (Calcu	,	EPA 300.0
Nitrate and Nitrite (a	as N) is a calculated	parameter. Nitrate and Nitrite (as	N) = Nitrite (as N) + N	Nitrate (as N).
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromate	ography	EPA 300.0
This analysis is carr detected by UV abs		dures adapted from EPA Method	300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromat	tography	EPA 300.0
This analysis is carr detected by UV abs		dures adapted from EPA Method	300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography		APHA 4110 B.
		dures adapted from APHA Method Determination of Inorganic Anions		atography with Chemical Suppression of Eluent hy".
AS-T-CCMS-VA	Water	Total Arsenic in Water by CRC	ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Public He States Environment	ealth Association, an al Protection Agence	nd with procedures adapted from " y (EPA). The procedures may inv	Test Methods for Eval	tion of Water and Wastewater" published by the luating Solid Waste" SW-846 published by the United ole treatment by acid digestion, using hotblock, or a - mass spectrometry (modifed from EPA Method
CARBONS-TC-VA	Water	Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carr	ried out using proce	dures adapted from APHA Method	d 5310 "Total Organic	Carbon (TOC)".
CARBONS-TOC-VA	Water	Total organic carbon by combus	stion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carr	ried out using proce	dures adapted from APHA Method	d 5310 "Total Organic	Carbon (TOC)".
EC-PCT-VA	Water	Conductivity (Automated)		APHA 2510 Auto. Conduc.
		, (,	d 2510 "Conductivity".	Conductivity is determined using a conductivity
EPH-LL-SF-FID-VA	Water	EPH in Waters by GCFID		BCMOE EPH GCFID
Contaminated Sites entire water sample with flame ionization	 "Extractable Petrole with dichloromethan detection (GC/FID 	eum Hydrocarbons in Water by G ne. The extract is then solvent exc	C/FID" (Version 2.1, J changed to toluene an	ands and Parks (BCMELP) Analytical Method for uly 1999). The procedure involves extraction of the d analysed by capillary column gas chromatography s (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-VA	Water	Glycols in Water by GCFID		SW-846, METHOD 8015B, EPA
United States Enviro chloride to form the	onmental Protection corresponding benz	Agency (EPA). The procedure in	nvolves treatment of th	Waste" SW-846, Method 8015B, published by the the sample with a strong base (NaOH) and benzoyl ith iso-octane and the extract is analyzed by capillary
HARDNESS-CALC-W		Hardness		APHA 2340B
TANDINE 33-CALC-V	valei	1 10101033		

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations. expressed in CaCO3 equivalents.

Total Metals in Water by CRC ICPMS **MET-T-CCMS-VA** Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). Total Metals in Water by ICPOES EPA SW-846 3005A/6010B Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). Ammonia in Water by Fluorescence NH3-F-VA Water J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater". Roslyn J. Waston et OGG-SF-VA Oil & Grease by Gravimetric BCMOE (2010), EPA1664A Water The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value" This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. pH by Meter (Automated) APHA 4500-H pH Value PH-PCT-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the

American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-VA

Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

APHA 2130 "Turbidity"

APHA 2130 Turbidity

EPA 8260B. BCMELP CSR METHOD

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids", Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Turbidity by Meter Water

Water

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TVH-HSFID-VA Water TVH by headspace GCFID

This procedure involves the headspace extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July

Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. APHA 3030 B&E / EPA SW-846 6020A

MET-TOT-ICP-VA

1999).

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021
1 <i>i</i>	0	, is heated in a sealed vial to equilibrium. The headspa easured using mass spectrometry detection.	ce from the vial is transfered into a gas chromatograph.
VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Calculation of Total Xylene	S		

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



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ALS)





BHP Billiton Diamonds Inc.

1102 4920 52nd Street, Yellowknife, NT X1A 3T1

≥53-6700			253-6700 CHAIN OF CUSTODY FO					FORM			Tel: 867-880-2157 Fax: 867-880-4012 BHP Contacts: David Bruce/ Richard EhlertDavid													
For Lab Use	L108847				1	As, Se By CCMS	BTEX+TVH	Glycols	Oil and Grease	SNP-0013 Major Ions	SNP-0013 Nutrients	SNP-0013 Physical Parameters	SNP-0013 Total Metals	TDS	Total Ammonia	Total Organic Carbon	Трн	1SS						
	Station ID 1616-30_Discharge	Matrix	Date 21-Nov-2011	Time	Init KJ	1 1	<u>'1</u>		1 .:	1 1	 	1	<mark>ہ</mark> ا	1				1	BHP2	[<u> </u>		
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BHP BILLITON CANADA INC.. ATTN: David G. Bruce / Richard Ehlert David # 1102 - 4920 52nd Street Yellowknife NT X1A 3T1 Date Received: 25-NOV-11 Report Date: 02-DEC-11 16:36 (MT) Version: FINAL

Client Phone: 867-880-2157

Certificate of Analysis

Lab Work Order #: L1089110

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

Comments: There were no vials for Glycols analysis were received for the samples ALS identify as L1089110-2 and L1089110-3.

Can Dang Senior Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company



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ALS ENVIRONMENTAL ANALYTICAL REPORT

L1089110 CONTD.... PAGE 2 of 6 02-DEC-11 16:36 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1089110-1 WATER 23-NOV-11 14:55 1616- 30_DISCHARGE	L1089110-2 WATER 23-NOV-11 14:51 1616-121	L1089110-3 WATER 23-NOV-11 15:00 1616-494	L1089110-4 WATER 23-NOV-11 15:05 1616-302	
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	922	<2.0	<2.0	933	
	Hardness (as CaCO3) (mg/L)	155	<0.50	<0.50	154	
	рН (рН)	7.81	5.73	5.70	7.83	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	529	<10	<10	531	
	Turbidity (NTU)	1.13	<0.10	<0.10	0.75	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	47.9	<2.0	<2.0	48.0	
	Ammonia (as N) (mg/L)	0.0212	<0.0050	<0.0050	0.0203	
	Chloride (Cl) (mg/L)	<mark>154</mark>	<0.50	<0.50	155	
	Nitrate and Nitrite (as N) (mg/L)	<mark>4.12</mark>	<0.0051	<0.0051	4.15	
	Nitrate (as N) (mg/L)	<mark>4.10</mark>	<0.0050	<0.0050	4.13	
	Nitrite (as N) (mg/L)	0.015	<0.0010	<0.0010	0.015	
	Orthophosphate-Dissolved (as P) (mg/L)	<mark><0.0010</mark>	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total (mg/L)	0.0082	<0.0020	<0.0020	0.0079	
	Sulfate (SO4) (mg/L)	<mark>139</mark>	<0.50	<0.50	139	
Organic / Inorganic Carbon	Total Carbon (mg/L)	<mark>15.0</mark>	<0.50	<0.50	15.2	
-	Total Organic Carbon (mg/L)	5.49	0.59	<0.50	4.75	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0196	<0.0030	<0.0030	0.0182	
	Antimony (Sb)-Total (mg/L)	0.00135	<0.00010	<0.00010	0.00131	
	Arsenic (As)-Total (mg/L)	0.00072	<0.00010	<0.00010	0.00074	
	Barium (Ba)-Total (mg/L)	0.0814	<0.000050	<0.000050	0.0813	
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L)	0.034	<0.010	<0.010	0.036	
	Cadmium (Cd)-Total (mg/L)	<0.000030	<0.000010	<0.000010	<0.000030	
	Calcium (Ca)-Total (mg/L)	35.7	<0.050	<0.050	35.7	
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Cobalt (Co)-Total (mg/L)	<mark><0.00010</mark>	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Total (mg/L)	0.00158	<0.00050	<0.00050	0.00117	
	Iron (Fe)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	0.00585	<0.00050	<0.00050	0.00583	
	Magnesium (Mg)-Total (mg/L)	16.0	<0.10	<0.10	15.8	
	Manganese (Mn)-Total (mg/L)	0.00354	<0.000050	<0.000050	0.00351	
	Molybdenum (Mo)-Total (mg/L)	0.0891	<0.000050	<0.000050	0.0881	
	Nickel (Ni)-Total (mg/L)	0.00500	<0.00050	<0.00050	0.00503	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1089110 CONTD.... PAGE 3 of 6 02-DEC-11 16:36 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1089110-1 WATER 23-NOV-11 14:55 1616- 30_DISCHARGE	L1089110-2 WATER 23-NOV-11 14:51 1616-121	L1089110-3 WATER 23-NOV-11 15:00 1616-494	L1089110-4 WATER 23-NOV-11 15:05 1616-302	
Grouping	Analyte					
WATER						
Total Metals	Potassium (K)-Total (mg/L)	32.3	<2.0	<2.0	31.6	
	Selenium (Se)-Total (mg/L)	0.00028	<0.00010	<0.00010	0.00028	
	Silicon (Si)-Total (mg/L)	0.549	<0.050	<0.050	0.541	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	106	<2.0	<2.0	103	
	Strontium (Sr)-Total (mg/L)	0.744	<0.00010	<0.00010	0.746	
	Thallium (TI)-Total (mg/L)	0.000034	<0.000010	<0.000010	0.000034	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	0.000598	<0.000010	<0.000010	0.000588	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	0.0030	<0.0030	<0.0030	<0.0030	
Aggregate Organics	Oil and Grease (mg/L)	<5.0	<5.0	<5.0	<5.0	
Volatile Organic Compounds	Benzene (mg/L)	<mark><0.00050</mark>	<0.00050	<0.00050	<0.00050	
	Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Toluene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Xylenes (mg/L)	<mark><0.00075</mark>	<0.00075	<0.00075	<0.00075	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	<mark>96.1</mark>	91.9	98.0	100.2	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	101.5	100.5	100.3	100.5	
Hydrocarbons	TVH (C5-C10) (mg/L)	<mark><0.10</mark>	<0.10	<0.10	<0.10	
	TEH10-30 (mg/L)	<0.15	<0.15	<0.15	<0.15	
	TPH5-30 (mg/L)	<mark><0.25</mark>	<0.25	<0.25	<0.25	
Glycols	Diethylene Glycol (mg/L)	<mark><5.0</mark>			<5.0	
	Ethylene Glycol (mg/L)	<mark><5.0</mark>			<5.0	
	1,2-Propylene Glycol (mg/L)	<mark><5.0</mark>			<5.0	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

QC Samples with Qualifiers & Comments:

QC Samples w	ith Qualifiers & Co	omments:		
QC Type Desc	ription	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike		Sulfate (SO4)	MS-B	L1089110-1, -2, -3, -4
Qualifiers for	Individual Param	eters Listed:		
Qualifier	Description			
DLM	Detection Limit	Adjusted For Sample Matrix Effects		
MS-B		overy could not be accurately calculate	ed due to high analyte	background in sample.
RRV	•	t Verified By Repeat Analysis	0 ,	.
est Method F	Poforonoog			
ALS Test Code		rix Test Description		Method Reference**
ALK-COL-VA	Wat	P	itomated)	APHA 310.2
	is carried out using	· · · · · · · · · · · · · · · · · · ·	,	tal Alkalinity is determined using the methyl orange
ANIONS-CL-IC	-VA Wate	er Chloride by Ion Chromatograp	bhy	APHA 4110 B.
		procedures adapted from APHA Metho 00.0 "Determination of Inorganic Anion		natography with Chemical Suppression of Eluent oby".
ANIONS-N+N-C	CALC-VA Wate	er Nitrite & Nitrate in Water (Calc	culation)	EPA 300.0
Nitrate and Nit	trite (as N) is a calc	culated parameter. Nitrate and Nitrite (a	as N) = Nitrite (as N) +	Nitrate (as N).
ANIONS-NO2-I	C-VA Wat	er Nitrite in Water by Ion Chroma	atography	EPA 300.0
This analysis i detected by U		procedures adapted from EPA Method	d 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-I	C-VA Wate	er Nitrate in Water by Ion Chrom	atography	EPA 300.0
This analysis i detected by U		procedures adapted from EPA Method	d 300.0 "Determination	of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-I	C-VA Wate	er Sulfate by Ion Chromatograph	у	APHA 4110 B.
		procedures adapted from APHA Metho 00.0 "Determination of Inorganic Anion		natography with Chemical Suppression of Eluent ohy".
AS-T-CCMS-VA	A Wate	er Total Arsenic in Water by CRC	CICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Pub States Enviror	lic Health Associat	ion, and with procedures adapted from Agency (EPA). The procedures may in	"Test Methods for Eva nvolve preliminary sam	ation of Water and Wastewater" published by the aluating Solid Waste" SW-846 published by the United uple treatment by acid digestion, using hotblock, or na - mass spectrometry (modifed from EPA Method
CARBONS-TC-	VA Wate	er Total carbon by combustion		APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis i	is carried out using	procedures adapted from APHA Metho	od 5310 "Total Organic	; Carbon (TOC)".
CARBONS-TO	C-VA Wate	er Total organic carbon by comb	ustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		procedures adapted from APHA Metho		
EC-PCT-VA	Wat	er Conductivity (Automated)		APHA 2510 Auto. Conduc.
		,	od 2510 "Conductivity"	. Conductivity is determined using a conductivity
EPH-LL-SF-FID	D-VA Wate	er EPH in Waters by GCFID		BCMOE EPH GCFID
Contaminated entire water sa with flame ioni	Sites "Extractable ample with dichloro ization detection (G	Petroleum Hydrocarbons in Water by omethane. The extract is then solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract is the solvent extract extract is the solvent extract extra	GC/FID" (Version 2.1, exchanged to toluene an	ands and Parks (BCMELP) Analytical Method for July 1999). The procedure involves extraction of the nd analysed by capillary column gas chromatography ns (PAH) and are therefore not equivalent to Light and
GLY-WAT-FID-	-			SW-846, METHOD 8015B, EPA
United States chloride to form	Environmental Pro m the correspondin	tection Agency (EPA). The procedure	involves treatment of t	Waste" SW-846, Method 8015B, published by the he sample with a strong base (NaOH) and benzoyl with iso-octane and the extract is analyzed by capillary
HARDNESS-CA	ALC-VA Wate	er Hardness		APHA 2340B
		lardness) is calculated from the sum of um concentrations are preferentially use		ium concentrations, expressed in CaCO3 equivalents. Iculation.
MET-T-CCMS-V	VA Wat	er Total Metals in Water by CRC	ICPMS	APHA 3030 B&F / FPA SW-846 6020A

APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. OGG-SF-VA Water Oil & Grease by Gravimetric BCMOE (2010), EPA1664A The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. pH by Meter (Automated) APHA 4500-H "pH Value" PH-PCT-VA Water This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PH-PCT-VA Water APHA 4500-H pH Value pH by Meter (Automated) This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode It is recommended that this analysis be conducted in the field. PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. SE-T-CCMS-VA Water Total Selenium in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). TDS-VA Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC Water This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity" This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. **TURBIDITY-VA** Water Turbidity by Meter APHA 2130 Turbidity This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. **TVH-HSFID-VA** TVH by headspace GCFID EPA 8260B, BCMELP CSR METHOD Water This procedure involves the headspace extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). VOC7-HSMS-VA Water BTEX/MTBE/Styrene by Headspace GCMS EPA8260B, 5021

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph.

Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

68718

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

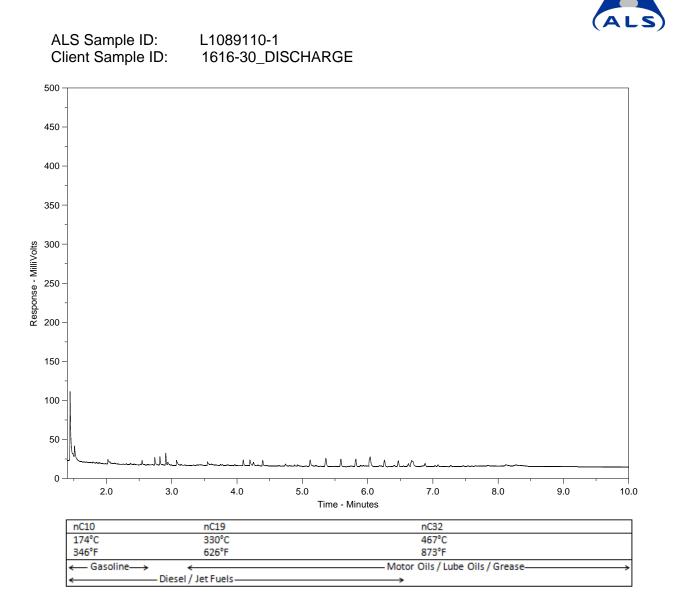
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

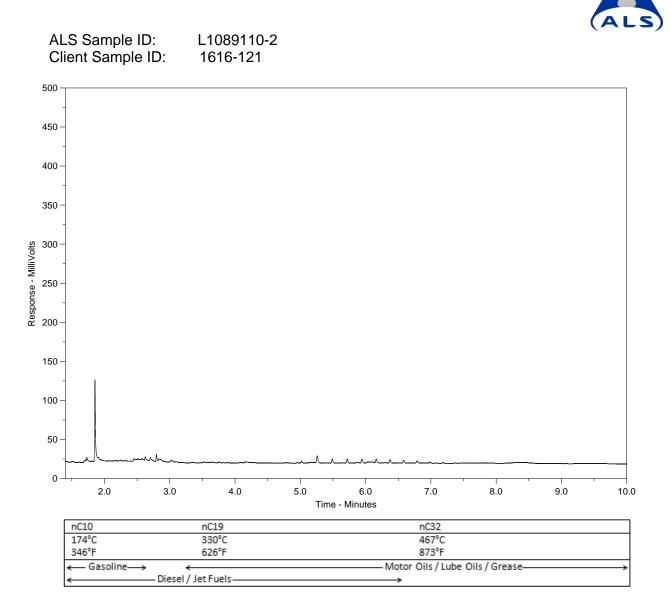
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

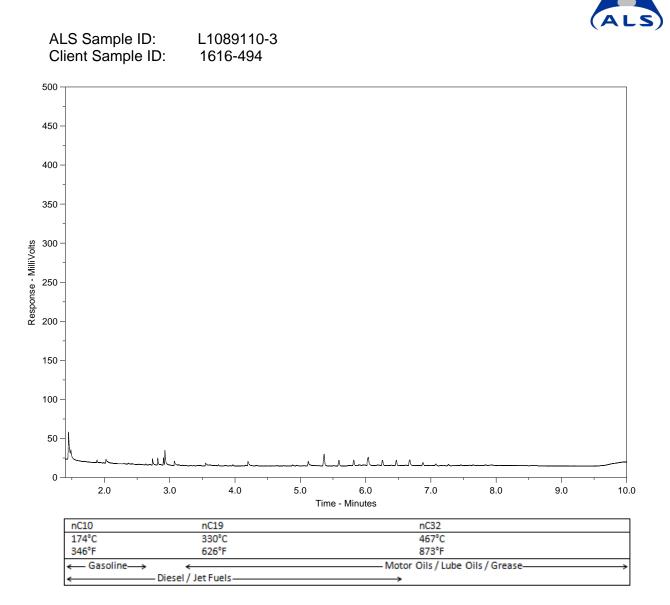
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.



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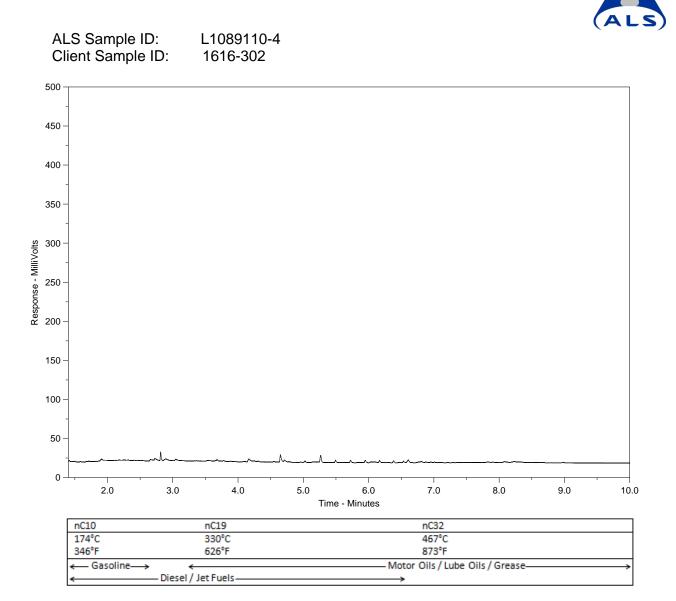
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ALS Laboratory Group



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Tel: 604-253-4188 Toll Free: 1-800-665-0243 FAX: 604-253-6700

FOR LAB USE ONLY

LS Contact: Ca				,		As, Se By CCMS	BTEX+TVH	Glycols	Oil and Grease	SNP-0013 Major Ions	SNP-0013 Nutrients	SNP-0013 Physical	SNP-0013 Total Metals	TDS	Total Ammonia	Total Organic Carbon	TPH	TSS					
·	Station ID	Matrix		Time	Init	l								<u> </u>									<u> </u>
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Turn around Required: RUSH analysis turnarond times. Please see comments below.											Relinquished by: KG			Date 100 23 2011				Received by:		Date	Date		
Special Instructions (Billing details, QC reporting, etc):										Relinquished by:				Date				Received by:		1 Pate Time	$\frac{1}{k}$	et.	
Billing Code: BHP2001 2-day RUSH analysis for nitrates. Forward results by 25 NOV 2011. 1-week RUSH analysis for all other parameters. Forward results by 30 NOV 2011.										FOR LAB LISE ONLY											29		
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												Send Analytical Results to: compliance.team@bhpbilliton.com;											



Form 68718



BHP Billiton Diamonds Inc. Sଡୁ: ५०० ५ । CHAIN OF CUSTODY FORM

1102 4920 52nd Street, Yellowknife, NT X1A 3T1 Tel: 867-880-2157 Fax: 867-880-4012

BHP Contacts: David Bruce/ Richard EhlertDavid