



8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166  
TELEPHONE 509-734-4500 FACSIMILE 509-737-9803  
www.cngc.com

October 30, 2015

Oregon Public Utility Commission  
P.O. Box 1088  
Salem, OR 97308-1088

Re: UM 1636 (4) - Request for Deferral Accounting for the Cost of Expenses for Manufactured Gas Plant in Eugene

Attention: Filing Center

In accordance with ORS 757.259 and OAR 860-027-0300, Cascade Natural Gas (Cascade or Company) is providing the following information, its request for an accounting order for reauthorization to record and defer environmental remediation work at the Manufactured Gas Plant (MGP) in Eugene, Oregon. Total deferred costs as of September 30, 2015, are \$278,517.26 which is net of insurance proceeds.

In regards to the status of the project, the parties identified as responsible for the remediation efforts (of which Cascade is the major party) have received a final report (Record of Decision (ROD)) from the Oregon Department of Environmental Quality (DEQ) which included actual remediation requirements. A copy of the ROD is included.

To date the Company has been working to identify potential insurance providers and policy coverage during relevant time periods. Costs deferred to date have been associated with this effort. Including costs identified in the application for deferral, Cascade has deferred all insurance proceeds associated with costs deferred since the inception of the initial deferral order. The Company has received and deferred insurance proceeds which have nearly covered the first phase of remediation efforts entitled defense costs.

Please contact me at (509) 734-4593 if you have any further questions.

Sincerely,

Michael Parvinen  
Director, Regulatory Affairs

1 **BEFORE THE PUBLIC UTILITY COMMISSION**  
2 **OF OREGON**

3 **DOCKET NO. UM 1636(4)**

4 In the Matter of the Application by  
5 **CASCADE NATURAL GAS CORPORATION**  
6 for an Order Reauthorizing Deferral of Certain  
7 Costs

APPLICATION FOR REAUTORIZATION  
OF DEFERRAL ACCOUNTING  
(OAR 860-027-0300)

8  
9 In accordance with ORS 757.259 and OAR 860-027-0300, Cascade Natural Gas  
10 Corporation (“Cascade” or the “Company”) applies to the Public Utility Commission of Oregon  
11 (“Commission”) for an accounting order re-authorizing the Company to record and defer, on an  
12 ongoing basis, the cost of expenses for environmental remediation work at the Manufactured Gas  
13 Plant (MGP) in Eugene, Oregon. The Company respectfully requests that the deferral  
14 commence December 1, 2015, for a 12-month period. The Company’s last authorization was  
15 approved in the Commission’s Order No. 15-010.

16  
17 In support of this Application, Casacade states:

18 **1. CASCADE NATURAL GAS CORPORATION**

19 Cascade Natural Gas Corporation is a public utility engaged in the distribution of  
20 natural gas in the states of Oregon and Washington and is subject to the jurisdiction of the  
21 Commission with regard to its rates, service, and accounting practices.

22  
23 **2. STATUTORY AUTHORITY**

24 This Application is filed pursuant to ORS 757.259, authorization to defer  
25 environmental costs and amounts from insurance recoveries because they are  
26 “identifiable utility expenses or revenues, the recovery or refund of which the

1 commission finds should be deferred in order to minimize the frequency of rate  
2 changes... or to match appropriately the costs borne by and benefits received by  
3 ratepayers.” *ORS 757.259(2)(e)*  
4

5 **3. COMMUNICATIONS**

6 Communications regarding this Application should be addressed to:

7 Michael Parvinen  
8 Director, Regulatory Affairs  
9 Cascade Natural Gas Corporation  
10 8113 West Grandridge Boulevard  
11 Kennewick, WA 99336-7166  
12 Telephone: (509) 734-4593  
13 E-mail: [michael.parvinen@cngc.com](mailto:michael.parvinen@cngc.com)

14 **4. BASIS FOR APPLICATION**

15 Due to the variable and unpredictable nature of environmental remediation costs,  
16 Cascade seeks authorization to record all environmental costs, which shall include, but  
17 are not necessarily limited to, all costs related to investigation, monitoring, legal, study,  
18 oversight, and remediation costs, and all costs associated with pursuing insurance  
19 recoveries (hereafter “Environmental Costs”) that are associated with MGP projects.

20 Cascade will pay its share of the remediation costs in the future and the other  
21 parties will pay the remainder of the costs. Through September 30, Cascade has deferred  
22 \$278,517.26, net of insurance proceeds.  
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24  
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1           **5.       AMOUNTS SUBJECT TO DEFERRAL**

2           In January of 2015, the Department of Environmental Quality (DEQ) issued a  
3           Record of Decision (ROD) which identified and authorized specific remediation  
4           measures. Cascade anticipates that its portion of the effort will amount to approximately  
5           \$1.7 million. Cascade will continue to seek insurance recovery of remediation costs.

6           For the 12-month period, Cascade proposes to transfer expenses incurred from  
7           operation and maintenance/administrative and general accounts to a deferred asset  
8           account. The proposed deferred asset account to be used is FERC Account 186.

9  
10           **6.       ACCOUNTING**

11           Cascade’s proposed deferrals would be recorded in a sub-account of FERC  
12           Account 186 (Miscellaneous Deferred Debits). In the absence of deferral approval,  
13           Cascade would record the Environmental Costs of labor to FERC Account 920,  
14           Administrative and General Expensed, and the costs of outside services (e.g. consulting)  
15           to FERC Account 923, Outside Services Employed.

16  
17           WHEREFORE, Cascade respectfully requests that in accordance with ORS 757.259 and  
18           OAR 860-027-0300, the Commission issue an order authorizing the Company to record and  
19           defer, commencing as of December 1, 2015 date of this filing, expenses for environmental  
20           remediation work at the Manufactured Gas Plant (MGP) in Eugene, as described in this  
21           Application.

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DATED: October 30, 2015.

Respectfully submitted,

CASCADE NATURAL GAS CORPORATION



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Michael Parvinen  
Director, Regulatory Affairs  
Cascade Natural Gas Corporation  
8113 West Grandridge Boulevard  
Kennewick, WA 99336-7166  
Telephone: (509) 734-4593  
E-mail: michael.parvinen@cngc.com

**MANAGEMENT APPROVAL FORM**  
*Final Approval*  
Department of Environmental Quality  
Western Region

**REPORT/DOCUMENT TYPE:**  
*(Attached)*

Record of Decision   X  

Certification of Completion           

Other (Describe)                           


Date:   1/6/14  

Please review the attached document which describes a staff recommendation regarding an environmental cleanup activity. The approved preliminary recommendation has been advertised for public comment as required by ORS 465.320. The public comment period has expired. The attached document includes a discussion of public comments received (if any) and how those comments affected the final recommendation/decision.

**FINAL APPROVAL:**

\_\_\_\_\_  
Assistant Attorney General (DOJ)

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Section Manager

  1/8/2015    
Date

\_\_\_\_\_  
Regional Administrator

\_\_\_\_\_  
Date

\_\_\_\_\_  
Other (Indicate)

\_\_\_\_\_  
Date

Return completed form to: Seth Sadofsky  
Western Region Environmental Cleanup



**RECORD OF DECISION**

**FOR**

**EUGENE MANUFACTURED GAS PLANT (FORMER)**

**EWEB-OWNED PORTION**

700 block of E 8th Avenue  
T17S, R3W, Section 32, Tax Lots 1500 and 1600, Lane County

**EUGENE, OREGON**

**ECSI 1723**

**Date:** January 5, 2014



Revised 1/05/14 SJS

## **Introduction**

Soil and/or groundwater contamination associated with operation of the Former Manufactured Gas Plant (MGP) is present on property owned by EWEB, property owned by the University of Oregon, and the cul-de-sac property located southwest of the EWEB property (Figure 1 and 2). This Record of Decision (ROD) is specific to the EWEB-owned portion of the site (herein Site). The EWEB-owned portion consists of approximately 1.5-acres and is dominated by a flat paved lot located at the 700 block of E 8th Avenue, in Eugene, Oregon. Most of the contamination is located in the vicinity of the historical MGP, which was located on the central portion of the Site, within the existing EWEB fence line. The Site is located on the south bank of the Willamette River in a mixed use area neighborhood encompassing commercial, industrial, office, residential, and park land uses.

This ROD prescribes the remedial action for the Site, which is necessary to meet the Site remedial action objectives and protect human health and the environment. The adjacent portions on cul-de-sac property and on University of Oregon property are being addressed in other documents.

Additional information on this Site, including the full Staff Report to which this document refers, can be found at the following web site.

<http://www.deq.state.or.us/Webdocs/Forms/Output/FPCController.ashx?SourceId=1723&SourceIdType=11>

## **Public Process**

A 30-day public comment period on DEQ's recommended remedy was held during September of 2014, as required by ORS 465.320. Notice was published as a legal ad in the Eugene Register-Guard, in the Secretary of State Bulletin, and on DEQ's web site. A link to this notice on DEQ's web site was published through DEQ's GovDelivery service to all who have registered interest in receiving Environmental Cleanup notices. A newspaper article about the Site and proposed cleanup was published in the Eugene Register-Guard early in the public comment period, and an additional article on a related subject mentioned the public comment period. No comments were received during this period.

## **Summary of Site Investigation Activities**

An initial investigation of soils at the Site took place in 1996, which was followed by groundwater investigations in 1998 and other Site work documented in a final Phase I Remedial Investigation Report in 2000. A Land and Beneficial Water Use Survey report was completed in 2000 and the report was supplemented in June 2012. A Human Health Risk Evaluation was submitted to DEQ in 2002 with a supplemental Technical Memorandum in 2003. Ecological risk was evaluated through a Level I Ecological Risk Assessment in 1998 and a Level II Ecological Risk Assessment in 2009. A Draft Focused Feasibility Study (FFS) proposing remedial action alternatives was submitted to DEQ in 2003, and a final FFS was submitted in 2006. An FFS Addendum proposing additional remedial action measures for the shoreline area was completed

Revised 1/05/14 SJS

in 2011. A full discussion of the results of these investigations and relevant data is presented in the Staff Report along with full citations.

### **Summary of Interim Removal Actions**

Several subsurface structures associated with the former MGP operations were evaluated during different phases of the Site investigation. In 1999, it was determined that liquids should be removed from the tar-tank structure (see Figure 2). Between May and November 1999, approximately 1,500 gallons of hydrocarbon liquids were removed from the tank and recycled offsite in accordance with applicable regulations. The liquids were pumped until recovery of liquids was no longer effective or possible, and the standpipes were abandoned and the asphalt cover sealed under DEQ oversight. Approximately 275 cubic yards of contaminated sandy gravel and demolition debris are estimated to remain in the concrete structure. Because hydrocarbon liquids have been removed and the remaining solid waste is contained in the concrete tar tank and covered by the existing asphalt cap, these materials are considered stable under current Site conditions.

### **Remedial Action Objectives**

Based on the results of the remedial investigation and risk evaluations, Remedial Action Objectives (RAOs) were developed by DEQ and EWEB to address the presence of polynuclear aromatic hydrocarbons (PAHs), benzene, cyanide, and total mercury in contaminated soil and groundwater at the Site. These RAOs are:

- Prevent industrial and excavation worker exposure to upland soils containing contaminants of concern (COCs) above the numerical soil remedial action objectives (NRAOs), and limit future public and worker exposure to contaminated subsurface soil in the shoreline area to acceptable levels.
- Prevent exposure to future Site occupants/workers from vapor intrusion of benzene into indoor spaces above the numerical NRAOs.
- Ensure continued shoreline stability to prevent erosion of upland or shoreline subsurface soil, to prevent the unintentional dispersal of soil contaminants to the Willamette River, and to prevent public and worker exposure to subsurface soil.
- Minimize or control infiltration of rainwater through contaminated soil in upland Site area to prevent mobilization of contaminants to the Willamette River.
- Treat (or excavate and dispose offsite) soil/waste material identified as hot spots, to the extent feasible considering the criterion in OAR 340-122-0085(7) and the balancing factors in OAR 340-122-0090(3).

Revised 1/05/14 SJS

The remedial actions for soil will be guided by numerical remedial action objectives (NRAOs) based on risk-based screening levels rather than Site-specific cleanup levels. Remedial actions based on these NRAOs are protective for the potential exposure pathways listed. Should alternative or contingent remedial actions be considered in the future, Site-specific cleanup levels may be developed in cooperation with DEQ and applied in lieu of the NRAOs. The following numerical remedial action objectives were developed to protect industrial site workers and excavation workers. Remedial action objectives for carcinogenic chemicals are based on a  $1 \times 10^{-6}$  cancer risk, while non-carcinogenic chemicals are based on a Hazard Index (HI) of 1. Soils that contain chemicals in excess of remedial action objectives will require action to prevent unacceptable human exposure.

| <b>NUMERICAL SOIL REMEDIAL ACTION OBJECTIVES</b><br><b>Eugene Former Manufactured Gas Plant Site</b> |                          |                                     |   |
|--|--------------------------|-------------------------------------|---|
| HAZARDOUS SUBSTANCE  | INDUSTRIAL CONCENTRATION | DEQ EXCAVATION WORKER CONCENTRATION | BASIS AND PRIMARY EXPOSURE PATHWAY      |
| Cyanide  | 610                      | 5,100                               | HI=1<br>Direct contact                  |
| Total Mercury  | 310                      | 2,600                               | HI=1<br>Direct contact                  |
| 2-Methylnaphthalene  | 23*                      | 16,000*>Csat                        | HI=1<br>Direct contact                  |
| Acenaphthylene   | 23*                      | 16,000*>Csat                        | HI=1<br>Direct contact                  |
| Benz[a]anthracene  | 2.7                      | 590>Csat                            | $1 \times 10^{-6}$ Risk, Direct Contact |
| Benzo[a]pyrene   | 0.27                     | 59>Csat                             | $1 \times 10^{-6}$ Risk, Direct Contact |
| Benzo[b]fluoranthene   | 2.7                      | 590>Csat                            | $1 \times 10^{-6}$ Risk, Direct Contact |
| Benzo[g,h,i]perylene   | 23*                      | 16,000*>Csat                        | HI=1<br>Direct contact                  |
| Benzo[k]fluoranthene   | 27                       | 5,900>Csat                          | $1 \times 10^{-6}$ Risk, Direct Contact |
| Chrysene   | 270                      | 59,000>Csat                         | $1 \times 10^{-6}$ Risk, Direct Contact |
| Indeno[1,2,3-cd]pyrene   | 2.7                      | 590>Csat                            | $1 \times 10^{-6}$ Risk, Direct Contact |
| Naphthalene  | 23                       | 16,000>Csat                         | HI=1 Direct contact                     |
| Phenanthrene   | 23*                      | 16,000*>Csat                        | HI=1 Direct contact                     |
| Benzene  | 34                       | 9,500>Csat                          | $1 \times 10^{-6}$ Risk, Direct Contact |

Revised 1/05/14 SJS

| <b>NUMERICAL SOIL REMEDIAL ACTION OBJECTIVES</b><br><b>Eugene Former Manufactured Gas Plant Site</b>  |                          |                                     |                                    |
|---|--------------------------|-------------------------------------|------------------------------------|
| HAZARDOUS SUBSTANCE   | INDUSTRIAL CONCENTRATION | DEQ EXCAVATION WORKER CONCENTRATION | BASIS AND PRIMARY EXPOSURE PATHWAY |
| <b>NOTES:</b><br>The numerical remedial action objective values for soil are risk-based concentrations (RBCs) from DEQ's 2003 RBDM, as updated 2012. Cyanide numerical remedial action objective is from USEPA's Region Screening Level (RSL) Summary Table, May 2011. Direct contact includes soil ingestion, dermal contact, and inhalation.<br>1) Soil units shown are in mg/kg, or ppm.<br>2) Cumulative excess cancer risk for all carcinogens shall not exceed $1 \times 10^{-5}$<br>3) The soil numerical remedial action objective for benzene in indoor air (vapor intrusion into buildings) is 1.2 mg/kg (DEQ 2003 RBDM, as updated 2012).<br>* Surrogate value based on toxicity data for naphthalene. |                          |                                     |                                    |

**Evaluation of Remedial Alternatives**

Four potential remedies were outlined in the FFS and FFS Addendum, they are:

- 1 No Action
- 2 Engineering and Institutional Controls
- 3 Focused Soil and Residuals/Waste Removal at Former MGP Structures and Engineering and Institutional Controls
- 4 Deep Soil Removal in Core Area, Residuals/Waste Removal at Former MGP Structures, Shoreline Bulkhead Construction, and Engineering and Institutional Controls

These potential remedies were evaluated on the basis of protectiveness, long-term reliability, implementability, implementation risk, and reasonableness of cost, as well as the degree to which they address identified hot spots according to OAR 340-122-090.

**Description of Selected Remedy**

DEQ has selected the remedial action recommended in its Staff Report as the final remedy for the Site in accordance with Oregon Revised Statutes (ORS) 465.200 et. seq. and Oregon Administrative Rules (OAR) Chapter 340, Division 122, Sections 010 through 115. The recommended remedial action includes several measures to meet the above RAOs, including:

- Excavation and off-site disposal of high-concentration residuals/waste at the first gas plant structure and the small relief holder;
- An assessment and removal for similar residuals/waste from the vaults at the large gas holder;
- Engineering controls consisting of (1) a cap and (2) bank stabilization action;

Revised 1/05/14 SJS

- Institutional controls consisting of an Easement & Equitable Servitude restricting property use, and development of a site management plan (SMP);
- Inspection and maintenance of the Site conditions and features according to the SMP.

The selected remedy is described in more detail below.

#### **Excavation and off-site disposal of high-concentration residuals/waste**

High-concentration residuals/waste will be removed at the two structures previously evaluated (i.e., first gas plant building location and small relief holder foundation) by excavation. This material will be disposed of properly after characterization.

#### **Assessment and removal of high-concentration residuals/waste from vaults at the large gas holder**

The two additional vaults at the large gas holder foundation will be assessed during implementation of the recommended removal actions at the other MGP structures. High-concentration residuals/waste and oily liquid, if present, will be removed from these additional structures. Any removed material will be disposed of properly after characterization.

#### **Engineering Controls**

Engineering controls will consist of completing an asphalt cap over the upland portion of the Site and implementing bank stabilization measures at the shoreline area. Approximately 90% of the upland area is already capped with asphalt and the remaining portions of the Site will be capped with a minimum of three inches of asphalt. Cap inspection and maintenance will be included in the SMP. EWEB may elect to conduct additional analyses in the future to consider other cap/cover types as long as RAOs are met and any modifications to the cap/cover design are coordinated with DEQ.

The bank stabilization measures will incorporate native vegetation, natural rock and bioengineering treatments at the shoreline area and will be designed to contain and prevent exposure of Site contaminants, and prevent migration of the contaminants to the Willamette River that could result in surface water and sediment contamination exceeding DEQ's acceptable risk levels. The bank stabilization design will consider factors such as flood events and Site and nearby shoreline configuration to ensure protectiveness. The bank stabilization final design will be subject to review and approval by DEQ and, potentially, other state and federal governmental agencies.

#### **Institutional Controls – Easement and Equitable Servitude**

A DEQ-approved Easement and Equitable Servitude (E&ES) will be recorded in the county property records with the following general requirements for the Management Area which is the portion of the EWEB property where the remedial action applies as shown on Figure 2:

1. Groundwater Use Restrictions: The Site owner may not extract through wells or by other means or use the groundwater at the Site for consumption or other beneficial use. This

Revised 1/05/14 SJS

prohibition does not apply to extraction of groundwater associated with groundwater treatment or monitoring activities approved by DEQ or to temporary dewatering activities related to construction, development, or the installation of sewer or utilities at the Site. The Site owner must conduct a waste determination on any groundwater that is extracted during such monitoring, treatment, or dewatering activities and handle, store and manage waste water according to applicable laws.

2. **Soil Cap Engineering Control.** Except in accordance with the SMP as approved in writing by DEQ, the Site owner may not conduct or allow operations on the Site or use of the Site in any way that will or likely will penetrate the cap at the Site or jeopardize the cap's protective function as an engineering control that prevents exposure to contaminated soil, including without limitation any excavation, drilling, scraping, or uncontrolled erosion. The Site owner will maintain the cap in accordance with the SMP as approved in writing by DEQ. The Site owner shall notify DEQ prior to any subsurface work at the shoreline area or any modification of the bank stabilization measures that might expose human or ecological receptors to hazardous substances at the Site.
3. **Land Use Restrictions.** The following land use activities are prohibited on the Site; Residential use of any type. The Site owner shall notify DEQ of zoning changes or any development activities or change in use of the Site that might expose human or ecological receptors to hazardous substances at the Site.
4. No buildings for continuous human occupancy shall be constructed at the Site (e.g., offices, shops, retail development) unless additional Site-specific analyses are conducted in the future to demonstrate that RAOs would be met and the analyses are coordinated with and approved by DEQ, and aspects of the building construction to meet RAOs are approved by DEQ.

#### **Institutional Controls – Site Management Plan**

A DEQ-approved SMP will be prepared for the Site, which will cover the following general topics:

1. **Excavation Worker Health and Safety.** The SMP will describe how work shall be conducted at the Site, who may complete the work, what notifications will need to occur prior to work commencing, measures for personal protective equipment and training required to work on the Site, and general protocols for excavating, storing, characterizing, and disposing of any excavated materials from the Site.
2. **Cap Maintenance.** The SMP will detail how and at what interval the cap will be inspected and outline any regularly scheduled cap maintenance that may be required.
3. **Shoreline Inspection and Maintenance.** The SMP will detail a shoreline inspection and maintenance plan designed to ensure that conditions in the shoreline area remain stable (i.e., no exposure or release of impacted soils or soil contaminants).

Revised 1/05/14 SJS

4. **Shoreline Area and Bank Stabilization Measures.** The SMP will include measures for inspection and maintenance of the shoreline area, including any implemented bank stabilization measures and coordination with the DEQ as required.

5. **Reporting.** The SMP will detail a simple annual report form to be submitted to the DEQ containing records of excavation work at the Site, cap maintenance/inspection, and shoreline inspection.

### **Residual Risk**

Under the recommended remedial action alternative, the Site risks will meet the protectiveness as required by OAR 340-122-0040 for unacceptable Site risks by applying the following measures.

- **Excavation Worker Scenario.** Risk from this scenario is reduced to acceptable levels through a SMP that will be prepared to direct all future excavation activities.
- **Industrial Worker Scenario.** To address this risk, an asphalt cap will be placed over the upland portion of the Site, and cap inspections and maintenance will be included in the SMP. The Site owner may elect to conduct additional analyses in the future to consider other cap/cover types as long as RAOs are met and any modifications to the cap/cover design are coordinated with DEQ.
- **Potential Future Exposure to Vapor Intrusion to Buildings.** No buildings currently exist at the Site. However, to address the potential for future unacceptable risk regarding commercial building structures, an institutional control will be included in the Easement and Equitable Servitude. Specifically, no buildings for continuous human occupancy will be allowed on the Site (no offices, shops, retail development) unless additional Site-specific analyses are conducted in the future to demonstrate that RAOs would be met, and that the analyses are coordinated with DEQ and aspects of the building construction to meet RAOs are approved by DEQ.
- **Potential Exposure at Shoreline Area.** The recommended remedial action alternative, including the bank stabilization measures, will be designed to prevent or minimize potential exposure of Site workers and visitors to subsurface soil/fill contaminants in the shoreline area and the potential for unintentional dispersal of soil/fill contaminants to the Willamette River surface water and sediment.

### **Statutory Determination**

The selected remedial action for MGP-related contamination at the EWEB-owned portion of the former Eugene Manufactured Gas Plant is considered to be protective, effective, reliable, and cost-effective. The selected remedy also addresses the identified hot spots of contamination to the extent feasible in accordance with OAR 340-122-090. The selected remedy is consistent with the current and future anticipated use of the Site and is protective of current and future anticipated beneficial water use within the Site Locality of the Facility (LOF). Residual risks associated with the selected remedy are below DEQ's acceptable risk levels.

Revised 1/05/14 SJS

**Attached**  
Figure 1  
Figure 2

Administrative Record





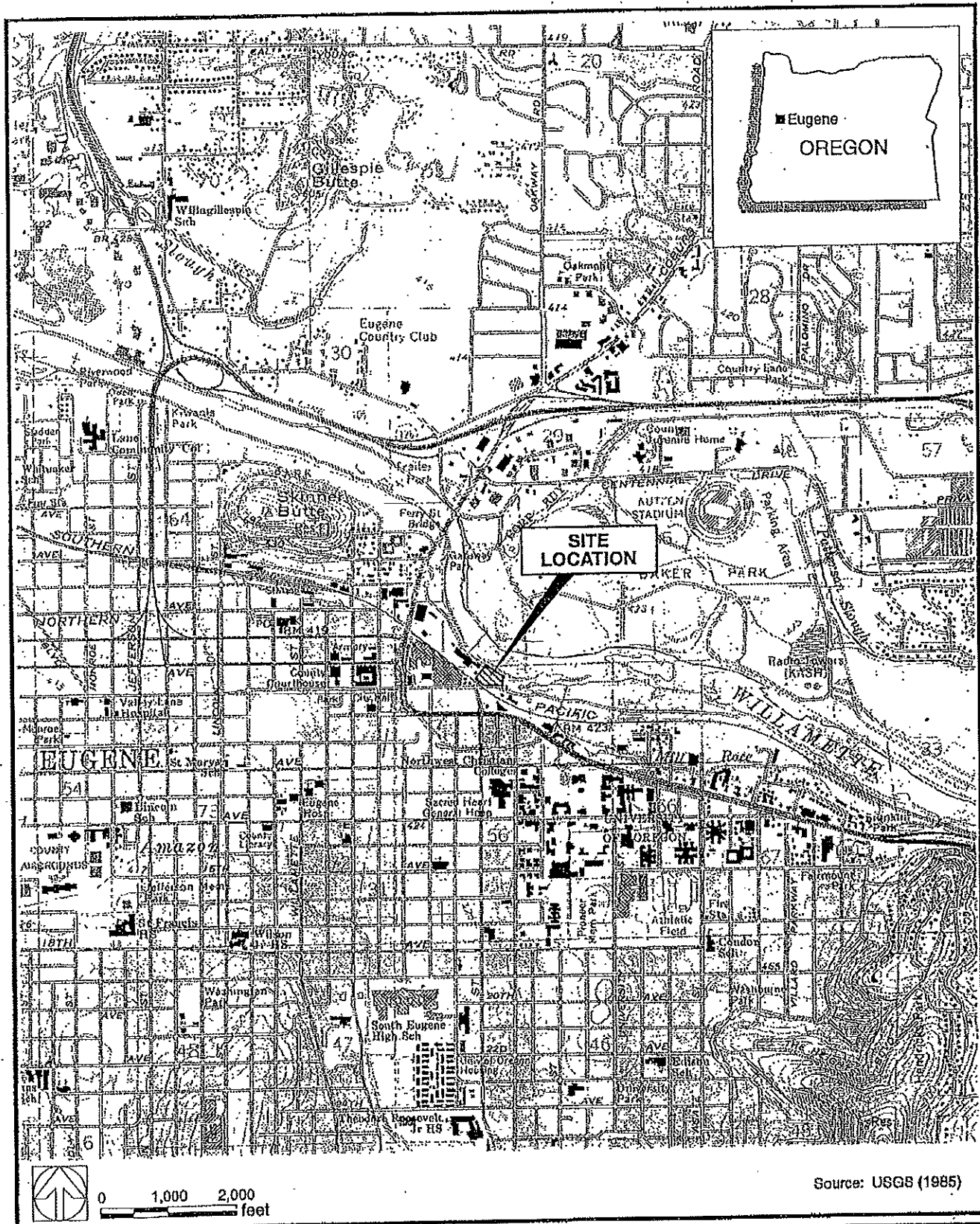
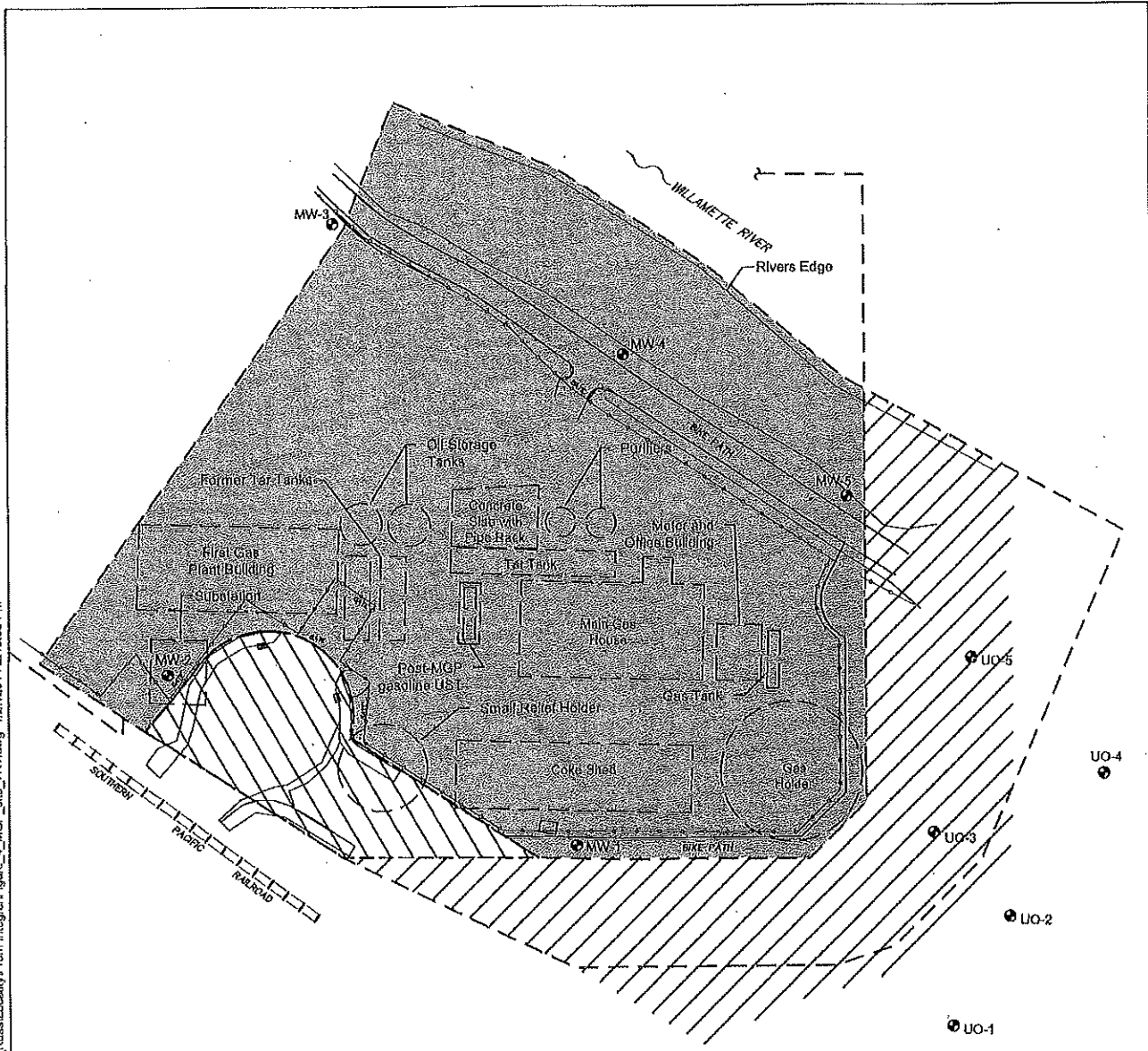


Figure 1. Site Location Map

W:\Projects\Axelrod LLC\EWEB MGP Site\CAD\_etc\_from\_RussLocality\From Integral\Figure\_4\_MGP\_site\_WW.dwg 1/27/2014 2:15:03 PM



|  |   |
|--|---|
|  | Monitoring well   |
|  | EWEB property line  |
|  | Approximate location of revised locality of facility (LOF)                        |
|  | Fence line  |
|  | Railroad  |
|  | Management Area (EWEB property subject to engineering and institutional controls) |
|  | University of Oregon Property   |
|  | City of Eugene Property   |

0 75 Feet

**Notes:**  
 1. Property boundary between City of Eugene and University of Oregon approximately located.

**Sources:**  
 1. Base Map Survey by: W&H Pacific (9/17/96)  
 2. Base Map Provided by: Swanson Hydrology + GeoMorphology and Windward Environmental, LLC. (Final Feasibility Study, April 2006)

Prepared by Integral Consulting Inc.



**Figure 2**  
 Site plan with main features, property boundaries, and Locality of Facility (LOF).

## Appendix A

### ADMINISTRATIVE RECORD AND SUPPORT DOCUMENTATION FOR RI/FS Eugene Former Manufactured Gas Plant Site Through December 2013

#### Administrative Record

- Axelrod and Windward. 2007. Scoping approach for Level II (Screening) ecological risk assessment, Eugene Former MGP Site, prepared for Eugene Water & Electric Board by Axelrod LLC and Windward Environmental LLC, September 11, 2007.
- Axelrod. 2008. Opportunistic shoreline probing during September 19 ecological habitat survey, Memorandum, Eugene Former MGP Site, prepared for Eugene Water & Electric Board by Axelrod LLC, February 13, 2008.
- Axelrod and Windward. 2008. Focused work plan/sampling and analysis plan, Willamette River surface water sampling event, Eugene Former MGP Site, prepared for Eugene Water & Electric Board by Axelrod LLC and Windward Environmental LLC, December 3, 2008.
- Axelrod and Windward. 2010a. Focused Soil/Fill Management Plan, Electric Transmission Line Construction Project – Eugene Former MGP Site, prepared for Eugene Water & Electric Board, August 31, 2010 (Draft).
- Axelrod and Windward. 2010b. Removal Action at Gas Holder Foundation, Eugene Former MGP Site, Technical Memorandum, DEQ Review Draft, December 8, 2010.
- Axelrod and Windward. 2011. Field Activity Summary - Focused Soil/Fill Management Plan, Eugene Former MGP Site, prepared for Eugene Water & Electric Board, April 2011.
- Axelrod, Otak, and Windward. 2011. Focused feasibility study addendum – Eugene Former MGP Site, prepared for Eugene Water & Electric Board, by Axelrod LLC with support from Otak Inc. and Windward Environmental LLC, July 2011.
- Axelrod. 2011. Letter from Russ Axelrod/Axelrod LLC to Geoff Brown/DEQ regarding EWEB Second Source Water Supply Evaluation – Supplemental Information for Administrative Record for MGP Site, June 11, 2012.
- DEQ. 1995. Letter dated July 27, 1995, from Keith Andersen, DEQ to D. Unfried, EWEB, regarding addition of MGP site to the Environmental Cleanup Site Information System (#1723) and recommendation for inclusion on the Confirmed Release List. DEQ, Western Region Cleanup Program, Eugene, OR.
- DEQ. 1996a. File Review Summary, Eugene Former Manufactured Gas Plant Site. DEQ, Western Region Cleanup Program, Eugene, OR.

Administrative Record and Support Documentation for RI/FS  
Eugene Former MGP Site  
December 2013

- DEQ. 1996b. Letter dated November 20, 1996, from M. Wahl, DEQ, to D. Unfried, EWEB, regarding notice to owners and operators of decision to list contaminated property, Eugene former MGP. DEQ, Western Region Cleanup Program, Eugene, OR.
- DEQ. 1998a. Memorandum dated March 31, 1998, from B. Mason, DEQ, to D. Unfried, EWEB, approving field sampling plan for focused groundwater investigation with limited comments, Eugene former manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.
- DEQ. 1998b. Intergovernmental Agreement for Remedial Investigation/Feasibility Study (DEQ No. WMCVC-WR-98-13) between EWEB and DEQ, November 25, 1998, including Attachment B (Voluntary Cleanup Program Remedial Investigation/Feasibility Study Scope of Work, September 23, 1998).
- DEQ. 1999a. News Release dated January 7, 1999, DEQ and EWEB Sign Agreement for Cleanup, regarding intergovernmental agreement signed by DEQ and EWEB for Eugene former manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, Oregon.
- DEQ. 1999b. Letter dated January 27, 1999, from M. McCann, DEQ, to D. Unfried, EWEB, regarding approval of project documents (ISI Work Plan [PTI 1995], ISI Report [PTI 1996], FGI FSP [Exponent 1998], FGI Results [Exponent 1998]), Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.
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Administrative Record and Support Documentation for RI/FS  
Eugene Former MGP Site  
December 2013

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Administrative Record and Support Documentation for RI/FS  
Eugene Former MGP Site  
December 2013

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Administrative Record and Support Documentation for RI/FS  
Eugene Former MGP Site  
December 2013

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Eugene Former MGP Site  
December 2013

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Administrative Record and Support Documentation for RI/FS  
Eugene Former MGP Site  
December 2013

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Eugene Former MGP Site  
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**MANAGEMENT APPROVAL FORM**  
*Final Approval*  
Department of Environmental Quality  
Western Region

**REPORT/DOCUMENT TYPE:**  
*(Attached)*

Record of Decision   X  

Certification of Completion           

Other (Describe)                           

Date:   1/21/15  

Please review the attached document which describes a staff recommendation regarding an environmental cleanup activity. The approved preliminary recommendation has been advertised for public comment as required by ORS 465.320. The public comment period has expired. The attached document includes a discussion of public comments received (if any) and how those comments affected the final recommendation/decision.

**FINAL APPROVAL:**

\_\_\_\_\_  
Assistant Attorney General (DOJ)

\_\_\_\_\_  
Date

  Michael E. Howard    
Section Manager

  1/21/2015    
Date

\_\_\_\_\_  
Regional Administrator

\_\_\_\_\_  
Date

\_\_\_\_\_  
Other (Indicate)

\_\_\_\_\_  
Date

Return completed form to: Seth Sadofsky  
Western Region Environmental Cleanup



**RECORD OF DECISION**

**FOR**

**EUGENE MANUFACTURED GAS PLANT (FORMER)**

**CUL-DE-SAC PORTION**

700 block of E 8th Avenue

T17S, R3W, Section 32, City Right-of-Way Adjacent to Tax Lot 1500, Lane County

**EUGENE, OREGON**

**ECSI 1723**

**Date:** January 21, 2015



## **Introduction**

Soil and/or groundwater contamination associated with operation of the Former Manufactured Gas Plant (MGP) is present on property owned by EWEB, property owned by the University of Oregon, and the cul-de-sac property located southwest of the EWEB property (Figure 1 and 2). Most of the contamination is located in the vicinity of the historical MGP, which was located on the central portion of the site, within the existing EWEB fence line. The site is located on the south bank of the Willamette River, in a mixed use area neighborhood encompassing commercial, industrial, office, residential, and park land uses. This Record of Decision (ROD) is specific to the cul-de-sac portion of the site (Site). The cul-de-sac is a City of Eugene public right-of-way. The cul-de-sac portion consists of approximately 0.3-acres and consists of the extension of East 8<sup>th</sup> Avenue northeast of the railroad tracks that dead-ends in a cul-de-sac. This ROD prescribes the remedial action for the Site, which is necessary to meet the Site remedial action objectives and protect human health and the environment. The adjacent portions of the former MGP site on EWEB property and on University of Oregon property are being addressed in other documents.

Additional information on this Site, including the full Staff Report to which this document refers, can be found at the following web site.

<http://www.deq.state.or.us/Webdocs/Forms/Output/FPCController.ashx?SourceId=1723&SourceIdType=11>

## **Public Process**

A 30-day public comment period on DEQ's recommended remedy was held during September of 2014, as required by ORS 465.320. Notice was published as a legal ad in the Eugene Register-Guard, in the Secretary of State Bulletin, and on DEQ's web site. A link to this notice on DEQ's web site was published through DEQ's GovDelivery service to all who have registered interest in receiving Environmental Cleanup notices. A newspaper article about the MGP site and proposed cleanup was published in the Eugene Register-Guard early in the public comment period, and an additional article on a related subject mentioned the public comment period. No comments were received during this period.

## **Summary of Site Investigation Activities**

Investigations at the MGP site have been conducted by environmental consultants working for EWEB, PacifiCorp, and Cascade Natural Gas Corporation. The initial investigation of the MGP site took place in 1995, which was followed by groundwater investigations through 1998 and a Remedial Investigation Report submitted to DEQ in 2000. A Human Health Risk Evaluation was submitted to DEQ in 2002 with a supplemental Technical Memo in 2003; and Ecological risk was assessed by a Level I Ecological Risk Assessment in 1999 and a Level II Ecological Risk Assessment in 2009. A Draft Feasibility Study proposing remedial action alternatives was submitted to DEQ in 2003; and a revised Feasibility Study was submitted in 2006 incorporating

comments by DEQ. A technical memorandum prepared in 2011 by AECOM highlights the specific RI/FS issues associated with the cul-de-sac portion of the MGP site.

### Remedial Action Objectives

Based on the results of the Remedial Investigation and Risk Assessment, Remedial Action Objectives (RAOs) were developed by DEQ and the responsible parties to address the presence of polynuclear aromatic hydrocarbons (PAHs) and benzene in contaminated soil. These RAOs are:

- Prevent industrial and excavation worker exposure to soils containing contaminants of concern (COCs) above the soil numerical remedial action objectives (NRAOs).
- Prevent exposure to future Site visitors/workers from vapor intrusion of benzene into indoor spaces above the numerical NRAOs.
- Minimize or control infiltration of rainwater through contaminated soil to prevent mobilization of contaminants to the Willamette River.
- Treat (or excavate and dispose offsite) soil/waste material identified as hot spots (i.e., from the small relief holder), to the extent feasible considering the criterion in OAR 340-122-0085(7) and the balancing factors in OAR 340-122-0090(3).

The remedial actions for soil will be guided by NRAOs based on risk-based screening levels rather than Site-specific cleanup levels. Remedial actions based on these NRAOs are protective for the potential exposure pathways listed. Should alternative or contingent remedial actions be considered in the future, Site-specific cleanup levels may be developed in cooperation with DEQ and applied in lieu of the NRAOs. The following numerical remedial action objectives were developed to protect industrial Site workers and excavation workers. Remedial action objectives for carcinogenic chemicals are based on a  $1 \times 10^{-6}$  cancer risk, while non-carcinogenic chemicals are based on a Hazard Index (HI) of 1. Soils that contain chemicals in excess of remedial action objectives will require action to prevent unacceptable human exposure.

| NUMERICAL SOIL REMEDIAL ACTION OBJECTIVES<br>Eugene Former Manufactured Gas Plant Site |                          |                                     |                                    |
|--|--------------------------|-------------------------------------|------------------------------------|
| HAZARDOUS SUBSTANCE  | INDUSTRIAL CONCENTRATION | DEQ EXCAVATION WORKER CONCENTRATION | BASIS AND PRIMARY EXPOSURE PATHWAY |
| Cyanide  | 610                      | 5,100                               | HI=1<br>Direct contact             |
| 2-Methylnaphthalene  | 23*                      | 16,000*>Csat                        | HI=1<br>Direct contact             |

**NUMERICAL SOIL REMEDIAL ACTION OBJECTIVES**  
**Eugene Former Manufactured Gas Plant Site**

| HAZARDOUS SUBSTANCE    | INDUSTRIAL CONCENTRATION | DEQ EXCAVATION WORKER CONCENTRATION | BASIS AND PRIMARY EXPOSURE PATHWAY      |
|------------------------|--------------------------|-------------------------------------|---|
| Acenaphthylene         | 23*                      | 16,000*>C <sub>sat</sub>            | HI=1<br>Direct contact                  |
| Benz[a]anthracene      | 2.7                      | 590>C <sub>sat</sub>                | 1x10 <sup>-6</sup> Risk, Direct Contact |
| Benzo[a]pyrene         | 0.27                     | 59>C <sub>sat</sub>                 | 1x10 <sup>-6</sup> Risk, Direct Contact |
| Benzo[b]fluoranthene   | 2.7                      | 590>C <sub>sat</sub>                | 1x10 <sup>-6</sup> Risk, Direct Contact |
| Benzo[g,h,i]perylene   | 23*                      | 16,000*>C <sub>sat</sub>            | HI=1<br>Direct contact                  |
| Benzo[k]fluoranthene   | 27                       | 5,900>C <sub>sat</sub>              | 1x10 <sup>-6</sup> Risk, Direct Contact |
| Chrysene               | 270                      | 59,000>C <sub>sat</sub>             | 1x10 <sup>-6</sup> Risk, Direct Contact |
| Indeno[1,2,3-cd]pyrene | 2.7                      | 590>C <sub>sat</sub>                | 1x10 <sup>-6</sup> Risk, Direct Contact |
| Naphthalene            | 23                       | 16,000>C <sub>sat</sub>             | HI=1 Direct contact                     |
| Phenanthrene           | 23*                      | 16,000*>C <sub>sat</sub>            | HI=1 Direct contact                     |
| Benzene                | 34                       | 9,500>C <sub>sat</sub>              | 1x10 <sup>-6</sup> Risk, Direct Contact |

**NOTES:**

The numerical remedial action objective values for soil are risk-based concentrations (RBCs) from DEQ's 2003 RBDM, as updated 2012. Cyanide numerical remedial action objective is from USEPA's Region Screening Level (RSL) Summary Table, May 2011. Direct contact includes soil ingestion, dermal contact, and inhalation.

1) Soil units shown are in mg/kg, or ppm. 2) Cumulative excess cancer risk for all carcinogens shall not exceed 1x10<sup>-6</sup>

3) The soil numerical remedial action objective for benzene in indoor air (vapor intrusion into buildings) is 1.2 mg/kg (DEQ 2003 RBDM, as updated 2012).

\* Surrogate value based on toxicity data for naphthalene.

### **Evaluation of Remedial Alternatives**

Four potential remedies were evaluated in the Staff Report for the Site, they are:

- 1 No Action
- 2 Engineering and Institutional Controls
- 3 High Concentration Residuals/Waste Removal at Small Relief Holder and Engineering and Institutional Controls
- 4 Deep Soil Removal, and Engineering and Institutional Controls

These potential remedies were evaluated on the basis of protectiveness, long-term reliability, implementability, implementation risk, and reasonableness of cost, as well as the degree to which they address identified hot spots according to OAR 340-122-090.

### **Description of Selected Remedy**

DEQ has selected the remedial action recommended in its Staff Report as the final remedy for the Site in accordance with Oregon Revised Statutes (ORS) 465.200 et. seq. and Oregon Administrative Rules (OAR) Chapter 340, Division 122, Sections 010 through 115. The recommended remedial action includes several measures to meet the above RAOs, including:

- Excavation and off-site disposal of high-concentration residuals/waste at the small relief holder (which will be completed as in conjunction with the remedial action for the portion of the MGP site owned by EWEB);
- Engineering controls consisting of a cap to the areas of the cul-de-sac not already paved;
- Institutional controls consisting of an Easement & Equitable Servitude restricting property use, and development of a site management plan (SMP);
- Inspection and maintenance of the Site conditions and features according to the SMP.

The selected remedy is described in more detail below.

### **Excavation and off-site disposal of high-concentration residuals/waste**

High-concentration residuals/waste will be removed at the small relief holder foundation by excavation. This excavation will be completed as part of the remedial action on the adjacent portion of the MGP site owned by EWEB. This material will be disposed of properly after characterization.

### **Engineering Controls**

Engineering controls will consist of capping the small area of the cul-de-sac that is not already paved.

### **Institutional Controls – Easement and Equitable Servitude**

A DEQ-approved Easement and Equitable Servitude (E&ES) will be recorded in the county property records with the following general requirements for the Management Area:

1. **Groundwater Use Restrictions:** No one may extract through wells or by other means or use the groundwater at the Site for consumption or other beneficial use. This prohibition does not apply to extraction of groundwater associated with groundwater treatment or monitoring activities approved by DEQ or to temporary dewatering activities related to construction, development, or the installation of sewer or utilities at the Site. Any generator of waste water must conduct a waste determination on any groundwater that is extracted during such monitoring, treatment, or dewatering activities and handle, store and manage waste water according to applicable laws.
2. **Soil Cap Engineering Control.** Except in accordance with a SMP approved in writing by DEQ, no one may conduct or allow operations or conditions on the Site or use of the Site in any way that will or likely will penetrate the cap at the Site or jeopardize the cap's protective function as an engineering control that prevents exposure to contaminated soil, including without limitation any excavation, drilling, scraping, or uncontrolled erosion. The Site owner will maintain the cap, if applicable, in accordance with an SMP approved in writing by DEQ.
3. No buildings for human occupancy shall be constructed at the Site (e.g., offices, shops, retail development, or residential development) unless additional Site-specific analyses are conducted to demonstrate that RAOs will be met, which analyses must be approved by DEQ, and unless aspects of the building construction to meet RAOs, if any, are approved by DEQ.

### **Institutional Controls – Site Management Plan**

A DEQ-approved SMP will be prepared for the Site, which will cover the following general topics:

1. **Excavation worker health and safety.** The SMP will describe how work shall be conducted at the Site, who can complete the work, what notifications will need to occur prior to work commencing, measures for personal protective equipment and training required to work on the Site, and general protocols for excavating, storing, characterizing, and disposing of any excavated materials from the Site.

2. **Cap Maintenance.** The SMP will detail how and at what interval the cap will be inspected and outline any regularly scheduled cap maintenance that may be required. The SMP will also include responsibility for this task and an appropriate reporting schedule.

### **Residual Risk**

Under the recommended remedial action alternative, Site risks will meet the protectiveness standard required by OAR 340-122-0040 by applying the following measures.

- **Excavation and Construction Worker Scenario.** Risk from this exposure type is reduced to acceptable levels through a SMP that will be prepared to direct all future excavation activities.
- **Occupational Worker Scenario.** To address this risk, an asphalt cap will be placed over the Site, and cap inspections and maintenance will be included in the SMP.
- **Potential Future Exposure to Vapor Intrusion to Buildings.** No buildings currently exist at the Site. However, to address the potential for future unacceptable risk regarding commercial building structures, an institutional control will be included in the property Easement and Equitable Servitude. Specifically, no buildings for continuous human occupancy will be allowed on the Site unless additional site-specific analyses are conducted in the future to demonstrate that RAOs would be met and the analyses are coordinated with DEQ, and aspects of the building construction to meet RAOs are approved by DEQ.

### **Statutory Determination**

The selected remedial action for MGP-related contamination at the cul-de-sac portion of the former Eugene Manufactured Gas Plant is considered to be protective, effective, reliable, and cost-effective. The selected remedy also treats or removes the identified hot spots of contamination to the extent feasible in accordance with OAR 340-122-090. The selected remedy is consistent with the current and future anticipated use of the Site and is protective of current and future anticipated beneficial water use within the Site Locality of the Facility (LOF). Residual risks associated with the selected remedy are below DEQ's acceptable risk levels.

### **Attached**

Figure 1

Figure 2

Administrative Record

## **Administrative Record**

AECOM. Memorandum on Subsurface Conditions at Intersection of Hilyard Street and East 8<sup>th</sup> Avenue. September 30, 2011.

Axelrod and Windward. 2010a. Focused Soil/Fill Management Plan, Electric Transmission Line Construction Project – Eugene Former MGP Site, prepared for Eugene Water & Electric Board, August 31, 2010 (Draft).

Axelrod and Windward. 2010b. Removal Action at Gas Holder Foundation, Eugene Former MGP Site, Technical Memorandum, DEQ Review Draft, December 8, 2010.

Axelrod and Windward. 2011. Field Activity Summary - Focused Soil/Fill Management Plan, Eugene Former MGP Site, prepared for Eugene Water & Electric Board, April 2011.

Axelrod, Otak, and Windward. 2011. Focused feasibility study addendum – Eugene Former MGP Site, prepared for Eugene Water & Electric Board, by Axelrod LLC with support from Otak Inc. and Windward Environmental LLC, July 2011.

DEQ. 1996a. File Review Summary, Eugene Former Manufactured Gas Plant Site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 1998a. Memorandum dated March 31, 1998, from B. Mason, DEQ, to D. Unfried, EWEB, approving field sampling plan for focused groundwater investigation with limited comments, Eugene former manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 1999b. Letter dated January 27, 1999, from M. McCann, DEQ, to D. Unfried, EWEB, regarding approval of project documents (ISI Work Plan [PTI 1995], ISI Report [PTI 1996], FGI FSP [Exponent 1998], FGI Results [Exponent 1998]), Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 1999c. Letter dated January 27, 1999, from M. McCann, DEQ, to D. Unfried, EWEB, regarding approval of Phase I remedial investigation work plan with direction to address limited DEQ comments in later report or in future project meeting, Former Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 1999f. Letter dated December 3, 1999, from M. McCann, DEQ, to D. Lawder, EWEB, regarding approval of Level 1 ecological risk assessment, former Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 2001a. Letter dated January 4, 2001, from M. McCann, DEQ, to D. Lawder, EWEB, regarding approval of final Phase I Remedial Investigation completed at former Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 2001b. Letter dated January 4, 2001, from M. McCann, DEQ, to D. Lawder, EWEB, regarding approval of final Land and Beneficial Water Use Survey completed at former Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 2002. Letter dated December 20, 2002 from G. Brown, DEQ, to D. Lawder, EWEB, regarding approval of Human Health Risk Evaluation and Focused Feasibility Study – Annotated Outline, Eugene former manufactured gas plant site, Eugene, Oregon. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 2003. Letter dated November 26, 2003 from G. Brown, DEQ, to D. Lawder, EWEB, regarding focused feasibility study, Eugene former manufactured gas plant site, Eugene, Oregon. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 2006. Email dated April 5, 2006, from G. Brown, DEQ, to R. Axelrod, Swanson Hydrology & Geomorphology, regarding approval of final revisions to revised draft focused feasibility study, Eugene manufactured gas plant site. DEQ, Western Region Cleanup Program, Eugene, OR.

DEQ. 2010a. DEQ letter from Geoff Brown/DEQ to Debbie Spresser/EWEB approving the *August 9, 2010 (Draft) Focused Soil/Fill Management Plan, Electric Transmission Line Construction Project, Eugene Former MGP Site*, letter dated August 11, 2010.

DEQ. 2010b. DEQ letter from Geoff Brown/DEQ to Debbie Spresser/EWEB regarding *MGP Waste discovered during the Electric Transmission Line Construction Project – Eugene, October 1, 2010, Eugene Former MGP Site, ECSI 1723*, letter dated October 1, 2010.

DEQ. 2011. DEQ letter from Geoff Brown/DEQ to Jared Rubin/EWEB regarding approval of *Focused Feasibility Study Addendum, May 2010, Eugene Former MGP Site, ECSI 1723*, letter dated June 20, 2011.

Exponent. 1998a. Focused Groundwater Investigation Field Sampling Plan. Prepared for Eugene Water & Electric Board, Eugene, Oregon, March 18, 1998. Exponent, Lake Oswego, OR.

Exponent. 1998b. Results from focused groundwater investigation, Eugene former MGP site, August 12, 1998. Prepared for Eugene Water & Electric Board, Eugene, Oregon. Exponent, Lake Oswego, OR.

Exponent. 1998c. Phase I remedial investigation work plan, Eugene former MGP site. Prepared for Eugene Water & Electric Board, Eugene, Oregon. Exponent, Lake Oswego, OR.

Exponent. 1999a. Letter dated July 29, 1999 from R. Axelrod, Exponent to M. McCann, DEQ, regarding continued groundwater monitoring schedule – change to semiannual basis, Eugene former manufactured gas plant site, Eugene, Oregon.

Exponent. 1999b. Level I (scoping) ecological risk assessment, technical memorandum, November 1999. Prepared for Eugene Water & Electric Board, Eugene, Oregon. Exponent, Lake Oswego, OR.

Exponent. 1999c. Level I (Scoping) Ecological Risk Assessment report, prepared for Eugene Water & Electric Board by Exponent Inc., Lake Oswego, Oregon, January 1999.

Exponent. 2000a. Land and beneficial water use survey, former Eugene MGP site, December 2000. Prepared for Eugene Water & Electric Board, Eugene, Oregon. Exponent, Lake Oswego, OR.



Exponent. 2000b. Phase I remedial investigation report, former manufactured gas plant site, Eugene, Oregon, December 2000. Prepared for Eugene Water & Electric Board, Eugene, Oregon. Exponent, Lake Oswego, OR.

Exponent, 2001a. Email dated July 3, 2001, from R. Axelrod, Exponent, to M. McCann, DEQ, confirming agreement to modify field monitoring for July 2001.

Exponent. 2002a. Human health risk evaluation, former manufactured gas plant site, Eugene, OR, August 2002. Exponent, Lake Oswego, OR.

Exponent. 2002b. Letter dated October 22, 2002 from R. Axelrod, Exponent, to A. Spencer, DEQ, regarding discontinuation of site monitoring, former manufactured gas plant site, Eugene, Oregon. Exponent, Lake Oswego, OR.

Exponent. 2002c. Focused feasibility study outline, Eugene former manufactured gas plant site, Eugene, Oregon, November 6, 2002. Prepared for Eugene Water & Electric Board, Eugene, OR. Exponent, Lake Oswego, OR

Exponent. 2003. Technical memorandum: supplemental discussion of cumulative and inhalation risks, former manufactured gas plant site, February 10, 2003. Prepared for Eugene Water & Electric Board, Eugene, OR. Exponent, Lake Oswego, OR.

PERCo. Letter to Geoffrey Brown, Department of Environmental Quality. Cul-de-Sac Property at Hilyard Street and 8<sup>th</sup> Avenue. October 27, 2011

Progress Reports. Project Quarterly Progress Reports for period 1998 through September 2011.

PTI. 1995. Initial site investigation work plan, former manufactured gas plant site, Eugene, Oregon. Prepared for Eugene Water & Electric Board, Eugene, Oregon. PTI Environmental Services, Lake Oswego, OR.

PTI. 1996. Initial site investigation report, former manufactured gas plant site, Eugene, Oregon. Prepared for Eugene Water & Electric Board, Eugene, Oregon. PTI Environmental Services, Lake Oswego, OR.

Swanson and Windward. 2006. Final Focused Feasibility Study, Former Manufactured Gas Plant Site, Eugene, Oregon, April 2006. Prepared for Eugene Water & Electric Board, Eugene, OR. Swanson Hydrology & Geomorphology, Santa Cruz, CA.

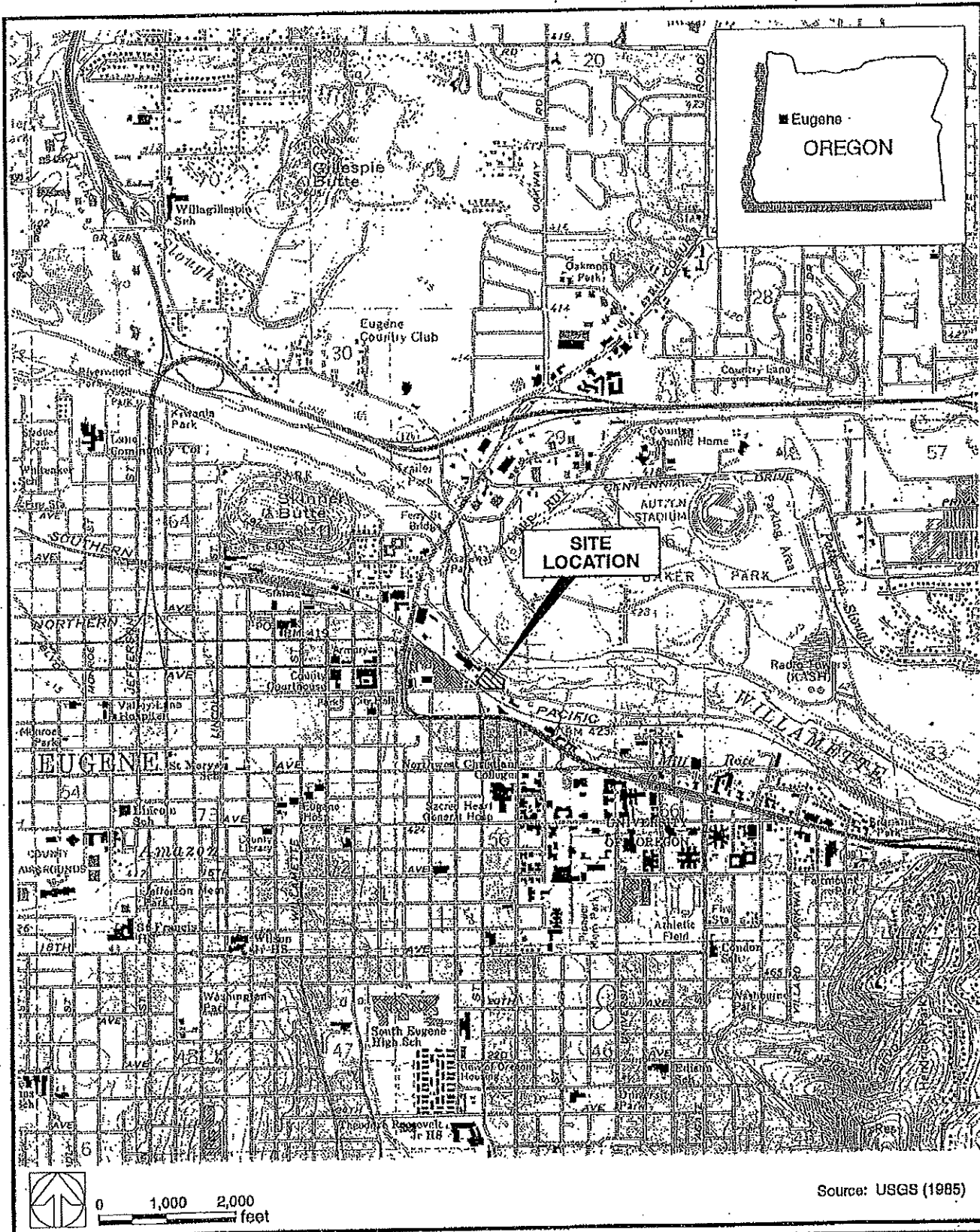
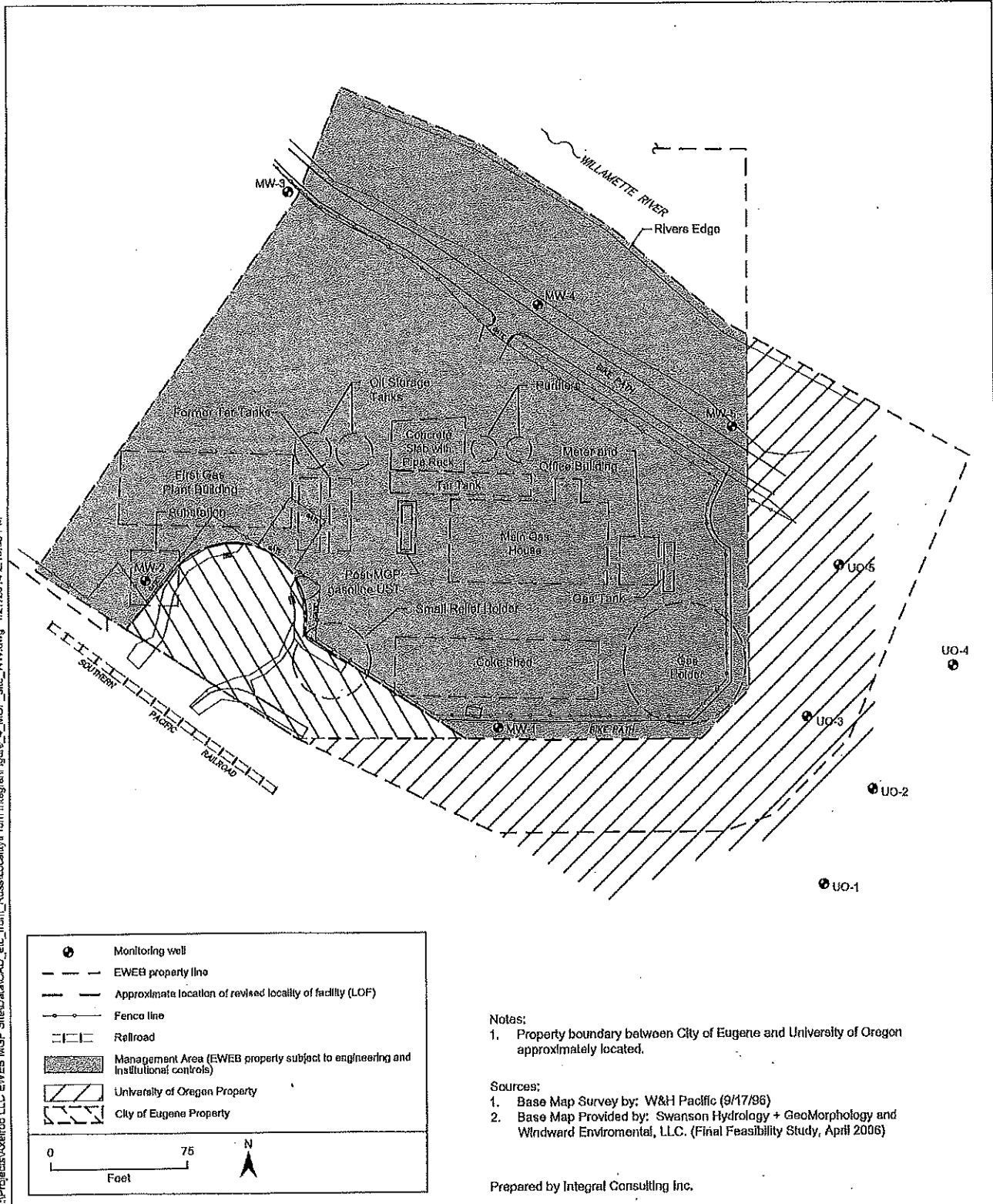


Figure 1. Site Location Map

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|  |   |
|--|---|
|  | Monitoring well   |
|  | EWEB property line  |
|  | Approximate location of revised locality of facility (LOF)                        |
|  | Fence line  |
|  | Railroad  |
|  | Management Area (EWEB property subject to engineering and institutional controls) |
|  | University of Oregon Property   |
|  | City of Eugene Property   |

0 75  
Foot

N

Notes:  
 1. Property boundary between City of Eugene and University of Oregon approximately located.

Sources:  
 1. Base Map Survey by: W&H Pacific (9/17/96)  
 2. Base Map Provided by: Swanson Hydrology + GeoMorphology and Woodward Environmental, LLC. (Final Feasibility Study, April 2006)

Prepared by Integral Consulting Inc.

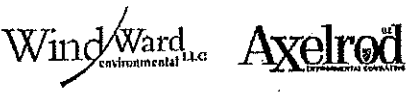


Figure 2  
 Site plan with main features, property boundaries, and Locality of Facility (LOF).