

REMEDIATION OF THE TAR PONDS AND COKE OVEN SITES

DESIGN AND CONSTRUCTION OVERSIGHT SERVICES

ENVIRONMENTAL MONITORING

SUMMARY REPORT

January 2012 MONTHLY REPORT

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Acronyms used in Report

Agency	Sydney Tar Ponds Agency
All-Tech	All Tech Environmental Services Limited
AQMC	Air Quality Monitoring Consultant
BPDS	Batter Point dissipation structure
CBRM	Cape Breton Regional Municipality
CEPP	Contractor’s Environmental Protection Plan
DE	Design Engineer
EIL	Environmental Inspection Log
EM	Environmental Monitor
EMP	Environmental Management Plan
EMSR	Environmental Monitor Summary Report
EPP	Environmental Protection Plan
IEC	Independent Environmental Consultant

MBJV	Marine-Beaver Joint Venture
MSDS	Material Safety Data Sheet
NCR	Non-Conformance Report
NDS	Narrows dissipation structure
NSE	Nova Scotia Environment
PM	Particulate matter
RFA	Request for Action
SI	Supplemental Instruction
S/S	Stabilization/Solidification
SSP	Steel Sheet Piles
TP6A	Flow Diversion
TP6B	Solidification, Stabilization and Channel Construction
TP6C	Ferry Street Bridge
TP7	Tar Ponds Surface Cap
VOC	Volatile organic compound
WHMIS	Workplace Hazardous Materials Information System

Units used in Report

dB(A)	decibels
L	liters
L _{eq}	equivalent sound
m	meters
mm	millimeters
NTU	nephelometric turbidity units
ppm	parts per million
µg/m ³	micrometer per cubic meter

1. INTRODUCTION

The Government of Canada and Province of Nova Scotia are committed to remediate the Sydney Tar Ponds and Coke Ovens Sites, a project that is managed and implemented by the Sydney Tar Ponds Agency (the Agency). The Agency awarded AECOM and CBCL the bid for Design Engineer (DE) and to implement Construction Oversight. The project's goals are to reduce the health and ecological risks to area residents and the environment from existing soil, sediment and water contamination as well as to enhance the development potential of the land to drive economic investment in the Cape Breton Regional Municipality (CBRM). The [Project Environmental Protection Plan](#) (EPP) and the [Environmental Management Plan](#) (EMP) are the governing documents of the environmental aspects of the remediation work, and are available for public viewing on the Agency's website www.tarpondscleanup.ca. An EPP is also designed specific to each of the construction elements, and these are available at the Agency's library located at 1 Inglis Street in Sydney, Nova Scotia. One (1) of the EPP requirements is for the Design Engineer to provide a monthly summary of environmental activities on Site, which this report fulfills.

1.1. Overview of Active Elements

Construction activities continued throughout January 2012 for the Flow Diversion (TP6A) element only. The Solidification and Stabilization (S/S) and Channel Construction of the Tar Ponds (TP6B), Tar Ponds Surface Cap (TP7), and the Ferry Street Bridge (TP6C) elements were on a winter construction shutdown in January 2012.

Activities completed by the active TP6A element followed protocols outlined in the EPP and EMP. In general, the Contractors agree to monitor their construction activities for potential environmental impacts to determine whether the mitigation measures developed for the activity are effective. Each individual Contractor designates an Environmental Monitor (EM) to ensure that work being carried out on Site is being performed in compliance with the EPP and EMP and that sources of contaminants are identified before they impact the receiving environment.

As set out by the EPP, the Contractors' EMs are required to conduct environmental inspections every four (4) hours during active construction: at TP6A by MB2-Beaver Marine Joint Venture's (MBJV). As TP7 was under a winter shutdown condition, they conducted weekly environmental inspections and inspections after periods of inclement weather primarily to inspect their sediment control structures. The EM uses the Environmental Inspection Logs (EILs) as a guide and as a log to record observations while inspecting the work activities and environmental protection measures such as silt fences, oil absorbent

booms, hazardous materials containment, etc. and in addition, sampling sheets may be attached to the EILs if relevant. Field representatives from the DE check the EILs on a daily basis to ensure that field observations match those recorded by the EM in the logs. In the event that environmental protection measures are not being followed or are not effective, the EM directs the Site Supervisor to take corrective action and notifies the Design Engineer's Environmental Coordinator or field representative. In the event that the EPP is not being adhered to and the issue is not resolved in the field, the DE may issue a Request for Action (RFA) or Non-Conformance Report (NCR) to the Contractor requesting improvement. A summary table of the NCRs, RFAs and Supplemental Instructions (SIs) are highlighted in Section 5.

This Environmental Monitoring Summary Report (EMSR) covers the key areas addressed in the EILs throughout January 2012 and will report environmental concerns, if any, that developed from remediation activities at TP6A and TP7 including how those issues were resolved. Past [EMSRs](#) are also available on the Agency's website and at the Agency's library.

1.2. Environmental Reporting by Others

Other publicly available environmental reports are prepared by various parties involved with the Project. These reports are available either on the Agency's website, www.tarpondscleanup.ca, or from the Agency's library located at 1 Inglis Street in Sydney, Nova Scotia.

Construction monitoring of surface water and noise levels are captured in the Contractor Quality Control Monthly Reports, which are completed by Contractors for each active work element. These reports contain detailed testing results from surface water and noise monitoring, and can be found at the Agency's library.

Air monitoring reports, completed by All-Tech, the Air Quality Monitoring Consultant (AQMC), can be accessed on-line at the Agency's website. The Real-time Air Monitoring Program (results discussed below in Sections 2.6, 3.6 and 4.6) monitors air emissions at the Project fence line associated to each active element and the [Air Monitoring Reports](#) contain data from these monitoring activities. The Ambient Air Monitoring Program monitors the ambient air at monitoring stations throughout the community. The [Preliminary Event Reports](#) contain invalidated, preliminary data. The data is then compiled, validated and comprises the monthly [Ambient Air Monitoring Monthly Reports](#). The Preliminary Event Reports are removed from the website once the associated monthly report has been produced and uploaded. Also available on the Agency's website is the [Question and Answer for Odour Concerns Reporting Program](#) which discusses frequently asked questions regarding Project odour issues.

The Project is also subject to extensive environmental effects monitoring for air, surface water, groundwater and marine water quality. The Project's Independent Environmental Consultant (IEC) was retained to undertake environmental effects monitoring and to collect data during Project remediation activities. This data is used to detect environmental impacts resulting from the Project, as well as to determine long-term trends. Environmental effects reports are available on the Agency's website and at the Agency's library. For surface water monitoring, data is collected regularly and [Monthly Compliance Reports](#) are prepared and submitted to the Agency. For groundwater quality and quantity information, data is collected and [Quarterly Groundwater Reports](#) are prepared and submitted to the Agency. For activities in the marine environment, data is collected according to a required schedule and an [Annual Marine Report](#) is prepared and submitted to the Agency. Sydney Harbour is monitored for changes in sediment chemistry, crab and bi-valve tissue chemistry and species diversity. A Biodiversity Study Report is currently its second draft revision and will be available to the public once complete.

2. TP6A – FLOW DIVERSION

The TP6A element provides the flow diversion necessary to conduct Stabilization/Solidification (S/S) work within the isolated sections of the North and South Tar Ponds. TP6A also includes the construction of energy dissipation outlet structures that are utilized during dewatering of the Tar Ponds under TP6B, as well as provisions for temporary bridges and water well decommissioning. As this element deals directly with diverting bodies of water, namely Wash Brook, Coke Ovens Brook, CBRM storm drains and the Tar Ponds, the most important environmental concerns relate to water. Surface water monitoring, sediment control structures and aquatic life protection are of particular interest for this element. Silt curtains, oil absorbent booms and fish screens are the most commonly deployed environmental control measures at TP6A.

2.1. Summary of Construction Activities

TP6A Contractor construction activities in January 2012 consisted primarily of constructing the Narrows pump pad, cutting and fitting sheet pile for Battery Point cut-off wall #1, transporting pipe sections and fittings from Coke Oven Brook to the Narrows, fusing forcemain pipe along the east Phase II access road, transporting pumps from Coke Oven Brook to the Narrows pump pad (see Photo 2-1), constructing a ramp over pipes into the Portside Aggregate pit, constructing concrete forms around electrical conduit at Narrows pump pad, pouring concrete into electrical conduit forms, and driving 4 H-piles between Battery Point dolphins.



Photo 2-1: Relocation of Pumps from COB to the Narrows Dissipation Structure

2.2. Dewatering

Both Wash Brook and Coke Oven Brook pumps have been shut down allowing water to fill the completed channel in Phase I/II and for pumps to be relocated for Phase III. The water flows through the backflow valves at the Narrows structure and into the Phase III pond. To prevent flooding, the Narrows structure was monitored daily during January 2012 to ensure functionality of the backflow valves and note the water elevations. In the event of heavy rainfall and/or higher than normal tides, the Contractor is directed by the DE to raise the stop-logs in the Narrows structure to allow for a greater volume of water to exit the Phase I/II area and reduce the risk of flooding.

2.3. Sediment Control Structures, Stabilization Areas, Silt Curtain and Oil-Absorbent Booms

The TP6A Contractor has silt curtains and oil absorbent booms in place north of the Narrows Dissipation Structure as a contingency measure in the event of a potential sediment or product release entering the Phase III North Tar Pond and migrating towards Battery Point. The Contractor also has silt curtains and an oil boom at Battery Point between the East and West dolphins. During January 2012, the TP6A Contractor monitored and maintained these structures on a daily basis to assure their continued effectiveness.

Silt curtains which were damaged at Battery Point on December 29, 2011 were replaced on the morning of January 3, 2012. Two (2) new silt curtains were installed between the east and center dolphins at Battery Point on January 3, 2012 as well. A new section of silt fencing was added to the Narrows pump pad on January 10, 2012 (see Photo 2-2). A debris boom was installed in Coke Ovens Brook on January 24, 2012 (see Photo 2-3).



Photo 2-2: New Silt Fencing along the Narrows Pump Pad



Photo 2-3: New Debris Boom Downstream of Coke Ovens Brook Inglis St. Culvert

2.4. Surface Water Monitoring

Although the pumps were shut down at the beginning of December 2011, the Contractor continued to monitor surface water into Phase III. Turbidity samples are taken by boat within the Tar Ponds every four (4) hours and at this phase of the project this occurs off of the east and west shores of Battery Point. At times, taking turbidity samples in the Tar Ponds by boat is not possible due to low tides causing the boat to agitate bottom sediments skewing turbidity results or if high winds make it unsafe to use a boat. The EILs from January 2012 report occasions where it was more appropriate to collect water samples from the shoreline or the Narrows catwalk rather than from the boat due to environmental concerns, such as low tides, health and safety concerns such as high winds and extremely high water flow. In these cases a thirteen (13) metre pole is used to collect samples far from the water's edge. Reasons for collecting from the shoreline were detailed in each occurrence's respective EIL.

The only turbidity exceedance for the month occurred at the west Battery Point (27.7 NTU) sample location on January 25, 2012. An upstream sample was collected north of the Narrows Dissipation Structure (18.1 NTU). The TP6A Contractor attributed the high turbidity levels to heavy rainfall on January 24, 2012.

2.5. Access Roads

Primary access roads were maintained by the Agency during January 2012.

2.6. Air Monitoring and Particulate Matter Control Measures

All-Tech, the Air Quality Monitoring Consultant (AQMC), did not report high particulate or high volatile organic compound (VOC) concentrations associated with TP6A activities in January 2012.

2.7. Product Storage, Fueling and Waste Disposal

All products and fuel were stored on site according to the protocols outlined in the TP6A EPP. Spent environmental controls were placed in appropriate waste storage bins for removal by a professional disposal service.

No fuel or hydraulic fuel oil spills were reported by the TP6A Contractor in January 2012.

2.8. Noise Control Measures

Noise monitoring was conducted five (5) times in January 2012 at three (3) perimeter locations for two (2) hour averages to determine if the noise levels on site are under the EPP requirement of 65_{Leq} (dBA). The Quest 2900 was used to perform sound monitoring at the TP6A Site.

Noise monitoring took place on January 5, 12, 17, 25 and 30, 2012. On January 5, 2012 there was an exceedance of 67.7_{Leq} (dBA) at the Site Trailer sampling location. The TP6A Contractor attributed this exceedance to snow removal operating on both sides of the sample location during monitoring event. All other noise monitoring conducted during January 2012 returned results under the EPP criteria.

2.9. Miscellaneous Environmental Monitoring Activities

The debris nets at Wash Brook and fish screen at the Inglis Street culvert were cleaned regularly throughout January 2012 to ensure their effectiveness (see Photo 2-4).



Photo 2-4: Fish Nets in Place at Wash Brook

2.10. Summary of Environmental Monitoring Activities

The TP6A Contractor fused forcemain pipe along the east access road, transported pumps from Coke Ovens Brook to the Narrows pump pad, constructed a ramp to the Portside Aggregate pit, drove H-piles at Battery Point, and poured concrete into the electrical conduit forms at the Narrows pump pad in January 2012. Silt curtains, silt fencing, and debris nets were continually monitored throughout January 2012 and were replaced or repaired as necessary. One (1) relatively minor turbidity monitoring exceedance and one (1) noise exceedance were reported in January 2012. The DE did not issue any environmental RFAs or NCRs to the TP6A Contractor during January 2012.

3. TP6B – SOLIDIFICATION AND STABILIZATION (S/S)

The TP6B element involves the remediation of contaminated soils and sediments and construction of channels and pressure relief wells that will provide pathways through the remediated sediments for surface water and groundwater. Cement is imported to the Site and mixed with the contaminated soils and sediments in order to encapsulate them in concrete.

No TP6B construction activities took place in January 2012 as the Contractor was on a winter shutdown.

4. TP7 – TAR PONDS SURFACE CAP

The scope of the TP7 contract involves constructing a multi-layered cap over the S/S'ed Tar Ponds monolith. The Contractor places large quantities of exposed cohesive soil followed by topsoil adjacent to constructed and natural water courses and therefore erosion and sediment control measures are important aspects of the TP7 contract.

No TP7 construction activities took place in January 2012 as the Contractor was on a winter break. However, the TP7 Contractor completed weekly environmental site inspections to check the status of environmental controls which are in place along the Phase I/II channel and made minor repairs when deemed necessary.

5. TP6C – FERRY STREET BRIDGE

The scope of the TP6C contract is to construct the new Ferry Street Bridge and road approaches.

No TP6C construction activities took place in January 2012 as the Contractor was on a winter shutdown.

6. CONCLUSION

TP6A Contractor construction activities in January 2012 consisted primarily of laying liner and placing slag on the Narrows pump pad, cutting and fitting sheet pile for Battery Point cut-off wall #1, transporting pipe sections and fittings from Coke Oven Brook to the Narrows, fusing forcemain pipe along the Phase II east access road, transporting pumps from Coke Oven Brook to the Narrows pump pad, constructing a ramp over pipes into the Portside Aggregate pit, constructing concrete forms around electrical conduit at Narrows pump pad, pouring concrete into electrical conduit forms, and driving 4 H-piles between Battery Point dolphins. Silt curtains, silt fencing, and debris nets were continually monitored throughout January 2012 and were replaced or repaired as necessary. One (1) turbidity monitoring exceedance and one (1) noise exceedance were reported in January 2012. The DE did not issue any environmental RFAs or NCRs to the TP6A Contractor during January 2012.

No TP7 construction activities took place in January 2012 as the Contractor was on a winter break. However, the TP7 Contractor completed weekly environmental site inspections to check the status of environmental controls which are in place along the Phase I/II channel and made minor repairs when deemed necessary.

No TP6B, TP6C construction activities took place in January 2012 as these Contractor's were on a winter break.

Table 6-1: Overview of Environmental Disciplinary Reports (RFAs, NCRs)

Report No.	Description	Issued	Cause	Action	Responded To	Long Term Action	Closed Date
NCR-TP6B-033R1	Health and Safety	Nov. 8, 2011	The incidents of sudden illness and vomiting by two (2) employees were not reported to Nordlys Supervisors in a timely fashion.	All site personnel, both field workers and supervisors have been re-educated on the need to report all injuries, illnesses, or unsafe conditions to their supervisors as soon as they occur. These reports will then be passed on the project Safety Supervisor for prompt investigation and notification to the Sydney Tar Ponds Agency utilizing the standard reporting procedure.	Nov. 9, 2011	The need for increased communication of all issues and potential unsafe conditions will be repeatedly conveyed to all project personnel at Safety Tailgate meetings.	Dec. 6, 2011
RFA-TP6B-064	Groundwater Intrusion at the Narrows	Nov. 3, 2011	On October 28, 2011 groundwater was observed flowing through previously treated cells at the	Pending	Pending	Pending	Pending

Report No.	Description	Issued	Cause	Action	Responded To	Long Term Action	Closed Date
			<p>Narrows structure into the channel. While groundwater flowed through the cells it also flowed through untreated sediments that were up gradient of the one row of S/S along the newly constructed channel (see attached plan). This flow generated impacted water and transported sediments into the channel (see attached photo).</p> <p>TP6B Contractor is required to prevent further contamination of the newly constructed channel by:</p> <ol style="list-style-type: none"> 1. Controlling groundwater flow at the Narrows and; 2. Removing the transported materials that are 				

Report No.	Description	Issued	Cause	Action	Responded To	Long Term Action	Closed Date
			currently in the channel to be treated.				
RFA-TP7-011	Erosion and Sediment Control Plan	Oct. 19, 2011	The Contractor has yet to submit an Erosion and Sediment Control Plan for Phase II work.	The Contractor submitted an Erosion and Sediment Control plan with the response to the RFA.	Nov. 1, 2011	The site will be monitored weekly and after each weather event during the winter shut down months.	N/A
RFA-TP7-011-R1 and R2	Erosion and Sediment Control Plan	Nov. 24 and Dec. 15, 2011	<p>Rev1 - The submitted plan outlined singular mitigative measures as opposed to an Erosion and Sediment Control (ESC) strategy. Please resubmit a comprehensive ESC plan with a particular emphasis on winter operating and non-operating conditions.</p> <p>Rev2 - The DE and Agency strongly disagree with the sentiment in the plan that the risk of erosion and release of water high in</p>	<p>Rev1 - The attached erosion and sediment control plan provides details on winter operating and non-operating conditions.</p> <p>Rev2 - The attached erosion and sediment control plan, revision 2, provides responses to the issues noted above.</p>	Dec. 19, 2011	<p>The Phase II erosion and sediment control plan is attached and will be implemented immediately.</p> <p>The winter season monitoring schedule will be conducted once per week and/or after any significant storm events.</p>	Dec. 20, 2011

Report No.	Description	Issued	Cause	Action	Responded To	Long Term Action	Closed Date
			<p>suspended solids to a sensitive receptor is negligible. We have an active channel that feeds Sydney Harbour adjacent to the work area. In the past, we have rarely seen cap construction to final grade before rain events, but have yet to see a temporary storage tank for water. A temporary storage tank for water needs to be on site and ready for use or some other water collection system. See NCR-005, 007, 008 and 010. Additional Erosion and Sediment controls need to be implemented in areas where swales or low areas that will collect/direct runoff such as the hospital drain area to Coke Oven Brook, the west</p>				

Report No.	Description	Issued	Cause	Action	Responded To	Long Term Action	Closed Date
			side of the Channel just north of Ferry Street and the mega ramp area south of Ferry Street. In areas where flows could be concentrated on the cap material sediment traps in a U shape need to be constructed.				
RFA-TP6C-001	Environmental Monitor	Nov. 22, 2011	The Contractor commenced with a different EM than proposed in the Contractor's EPP.	The Contractor supplied the resume for an appropriate replacement for the EM proposed in the Contractor's EPP.	Nov. 25, 2011	N/A	Nov. 25, 2011

Table 6-2: Overview of Environmental Supplemental Instructions (SIs)

There was no environmental SIs issued during January, 2012.

Table 6-3: Overview of Spills, 2011

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
TP6A					
21/01/2011 to 26/01/2011	Radiator fluid	Minor leak	Pumps 607537 and 81025; Coke Oven Brook pumping station	No	Oil absorbent pads placed under leak immediately upon notification. Radiator pumps replaced.
21/01/2011 to 26/01/2011	Radiator fluid	Minor leak	Pump 81026 radiator pump; Coke Oven Brook pumping station	Yes, dripped onto slag	Oil absorbent pads placed under leak immediately upon notification. Radiator pumps replaced. Contractor will be required to remediate the affected material beneath the pump upon removal of the pumps.
24/01/2011	Mineral oil	~1 liter	Pump #81031, Coke Ovens Brook pumping station	Yes, 30cm diameter area of slag affected	Oil absorbent pads deployed immediately to absorb product from pump skid. Removed affected slag from site.
Ongoing from February to March,	Motor oil; caused from expansion/contraction cycles from winter	Minor Leak	Pump 81028, 81031, 81032 exhaust/turbo connection pipes; Coke Oven Brook pumping	No	Immediately deployed oil absorbent pads beneath the leak. Closely monitor the oil absorbent pads and replace as required.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
2011	temperatures		station		Warmer weather has abated the problem. No drips evident during last week of March 2011.
Ongoing from February to March, 2011	Motor oil; caused from expansion/contraction cycles from winter temperatures	Minor Leak	Pump 81017 exhaust/turbo connection pipes; Wash Brook pumping station	No	Immediately deployed oil absorbent pads beneath the leak. Closely monitor the oil absorbent pads and replace as required. Warmer weather has abated the problem. No drips evident during last week of March 2011.
Ongoing from February to March, 2011	Motor oil; previously sprayed product frozen on casing, melting and dripping	Minor Drip	Pump 81018 radiator; Wash Brook pumping station	Yes, 1/8 liter dripped onto snow	Immediately deployed oil absorbent pads beneath the leak. Removed affected snow immediately. Closely monitor the oil absorbent pads and replace as required. Time has abated the problem – all product has been released. No drips evident during last week of March 2011.
11/03/11	Antifreeze leak	Minor drip	Pump 81029; Coke Ovens Brook pumping station	No	Repaired the leak upon discovery.
11/03/11 to 22/03/11	Radiator leak	Minor drip	Pump 81017; Wash Brook pumping station	No	Immediately deployed oil absorbent pads beneath the leak. Closely monitor the oil absorbent pads and replace as required.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
					Radiator replaced.
11/03/11 to 18/03/11	Radiator leak	Minor drip	Pump 81016; Coke Ovens Brook pumping station	No	Immediately deployed oil absorbent pads beneath the leak. Closely monitor the oil absorbent pads and replace as required. Radiator replaced.
14/03/11	Motor oil	0.1 liter	During oil change at light tower; Coke Ovens Brook pumping station	Yes	Immediately deployed oil absorbent to absorb product. Impacted slag placed into steel drums for off-site treatment.
15/03/11 to 28/03/11	Radiator leak	Minor drip	Pump 81032; Coke Ovens Brook pumping station	No	Immediately deployed oil absorbent pads beneath the leak. Closely monitor the oil absorbent pads and replace as required. Full servicing of pump including radiator replacement on March 28, 2011.
17/03/11	Hydraulic fluid	0.25 liter	John Deere excavator; moving pipe along the east access road	No	Immediately deployed oil absorbent pads to catch product. Oil absorbent pads placed in steel drums for off-site treatment.
11/04/11 –	Radiator coolant leak	Drips	Pump 81017 – Wash	No	Immediately placed absorbent pads under coolant drip

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
26/05/11			Brook		Pump 81017 was taken out of service until radiator was replaced.
22/06/2011	Radiator coolant	Slow drip	81020 Wash Brook pumping station	No	Contained by oil absorbent pads.
31/07/2011	Battery acid	Slow drip	81017 Wash Brook pumping station	No	Impacts were contained immediately. Affected material and battery were removed from site for proper disposal.
23/10/2011	Radiator fluid	Slow drip	Pump #81032 at Coke Ovens Brook pumping station	No	Labourers cleaned up fluid from the pump, placed oil absorbent pads beneath the trip to catch product. Radiator replacement scheduled for early November 2011.
24/10/2011	Radiator fluid	Slow drip	Pump #81033 at Wash Brook pumping station	No	Labourers cleaned up fluid from the pump, placed oil absorbent pads beneath the trip to catch product. Radiator replacement scheduled for early November 2011.
27/10/2011	Radiator fluid	Slow drip	Pump #81019 at Wash Brook pumping station	No	Labourers cleaned up fluid from the pump, placed oil absorbent pads beneath the trip to catch product. Radiator replacement scheduled for early November 2011.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
10/11/2011	Radiator fluid	Slow drip	Pump #81029 at Coke Oven Brook pumping station	No	Labourers cleaned up fluid from the pump, placed oil absorbent pads beneath the trip to catch product. Radiator stop leak sealant used November 10, 2011.
02/12/2011	Mineral Grade Hydraulic fluid	3-5 liters	Battery point next to the center dolphin	Yes	Labourers deployed a second oil absorbent boom immediately and placed oil absorbent pads in the immediate area. All surfaces (steel dolphin and concrete barrier) were wiped off. All impacted material was excavated and placed in a contaminated bin along with one silt curtain, oil pads, and oil booms.
TP6B					
15/04/2011	Diesel fuel from fuel line on ConCover tractor	0.1 liter	In front of the transfer building, northeast of Ferry Street bridge	Yes	Immediately placed chemical resistant bucket beneath to leak to catch fuel. Deployed oil absorbent pads beneath the leak and the bucket. Spread oil absorbent pellets on affected ground. Scraped affected ground, oil absorbent pellets and placed them with soiled pads into containers for off-site removal.
30/04/2011	Motor oil from excavator	.25 liter	East bank of Main channel near Stn 0+500	Yes	Immediately deployed oil absorbent pads around the spilled product to isolate.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
					Spread oil absorbent pellets on the impacted ground. Scraped affected ground, oil absorbent pellets and placed them with soiled pads into containers for off-site removal.
01/06/2011	Hydraulic fluid from excavator	1-2 liters	Narrows Crane Pad	Yes	Turned off vehicle upon discovery of leak. Placed absorbent pads on top of hydraulic fluid. Scraped up affected pads and material and placed in Phase II S/S.
24/06/2011	Radiator coolant from cement truck	1-4 liters	Bottom of North Tar Pond east access ramp	Yes	Turned off vehicle upon discovery of leak. Placed absorbent pads on top of coolant. Scraped up affected pads and material and placed in Phase II S/S.
20/07/2011	Hydraulic fluid from excavator	40-60 liters	Northeast section of North Tar Pond Phase II, cell #N0473	Yes	Turned off vehicle upon discovery of leak. Placed absorbent pads on top of hydraulic fluid. Scraped up affected pads and material and placed in Phase II S/S.
28/07/2011	Hydraulic fluid from excavator	40-60 liters	Future S/S area south of Ferry St. Excavator was prepping future S/S area.	Yes	Turned off vehicle upon discovery of leak. Placed absorbent pads on top of coolant. Scraped up affected pads and material and placed in Phase II S/S.
16/08/2011	Hydraulic fluid from	20-30 liters	East section of North	Yes	Turned off equipment upon discovery of leak.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
	excavator		Tar Pond Phase II, cell #N0664		Placed absorbent pads on top of and around hydraulic fluid. Scraped up affected pads and material and placed in Phase II S/S.
19/08/2011	Hydraulic fluid from excavator	80-90 liters	Channel 1+100.	Yes	Turned off equipment upon discovery of leak. Placed absorbent pads on top of and around hydraulic fluid. Scraped up affected pads and material and placed in Phase II S/S.
14/09/2011	Hydraulic fluid from excavator	3-5 liters	Clay berm of south receiving pit	Yes	Turned off vehicle upon discovery of leak. Placed absorbent pads on top of and around hydraulic fluid. Scraped up affected material and pads and placed in receiving pit S/S.
25/10/2011	Hydraulic fluid from an excavator	40 liters	Channel at Stn 0+650	Yes	Turned off vehicle upon discovery of leak. Placed absorbent pads on top of and around hydraulic fluid. Scraped up affected material and pads and placed in receiving pit S/S.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
02/11/2011	Hydraulic fluid; leaked from broken hydraulic hose on excavator.	30-40 liters	In channel bottom between abutments at Ferry Street	Yes	The operator and laborers immediately put oil absorbent pads down in an effort to contain as much of the spill as possible. The hydraulic hose was replaced on the same day. The impacted sediments were gathered up and placed in the exclusion zone to be included in a stabilized cell.
25/11/2011	Hydraulic fluid; leaked from broken hydraulic hose on excavator.	10 liters	Northeast Receiving Sump	Yes	The operator and laborers immediately put oil absorbent pads down in an effort to contain as much of the spill as possible. The hydraulic hose was replaced on the same day. The impacted sediments were mixed into a future cell.
TP7					
18/06/2011	Diesel fuel	20-25 liters	From trailer's coupling onto clay cap	Yes	Tightened the coupling, scraped up impacted material and disposed of appropriately.
19/08/2011	Hydraulic fluid from a dump truck	10 liters	Phase II clay cap	Yes	The truck driver stopped immediately. Product was contained, and affected ground was scraped up and was placed in hazardous waste bags along with oil absorbent pads for off-site disposal.

Date	Nature of Product	Quantity	Location	Release to Env?	Contractor Response
21/11/2011	Hydraulic fluid from dump truck	5 – 10 liters	Phase II clay cap	Yes	The truck driver stopped immediately. Product was contained, and affected ground was scraped up and was placed in hazardous waste bags along with oil absorbent pads for off-site disposal.

Environmental Inspection Log

Appendix A

Remediation of the Sydney Tar Ponds and Coke Ovens Sites Environmental Inspection Log (EIL)

Design Element: _____
 Date: (D/M/Y): _____
 Time (24 hrs): _____

Weather Conditions: _____

Daily Construction Activities: _____

EIL Completed by (printed name and signature): _____ EM Name _____ EM Signature _____

EIL Reviewed by (DE name, signature, date, time): _____ DE Name _____ DE Signature _____ DD/MM/YYYY, 24:00 _____

DAILY CHECKLIST ITEM:	DESCRIPTION	ACCEPTABLE	NOT ACCEPTABLE ¹	NOT APPLICABLE	Comment # (See P.2)
1. Sediment Control Structures:					
	Hay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Silt Fences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Dissipation Measures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Silt Curtains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Oil Absorbent Boom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Stabilization Areas					
3. Noise Control Measures					
4. Dust Control Measures					
5. Air Emission Control Measures					
6. Materials, Product & Equip. Storage					
7. Fueling and Maintenance Area					
8. Waste Disposal/Debris					
9. Access Roads					
10. Dewatering					
	Hoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
11. Decontamination Areas (ONCE DAILY)					
	Workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Equipment/Vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
12. Barriers for Disposal, Storage & Work Areas (ONCE DAILY)					
13. Other Specific EM Activities:					
	Type:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Type:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Type:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
14. Field Sampling:					
	Type:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

¹Criteria for Acceptable and Not Acceptable for each checklist item is given on Pages 3 to 6.

- Where a checklist item is not acceptable, comments must be provided below detailing: the nature of the concern; the extent of any environmental impacts; the remediation measures undertaken; the requirement for any further remediation measures; if notification of a regulatory body was required, and if so, the response; any recommendations for improvements/follow-up; and any other relevant information.

Criteria to determine if Mitigation Effectiveness is Acceptable or Non-acceptable

1. Sediment Control Structures:

- a. Acceptable: If instantaneous turbidity readings are within 8 Nephelometric Turbidity Units (NTU) above background (upstream sample location) if background concentrations are less than 80NTU. If background is greater than 80 NTU, and samples are within 10% of background levels on downstream side of the structure, the structure is deemed to be functioning as intended. During visual inspection, if the sediment control structures are intact, with no gaps, tears, slumping or weathering of the materials and no noticeable impact in the receiving water “downstream” of the sediment control structures.
- b. Not Acceptable: If instantaneous turbidity readings are greater than 8NTU if background is less than 80NTU, or if readings are greater than 10% of background levels on downstream side of the structure, the structure is deemed to be not functioning as intended. During visual inspection, if the sediment control structures are not intact, with gaps, tears, slumping or weathering of the materials and noticeable impact in the receiving water “downstream” of the sediment control structures.

2. Stabilization Areas:

- a. Acceptable: During visual inspection, if there is no apparent sloughing banks or erosional processes occurring in an area of disturbance created by the Project.
- b. Not Acceptable: During visual inspection, if there is sloughing banks or erosional processes occurring in an area of disturbance created by the Project.

3. Noise Control Measures:

- a. Acceptable: If noise measurements (based on two hour averages) are within the following limits:
 - $L_{eq,2hr} \leq 65$ dBA between 0700 to 1900 hours (Days)
 - $L_{eq,2hr} \leq 60$ dBA between 1900 to 2300 hours (Evenings)
 - $L_{eq,2hr} \leq 55$ dBA between 2300-0700 hours (Nights)
- b. Not Acceptable: If noise measurements (based on two hour averages) are not within the above limits.

4. Dust Control Measures:

- a. Acceptable: During visual inspection, dust is controlled during grading, excavation and construction activities. The exposed surfaces, stock piles or stored materials are covered with water, foam or tarps, as required. The vehicles used for excavation or transportation of materials are completely enclosed or with retractable load covers, the haul unit seals are in good working order, hoses and connections on equipment are free of leaks or drips.
- b. Not Acceptable: During visual inspection, dust is not controlled during grading, excavation and construction activities. The exposed surfaces, stock piles or stored materials are not covered with water, foam or tarps. The vehicles used for excavation or transportation of materials are not completely enclosed or with retractable load covers, the haul unit seals are not in good working order, hoses and connections on equipment have leaks or drips.

5. Air Emission Control Measures:

- a. Acceptable: If measurement by AQMC at halfway between fenceline and source(s) is less than or equal to: 2ppm averaged over 15 minutes; or with the exception of benzene and naphthalene, 5 exceedences to the 15 minute averaging period over the workday averaged over 10 hours; or 2.5ppm for benzene and naphthalene (as confirmed by Draeger –Tubes or olfactory means) averaged over 1 hour.
- b. Not Acceptable: If measurement by AQMC at halfway between fenceline and source(s) is greater than: 2ppm averaged over 15 minutes; or with the exception of benzene and naphthalene, 5 exceedences to the 15 minute averaging period over the workday averaged over 10 hours; or 2.5ppm for benzene and naphthalene (as confirmed by Draeger –Tubes or olfactory means) averaged over 1 hour.

6. Product Storage:

- a. Acceptable: All potentially hazardous products are stored in a pre-designated, safe and secure product storage area at the work site in accordance with provincial legislation; all products shall be properly labeled according to WHMIS; any spilled products are contained and the area cleaned.
- b. Not Acceptable: Any potentially hazardous products are not stored in a pre-designated, safe and secure product storage area at the work site in accordance with provincial legislation; or any products are not properly labeled according to WHMIS; or any spilled products are not contained; or the area has not been cleaned after a spill.

7. Fueling and Maintenance Area:

- a. Acceptable: Area is clean, well organized. All potentially hazardous products are stored in a pre-designated, safe and secure product storage area within the construction area, in accordance with provincial legislation. All products are properly labeled according to Workplace Hazardous Materials Information System (WHMIS). Material Safety Data Sheets (MSDS) are on site with the relevant product.
- b. Not Acceptable: Area is not clean, unorganized and any of the above noted safeguards are missing.

8. Waste Disposal/Debris:

- a. Acceptable: Project site is free from any waste/debris whether it be benign solid waste or hazardous waste other than those waste stored in designated bins/areas.
- b. Not Acceptable: Project site contains waste/debris whether it be benign solid waste or hazardous waste, is not destined for immediate disposal and requires appropriate disposal.

9. Dewatering:

- a. Acceptable: Fish have been removed prior to dewatering; fish screens are installed in pumps; and the dewatered cells are maintained during construction.
- b. Not Acceptable: Fish have not been removed prior to dewatering; fish screens are not installed; or the dewatered cells are not maintained during construction.

10. Access Roads used by the Contractor(s)

- a. Acceptable: Upon visual inspection, the access roads used by the Contractor(s) are dust suppressed, free of debris or unnecessary materials with no spills. If applicable, silt fences appear to be working and are being maintained along toe of slope (along banks) and drainage ditches appear to be working to direct flow away from waterways.
- b. Non Acceptable: Upon visual inspection, the access roads used by the Contractor(s) are not dust suppressed, have debris or unnecessary materials with spills. If applicable, the silt fences appear not to be working or to not be maintained along toe of slope (along banks), and drainage ditches appear not to be working to direct flow away from waterways.

11. Other Environmental Monitoring:

Air Quality (Responsibility of the AQMC)

- a. Acceptable: Monitoring instruments are regularly calibrated. Data is collected and recorded hourly. During times periodically when there is a potential for increased emissions, real time monitoring shows compliance with previously established limits as identified above in numbers 5 and 6.
- b. Not Acceptable: Monitoring instruments are not regularly calibrated. Data is not collected or not recorded hourly. During times periodically when there is a potential for increased emissions, real time monitoring shows exceedances of limits as shown in numbers 5 and 6.

Surface water

- a. Acceptable: Monitoring instruments are regularly calibrated. Data is collected and recorded hourly. During times periodically when there is a potential for increased sediment loading (i.e. excavation), real time monitoring shows no exceedance of limits as described in Item 1.
- b. Non Acceptable: Monitoring instruments are not regularly calibrated, or data is not collected and recorded hourly. During times periodically when there is a potential for increased sediment loading (i.e. excavation), real time monitoring shows exceedance of limits as described in Item 1.

Groundwater

- a. Acceptable: If a contaminant of concern in groundwater does not have an upward trend after the fourth sample for three consecutive samples using the Mann-Kendall trend analysis; this approach will use the entire available time series of data (within the numerical constraints of the test).
- b. Not Acceptable: When an upward trend after the fourth sample for three consecutive samples using the Mann-Kendall trend analysis is identified; again, this approach will use the entire available time series of data (within the numerical constraints of the test).

12. Field sampling:

- a. Acceptable: Field sampling instruments are regularly calibrated. Field sampling Standard Operating Procedures are followed. Chain of Custody forms are completed accurately and fully, and submitted with samples for analysis. Health and Safety plans have been prepared and reviewed prior to the start of daily field sampling work.

- b. Not Acceptable: Field sampling instruments are not regularly calibrated. Field sampling Standard Operating Procedures are not followed. Chain of Custody forms are not completed, not accurate, or are not fully filled out. Chain of Custody forms are not submitted with samples for analysis. Health and Safety plans have not been prepared and/or have not been reviewed prior to the start of daily field sampling work.