



Stantec Consulting Ltd
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Stantec

March 2, 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 – November 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 November 1 and November 30, 2011:

- Project Item PM-01: Twelve daily field reports.
- Project Item PM-03: One monthly report (November 2011) completed by Stantec in the month of March 2012.
- Project Item PM-05: Other meetings and frequent opinions and emails were provided by Stantec in the month of November 2011.
- Project Item PM-19: Review of and data entry into TP7 July and August 2011 QC/QA testing summary tables.
- Project Item QCP-02: Submittal reviews (November 2011 QC monthly/daily and testing/inspection reports).
- Project Item TS-112: Completed ten site visits on November 1, 3, 8, 14, 17, 21, 23, 28, 29 and 30, 2011 to assess compaction of grading and bedding (G/B) and/or protective fill (P/F) soil layers. All the 24 measured compaction readings exceeded the specified 95% minimum compaction criterion. 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 on November 3, 2011. Noise levels were within the specified limits at 2 of the 3 sampling locations; see "*Monthly Noise QA Testing Summary Table*" in this report for more information.
- Project Item Extras: Completed 3 visits on November 15 and 16, 2011 to obtain cohesive soil samples from the following sources; Frenchvale Road, Beechmont Road and Gillis Lake pits. Test results (i.e.; Atterberg limits, Proctor and Sieve analysis) performed on the collected samples are to be reported in the next monthly report.

March 2, 2011
Ms. Diane Ingraham, PhD., PMP, Quality Contracts Manager
Page 2 of 2

**Reference: STPA Project Element TP7 – North & South Tar Ponds Surface Cap
IQAC – November 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

A handwritten signature in black ink, appearing to read "Willie McNeil".

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

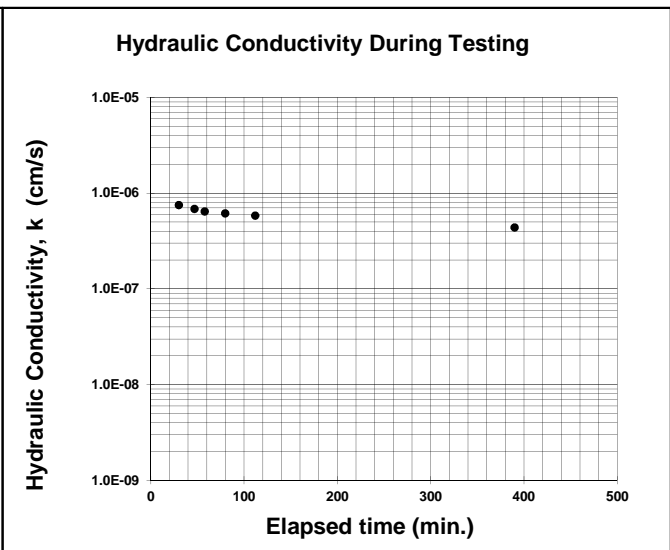
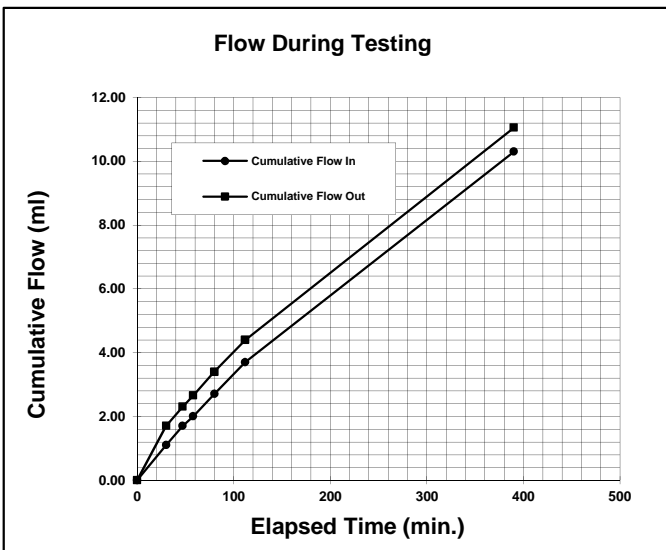
FLEXIBLE WALL HYDRAULIC CONDUCTIVITY TEST REPORT

(ASTM D5084-03 Modified)

CLIENT: Sydney Tar Ponds Agency	STANTEC PROJECT No.: 121410955
PROJECT TITLE: Element TP7	DATE: November 2, 2011
SAMPLE DESCRIPTION: Grading and Bedding Layer	SAMPLE No.: TP7-SAB

INITIAL SAMPLE DATA	FINAL SAMPLE DATA
Length (cm) 8.76	Length (cm) 8.76
Diameter (cm) 6.90	Diameter (cm) 6.9
Area (cm ²) 37.39	Area (cm ²) 37.39
Total Mass (g) 704.8	Total Mass (g) 724.7
Volume (cm ³) 327.6	Volume (cm ³) 327.6
Water Content (%) 9.1	Water Content (%) 12.4
Degree of Saturation (%) 70.4	Degree of Saturation (%) 95.2
Wet Density (g/cm ³) 2.152	Wet Density (g/cm ³) 2.213
Dry Density(g/cm ³) 1.972	Dry Density(g/cm ³) 1.968
Assumed Specific Gravity 2.65	

CONSOLIDATION PHASE	HYDRAULIC CONDUCTIVITY PHASE
Cell Pressure(kPa) 380	Cell Pressure (kPa) 400
Top Cap Pressure(kPa) 360	Top Cap Pressure (kPa) 360
Bottom Cap Pressure(kPa) 360	Bottom Cap Pressure(kPa) 380
Consolidation Pressure(kPa) 20	Hydraulic Gradient 23.3



HYDRAULIC CONDUCTIVITY= 6.15E-07 cm/s

Comments:

Test specimen met the specified requirements of Hydraulic Conductivity.

Note: Section 31 22 16 of the Project Specifications requires a maximum Hydraulic Conductivity of 1x10⁻⁶ cm/s.

Tested By: Blair MacVicar, B.Tech



Date: 9-Nov-11

Checked By: Rabi Morelly, M.Sc., P.Eng.



Date: 9-Nov-11

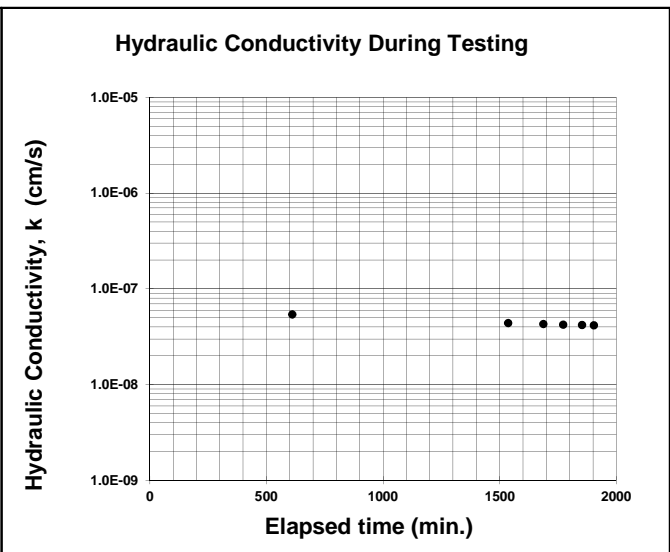
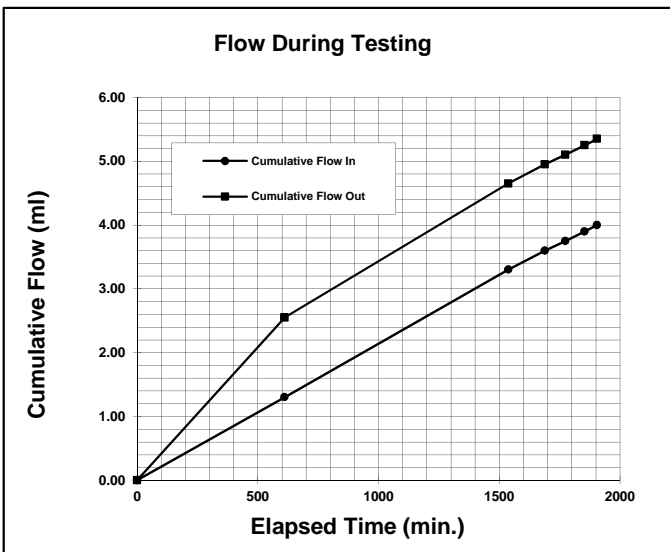
FLEXIBLE WALL HYDRAULIC CONDUCTIVITY TEST REPORT

(ASTM D5084-03 Modified)

CLIENT: Sydney Tar Ponds Agency	STANTEC PROJECT No.: 121410955
PROJECT TITLE: Element TP7	DATE: November 16, 2011
SAMPLE DESCRIPTION: Grading and Bedding Layer	SAMPLE No.: TP7-SAA

INITIAL SAMPLE DATA	FINAL SAMPLE DATA
Length (cm) 8.99	Length (cm) 8.99
Diameter (cm) 6.90	Diameter (cm) 6.9
Area (cm ²) 37.39	Area (cm ²) 37.39
Total Mass (g) 726.9	Total Mass (g) 733.0
Volume (cm ³) 336.2	Volume (cm ³) 336.2
Water Content (%) 10.4	Water Content (%) 13.6
Degree of Saturation (%) 78.3	Degree of Saturation (%) 94.9
Wet Density (g/cm ³) 2.162	Wet Density (g/cm ³) 2.181
Dry Density(g/cm ³) 1.959	Dry Density(g/cm ³) 1.920
Assumed Specific Gravity 2.65	

CONSOLIDATION PHASE	HYDRAULIC CONDUCTIVITY PHASE
Cell Pressure(kPa) 320	Cell Pressure (kPa) 350
Top Cap Pressure(kPa) 300	Top Cap Pressure (kPa) 300
Bottom Cap Pressure(kPa) 300	Bottom Cap Pressure(kPa) 320
Consolidation Pressure(kPa) 20	Hydraulic Gradient 22.7



HYDRAULIC CONDUCTIVITY= 4.42E-08 cm/s

Comments:

Test specimen met the specified requirements of Hydraulic Conductivity.

Note: Section 31 22 16 of the Project Specifications requires a maximum Hydraulic Conductivity of 1x10⁻⁶ cm/s.

Tested By: Blair MacVicar, B.Tech



Date: 22-Nov-11

Checked By: Rabi Morelly, M.Sc., P.Eng.



Date: 22-Nov-11

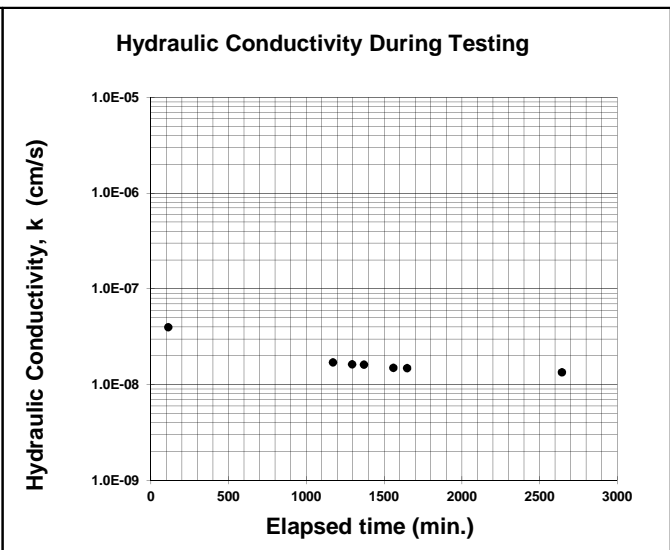
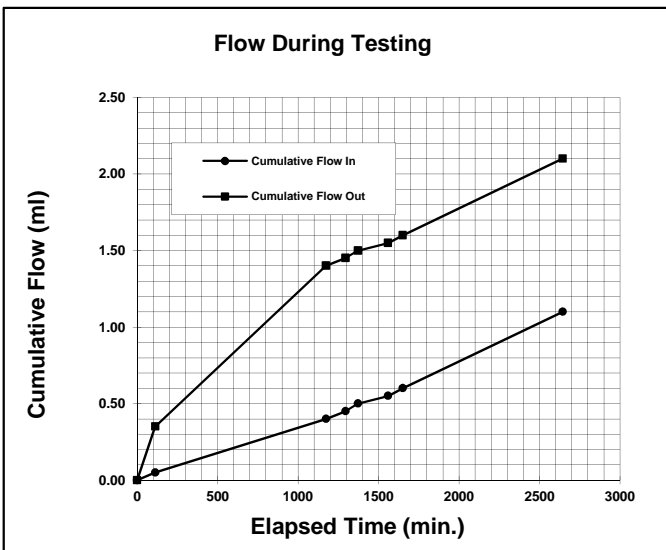
FLEXIBLE WALL HYDRAULIC CONDUCTIVITY TEST REPORT

(ASTM D5084-03 Modified)

CLIENT: Sydney Tar Ponds Agency	STANTEC PROJECT No: 121410955
PROJECT TITLE: Element TP7	DATE: November 21, 2011
SAMPLE DESCRIPTION: Protective Fill Layer	SAMPLE No.: TP7-SAA

INITIAL SAMPLE DATA	FINAL SAMPLE DATA
Length (cm) 10.40	Length (cm) 10.40
Diameter (cm) 6.86	Diameter (cm) 6.86
Area (cm ²) 36.96	Area (cm ²) 36.96
Total Mass (g) 874.4	Total Mass (g) 886.8
Volume (cm ³) 384.4	Volume (cm ³) 384.4
Water Content (%) 9.3	Water Content (%) 11.9
Degree of Saturation (%) 90.6	Degree of Saturation (%) 110.9
Wet Density (g/cm ³) 2.275	Wet Density (g/cm ³) 2.307
Dry Density(g/cm ³) 2.080	Dry Density(g/cm ³) 2.061
Assumed Specific Gravity 2.65	

CONSOLIDATION PHASE	HYDRAULIC CONDUCTIVITY PHASE
Cell Pressure(kPa) 380	Cell Pressure (kPa) 410
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 19.6



HYDRAULIC CONDUCTIVITY= 1.88E-08 cm/s

Comments:

Test specimen met the specified requirements of Hydraulic Conductivity.

Note: Section 31 22 16 of the Project Specifications requires a maximum Hydraulic Conductivity of 1x10⁻⁶ cm/s.

Tested By: Blair MacVicar, B.Tech



Date: 2-Dec-11

Checked By: Rabi Morelly, M.Sc., P.Eng.



Date: 2-Dec-11



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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 and Frenchvale

PROCTOR TYF STD MAX. DRY DENSITY 2108 OPTIMUM MOISTURE 10 % GAUGE SERIAL # 14630

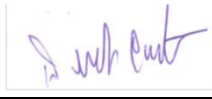
FIELD TEST DATA

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
1-Nov-2011	1	5112890, 4601050 (North Pond)	1st Lift G/B	2064.0	10.7	97.9	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112905, 4601028 (North Pond)		2130.0	9.1	101.0	X		200	
	3	5112912, 4601002 (North Pond)		2024.0	10.9	96.0	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 

DATE: 1-Nov-11

FIELD TECHNICIAN: Derek Corbett 

RESULTS REPORTED ON SITE TO: Not Applicable

DATE: 1-Nov-2011



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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 and Frenchvale

PROCTOR TYF STD MAX. DRY DENSITY 2092 OPTIMUM MOISTURE 7.2 % GAUGE SERIAL # 14630

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
3-Nov-2011	1	5112944, 4600903 (North Pond)	1st Lift G/B	2054.3	8.6	98.2	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112938, 4600912 (North Pond)		2084.6	7.9	99.6	X		200	
	3	5112942, 4600932 (North Pond)		1992.4	9.7	95.2	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  DATE: 3-Nov-11

FIELD TECHNICIAN: Derek Corbett  RESULTS REPORTED ON SITE TO: Not Applicable DATE: 3-Nov-2011



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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 and Frenchvale

PROCTOR TYP STD MAX. DRY DENSITY 2092 OPTIMUM MOISTURE 7.2 % 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
8-Nov-2011	1	5112790, 4601126 (North Pond)	1st Lift G/B	2019.0	8.0	96.5	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112770, 4601128 (North Pond)		2004.0	8.9	95.8	X		200	
	3	5112780, 4601138 (North Pond)		2000.0	10.0	95.6	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

DATE: 8-Nov-11

FIELD TECHNICIAN: Derek Corbett

RESULTS REPORTED ON SITE TO: Not Applicable

DATE: 8-Nov-2011



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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 and Frenchvale

PROCTOR TYF STD MAX. DRY DENSITY 2092 OPTIMUM MOISTURE 7.2 % GAUGE SERIAL # 16728

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
14-Nov-2011	1	5112776, 4601108 (North Pond)	Grade G/B	2033.0	11.7	97.2	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112744, 4601106 (North Pond)		2026.0	9.4	96.8	X		200	
	3	5112720, 4601142 (North Pond)		2069.0	9.6	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

DATE: 14-Nov-11

FIELD TECHNICIAN: Derek Corbett

RESULTS REPORTED ON SITE TO: Not Applicable

DATE: 14-Nov-2011



Stantec

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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 and Frenchvale
PROCTOR TYF STD MAX. DRY DENSITY 2061 OPTIMUM MOISTURE 11 % GAUGE SERIAL # 16728

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
21-Nov-2011	1	5112844, 4601014 (North Pond)	Grade P/F	2054.0	11.1	99.7	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112847, 4600980 (North Pond)		2050.0	9.9	99.5	X		200	
	3	5112857, 4601005 (North Pond)		2042.0	9.2	99.1	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  DATE: 21-Nov-11

FIELD TECHNICIAN: Derek Corbett  RESULTS REPORTED ON SITE TO: Not Applicable DATE: 21-Nov-2011



Stantec

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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 and Frenchvale
PROCTOR TYF STD MAX. DRY DENSITY 2061 OPTIMUM MOISTURE 11 % 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
23-Nov-2011	1	5112987, 4600928 (North Pond)	Grade P/F	1995.0	9.9	96.8	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112981, 4600899 (North Pond)		2059.0	10.0	99.9	X		200	
	3	5112948, 4600934 (North Pond)		2050.0	10.8	99.5	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  DATE: 23-Nov-11

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



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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 and Frenchvale
 PROCTOR TYF STD MAX. DRY DENSITY 2061 OPTIMUM MOISTURE 11 % 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
30-Nov-2011	1	5112798, 4601122 (North Pond)	1st Lift P/F	2051.0	11.2	99.5	X		200	The measured percent compactions met the requirements of the project specifications (Minimum 95%).
	2	5112783, 4601129 (North Pond)		1995.0	11.9	96.8	X		200	
	3	5112768, 4601130 (North Pond)		2100.0	10.6	101.9	X		200	
	4	5112783, 4601174 (North Pond)		2041.0	10.7	99.0	X		200	
	5	5112770, 4601191 (North Pond)		1984.0	12.0	96.3	X		200	
	6	5112752, 4601196 (North Pond)		1992.0	12.1	96.7	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

DATE: 30-Nov-11

FIELD TECHNICIAN: Derek Corbett

RESULTS REPORTED ON SITE TO: Not Applicable

DATE: 30-Nov-2011

Monthly Noise QA Testing Summary Table

Contractor:	Hazco	Client:	STPA	Form Number:	TP7 Noise November 2011
Element:	TP7	Oversight:	AECOM/CBCL	Project:	Remediation of the Tar Ponds and Coke Ovens Sites
Month:	November	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	3-Nov-11	<65 dBA	TP7-11-03-2011-0810-1012	460 1056 511 2964	66.7 dBA	Fail	Y	Sample location is at the East Side Access Road Hilltop (Phase II 2nd Entrance). Hazco clay lay down, levelling, trucking ops (Dozers and Compactors). Sampling site downwind of onsite activities (resulting in slight exceedence of guideline). STPA notified of exceedence.
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	3-Nov-11	<65 dBA	TP7-11-03-2011-1023-1229	460 0719 511 3043	54.5 dBA	Pass	Y	Sample location is at West Side Access Road at Narrows. Contractor traffic across Narrows Bridge. Hazco clay lay down, leveling, trucking operations.
EPP	ENV-T-01	Noise	CBRM Noise By-Law & NSE Criteria	once per month	3-Nov-11	<65 dBA	TP7-11-03-2011-1239-1446	460 1501 511 2790	64.2 dBA	Pass	Y	Sample location is at East Gate Entrance off Inglis Street. Entrance to scale house - contractor traffic. Inglis street traffic in close proximity.

Activities onsite at the time of the sampling events include Hazco laydown, leveling and trucking operations.



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March 2, 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 November 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 November 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 in November 2011 on the placed cohesive backfill soil exceeded the specified 95% minimum compaction criterion, almost 50% of the associated moisture contents were below the specified expected moisture content limits.
Level 3	The hydraulic conductivity (HC) test reports of cohesive soil specimens still do not clearly state the type of tested material and project name.

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

Level 3	The vertical scale of Hydraulic Conductivity (HC)-Time graph in the test reports should be adjusted (enlarged) to show clearly the change in HC with time during the test.
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.

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

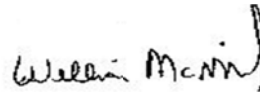
We trust this information meets your present needs. If you have any questions, or if we can be of further assistance, please do not hesitate to contact us at your convenience.

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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March 2, 2012
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Sydney Tar Ponds Agency
1 Inglis Street
PO Box 1028, Str. 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 November 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 November 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 does not offer any comments for your consideration.

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,

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

Weekly
 Monthly

From: 30-Oct-11 26-Nov-11

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		

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 Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once monthly	3-Nov-11	Noise-TP7-Phase II access ramp- 03 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	3-Nov-11	65.1 Leq (dBA)	Fail	Y	TP7-11-03-2011-0810-1012	3-Nov-11	66.7 dBA	Fail	Y	Noise exceedance recorded along Phase II access ramp attributed to high volume of truck traffic and heavy equipment from multiple contractors using the ramp for access to the North Pond	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 Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once monthly	3-Nov-11	Noise-TP7-Narrows turn around - 03 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	3-Nov-11	52.9 Leq (dBA)	Pass	Y	TP7-11-03-2011-1023-1229	3-Nov-11	54.5 dBA	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 Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly	Once monthly	3-Nov-11	Noise-TP7-Scale entrance gate - 03 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	3-Nov-11	62.4 Leq (dBA)	Pass	Y	TP7-11-03-2011-1239-1446	3-Nov-11	64.2 dBA	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 Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		9-Nov-11	Noise-TP7-Narrows turn around - 09 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	9-Nov-11	51.5 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		9-Nov-11	Noise-TP7-Phase II access ramp - 09 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	9-Nov-11	57.9 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		10-Nov-11	Noise-TP7-Scale entrance gate - 10 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	10-Nov-11	62.4 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 3																			
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		14-Nov-11	Noise-TP7-Scale entrance gate - 14 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	14-Nov-11	63.7 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		14-Nov-11	Noise-TP7-Narrows turn around - 14 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	14-Nov-11	59.2 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		14-Nov-11	Noise-TP7-Phase II access rd - 14 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	14-Nov-11	61.8 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 Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		21-Nov-11	Noise-TP7-Scale entrance gate - 21 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	21-Nov-11	60.7 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		21-Nov-11	Noise-TP7-Phase II W access rd - 21 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	21-Nov-11	62.4 Leq (dBA)	Pass	Y							
ENV-T-01	Noise Monitoring	Noise Monitoring with dosimeter or equivalent	CBRM Bylaw and NSE Criteria	Once weekly		21-Nov-11	Noise-TP7-Phase II E access rd - 21 Nov 2011	CBRM Bylaw and NSE Criteria 65 Leq (dBA)	21-Nov-11	59.3 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

Weekly

Monthly

From: 30-Oct-11 To: 1 (30 Nov 2011 for IQAC)

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		

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 30 Oct - 05 Nov 2011																				
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	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	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	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	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	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		30-Aug-11	P2B-Com-30 Aug 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y							
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		31-Aug-11	P2B-Com-31 Aug 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-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		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		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	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	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	Permeability	ASTM D5084	Every 2000 m ³		22-Oct-11	Perm-GB-25	≤ 1 x 10 ⁻⁸ cm/sec	4-Nov-11	2.5E-08	cm/s	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		25-Oct-11	Perm-GB-26	≤ 1 x 10 ⁻⁸ cm/sec	4-Nov-11	4.4E-08	cm/s	pass	Y							
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		29-Oct-11	GB-Com-29 Oct 11	95% (or 92% if moisture ≥ opt. +6%)	31-Oct-11	97.2-100.1 (9.8-12.0)	%	pass	Y							
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		29-Oct-11	Perm-GB-27	≤ 1 x 10 ⁻⁸ cm/sec	14-Nov-11	4.4E-08	cm/s	pass	Y							

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

Weekly

Monthly

From: 30-Oct-11 To: 1 (30 Nov 2011 for IQAC)

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		

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	Atterberg Limits	ASTM D698	Every 10 000 m ³		29-Oct-11	GB-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		29-Oct-11	GB-SA#6	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		29-Oct-11	GB-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	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift	1 test or 10% of QC tests whichever is greater.	1-Nov-11	GB-Com-01 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	3-Nov-11	95.9-97.4 (11.4-12.4)	%	pass	Y	Cohesive Backfill (G/B) Tests 1-3 (1-Nov-11)	1-Nov-11	% Compaction: 96.0-101.0 % M.C.: 9.1-10.9	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.	1-Nov-11	Perm-GB-28	≤ 1 x 10 ⁻⁶ cm/sec	14-Nov-11	2.5E-08	cm/s	pass	Y	Cohesive Backfill (G/B) Perm TP7-SAB (1-Nov-11)	9-Nov-11	6.15 x 10 ⁻⁷ cm/s	Pass	Y		Met the specified maximum Permeability of 1 x 10 ⁻⁶ cm/s.	
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		2-Nov-11	GB-Com-02 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	3-Nov-11	95.6-99.4 (10.1-11.5)	%	pass	Y								
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		2-Nov-11	Perm-GB-29	≤ 1 x 10 ⁻⁶ cm/sec	15-Nov-11	1.9E-08	cm/s	pass	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.	3-Nov-11	GB-Com-03 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	7-Nov-11	96.5-99.7 (10.1-12.1)	%	pass	Y	Cohesive Backfill (G/B) Tests 1-3 (3-Nov-11)	3-Nov-11	% Compaction: 95.2-99.6 % M.C.: 7.9-9.7	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		4-Nov-11	GB-Com-04 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	7-Nov-11	95.7-100.8 (9.7-13.5)	%	pass	Y								
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		4-Nov-11	Perm-GB-30	≤ 1 x 10 ⁻⁶ cm/sec	15-Nov-11	1.6E-08	cm/s	pass	Y								
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		5-Nov-11	GB-Com-05 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	7-Nov-11	99.2-99.9 (10.1-10.2)	%	pass	Y								
Week 2 06 Nov 2011 -12 Nov 2011																					
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		7-Nov-11	GB-Com-07 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	8-Nov-11	95.4-98.5 (10.4-12.9)	%	pass	Y								
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		7-Nov-11	Perm-GB-31	≤ 1 x 10 ⁻⁶ cm/sec	pending	pending	cm/s	pending	Y								
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m ³		7-Nov-11	GB-SA#7	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.	8-Nov-11	GB-Com-08 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	10-Nov-11	96.3-100.2 (9.0-10.9)	%	pass	Y	Cohesive Backfill (G/B) Tests 1-3 (8-Nov-11)	8-Nov-11	% Compaction: 95.6-96.5 % M.C.: 8.0-10.0	Pass	Y		All compactions met the specified 95% minimum compaction criteria.	
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		8-Nov-11	Perm-GB-32	≤ 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		9-Nov-11	GB-Com-09 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	14-Nov-11	96.1-100.1 (9.1-10.8)	%	pass	Y								
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		9-Nov-11	Perm-GB-33	≤ 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-Nov-11	Perm-GB-34	≤ 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		10-Nov-11	GB-Com-10 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	16-Nov-11	97.6-100.7 (9.0-9.6)	%	pass	Y								
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		10-Nov-11	Perm-GB-35	≤ 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		10-Nov-11	Perm-GB-36	≤ 1 x 10 ⁻⁶ cm/sec	pending	pending	cm/s	pending	Y								
Week 3 13 Nov 2011 -19 Nov 2011																					
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.	14-Nov-11	PF-Com-14 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	18-Nov-11	96.6-100.0 (10.1-12.7)	%	pass	Y	Cohesive Backfill (G/B) Tests 1-3 (14-Nov-11)	14-Nov-11	% Compaction: 96.8-98.9 % M.C.: 9.4-11.7	Pass	Y		All compactions met the specified 95% minimum compaction criteria.	

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

Weekly
 Monthly

From: 30-Oct-11 To: 1 (30 Nov 2011 for IQAC)

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		

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	1 test or 10% of QC tests whichever is greater.	14-Nov-11	Perm-PF-53	≤ 1 x 10 ⁻⁶ cm/sec	pending	pending	cm/s	pending	Y	Cohesive Backfill (G/B) Perm TP7-SAA (14-Nov-11)	22-Nov-11	4.42 x 10 ⁻⁶ cm/s	Pass	Y		Met the specified maximum Permeability of 1 x 10 ⁻⁶ cm/s.	
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		15-Nov-11	PF-Com-15 Nov 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		15-Nov-11	Perm-PF-54	≤ 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-Nov-11	PF-Com-16 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	18-Nov-11	95.4-100.3 (10.0-13.4)	%	pass	Y								
31 22 16	Cohesive Soil Backfill	Permeability	ASTM D5084	Every 2000 m ³		16-Nov-11	Perm-PF-55	≤ 1 x 10 ⁻⁶ cm/sec	pending	pending	cm/s	pending	Y								
Week 4 20 Nov 2011 - 26 Nov 2011 (30 Nov 2011 for IQAC)																					
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.	21-Nov-11	PF-Com-21 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	22-Nov-11	96.0-100.0 (9.2-11.3)	%	pass	Y	Cohesive Backfill (P/F) Tests 1-3 (21-Nov-11)	21-Nov-11	% Compaction: 99.1-99.7 % M.C.: 9.2-11.1	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.	21-Nov-11	Perm-PF-56	≤ 1 x 10 ⁻⁶ cm/sec	pending	pending	cm/s	pending	Y	Cohesive Backfill (P/F) Perm TP7-SAA (21-Nov-11)	2-Dec-11	1.88 x 10 ⁻⁶ cm/s	Pass	Y		Met the specified maximum Permeability of 1 x 10 ⁻⁶ cm/s.	
31 22 16	Cohesive Soil Backfill	Compaction (and Moisture)	ASTM D6938	Every 1000 m ² for each lift		22-Nov-11	PF-Com-22 Nov 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-Nov-11	Perm-PF-57	≤ 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.	23-Nov-11	PF-Com-23 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y	Cohesive Backfill (P/F) Tests 1-3 (23-Nov-11)	23-Nov-11	% Compaction: 96.8-99.9 % M.C.: 9.9-10.8	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		23-Nov-11	LP-Com-23 Nov 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		23-Nov-11	Perm-LP-9	≤ 1 x 10 ⁻⁷ 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		26-Nov-11	GB-Com-26 Nov 11	95% (or 92% if moisture ≥ opt. +6%)	pending	pending	%	pending	Y								
31 22 16	Cohesive Soil Backfill	Standard Proctor	ASTM D698	Every 10 000 m ³		26-Nov-11	GB-SA#8	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.									Cohesive Backfill (P/F) Tests 1-6 (30-Nov-11)	30-Nov-11	% Compaction: 96.3-101.9 % M.C.: 10.6-12.1	Pass	Y		All compactions met the specified 95% minimum compaction criteria.	



Stantec Consulting Ltd.
207-201 Churchill Drive
Membertou NS B1S 0H1
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Stantec

March 2, 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) November Monthly Summary Report**

At the request of Sydney Tar Ponds Agency (STPA), Stantec Consulting Limited (Stantec) has no reportable extra items to include in this section of the (IQAC) November 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
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Fax: (902) 564-8756
willie.mcneil@stantec.com



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March 5, 2012

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 were submitted in a separate submittal.

Sincerely,

STANTEC CONSULTING LTD

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Project Manager
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