Stantec Consulting Ltd
207-201 Churchill Drive
Membertou NS B1S 0H1
Tel: (902) 564-1855
Fax: (902) 564-8756

January 20, 2012
File: 121410955.215

Sydney Tar Ponds Agency
1 Inglis Street
PO Box 1028, Stn. A
Sydney, NS B1P 6J7

Attention: **Ms. Diane Ingraham, PhD., PMP, Quality Contracts Manager**

Dear Ms. Ingraham:

Reference: **STPA Project Element TP7 – North & South Tar Ponds Surface Cap**
IQAC – September 2011 Monthly Summary Report

At the request of Sydney Tar Ponds Agency (STPA), Stantec Consulting Ltd. (hereafter Stantec) acting as the Independent Quality Assurance Consultant (IQAC) has completed the following quality assurance inspection/testing services and meetings in accordance with the project requirements at the above mentioned project element between September 1 and September 30, 2011:

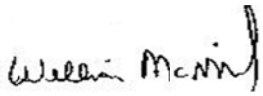
- Project Item PM-01: Five daily field reports.
- Project Item PM-03: One monthly report (September 2011) completed in the month of January 2012.
- Project Item PM-04: Three site meetings and preparation for the meetings.
- Project Item PM-05: Other meetings and frequent opinions and emails were provided by Stantec in the month of September 2011.
- Project Item PM-10: One weekly quality QC/QA meeting and preparation for the meeting.
- Project Item PM-19: Review of and data entry into TP7 June 2011 QC/QA testing summary tables.
- Project Item QCP-02: Submittal reviews (September 2011 QC monthly/daily and testing/inspection reports).
- Project Item TS-112: Completed four site visits on September 1, 13, 23, 29, 2011 to assess compaction of grading and bedding (G/B), protective fill (P/F) and/or low permeable fill (L/P) soil layers. All the 15 measured compaction readings exceeded the specified 95% minimum compaction criteria. However, over 50% of the measured moisture contents were below the specified expected moisture content limits. The test results are included in this monthly report and summarized in the QC/QA Summary table section.
- Project Item Env-T-01: One noise monitoring event completed in the month of September 2011. Noise levels were within the specified limits.

Reference: STPA Project Element TP7 – North & South Tar Ponds Surface Cap
IQAC – September 2011 Monthly Summary Report

We trust this information meets your present requirements. If you have any questions, please do not hesitate to contact us.

Sincerely,

STANTEC CONSULTING LTD



Rabi Morelly, M.Sc., P.Eng.
Geotech/Materials Quality Lead
rabi.morelly@stantec.com

Willie McNeil, B.Tech. (Env.), CET
Project Manager
willie.mcneil@stantec.com

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207-201 Churchill Drive
Membertou, NS B1S 1H0
Ph: (902) 564-1855
Fx: (902) 564-8755

SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215-500

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% Minimum **MATERIAL TYPE** Cohesive Backfill - Protective Fill (P/F) **SAMPLED FROM** Beechmont Quarry

PROCTOR TYPE STD **MAX. DRY DENSITY (kg/m^3)** 2092 **OPTIMUM MOISTURE** 7.2 % **GAUGE SERIAL #** 16731

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (GPS Coordinates/ ATS-77 System) (Northing, Easting)	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	COMPACTION (%)	PASS	FAIL	PROBE DEPTH (mm)	REMARKS
4-Aug-2011	1	5112602, 4601451	Grade	2133.0	5.2	102.0	X		200	
	2	5112640, 4601443	Grade	2120.0	5.8	101.3	X		200	
	3	5112629, 4601372	Grade	1987.0	6.7	95.0	X		200	
	4	5112589, 4601369	Grade	2117.0	6.3	101.2	X		200	
	5	5112517, 4601384	Grade	2123.0	6.5	101.5	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	6	5112456, 4601419	Grade	2073.0	6.8	99.1	X		200	
	7	5112517, 4601199	3rd Lift	2075	9.6	99.2	X		200	
	8	5112531, 4601205	3rd Lift	2126	10.1	101.6	X		200	
	9	5112538, 4601214	3rd Lift	2126	9.3	101.6	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 4-Aug-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 4-Aug-2011

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Membertou, NS B1S 1H0
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SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215-500

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% Minimum **MATERIAL TYPE** Cohesive Backfill - Grading and Bedding (G/B) **SAMPLED FROM** Peter's Pit/Beechmont

PROCTOR TYPE STD **MAX. DRY DENSITY (kg/m^3)** 2092 **OPTIMUM MOISTURE** 7.2 % **GAUGE SERIAL #** 29763

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (GPS Coordinates/ ATS-77 System) (Northing, Easting)	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	COMPACTION (%)	PASS	FAIL	PROBE DEPTH (mm)	REMARKS
18-Aug-2011	1	5112697, 4601030	2nd Lift	2000.0	9.5	95.6	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112674, 4601043	2nd Lift	2003.0	10.5	95.7	X		200	
	3	5112704, 4601023	2nd Lift	2012.0	9.8	96.2	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 18-Aug-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 18-Aug-2011

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Membertou, NS B1S 1H0
Ph: (902) 564-1855
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SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215-500

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% Minimum **MATERIAL TYPE** Cohesive Backfill - Low Permeable Fill (L/P) **SAMPLED FROM** Peter's Pit/Beechmont

PROCTOR TYPE STD **MAX. DRY DENSITY (kg/m^3)** 2092 **OPTIMUM MOISTURE** 7.2 % **GAUGE SERIAL #** 14630

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (GPS Coordinates/ ATS-77 System) (Northing, Easting)	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	COMPACTION (%)	PASS	FAIL	PROBE DEPTH (mm)	REMARKS
30-Aug-2011	1	5112585, 4601148	8th Lift	1994.0	8.9	95.3	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112590, 4601161	8th Lift	2006.0	8.0	95.9	X		200	
	3	5112600, 4601171	8th Lift	2002.0	9.8	95.7	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 30-Aug-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 30-Aug-2011

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Membertou, NS B1S 1H0
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SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215-500

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% Minimum **MATERIAL TYPE** Cohesive Backfill - Low Permeable Fill (L/P) **SAMPLED FROM** Peter's Pit/Beechmont

PROCTOR TYPE STD **MAX. DRY DENSITY (kg/m^3)** 2092 **OPTIMUM MOISTURE** 7.2 % **GAUGE SERIAL #** 29763

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (GPS Coordinates/ ATS-77 System) (Northing, Easting)	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	COMPACTION (%)	PASS	FAIL	PROBE DEPTH (mm)	REMARKS
31-Aug-2011	1	5112599, 4601171	Top Lift	2000.0	8.0	95.6	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112594, 4601162	Top Lift	1991.0	10.3	95.2	X		200	
	3	5112606, 4601180	Top Lift	1993.0	8.9	95.3	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 31-Aug-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 31-Aug-2011

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Membertou, NS B1S 0H1
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SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% **MATERIAL TYPE** Cohesive Backfill **SAMPLED FROM** Beechmont Quarry

PROCTOR TYP STD **MAX. DRY DENSITY** 2108 **OPTIMUM MOISTURE** 10 % **GAUGE SERIAL #** 16731

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (ATS77 Coordinate) Easting - Northing	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	PERCENT PROCTOR (%)	PASS	FAIL	PROBE DEPTH	REMARKS
13-Sep-2011	1	5112438, 4601217	Grade L/P	2041.0	7.4	96.8	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%). However, the measured moisture contents were below the specified expected moisture content limits.
	2	5112402, 4601232		2063.0	8.0	97.9	X		200	
	3	5112322, 4601250		2021.0	8.6	95.9	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 13-Sep-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 13-Sep-2011

207-201 Churchill Drive
Membertou, NS B1S 0H1
Ph: (902) 564-1855
Fx: (902) 564-8755

SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% **MATERIAL TYPE** Cohesive Backfill **SAMPLED FROM** Beechmont Drive

PROCTOR TYP STD **MAX. DRY DENSITY** 2092 **OPTIMUM MOISTURE** 7.2 % **GAUGE SERIAL #** 29763

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (ATS77 Coordinate) Easting - Northing	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	PERCENT PROCTOR (%)	PASS	FAIL	PROBE DEPTH	REMARKS
23-Sep-2011	1	Phase II BERM - 5112776, 4600968	Grade G/B	2068.0	8.9	98.9	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%). However, few measured moisture contents were below the specified expected moisture content limits.
	2	Phase II BERM - 5112785, 4600955		2015.0	9.6	96.3	X		200	
	3	Phase II BERM - 5112756, 4600944		2057.0	7.9	98.3	X		200	
	4	Phase II BERM - 5112726, 4601020		2058.0	9.3	98.4	X		200	
	5	Phase II BERM - 5112739, 4601018		2035.0	9.0	97.3	X		200	
	6	Phase II BERM - 5112747, 4601018		2047.0	9.3	97.8	X		200	
	1	Receiving Pit - 5112585, 4601129	Grade L/P	2019.0	7.5	96.5	X		200	
	2	Receiving Pit - 5112598, 4601117		2022.0	8.1	96.7	X		200	
	3	Receiving Pit - 5112605, 4601115		2068.0	8.8	98.9	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 23-Sep-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 23-Sep-2011

207-201 Churchill Drive
Membertou, NS B1S 0H1
Ph: (902) 564-1855
Fx: (902) 564-8755

SOILS COMPACTION REPORT SHEET

CLIENT: Sydney Tar Ponds Agency **PROJECT:** Element TP7 - North and South Tar Ponds Surface Cap **PROJECT NO:** 121410955.215

MATERIAL AND PROCTOR DATA

COMPACTION SPECIFICATION 95% **MATERIAL TYPE** Cohesive Backfill **SAMPLED FROM** Frenchvale and Beechmont

PROCTOR TYP STD **MAX. DRY DENSITY** 2092 **OPTIMUM MOISTURE** 7.2 % **GAUGE SERIAL #** 29763

FIELD TEST DATA

DATE	TEST NO.	TEST LOCATIONS (ATS77 Coordinate) Easting - Northing	APPROX. ELEV.	DRY DENSITY (kg/m^3)	MOISTURE CONTENT (%)	PERCENT PROCTOR (%)	PASS	FAIL	PROBE DEPTH	REMARKS
29-Sep-2011	1	5112468, 4601346	Grade P/F	1990.0	6.2	95.1	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%). However, the measured moisture contents were below the specified expected moisture content limits.
	2	5112505, 4601357		2001.0	7.5	95.7	X		200	
	3	5112571, 4601384		2115.0	6.3	101.1	X		200	

Note: A compaction test only provides data for the specific test location and to a depth of up to 300 mm below the surface at the time of the test.
Total approval of a fill project requires continuous inspection and a brief report written by a geotechnical engineer.

REVIEWED BY: Rabi Morelly, M.Sc., P.Eng. **DATE:** 29-Sep-11

FIELD TECHNICIAN: Derek Corbett RESULTS REPORTED ON SITE TO: Not Applicable DATE: 29-Sep-2011

Stantec Consulting Ltd
207-201 Churchill Drive
Membertou, NS B1S 0H1
Ph: (902) 564-1855
Fx: (902) 564-8756

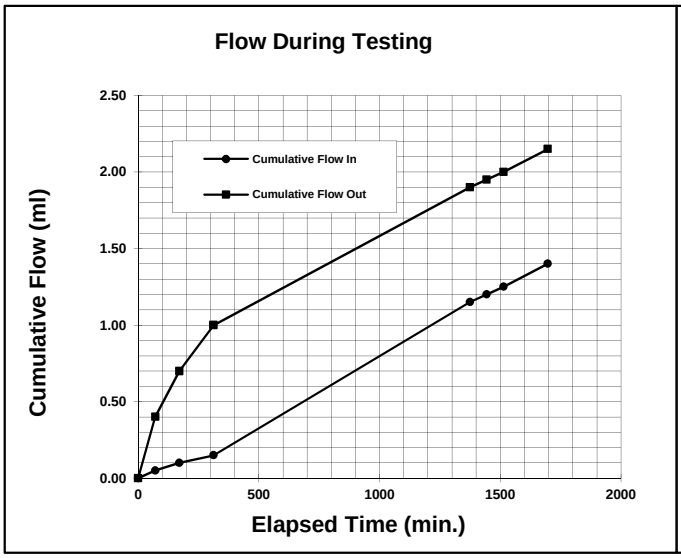
FLEXIBLE WALL HYDRAULIC CONDUCTIVITY TEST REPORT

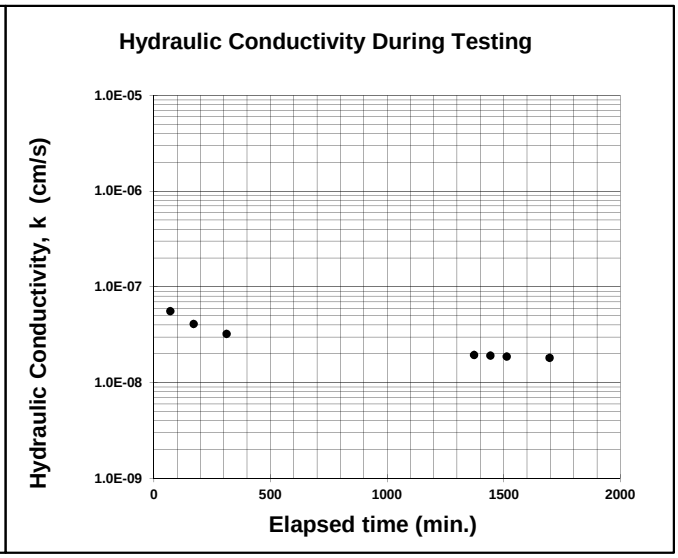
(ASTM D5084-03 Modified)

CLIENT:	Sydney Tar Ponds Agency	**STANTEC PROJECT No:**	121410955
PROJECT TITLE:	Element TP 7	**DATE:**	August 31, 2011
SAMPLE DESCRIPTION:	Low Permeable Fill	**SAMPLE No.:**	TP7-SAB

INITIAL SAMPLE DATA		**FINAL SAMPLE DATA**	
Length (cm)	8.93	Length (cm)	8.93
Diameter (cm)	6.91	Diameter (cm)	6.91
Area (cm ²)	37.50	Area (cm ²)	37.50
Total Mass (g)	750.5	Total Mass (g)	755.9
Volume (cm³)	334.9	Volume (cm³)	334.9
Water Content (%)	12.0	Water Content (%)	12.3
Degree of Saturation (%)	98.1	Degree of Saturation (%)	102.8
Wet Density (g/cm³)	2.241	Wet Density (g/cm³)	2.257
Dry Density(g/cm³)	2.002	Dry Density(g/cm³)	2.009
Assumed Specific Gravity	2.65		

CONSOLIDATION PHASE		**HYDRAULIC CONDUCTIVITY PHASE**	
Cell Pressure(kPa)	380	Cell Pressure (kPa)	420
Top Cap Pressure(kPa)	360	Top Cap Pressure (kPa)	370
Bottom Cap Pressure(kPa)	360	Bottom Cap Pressure(kPa)	390
Consolidation Pressure(kPa)	20	Hydraulic Gradient	22.8





HYDRAULIC CONDUCTIVITY= 2.90E-08 cm/s

Comments:

Test specimen met the specified maximum Hydraulic Conductivity.

Note: Section 31 22 16 of the Project Specifications requires a maximum Hydraulic Conductivity of 1x10^{-7} cm/s.

Tested By: Blair MacVicar, B.Tech **Date:** 8-Sep-11

Checked By: Rabi Morelly, M.Sc., P.Eng. **Date:** 8-Sep-11

Monthly Noise QA Testing Summary Table

Contractor:	HAZCO	**Client:**	STPA	**Form Number:**	TP7 Noise August 2011
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:**	Remediation of the Tar Ponds and Coke Ovens Sites
Month:	AUGUST 2011	**IQAC:**	Stantec		

SPECIFIED REQUIREMENTS					RESULTS							NOTES
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QA Frequency**	**Date Collected**	**Criteria**	**QA Sample ID**	**Sample Location GPS Coordinates NAD 83**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QA**
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	30-Aug-11	<65 dBA	TP7-08-30-2011-0820-1021	460 1505 511 2789	56.3dBA	Pass	Y	Sample Location: Inglis Street site (east) access. Geo-perm erosion control/spraying, Inglis Street traffic.
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	30-Aug-11	<65 dBA	TP7-08-30-2011-1030-1234	460 1634 511 2575	46.7dBA	Pass	Y	Sample location: Cooling pond laydown area. Geo-perm erosion control/spraying, Inglis Street traffic, low contractor presence.
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	30-Aug-11	<65 dBA	TP7-08-30-2011-1235-0236	460 1665 511 2380	46.3dBA	Pass	Y	Sample Location: Clay Stockpile (Inglis Street). Stock pile previously flattened, low/minimal contractor presence.

Activities onsite at the time of the sampling events included geo-perm erosion control/spraying.

Monthly Noise QA Testing Summary Table

Contractor:	HAZCO	**Client:**	STPA	**Form Number:**	TP7 Noise September 2011
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:**	Remediation of the Tar Ponds and Coke Ovens Sites
Month:	SEPTEMBER 2011	**IQAC:**	Stantec		

SPECIFIED REQUIREMENTS					RESULTS							NOTES
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QA Frequency**	**Date Collected**	**Criteria**	**QA Sample ID**	**Sample Location GPS Coordinates NAD 83**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QA**
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	7-Sep-11	<65 dBA	TP7-09-07-2011-0814-1044	460 1503 511 2791	63.6dBA	Pass	Y	Sample location: East entrace off Inglis Street. Heavy contractor traffic to scale house/water truck. Civilian traffic off Inglis Street.
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	7-Sep-11	<65 dBA	TP7-09-07-2011-0101-0301	460 1637 511 2582	53.6dBA	Pass	Y	Sample location: Cooling pond lay-down area. Traffic to scale house/water truck. Civilian traffic off Inglis Street.
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	7-Sep-11	<65 dBA	TP7-09-07-2011-0303-0511	460 1604 511 2638	64.3dBA	Pass	Y	Sample location: Hazco/TP7 Wheel Wash. Traffic at scale house/water trucl/bob cat. Civilian traffic off Inglis Street.

Activities onsite at the time of the sampling events included material trucking/dozing and compaction of clay at the northwest corner

Stantec Consulting Ltd
207-201 Churchill Drive
Membertou, NS B1S 0H1
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January 20, 2012
File: 121410955.215

Sydney Tar Ponds Agency
1 Inglis Street
PO Box 1028, Stn. A
Sydney, NS B1P 6J7

Attention: **Ms. Diane Ingraham, Ph.D., PMP, Quality Contract Manager**

Dear: Ms. Ingraham

Reference: **Geotechnical/Materials Quality Assurance of Quality Control Program**
Element TP7, Sydney Tar Ponds Project, Sydney, NS
Review of Contractor's September 2011 Quality Control (QC) Report

At the request of the Sydney Tar Ponds Agency (STPA), Stantec Consulting Ltd. (hereafter Stantec), acting as the project Independent Quality Assurance Consultant (IQAC), has completed a Quality Assurance Review of the Contractor's (HAZCO) and their quality control consultant (exp Global Inc)) Monthly Quality Control (QC) Report for the month of September 2011 for project Element TP7.

Comments are prepared using a three tier system as requested by the STPA:

Level 1 - Critical comments which need to be addressed promptly. The IQAC requests responses on any critical comments within one week.

Level 2 - Comments for which a response is required. All comments for which a response is required should be responded to in the form of a written response or by providing the necessary information as requested.

Level 3 - Comments that would improve the quality of the work but for which the agency need not respond to.

Based on our review of the QC information provided from the referenced period, the IQAC offers the following comments for your considerations:

Level 2	Despite the fact that all compactions performed on the placed cohesive backfill soil exceeded the specified 95% minimum compaction criteria, most of the associated moisture contents were below the specified expected moisture content limits.
Level 3	All reports should be signed by the applicable QC testing and review personnel, with names clearly printed, and dated once they are completed and reviewed.

Reference: **Geotechnical/Materials Quality Assurance of Quality Control Program**
Element TP7 Sydney Tar Ponds Project, Sydney, NS
Review of Contractor's September 2011 Quality Control (QC) Report

This report covers the quality control aspects for both the geotechnical and materials portions of the project.

We trust this information meets your present needs. If you have any questions, or if we can be of further assistance, please do not hesitate to contact us at your convenience.

Sincerely,

STANTEC CONSULTING LTD

Rabi Morelly, M.Sc., P.Eng.
Geotech/Materials Quality Lead
rabi.morelly@stantec.com

Willie McNeil, B.Tech. (Env.), CET
Project Manager
willie.mcneil@stantec.com

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Stantec Consulting Ltd.
207-201 Churchill Drive
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January 25, 2012
File: 121410955.215

Sydney Tar Ponds Agency
1 Inglis Street
PO Box 1028, Stn. A
Sydney, NS B1P 6J7

Attention: **Ms. Diane Ingraham, Ph.D., PMP, Quality Contract Manager**

Dear: Ms. Ingraham

Reference: **Environmental Quality Assurance of Quality Control Program**
Element TP7, Sydney Tar Ponds Project, Sydney, NS
Review of Contractor's September 2011 Quality Control (QC) Report

At the request of the Sydney Tar Ponds Agency (STPA), Stantec Consulting Limited (Stantec), acting as the project Independent Quality Assurance Consultant (IQAC), has completed a Quality Assurance Review of the Contractor's (Hazco and their quality control consultant (exp. Global Inc.), Monthly Quality Control (QC) Report for the month of September 2011 for project element TP7.

Comments are prepared using a three tier system as requested by the STPA:

> Level 1 - Critical comments which need to be addressed promptly. The IQAC requests responses on any critical comments within one week.
>
> Level 2 - Comments for which a response is required. All comments for which a response is required should be responded to in the form of a written response or by providing the necessary information as requested.
>
> Level 3 - Comments that would improve the quality of the work but for which the agency need not respond to.

Based on our review of the QC information provided from the referenced period, the IQAC offers the following comments for your consideration:

Level 3	<u>Environmental Inspection Logs (EILs) - Appendix F</u> QC EILs for element TP6A for August 31, 2011 have been included in this Appendix rather than the EILs from TP7 for August 31, 2011.
Level 3	<u>Environmental Inspection Logs (EILs) - Appendix F</u> The QC EIL for September 8 (1130) is missing from Appendix F

It should be noted that the IQAC noise monitoring results from the August 2011 QA sampling event is also provided in this September report as they were measured on August 30, 2011, which is within the QC reporting period for the month of September.

Reference: **Environmental Quality Assurance of Quality Control Program**
Element TP7 Sydney Tar Ponds Project, Sydney, NS
Review of Contractor's September 2011 Quality Control (QC) Report

We trust this information meets your present needs. If you have any questions, or if we can be of further assistance, please do not hesitate to contact us at your convenience.

Sincerely,

STANTEC CONSULTING LTD

Tanya MacDonald, B.Tech.(Env.), AScT
Project Environmental Manager
Tel: (902) 564-1855
Fax: (902) 564-8756
Tanya.macdonald@stantec.com

William McNeil, B.Tech.(Env.),CET
Project Manager
Tel: (902) 564-1855
Fax: (902) 564-8756
Willie.mcneil@stantec.com

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Quality Control (QC) and Quality Assurance (QA) Environmental Testing Summary Table

Contractor:	HAZCO	**Client:**	STPA	**Form Number:** 97918-QAF-073
Element:	TP 7	**Oversight:**	AECOM/CBCL	**Project:** Remediation of the Tar Ponds and Coke Ovens Sites
		IQAC:	Stantec	

☐ Weekly
☑ Monthly

From: 28-Aug-11 24-Sep-11

Note: This summary table shall be submitted with the Contractor's Monthly QC Report only after all revisions are made to the data here contained based on any DE Environmental comments of the information submitted weekly.

SPECIFIED REQUIREMENTS						RESULTS											NOTES	
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QC Frequency**	**QA Frequency**	**Date Collected**	**QC Sample ID**	**Criteria**	**Date QC Result Received**	**QC Test Result**	**QC Pass/Fail**	**QC Frequency Met? Y/N**	**QA Sample ID**	**Date QA Result Received**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QC**	**QA**
Week 1																			
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once Monthly	30-Aug-11	Noise-TP7-Inglis St gate- 30 Aug 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	30-Aug-11	54.7 Leq (dBA)	Pass	Y	TP7-08-30-2011-0820-1021	30-Aug-11	56.3dBA	Pass	Y		Based on 2 hour Leq - Side by side with QC. Refer to Monthly Noise QA Testing Summary Table provided in this report for further details.
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once Monthly	30-Aug-11	Noise-TP7-Cooling Pond - 30 Aug 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	30-Aug-11	45.2 Leq (dBA)	Pass	Y	TP7-08-30-2011-1030-1234	30-Aug-11	46.7dBA	Pass	Y		Based on 2 hour Leq - Side by side with QC. Refer to Monthly Noise QA Testing Summary Table provided in this report for further details.
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once Monthly	30-Aug-11	Noise-TP7-Clay stockpile - 30 Aug 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	30-Aug-11	43.2 Leq (dBA)	Pass	Y	TP7-08-30-2011-1235-0236	30-Aug-11	46.3dBA	Pass	Y		Based on 2 hour Leq - Side by side with QC. Refer to Monthly Noise QA Testing Summary Table provided in this report for further details.
ENV-T-02	Turbidity Monitoring	Turbidity sampling with portable turbidity meter	EPP Req.	No Testing		No Testing	No Testing	8 NTU above background	No Testing	No Testing	No Testing	No Testing						No turbidity monitoring was conducted because HAZCO has not performed any intrusive work in or near waterways during the reporting period.	
Week 2																			
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once Monthly	7-Sep-11	Noise-TP7-Inglis St gate- 07 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	7-Sep-11	59.1 Leq (dBA)	Pass	Y	TP7-09-07-2011-0814-104	7-Sep-11	63.6dBA	Pass	Y		Based on 2 hour Leq - Side by side with QC. Refer to Monthly Noise QA Testing Summary Table provided in this report for further details.
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once Monthly	7-Sep-11	Noise-TP7-Cooling Pond - 07 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	7-Sep-11	51.0 Leq (dBA)	Pass	Y	TP7-09-07-2011-0101-0301	7-Sep-11	53.6dBA	Pass	Y		Based on 2 hour Leq - Side by side with QC. Refer to Monthly Noise QA Testing Summary Table provided in this report for further details.
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once Monthly	7-Sep-11	Noise-TP7-Inglis St Wheel wash - 07 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	7-Sep-11	60.8 Leq (dBA)	Pass	Y	TP7-09-07-2011-0303-0511	7-Sep-11	64.3dBA	Pass	Y		Based on 2 hour Leq - Side by side with QC. Refer to Monthly Noise QA Testing Summary Table provided in this report for further details.
ENV-T-02	Turbidity Monitoring	Turbidity sampling with portable turbidity meter	EPP Req.	No Testing		No Testing	No Testing	8 NTU above background	No Testing	No Testing	No Testing	No Testing						No turbidity monitoring was conducted because HAZCO has not performed any intrusive work in or near waterways during the reporting period.	
Week 3																			
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		14-Sep-11	Noise-TP7-Narrows turn around area- 14 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	14-Sep-11	55.3 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		14-Sep-11	Noise-TP7-Portside access Rd - 14 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	14-Sep-11	50.7 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		14-Sep-11	Noise-TP7-Cooling pond area - 14 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	14-Sep-11	51.4 Leq (dBA)	Pass	Y							
ENV-T-02	Turbidity Monitoring	Turbidity sampling with portable turbidity meter	EPP Req.	No Testing		No Testing	No Testing	8 NTU above background	No Testing	No Testing	No Testing	No Testing						No turbidity monitoring was conducted because HAZCO has not performed any intrusive work in or near waterways during the reporting period.	
Week 4																			
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		19-Sep-11	Noise-TP7-South Pond Look off- 19 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	19-Sep-11	56.2 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		19-Sep-11	Noise-TP7-Inglis St access gate - 19 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	19-Sep-11	55.6 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Montiroing	Noise Montiroing with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		19-Sep-11	Noise-TP7-NW Corner stockpile - 19 Sept 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	19-Sep-11	56.6 Leq (dBA)	Pass	Y							
ENV-T-02	Turbidity Monitoring	Turbidity sampling with portable turbidity meter	EPP Req.	No Testing		No Testing	No Testing	8 NTU above background	No Testing	No Testing	No Testing	No Testing						No turbidity monitoring was conducted because HAZCO has not performed any intrusive work in or near waterways during the reporting period.	

Quality Control (QC) and Quality Assurance (QA) Testing Summary Table

Contractor:	Hazco	**Client:**	STPA	**Form Number:**	97918-QAF-059
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:**	Remediation of the Tar Ponds and Coke Ovens Sites
		IQAC:	Stantec		

☐ Weekly
☑ Monthly

From: 28-Aug-11 **To:** 24-Sep-11 for QC
1-Sep-11 **To:** 24-Sep-11 for QA

SPECIFIED REQUIREMENTS						RESULTS													NOTES	
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QC Frequency**	**QA Frequency**	**Date Collected**	**QC Sample ID**	**Criteria**	**Date QC Result Received**	**QC Test Result**	**Units**	**QC Pass/Fail**	**QC Frequency Met? Y/N**	**QA Sample ID**	**Date QA Result Received**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QC**	**QA**
Week 1 Aug 28 - Sept 03, 2011																				
32 91 21	Topsoil Placement and Grading	Physical Evaluation	ASTM D5268	Each source or when material properties change		15-Apr-11	TS-SA#1-15-Apr-11	20%-70% Sand min 7% Clay pH 6.0-7.5 <5% Larger 2mm	See Note	See Note	%	See Note	See Note						Sample was collected to test potential topsoil source only and was included in daily report erroneously. Source was not used.	
32 91 21	Topsoil Placement and Grading	Organic Matter Content	ASTM D2974	Each Source		15-Apr-11	TS-SA#1-15-Apr-11	4.0-8.0%	See Note	See Note	%	See Note	See Note						Sample was collected to test potential topsoil source only and was included in daily report erroneously. Source was not used.	
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		4-May-11	GB-Com-04 May 11	95% (or 92% if moisture ≥ opt. +6%)	See Note	See Note	%	See Note	See Note						Reporting error. exp did not conduct testing on Grading/Bedding layer on 04 May 2011.	
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		20-May-11	LP-Com-20 May 11	95% (or 92% if moisture ≥ opt. +6%)	See Note	See Note	%	See Note	See Note						Reporting error. exp did not conduct testing on Low Perm backfill layer on 20 May 2011.	
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		30-May-11	PF-Com-30 May 11	95% (or 92% if moisture ≥ opt. +6%)	See Note	See Note	%	See Note	See Note						Reporting error. exp did not conduct testing on Protective Fill layer on 30 May 2011.	
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		31-May-11	Perm-PF-1	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		21-Jun-11	PF SA#2	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		30-Jun-11	GB SA#5	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		30-Jun-11	GB SA#5	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		30-Jun-11	PF SA#4	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		30-Jun-11	PF SA#4	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		30-Jun-11	PF SA#4	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		5-Jul-11	PF-SA#5	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		5-Jul-11	PF-SA#5	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		5-Jul-11	PF-SA#5	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		7-Jul-11	PF-SA#6	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		7-Jul-11	PF-SA#6	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		7-Jul-11	PF-SA#6	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		25-Aug-11	P2B-Com-25 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	2-Sep-11	97.6-98.9 (9.2-9.7)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		25-Aug-11	Perm-P2B-1	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							

Sydney Tar Ponds Agency | Stantec

Quality Control (QC) and Quality Assurance (QA) Testing Summary Table

Contractor:	Hazco	**Client:**	STPA	**Form Number:** 97918-QAF-059
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:** Remediation of the Tar Ponds and Coke Ovens Sites
		IQAC:	Stantec	

☐ **Weekly**
☑ **Monthly** **From:** 28-Aug-11 **To:** 24-Sep-11 **for QC**
1-Sep-11 **To:** 24-Sep-11 **for QA**

SPECIFIED REQUIREMENTS						RESULTS													NOTES	
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QC Frequency**	**QA Frequency**	**Date Collected**	**QC Sample ID**	**Criteria**	**Date QC Result Received**	**QC Test Result**	**Units**	**QC Pass/Fail**	**QC Frequency Met? Y/N**	**QA Sample ID**	**Date QA Result Received**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QC**	**QA**
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		25-Aug-11	GB-Com-25 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	2-Sep-11	98.0-100.7 (8.0-10.5)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		25-Aug-11	PF-Com-25 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	2-Sep-11	97.6-101.1 (7.0-8.5)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		26-Aug-11	P2B-Com-26 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	2-Sep-11	96.6-100.1 (9.7-11.0)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		29-Aug-11	P2B-Com-29 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		29-Aug-11	Perm-P2B-2-A	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		29-Aug-11	Perm-P2B-2-B	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		29-Aug-11	P2B-SA#1	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		29-Aug-11	P2B-SA#1	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		29-Aug-11	P2B-SA#1	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift	1 test or 10% of QC tests whichever is greater.	30-Aug-11	P2B-Com-30 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y	Cohesive Backfill (L/P) Tests 1-3 (30-Aug-11)	30-Aug-11	% Compaction: 95.3-95.9 % M.C.: 8.0-9.8	Pass	Y		All compactions met the specified 95% minimum compaction criteria.
31 22 16	Cohesive Soil Backfill	Laboratory Moisture	ASTM D2216	Not Specified		30-Aug-11	MC-P2B-#1	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift	1 test or 10% of QC tests whichever is greater.	31-Aug-11	P2B-Com-31 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y	Cohesive Backfill (L/P) Tests 1-3 (31-Aug-11)	31-Aug-11	% Compaction: 95.2-95.6 % M.C.: 8.0-10.3	Pass	Y		All compactions met the specified 95% minimum compaction criteria.
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3	1 test or 10% of QC tests whichever is greater.	31-Aug-11	Perm-P2B-3	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y	Cohesive Backfill (L/P) Perm TP7-SAB (31-Aug-11)	8-Sep-11	2.90 x10^{-8} cm/s	Pass	Y		Met the specified maximum Permeability of 1 x 10^{-7} cm/s.
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		1-Sep-11	P2B-Com-01 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		2-Sep-11	P2B-Com-02 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		2-Sep-11	WLP-Com-02 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	19-Sep-11	96.9-100.2 (9.0-11.3)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		2-Sep-11	Perm-WLP-1	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
Week 2 Sept 04 - Sept 10, 2011																				
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		6-Sep-11	P2B-Com-06 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		6-Sep-11	WLP-Com-06 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	19-Sep-11	96.1-100.0 (9.2-10.3)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		6-Sep-11	Perm-WLP-2	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							

Sydney Tar Ponds Agency | Stantec

Quality Control (QC) and Quality Assurance (QA) Testing Summary Table

Contractor:	Hazco	**Client:**	STPA	**Form Number:** 97918-QAF-059
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:** Remediation of the Tar Ponds and Coke Ovens Sites
		IQAC:	Stantec	

☐ **Weekly**
☑ **Monthly**

From: 28-Aug-11 **To:** 24-Sep-11 **for QC**
1-Sep-11 **To:** 24-Sep-11 **for QA**

SPECIFIED REQUIREMENTS						RESULTS												NOTES	
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QC Frequency**	**QA Frequency**	**Date Collected**	**QC Sample ID**	**Criteria**	**Date QC Result Received**	**QC Test Result**	**Units**	**QC Pass/Fail**	**QC Frequency Met? Y/N**	**QA Sample ID**	**Date QA Result Received**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QC**	**QA**
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		7-Sep-11	P2B-Com-07 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		7-Sep-11	WLP-Com-07 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	19-Sep-11	97.1-100.4 (9.1-10.8)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		7-Sep-11	Perm-WLP-3	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		8-Sep-11	P2B-Com-08 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		8-Sep-11	WLP-Com-08 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	98.0-98.3 (10.4-11.2)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		9-Sep-11	P2B-Com-09 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	19-Sep-11	98.9-99.5 (9.5-10.8)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		9-Sep-11	RP-Com-09 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	19-Sep-11	98.0-99.6 (9.3-10.5)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		9-Sep-11	WLP-Com-09 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	19-Sep-11	96.1-100.5 (9.1-11.8)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		9-Sep-11	WLP-SA#1	Not Specified	23-Sep-11	Liquid Limit: 37.2 Plastic Limit: 21.6 Plastic Index: 15.6	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		9-Sep-11	WLP-SA#1	Not Specified	23-Sep-11	2016 (12.4)	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		9-Sep-11	WLP-SA#1 (Oven dried)	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	23-Sep-11	100% passing 150 mm 100% passing 100 mm 82.3% passing 5 mm 55.6% passing 0.075 mm	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		9-Sep-11	WLP-SA#1 (Air dried)	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	23-Sep-11	100% passing 150 mm 100% passing 100 mm 84.1% passing 5 mm 55.3% passing 0.075 mm	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		9-Sep-11	Perm-WLP-4-A	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		9-Sep-11	Perm-WLP-4-B	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
Week 3 Sept 11 - Sept 17, 2011																				
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		12-Sep-11	P2B-Com-12 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	97.6-100.6 (9.4-11.0)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		12-Sep-11	WLP-Com-12 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	99.0-100.9 (9.1-11.1)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		12-Sep-11	Perm-P2B-3	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift	1 test or 10% of QC tests whichever is greater.	13-Sep-11	P2B-Com-13 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	99.8 (9.0)	%	pass	Y	Cohesive Backfill (L/P) Tests 1-3 (13-Sep-11)	13-Sep-11	% Compaction: 95.9-96.8 % M.C.: 7.4-8.6	Pass	Y		All compactions met the specified 95% minimum compaction criteria.
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		13-Sep-11	WLP-Com-13 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	97.4-100.9 (8.9-10.2)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		13-Sep-11	Perm-WLP-5	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							

Sydney Tar Ponds Agency | Stantec

Quality Control (QC) and Quality Assurance (QA) Testing Summary Table

Contractor:	Hazco	**Client:**	STPA	**Form Number:** 97918-QAF-059
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:** Remediation of the Tar Ponds and Coke Ovens Sites
		IQAC:	Stantec	

☐ **Weekly**
☑ **Monthly**

From: 28-Aug-11 **To:** 24-Sep-11 **for QC**
1-Sep-11 **To:** 24-Sep-11 **for QA**

SPECIFIED REQUIREMENTS						RESULTS												NOTES	
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QC Frequency**	**QA Frequency**	**Date Collected**	**QC Sample ID**	**Criteria**	**Date QC Result Received**	**QC Test Result**	**Units**	**QC Pass/Fail**	**QC Frequency Met? Y/N**	**QA Sample ID**	**Date QA Result Received**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QC**	**QA**
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		14-Sep-11	P2B-Com-14 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	97.3-99.8 (9.1-9.4)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		14-Sep-11	WLP-Com-14 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	99.7-101.0 (9.1-9.6)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		14-Sep-11	RP-Com-14 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		14-Sep-11	Perm-RP-2-A	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		14-Sep-11	Perm-RP-2-B	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		14-Sep-11	Perm-P2B-4	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		14-Sep-11	RP-SA#1	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		14-Sep-11	RP-SA#1	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		14-Sep-11	RP-SA#1	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		15-Sep-11	RP-Com-15 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		15-Sep-11	P2B-Com-15 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	20-Sep-11	98.9-100.6 (9.0-10.3)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		15-Sep-11	Perm-P2B-5	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		15-Sep-11	Perm-P2B-6	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		16-Sep-11	RP-Com-16 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		16-Sep-11	P2B-Com-16 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
Week 4 Sept 18- Sept 24, 2011																				
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		19-Sep-11	LP-Com-19 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		19-Sep-11	PF-Com-19 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		21-Sep-11	PF-Com-21 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		22-Sep-11	PF-Com-22 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		22-Sep-11	Perm-PF-50	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							

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Quality Control (QC) and Quality Assurance (QA) Testing Summary Table

Contractor:	Hazco	**Client:**	STPA	**Form Number:** 97918-QAF-059
Element:	TP7	**Oversight:**	AECOM/CBCL	**Project:** Remediation of the Tar Ponds and Coke Ovens Sites
		IQAC:	Stantec	

☐ **Weekly**
☑ **Monthly** **From:** 28-Aug-11 **To:** 24-Sep-11 **for QC**
1-Sep-11 **To:** 24-Sep-11 **for QA**

SPECIFIED REQUIREMENTS						RESULTS													NOTES	
Spec Section	**Spec Description**	**Test Type**	**Standard**	**QC Frequency**	**QA Frequency**	**Date Collected**	**QC Sample ID**	**Criteria**	**Date QC Result Received**	**QC Test Result**	**Units**	**QC Pass/Fail**	**QC Frequency Met? Y/N**	**QA Sample ID**	**Date QA Result Received**	**QA Test Result**	**QA Pass/Fail**	**QA Frequency Met? Y/N**	**QC**	**QA**
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m^3		22-Sep-11	Perm-PF-51	≤ 1 x 10^{-6} cm/sec	pending	pending	cm/s	pending	Y							
31 22 16	Cohesive Soil Backfill	Atterberg Limits	ASTM D698	Every 10 000 m^3		22-Sep-11	PF-SA#10	Not Specified	pending	pending	%	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m^3		22-Sep-11	PF-SA#10	Not Specified	pending	pending	kg/m^3 (%)	For Information Only	Y							
31 22 16	Cohesive Soil Backfill	Particle Size Analysis	ASTM D422	Every 10 000 m^3		22-Sep-11	PF-SA#10	100% passing 150 mm ≥ 95% passing 100 mm ≥ 80% passing 4.75 mm ≥ 30% passing 0.075 mm	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift		23-Sep-11	PF-Com-23 Sept 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift	1 test or 10% of QC tests whichever is greater.									Cohesive Backfill (G/B-P2B) Tests 1-6 (23-Sep-11)	23-Sep-11	% Compaction: 96.3-98.9 % M.C.: 7.9-9.6	Pass	Y		All compactions met the specified 95% minimum compaction criteria.
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift	1 test or 10% of QC tests whichever is greater.									Cohesive Backfill (L/P-Receiving Pit) Tests 1-3 (23-Sep-11)	23-Sep-11	% Compaction: 96.5-98.9 % M.C.: 7.5-8.8	Pass	Y		All compactions met the specified 95% minimum compaction criteria.
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m^2 for each lift	1 test or 10% of QC tests whichever is greater.									Cohesive Backfill (P/F) Tests 1-3 (29-Sep-11)	29-Sep-11	% Compaction: 95.1-101.1 % M.C.: 6.2-7.5	Pass	Y		All compactions met the specified 95% minimum compaction criteria.

Stantec Consulting Ltd.
207-201 Churchill Drive
Membertou NS B1S 0H1
Tel: (902) 564-1855
Fax: (902) 564-8756

January 18, 2012
File: 121410955.215

Sydney Tar Ponds Agency
1 Inglis Street
PO Box 1028, Stn. A
Sydney, NS B1P 6J7

Attention: **Ms. Diane Ingraham, Ph.D., PMP, Quality Contracts Manager**

Dear Ms. Ingraham:

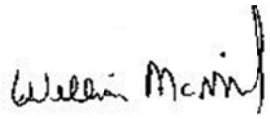
Reference: **Extras Section - STPA Project Element TP7**
Independent Quality Assurance (IQAC) September Monthly Summary Report

Stantec Consulting Limited (Stantec) has no reportable extra items to include in this section of the (IQAC) September 2011 Monthly Summary Report

We trust this information meets your present requirements. If you have any questions, please do not hesitate to contact us.

Sincerely,

STANTEC CONSULTING LIMITED



Willie McNeil, B.Tech. (Env.), CET
Project Manager
Tel: (902) 564-1855
Fax: (902) 564-8756
willie.mcneil@stantec.com

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Stantec Consulting Ltd
207-201 Churchill Drive
Membertou NS B1S 0H1
Tel: (902) 564-1855
Fax: (902) 564-8756

Sydney Tar Ponds Agency
1 Inglis Street
PO Box 1028, Stn. A
Sydney, NS B1P 6J7

Attention: **Ms. Diane Ingraham, PhD., PMP, Quality Contracts Manager**

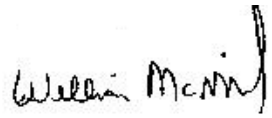
Dear Ms. Ingraham:

Reference: **Monthly Invoices**

As per the request of the Sydney Tar Ponds Agency, monthly invoices will be submitted in a separate submittal.

Sincerely,

STANTEC CONSULTING LTD



Willie McNeil, B.Tech. (Env.), CET
Project Manager
Tel: (902) 564-1855
Fax: (902) 564-8756
willie.mcneil@stantec.com