

**DATA SUMMARY REPORT
YEAR 1 EVENT 2 LONG-TERM PILOT CAP MONITORING**

**REMOVAL ACTION
NW NATURAL “GASCO” SITE**

Prepared for Submittal to

U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Prepared by

Anchor Environmental, L.L.C.
6650 SW Redwood Lane, Suite 110
Portland, Oregon 97224

On behalf of

NW Natural
220 NW Second Avenue
Portland, Oregon 97209

April 2008



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List of Acronyms and Abbreviations

| | |
|--------|---|
| µg | microgram |
| Anchor | Anchor Environmental, L.L.C. |
| ARI | Analytical Resources, Inc. |
| AWQC | Ambient Water Quality Criteria |
| BTEX | benzene, toluene, ethylbenzene, and xylene |
| CAS | Columbia Analytical Services, Inc. |
| CCC | criterion continuous concentration |
| COC | chain-of-custody |
| DOC | dissolved organic carbon |
| EAf | exposure adjustment factor |
| EPA | U.S. Environmental Protection Agency |
| ESB | Equilibrium Partitioning Benchmark |
| EST | Environmental Sampling Technologies |
| FCV | Functional Criteria Values |
| GC/MS | gas chromatograph/mass spectrometer |
| LCS | laboratory control sample |
| LCSD | laboratory control sample duplicate |
| LDC | Laboratory Data Consultants, Inc. |
| MARP | Monitoring and Reporting Plan |
| MD | matrix duplicate |
| MDL | method detection limit |
| MRL | method reporting limit |
| MS/MSD | matrix spike and matrix spike duplicate |
| NELAP | National Environmental Laboratory Accreditation Program |
| ng | nanogram |
| NRWQC | National Recommended Water Quality Criteria |
| OPR | Ongoing Precision Recovery |
| Order | Administrative Order on Consent |
| PAH | polycyclic aromatic hydrocarbon |
| PCB | polychlorinated biphenyl |
| PEC | Probable Effects Concentration |
| PRC | performance reference compounds |
| PRG | Preliminary Remediation Goal |



List of Acronyms and Abbreviations

| | |
|--------|---|
| QA/QC | Quality Assurance/Quality Control |
| RAOs | Removal Action Objectives |
| RAPP | Removal Action Project Plan |
| RPD | relative percent difference |
| SCV | Sediment Concentration Value |
| Site | NW Natural "Gasco" Site |
| SLV | Screening Level Value |
| SOP | Standard Operating Procedure |
| SOW | Statement of Work |
| SPMD | semipermeable membrane device |
| SVOC | semivolatile organic compound |
| TOC | total organic carbon |
| TPH | total petroleum hydrocarbons |
| TPH-Dx | total petroleum hydrocarbons – diesel range |
| TPH-Gx | total petroleum hydrocarbons – gas range |
| TSS | total suspended solids |
| VOC | volatile organic compound |



1 INTRODUCTION

NW Natural entered into an Administrative Order on Consent (Order) with the U.S. Environmental Protection Agency (EPA) on April 28, 2004 to perform a time-critical removal action at the “Gasco” site (Site; EPA 2004a; Figure 1). The Order requires that NW Natural perform a number of actions associated with removing a tar body (as defined in the Order) from the riverbank and nearshore sediment adjacent to the Site. The extent of the tar body was defined during the design characterization sampling (Figure 2). In accordance with the EPA-approved *Final Removal Action Project Plan* (RAPP; Anchor 2005), removal of the tar body was initiated in August 2005 and was completed in late October 2005.

Pending future implementation of a site-wide remedy, long-term monitoring of the tar body removal is being conducted in accordance with the EPA-approved *Monitoring and Reporting Plan* (MARP; Anchor 2006a). The MARP describes post-removal monitoring objectives and provides an overview of the monitoring approach, design of the monitoring program (e.g., sampling strategy, station locations and replication, field sampling methods, and laboratory methods), data analysis and interpretation, reporting requirements, post-removal site control, contingency response, and adaptive management. The objectives of the long-term monitoring within the removal action area are two-fold: 1) to monitor the performance of the remedy with respect to the removal action objectives (RAOs) identified in Section II of the Statement of Work (SOW) attached to the Order; and 2) to evaluate the performance of the engineered pilot cap as a method to minimize chemical movement from underlying sediments. The removal action was an interim action, and the monitoring information gathered pursuant to the MARP is not intended to monitor a permanent remedy.

In accordance with the reporting requirements identified in the MARP (Anchor 2006a), the remainder of this data summary report provides the Year 1 Event 2 monitoring results. As requested by EPA, this data summary report includes a summary of the monitoring conducted and methods used, tabulated results, data validation reports, and sampling location maps.