

**Brownfields Cleanup Grant
Cooperative Agreement #BF- 96085101
Municipality of Anchorage, Peacock Cleaners**

Closeout Report

DECEMBER 2012

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TABLE OF CONTENTS

I. Introduction

II. Project Tasks and Related Budget

Task 1 – Project Management and Reporting

Task 2 – Public Involvement

Task 3 – Cleanup Planning

Task 4 – Cleanup Performance and Completion

III. Future Site Goals

Appendices

Appendix A: Schedule and Completed Deliverables

Appendix B: Revised Budget

Appendix C: Site Photos

1. INTRODUCTION

The cleanup site, located at 4501 Lake Otis Parkway, legally described as Lot 14, T13N, R3W, Section 33, Seward Meridian, was once the site of a long-term dry cleaning business and related residence. The business occupied a concrete block structure built in the early 1960s which was in poor condition prior to demolition. The Municipality of Anchorage took title to the property for non-payment of taxes, and the cleanup was proposed to remediate what was proven to be contaminated property.

Cleanup of the site was given high priority as it is located near the Campbell Creek Greenbelt, a recreational riverine system that runs through the Municipality of Anchorage. In addition to protecting the watershed, another important goal of the cleanup is to facilitate future land use in an urban area in need of redevelopment.

The Municipality of Anchorage (MOA) was responsible for overseeing this project, under the recently reorganized Real Estate Department (RED). Support was provided by Peggy Dieryck in the MOA's Finance Department for grant administration and financial reporting. A summary of the project Schedule and Deliverables Completed, including project activities and quarterly progress reports is presented in Appendix A.

Due to its location, the site has excellent redevelopment potential. The property is in close proximity to a public park and stream and is adjacent to prime vacant land near a busy urban intersection. MOA's overall objective was to achieve site closure, as determined by the State of Alaska Department of Environmental Conservation (ADEC). It is anticipated that closure, still pending this date, may entail institutional controls and/or other conditions and requirements to allow for commercial use.

Future use options described in the Brownfields grant application were determined by the potential for redevelopment along Lake Otis Parkway, a major north-south arterial that runs along the western edge of the site. MOA worked with DOWL Engineers on redevelopment scenarios for the remaining parcel and surrounding vacant properties. We acquired several adjoining properties in the vicinity of the Tudor Road and Lake Otis Parkway intersection to facilitate construction of intersection improvements. The remaining portion of the parcel may be added to adjacent unoccupied parcels at the Tudor Road/Lake Otis Parkway intersection for future office or business development. Reuse of the site may include bicycle/walking trails or sidewalks, as it is located north of Campbell Creek and Campbell Creek Park. Significant development is in progress in the area and land at this intersection is available and would be appropriate for redevelopment.

This report provides an overview of the project, description of goals achieved, budget summary (Appendix B), photos of the cleanup site (Appendix C), as well as what was learned by MOA and contractors in implementing the cleanup.

II. PROJECT TASKS AND RELATED BUDGET

TASK 1 – PROJECT MANAGEMENT AND REPORTING

BUDGET: A majority of the cost of project management and reporting was covered in the RED general operating budget in the form of personnel costs. The cost of the Project Manger's attendance at the Western Regional Brownfields Workshop in 2010 was \$1,177.61 and was split \$883.21 federal/\$294.40 MOA.

RED staff devoted time to administer the project to its completion. The MOA oversaw cleanup of the site by: 1) working with a qualified environmental and geotechnical consulting firm under Term Contract with the MOA to draft a scope of work commensurate with the findings of the Targeted Brownfields Assessment completed in 2009; 2) coordinating with state and federal agencies; 3) assigning cleanup tasks and associated onsite activities (to include additional soils monitoring if necessary) to qualified firms; 4) completing final site restoration, including landscaping; and 5) filing requests for post-cleanup closure documents. RED will continue their involvement in the post-remediation phase and redevelopment.

The Municipality's accounting system is robust and supported by a Grants Accounting Division within the Office of the Controller which operates in accordance with required accounting (GAAP) standards. Financial reports to funders are reviewed not only by the primary department responsible for the grant, but also by the Grants Accounting Division. The MOA Finance Department set up a separate capital project for tracking and administering grant funds. MOA provided quarterly progress reports within 30 days of the end of each federal fiscal quarter, which included financial status updates. We recently completed the Property Profile Form reporting the initiation and completion of cleanup activities and compiled and submitted the separate Final Financial Report.

TASK 2 – PUBLIC INVOLVEMENT

BUDGET: \$447.20 federal / \$11.89 MOA share, total: \$459.00

This task's objective was to provide the community with initial notification, progress reports on the project and inform them of the selected option for remediation. It also provided a forum for addressing any questions or concerns they have before, during and after the remediation project.

Initial public notice was from the Mayor's Office announcing the grant award, which was also posted on the MOA's Real Estate Department web page. The first public meeting was held on August 21, 2008 at 5 p.m. at the MOA's Permit Center to address any questions or concerns from the public. Notice of the meeting included mailings to local property owners, businesses and community representatives, and issuing information flyers to those members of the public not reached via mail-out. Public comments stemming from the initial meeting were generally supportive of the clean-up. The project team, including the MOA project manager, redevelopment consultant, and the Project Management and Engineering Division representatives addressed questions regarding funding and the then known extent of contamination. E-mail notice of award was issued to all community councils on June 17, 2010.

A site specific community involvement plan was produced, posted on the website and provided to the area Community Councils. Alison Smith of RED and Matt Hemry from Shannon & Wilson, the MOA's remediation contractor, attended meetings of the Tudor Area, University Area, and Campbell Park Community Councils to provide background on the property and the project, present the general findings of the Analysis of Brownfields Cleanup Alternatives (ABCA) and inform them of where they could obtain additional information. RED additionally contacted neighboring landowners prior to commencement of remediation work to notify them of proposed activities.

The location of the Information Repository for the Public Involvement Plan (PIP) was the Real Estate Services' public counter, located at 4700 Elmore Road. The repository also contains fact sheets, the PIP, progress reports, and other information relevant to the project. Throughout the project the information was, and still is, electronically available online at www.muni.org. Following is a list of site information posted on RED website.

- Peacock Cleaners Contaminates Site Cleanup Fact Sheet – 2012
- Closeout Report, December 2012
- Progress Sampling and Monitoring Well Installation, October 2012
- Peacock Cleaners Site Cleanup Work Plan
- Peacock Cleaners: 2011 Remedial action, Vol. 1 (text of Report)
- Peacock Cleaners: 2011 Remedial action, Vol. II, Part 1 (Appendices A and B)
- Peacock Cleaners: 2011 Remedial action, Vol. II, Part 2 (Appendix C)
- Final Quality Assurance Project Plan and Remediation System Design, August 2011
- Analysis of Brownfields Cleanup Alternatives Decision Document
- Analysis of Brownfields Cleanup Alternatives
- Site Specific Community Involvement Plan
- Brownfields Cleanup Cooperative Agreement Work Plan, revised October 2010
- EPA Award Letter
- EPA Fact Sheet EPA
- Targeted Brownfield Assessment Program (brochure)
- Final Report: Targeted Brownfields Assessment
- ADEC Database Chronology: Peacock Cleaners Site
- A Bird's Eye View of Contaminated Sites Cleanup

TASK 3 – CLEANUP PLANNING AND MANAGEMENT

BUDGET: \$22,756.96 federal / \$18,639.24 MOA share, total: \$41,396.20

MOA's contractor prepared a written evaluation of potential cleanup alternatives. The ABCA was based on information obtained from previous environmental analyses, guidance provided by the EPA and the Alaska Department of Environmental Conservation, and contains the following general elements.

Site Description. This element includes site location, size, and other physical features. This section also includes an introduction of the intended land use in context of area redevelopment, and a preliminary conceptual site model for potentially complete exposure pathways.

Compounds of Concern (COC). The COCs were listed, along with known site characterization data regarding the concentration magnitude, gradient, and distribution of contaminants at the project site. Information in this section included data obtained during the Targeted Brownfields Assessment (TBA).

Cleanup Objectives - This section outlined the site-specific cleanup strategy. Specific cleanup objectives were identified based on considerations of intended land use, area redevelopment, and regulatory process. For this site, the contractor and MOA anticipated pursuing a conditional closure as defined under ADEC regulations. The section also described concentration standards (e.g., ADEC cleanup levels and/or EPA maximum contaminant levels [MCLs]) and other measures of performance, and identified local, state, and federal regulations applicable to the cleanup effort.

Alternatives Analysis. The alternatives analysis included seven alternatives, including the no-action alternative, for achieving the stated Cleanup Objectives. The alternatives selected for consideration were pre-screened for general appropriateness in addressing the site-specific environmental issues, including the type of COCs and the type and extent of impacted media. The analysis was comprised of four primary factors – technical effectiveness, treatment time, cost, and impact to present and planned site uses. The technical effectiveness criterion took into account the treatment mechanism, implementation, and practicability for the site-specific conditions.

Cleanup Plan. The ABCA resulted in the preferred cleanup plan described in Alternative 5: In-Situ Passive Soil Vapor Extraction System (VES) and Chemical Oxidation. Of the seven alternatives considered, Alternative 5 provided the best balance of short-term and long-term treatment potential, cost effectiveness for unit mass reduction, and ability to fully implement the alternative within the grant timeline and funding constraints. The in-situ treatment component and passive VES are sustainable remedial technologies that have a lower carbon footprint than strategies that entail active treatment and/or waste transport to distant disposal facilities.

Alternative 5 also has the flexibility to be augmented with other alternatives, or upgraded to provide enhanced treatment capability. For example, combining asphalt paving (Alternative 2) with Alternative 5 is recommended to obtain the exposure pathway mitigation and land-use benefits of the paving, while still achieving meaningful concentration reduction through in-situ treatment. Similarly, the passive VES contained in Alternative 5 can be upgraded to an active

system to obtain a larger return on investment if additional funding becomes available. In fact, starting the system in a passive mode before upgrading to an active system may be advantageous from a health and safety perspective. The initial vapor concentrations anticipated to be generated by an active system would likely require emissions monitoring and treatment.

The ABCA was submitted to the ADEC and the EPA for review. MOA posted a Public Notice in the local newspaper (Anchorage Daily News) on four successive Sundays during the 30-day public review period. The Final Cleanup Plan largely comprises a modification of the ABCA to focus on the selected cleanup alternative. The Final Cleanup Plan identifies likely institutional, land use, or engineering controls that may be required under the anticipated closure program, based on ADEC review and input and provided cleanup design and implementation details.

The contractor also prepared a quality assurance project plan (QAPP) and obtained agency approval for implementation. The QAPP specifies the measures used to ensure the data generated for the project is of sufficient quantity and quality to satisfy project cleanup objectives. Contents include a description of roles and responsibilities for project participants (MOA, contractors/subcontractors, and agencies); project-specific data quality objectives (DQOs), including numerical measurement quality objectives (MQOs) for chemical analyses; data assessment procedures; and field and reporting documentation requirements.

TASK 4 – CLEANUP PERFORMANCE AND COMPLETION

BUDGET: \$175,853.75 federal / \$21,113.44 MOA share, total: \$196,967.19

The scope of the cleanup action was developed using the TBA data and ABCA process, and was presented in Final Cleanup Plan (QAPP).

Prior to implementing the ABCA, the MOA took important steps to eliminate the input of solvents and other materials to the soil and groundwater on the site. This work was completed outside the scope of the Brownfields grant and the approximately \$90,000 expense was directly funded by the MOA, thereby leveraging the federal monies to accomplish more remediation work under the grant.

MOA contracted with Shannon & Wilson and their subcontractors to remove the buried Stoddard solvent tank and partially-buried drums to mitigate surface waste materials and eliminate potential ongoing sources of subsurface contamination.

The recommended alternative presented in the ABCA is In-Situ Passive Soil Vapor Extraction System (VES) and Chemical Oxidation. This alternative was found to provide the best balance of short-term and long-term treatment potential, cost effectiveness for unit mass reduction, and ability to fully implement the alternative within the grant timeline and funding constraints. The selected treatment method was designed to achieve concentration reduction using a combination of chemical transformation (oxidation) and physical removal (VES) to reduce contaminant mass, mobility, and toxicity. An indirect benefit to the groundwater was obtained by reducing the capacity of the source-area soil to serve as a secondary source for continued groundwater contamination.

The in-situ remediation system was installed in September 2011. An estimated 1,190 cubic yards of soil were excavated and consolidated within on the site. Field screening results were used to select the most heavily-impacted 600 cubic yards of soil for in-situ treatment. The remaining excavated soil was used to backfill the excavation in areas outside the treatment cell's designed radius of influence. Two arrays of horizontal passive soil vapor extraction pipes were placed in the in-situ treatment cell; five pipes were placed at 5.5 feet below ground surface and five pipes were placed at 10 feet below ground surface. In addition, Regenox-brand oxidant was applied to the backfilled soil in 1- to 1.5-foot lifts.

Activities conducted during this field effort included collecting progress soil samples from the in-situ treatment unit, installing a replacement well for former Well B2MW, sampling on- and off-site groundwater monitoring wells and investigation derived waste disposal.

Results of the laboratory testing indicate the average total chlorinated solvent concentrations in the treatment cell soil have decreased an order of magnitude since the system installation in September 2011, and thus appear to comprise material progress toward eventual site closure.

The June 2012 groundwater sampling data confirm the presence of impacted groundwater in the immediate vicinity of the on-Property source area. The plume appears to be laterally delineated to the northeast, east, and southeast, but does not appear to be delineated to the northwest in the direction of groundwater flow measured during the June 2012 sampling event. Samples from the nested well clusters were also used to assess the vertical concentration gradient of impacted groundwater in the unconfined aquifer. The highest concentrations appear to be generally located near the water table and decrease with depth. Soil data suggest that silt-rich layers observed within the water-bearing formation are effective in limiting vertical infiltration of the solvent contamination. The final project report, Progress Sampling and Monitoring Well Installation, October 2012 summarizes the project and describes the 2012 sampling and laboratory results. The report is available on the Real Estate Department website: www.muni.org/hlb.

III. FUTURE ACTIONS

The current contaminant of concern concentrations in soil still remain greater than the interim concentration reduction threshold and the risk to human health does not appear to be sufficiently mitigated at this time to allow beneficial land use without additional treatment and/or other mitigation measures.

The MOA had originally thought that the property would be sold to the private sector to facilitate redevelopment of the area of the Lake Otis Boulevard and Tudor Road intersection. But because the COC concentrations may still present a risk to human health, the MOA will continue to hold the property during future phases of remediation. Options for additional action that may facilitate limited land use (e.g., as a parking lot) include further treatment using the in-place vapor extraction system, using a fence to restrict access to the treatment cell area, placement of pavement or other impermeable cap to mitigate the direct contact and outdoor air inhalation exposure pathways, or other active remedial action. The in-place vapor extraction system was

installed to operate passively, but it can be modified to add blowers and potentially increase the rate of concentration reduction.

The in-situ treatment component and passive vapor extraction system are sustainable remedial technologies that have a lower carbon footprint than strategies that entail active treatment and/or waste transport to distant disposal facilities.

APPENDIX A: SCHEDULE AND COMPLETED DELIVERABLES

Due Date	Item/Task	Recipient			
		EPA PO	ADEC	Grants	Finance
August 2008	Initiate Public Involvement Plan, meet with consultants, ADEC & MOA staff to coordinate work plan; Property Profile Form entered in ACRES or sent to PO				
Sept-Oct. 2008	Complete and submit Work Plan	X			
October-December 2008	Obtain Assembly approval of grant funding; monitor TBA progress.				
April 2009	Project grant period begins (04/01/09): Receive TBA data; Property entered in ACRES or submitted to PO; new fact sheet; PIP distribution; work and submit draft ABCA.	X			X
May-June 2009	Public Notice Period				
July 2009	Submit first Qtrly. Progress Report, and MBE/WBE Report; update public information documents for IR distribution	X		X	X
July 2009	Submit Final Cleanup Plan, subject to EPA acceptance of identified cleanup option; hold public meeting on cleanup's progress	X	X		
Summer 2009	Submit Draft QAPP; receive planning documents comments; attend Western Brownfields conference in Denver	X			
Summer-Fall 2009	Task 1 – UST & Drums Removal; submit Qtrly. Progress Report; update public information documents for IR distribution	X			X
July 2009 - July 2011	Task 2 & 3 Impacted Soil & Groundwater Cleanup (task activities to be reported quarterly in narrative reports)				
October 2009	Interim Financial Status Report; submit Qtrly. Progress Report and request 3rd qtr. 2009 reimbursements; update public information documents for IR distribution	X		X	X
January 2010	Submit 4 th Qtr. 2009 progress report; request quarterly reimbursements	X			X
April 2010	Submit 1 st Qtr. 2010 progress report and annual Interim; request quarterly reimbursement if required; update public information documents for IR distribution	X			X
June - December 2010	Confirmation sampling; results to ADEC, EPA	X	X		
July 2010	Submit 2 nd Qtr. 2010 progress report and request Qtrly. reimbursement if required; update public information documents for IR distribution	X			X

January – March 2011	Submit 4 th qtr. 2010 progress report and request 4 th qtr. reimbursements.	X			X
April 2011	Submit annual Interim Financial Status Report; submit Qtrly. Progress Report and request 4 th qtr. 2010 reimbursements as required	X			X
Summer-Fall 2011	Continue/complete Tasks 2 and 3				
January 2012	Submit 4 th qtr. 2011 progress report and request 4 th qtr. reimbursements.	X			X
January – September 2012	Continue and complete Task 4				
April 2012	Submit 1 st qtr. 2012 progress report and request 1 st qtr. reimbursements.	X			X
July 2012	Submit 2 nd qtr. 2012 progress report and request 2 nd qtr. reimbursements	X			X
October 2012	Submit 3 rd qtr. 2012 progress report and request 3 rd qtr. reimbursements.	X			X
December 31, 2012	Final Cleanup Report submitted; Closeout Report and Fact sheet completed, updated public information documents posted on Department website; requested final reimbursements.	X	X		X

APPENDIX C: SITE PHOTOS



Photo 1: Facing southeast, Drum 1 can be seen in the partially buried drum area. Behind it is the earthen berm, and Monitoring Well B5MW can be seen in the left foreground. (6/9/2011)



Photo 2: The drum with liquid contents (Drum 1) was placed in an overpack drum. (6/9/2011)



Photo 3: Facing south, the location of the potentially-damaged Monitoring Well MW16 is circled. (9/1/2011)



Photo 4: Facing north, the lid of the dry well is circled. (9/6/2011)



Photo 5: The dry well consisted of a 4-foot diameter perforated concrete pipe. (9/6/2011)



Photo 6: Facing east, the exposed portions of the log crib are shown. (9/6/2011)

4501 Lake Otis Parkway
Anchorage, Alaska

PHOTOS 5 AND 6

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32-1-17172-011



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A-3



Photo 7: The process tank was found in the eastern portion of the excavation. (9/7/2011)



Photo 8: The process tank placard indicates that the tank is “dry cleaning and laundry equipment.” (9/13/2011)



Photo 9: Facing north, fans provided ventilation during the excavation to reduce organic vapor concentrations. (9/2/2011)



Photo 10: Facing east, a pump on a truck-mounted water tank was used to apply the oxidant mixture to the base of the first lift of the treatment cell. (9/8/2011)

4501 Lake Otis Parkway
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PHOTOS 9 AND 10

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A-5



Photo 11: Facing southeast, the deep horizontal vapor extraction piping was bedded in pea gravel and wrapped in geotextile fabric at 10 feet bgs to allow air flow, protect the pipe, and prevent silting.



Photo 12: Facing northwest, the VES array was completed with vertical riser pipes. Rubber slips caps were installed on the north array. (9/16/2011)

4501 Lake Otis Parkway
Anchorage, Alaska

PHOTOS 11 AND 12

December 2011

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A-6



Photo 13: Facing north, the vapor horizontal vapor extraction system components include a 4-inch slotted PVC pipe which was bedded in pea gravel and enclosed in a geotextile. (9/13/2011)



Photo 14: Facing north, BCX completed the VES installation by shoveling pea gravel on the horizontal pipe, closing geotextile, and placing soil over the assembly to prevent the geotextile from opening. (9/13/2011)

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Anchorage, Alaska

PHOTOS 13 AND 14

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Photo 15: Facing east, the north consolidation area is shown, with the soil pile with >1,000 ppm screening results on the left, and soil with <100 ppm screening results on the right. (9/6/2011)



Photo 16: Facing east, BCX removes the 6-mil liner from northeast consolidation area. Soil was segregated in piles, with soil with the lowest screening results (<1 ppm and <5 ppm) in piles on the right. (9/2/2011)

4501 Lake Otis Parkway
Anchorage, Alaska

PHOTOS 15 AND 16

December 2011

32-1-17172-011



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A-8



Photo 17: Facing southeast, BCX is conducting the targeted additional excavation. Gray ash-like material indicative of impacted soil is below the excavator bucket. (9/7/2011)



Photo 18: Facing east, the south VES risers can be seen. To the right (south) of the risers, the property slopes down, and trees and a fence are present. (9/15/2011)

4501 Lake Otis Parkway
Anchorage, Alaska

PHOTOS 17 AND 18

December 2011

32-1-17172-011

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A-9



Photo 19: Facing west, the location of the bituminous fiber pipe on the west wall of the excavation is circled. (9/7/2011)



Photo 20: Facing south, the root wad on the south edge of the excavation prior to removal. (9/2/2011)

4501 Lake Otis Parkway
Anchorage, Alaska

PHOTOS 19 AND 20

December 2011

32-1-17172-011



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A-10