# SUPERFUND FIVE-YEAR REVIEW REPORT

**for the**

**Mason City Coal Gasification Plant Site**
**Mason City, Cerro Gordo County, Iowa**

**March 2008**

**Prepared By:**

**U.S. Environmental Protection Agency**
**Region VII**
**Kansas City, Kansas**

Approved by:

Cecilia Tapia
Director, Superfund Division

Date:

3-27-08

# Table of Contents

## List of Abbreviations

| | |
|---|---|
| ADAF | Age-Dependent Adjustment Factors |
| AOC | Administrative Order on Consent |
| ARARs | Applicable or relevant and appropriate requirements |
| ASTM | American Society for Testing and Materials |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes |
| CD | Consent Decree |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| COPC | Chemical of Potential Concern |
| DNAPL | Dense, Nonaqueous Phase Liquid |
| EPA | Unites States Environmental Protection Agency |
| ERA | Ecological Risk Assessment |
| FS | Feasibility Study |
| HQ | Hazard Quotient |
| IDNR | Iowa Department of Natural Resources |
| IRIS | Integrated Risk Information System |
| KCPL | Kansas City Power & Light Company |
| MSSL | Medium-Specific Screening Levels |
| MCL | Maximum Contaminant Level |
| MNA | Monitored natural attenuation |
| mg/kg | Milligram per kilogram |
| NCP | National Contingency Plan |
| NPL | National Priorities List |
| O&M | Operation and maintenance |
| PAH | Polynuclear Aromatic Hydrocarbons |
| pH | Potential of Hydrogen |
| RA | Remedial Action |
| RADD | Removal Action Decision Document |
| RD | Remedial Design |
| RD/RA | Remedial Design/Remedial Action |
| RAOs | Remedial Action Objectives |
| RI/FS | Remedial Investigation and Feasibility Study |
| RME | Reasonable Maximum Exposure |
| ROD | Record of Decision |
| VOC | Volatile organic compounds |
| $\mu$g/l | Microgram per liter |

## Executive Summary

The Mason City Coal Gasification Plant Superfund site in Cerro Gordo County, Iowa, covers an area of approximately two acres in downtown Mason City. Contaminated soils and waste pile materials were excavated and treated during a non-time-critical removal action completed in 1997. The remedy for the site is monitored natural attenuation of groundwater with institutional controls. In the event that the monitoring data indicate that monitored natural attenuation of groundwater is no longer effective in remediating the groundwater contaminants at the site, groundwater pumping and treatment with discharge to the sanitary sewer and institutional controls will be implemented as a contingency remedy. Monitored natural attenuation has been effective to this point so there has been no need to contemplate implementation of the contingency remedy.

The site was listed on the National Priorities List (NPL) on December 16, 1994. The trigger for this five-year review was the start of the Remedial Action (RA) on January 8, 2003.

The determination that has been made during this five-year review is that the remedy continues to function as designed. The immediate threats have been addressed. The remedy at the Mason City Coal Gasification Plant site is protective of human health and the environment in the short term because there is no evidence of current exposure. The remedy will be fully protective when the recommendations made in this Five-Year Review Report have been implemented.

## Five-Year Review Summary Form

### SITE IDENTIFICATION

**Site name *(from WasteLAN)*:** Mason City Coal Gasification Plant Site

**EPA ID *(from WasteLAN)*:** IAD980969190

| **Region:** VII | **State:** IA | **City/County:** Mason City/Cerro Gordo County |
|---|---|---|

### SITE STATUS

**NPL status:** X Final □ Deleted □ Other (specify)

**Remediation status** (choose all that apply): X Under Construction X Operating □ Complete

| **Multiple OUs?*** □ YES X NO | **Construction completion date:** Not construction complete |
|---|---|

**Has site been put into reuse?** □ YES X NO

### REVIEW STATUS

**Lead agency:** X EPA □State □ Tribe □ Other Federal Agency

**Author name:** Diana Engeman

| **Author title:** Remedial Project Manager | **Author affiliation:** U.S. EPA – Region VII |
|---|---|

**Review period:**** 9/19/2007 to 3/26/2008

**Date(s) of site inspection:** 11/6/2007

**Type of review:**
X Post-SARA □ Pre-SARA □ NPL-Removal only
□ Non-NPL Remedial Action Site □ NPL State/Tribe-lead
□ Regional Discretion)

**Review number:** X 1 (first) □ 2 (second) □ 3 (third) □ Other (specify)

**Triggering action:**
□ Actual RA On-site Construction at OU #___ X Actual RA Start at OU# 01
□ Construction Completion □ Previous Five-Year Review Report
□Other (specify) Remedial action start

**Triggering action date *(from WasteLAN)*:** 1/8/2003

**Due date *(five years after triggering action date)*:** 1/8/2008

* OU refers to operable unit.
** Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.

## Five-Year Review Summary Form, cont'd.

**Issues:**
The cleanup level for dibenz(a,h)anthracene in groundwater exceeds the excess individual lifetime cancer risk of $1x10^{-4}$.

No cleanup level has been determined for naphthalene in groundwater.

No cleanup level has been determined for 2-methylnaphthalene in groundwater.

The current Environmental Covenant may not be protective if a building were constructed on site.

**Recommendations and Follow-up Actions:**
Determine whether a lower detection limit within the acceptable risk range is achievable and if so implement a revised cleanup level for dibenz(a,h)anthracene.

Establish a risk-based cleanup level for naphthalene.

Establish a risk-based cleanup level for 2-methylnaphthalene.

Modify the Environmental Covenant to ensure vapor intrusion does not present a health risk in the future.

**Protectiveness Statement:**
The remedy at the Mason City Coal Gasification Plant site is protective of human health and the environment in the short-term because there is no evidence of current exposure. The remedy will be fully protective when the recommendations made in this Five-Year Review Report have been

# Five-Year Review Report

## 1.0 Introduction

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in the Five-Year Review Reports. In addition, the Five-Year Review Reports identify issues found during the review, if any, and give recommendations to address them.

The Agency is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 121(c) and the National Contingency Plan (NCP). CERCLA § 121(c) states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The Agency interpreted this requirement further in the NCP; 40 CFR § 300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The United States Environmental Protection Agency (EPA) Region VII has conducted a five-year review of the RAs implemented at the Mason City Coal Gasification Plant Site (Site) in Mason City, Iowa. This review was conducted from September 2007 through March 26 2008. This report documents the results of the review.

This is the first five-year review for the Site. The triggering action for this review is the start of the RA, as shown in EPA's WasteLAN database: January 8, 2003. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain on the Site above levels that allow for unlimited use and unrestricted exposure.

# 2.0 Site Chronology

**Table 2-1**
**Chronology of Site Events**

| EVENT | Date |
|---|---|
| Initial discovery of contamination | 3/1985 |
| Final listing on National Priorities List (NPL) | 12/16/1994 |
| Removal action conducted | 1995-1997 |
| Remedial Investigation/Feasibility Study conducted | 1991-2000 |
| Proposed Plan available for public comment | 7/24/2000 |
| Record of Decision (ROD) signed | 9/19/2000 |
| Consent Decree (CD) for Remedial Design/Remedial Action (RD/RA) finalized | 7/29/2002 |
| Remedial design (RD) completed and remedial action (RA) began | 1/8/2003 |

# 3.0 Background

## 3.1 Physical Characteristics

The Site is located near the center of Mason City, Iowa. The Site is bounded on three sides by city streets: South Pennsylvania Avenue to the east, 5th Street Southeast to the south, and South Delaware Avenue to the west. The northern edge of the Site is bounded by Willow Creek. Willow Creek flows east past the Site and over a low-head dam at the downstream end of the Site. A map of the Site, including the location of monitoring wells, is shown in Attachment A.

## 3.2 Land and Resource Use

The majority of the Site is owned by Alliant Energy Corporation (Alliant). A narrow strip of land on the north side of the Site, adjacent Willow Creek, is owned by the city of Mason City and is the location of a sanitary sewer line. Currently the Site is fenced and is accessible through a locked gate. It is approximately two acres in size and is essentially vacant except for a power substation that occupies the southwest portion of the Site and a small garage on the western edge of the Site. Alliant sometimes parks vehicles or stores equipment on the property. The public does not have access to the Site.

Immediately surrounding the Site on three sides are city streets, as described in the previous section. Willow Creek runs along the north boundary of the Site, with north and south banks that consist of concrete retaining walls. On the opposite side of Willow Creek, to the north of the Site, is a city park. The property directly to the west of the Site is a vacant gravel lot used for parking. The other surrounding properties are retail businesses and residences. It is possible that there will be further commercial and residential development in areas outside of the Site area.

Surface water from the Site flows into Willow Creek. The level of Willow Creek is controlled by a low-head dam at the downstream boundary of the Site where South Pennsylvania Avenue passes over the creek. The dam is typically in the down position but is raised and lowered throughout the year. Willow Creek enters the Winnebago River approximately 2.25 miles downstream of the Site. The Winnebago River is used for recreational fishing. It is not anticipated that this use will change.

A number of domestic, industrial, and municipal wells were identified in an area approximately 1.3 miles upgradient to 0.75 miles downgradient of the Site. None of these wells are within the plume of contamination or are immediately threatened by the plume.

### 3.3 History of Contamination

Beginning in the early 1900's, the Site was occupied by a manufactured gas plant which generated "town gas" for lighting and heating purposes in the Mason City area. Following the availability of natural gas, the plant was decommissioned and subsequently demolished. Residues from the gas manufacturing processes, commonly referred to as coal tar, were left on-site and resulted in soil and groundwater contamination. In June 1984 the city began excavation on the Site for the installation of a new sewer line. During this excavation, coal tar was discovered in the subsurface soil and in subsurface structures. Approximately 1,000 to 1,500 gallons of coal tar was mixed with inert material such as sand and deposited in an above-ground waste pile on-site awaiting disposal. Disposal of the waste pile is described in Section 3.4.

The contaminants usually associated with the production of manufactured gas include a group of semivolatile compounds referred to as polynuclear aromatic hydrocarbons (PAHs). Other contaminants usually found at manufactured gas plant Site include benzene, toluene, ethylbenzene, and xylenes (BTEX). Some forms of cyanide, arsenic, acid-extractable organic compounds, such as phenolic compounds, and metals may also be found.

### 3.4 Initial Response

Following discovery of coal tar during the installation of a new sewer line, Interstate Power Company (Interstate), currently known as Alliant, entered into an Administrative Order on Consent (AOC) with EPA. As a result of this AOC, Interstate conducted three phases of field investigation and preliminary assessment of the Site.

On October 1, 1991, Interstate entered into another Administrative Order on Consent with EPA to conduct a Remedial Investigation and Feasibility Study (RI/FS) at the Site. The goals of the RI/FS were to complete the investigation into the extent of soil and groundwater contamination at the Site and to determine an appropriate remedy or remedies.

The RI for the Site was conducted using a phased approach. Prior to the beginning of the RI, three phases of field investigation and preliminary assessment were conducted by Interstate. The RI field investigation occurred in 1992. The results of this investigation were reported in the RI Report dated August 1993. It was determined that additional investigation would be necessary to fill data gaps. Additional field investigations were conducted beginning in November 1993 and concluding in August 1994. The results of these investigations were reported in the RI Addendum Report dated September 1994.

The Site was placed on the NPL in December 1994.

Following completion of the RI/FS, a decision was made by EPA that a non-time-critical removal action should be performed to address the contaminated soil and waste pile, which were source materials. A Removal Action Decision Document (RADD) was signed by EPA on March 20, 1995.

In order to accelerate the clean up of the source area, on July 20, 1995, Interstate; Kansas City Power & Light Company (KCPL); the city of Mason City, Iowa; Bob McKiness Grading & Excavating, Inc.; and EPA entered into an Administrative Order on Consent to conduct a Removal Action.

The removal actions implemented at the Site included the following:

- excavation of soil exceeding risk-based action levels;
- off-site treatment by thermal desorption of soil and waste pile materials to below risk-based action levels;
- placement of treated soil back into the area of excavation; and
- groundwater monitoring.

Excavation and treatment of contaminated soil and waste pile materials were completed in 1996. Over 21,000 tons of contaminated materials were thermally treated and the treated soil replaced into the area of excavation. During the soil removal action there were limited areas identified where the levels of contamination exceeded the action levels but the soil was inaccessible for excavation. These areas were near the base of the power substation, beneath the sewer line that traverses the Site, and beneath some subsurface concrete structures in the northwest corner of the Site. The removal action is fully described in the Removal Action Report dated April 1997 and Technical Memorandum 14.

Semiannual groundwater monitoring was conducted for two years following the completion of the soil removal to assess the impact of the removal of the source material on groundwater contamination levels and to evaluate the potential for intrinsic biodegradation of the contaminants in groundwater. The evaluation of intrinsic bioremediation at the Site is discussed fully in Technical Memorandum 15, dated October 12, 1999.

EPA issued a Proposed Plan for the Site on July 19, 2000. A 30 day public comment period occurred from July 24 to August 22, 2000. A public meeting was held on July 31, 2000, at the Mason City Public Library in Mason City, Iowa, to present the Proposed Plan and solicit comments from the public. The ROD, including the response to comments received from the public, and was signed on September 19, 2000.

### 3.5 Basis for Taking Action

Following completion of the removal action, the only exposure pathways which continued to pose potential risks were those involving exposure to groundwater, sediment, and fish in Willow Creek. The contaminants of concern in groundwater include BTEX, PAHs, and lead. The contaminants of concern in sediment are PAHs. There are 16 PAH compounds which were analyzed throughout the course of the investigations at this Site. Seven of these compounds are considered by EPA to be probable human carcinogens. While the individual concentrations of each of these compounds has been reported for each sample analyzed, generally, PAH concentrations for a given sampling location were also reported as "total PAH concentration" or "total carcinogenic PAH concentration." The value reported for the total PAH concentration is the sum of the concentrations for each of the 16 PAHs. The value reported for the total carcinogenic PAH concentration is the sum of the concentrations for each of the seven carcinogenic PAHs. The carcinogenic PAHs are benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, and indeno(1,2,3-c,d)pyrene.

The baseline risk assessment was prepared prior to completion of the non-time-critical removal action. Four "reasonable maximum exposure" (RME) scenarios were developed during the risk assessment, and the exposure media for each of these scenarios are as follows:

**RME Scenario 1**
Current land use for a child trespasser on the Site who is also a recreational user of Willow Creek

- Ingestion of contaminants in surface soil, subsurface soil (trenches), the waste pile, and Willow Creek sediment
- Inhalation of contaminants in surface soil, subsurface soil (trenches), and the waste pile
- Dermal absorption of contaminants in surface soil, subsurface soil (trenches), and the waste pile

**RME Scenario 2**
Current land use for an on-site worker (adult) who is also a recreational user of Willow Creek

- Ingestion of contaminants in surface soil and Willow Creek sediment
- Inhalation of contaminants from surface soil
- Dermal absorption of contaminants in surface soil
- Ingestion of fish from Willow Creek

**RME Scenario 3**
Future land use for a child trespasser on the Site who is also an off-site resident and recreational user of Willow Creek

- Ingestion of contaminants in surface soil, subsurface soil (trenches), the waste pile, Willow Creek sediment, and groundwater
- Inhalation of contaminants in surface soil, subsurface soil (trenches), the waste pile, and groundwater
- Dermal absorption of contaminants in surface soil, subsurface soil (trenches), the waste pile, and groundwater

**RME Scenario 4**
Future on-site construction worker (adult) who is also an off-site resident and recreational user of Willow Creek

- Ingestion of contaminants in surface soil, subsurface soil, the waste pile, Willow Creek sediment, and groundwater
- Inhalation of contaminants in surface soil, subsurface soil, the waste pile, and groundwater
- Dermal absorption of contaminants in surface soil, subsurface soil, the waste pile, and groundwater
- Ingestion of fish from Willow Creek

Due to the implementation of the removal action, the only exposure pathways which were still considered viable by EPA at the time of the ROD, were those involving exposure to groundwater as well as sediment and fish in Willow Creek.

**Excess Cancer Risks for RME Scenarios**

| | Cancer Risk | |
|---|---|---|
| RME | Pre-Removal | Post-Removal |
| RME Scenario 1 | $7.2 \times 10^{-3}$ | $1.3 \times 10^{-6}$ |
| RME Scenario 2 | $7.4 \times 10^{-6}$ | $1.1 \times 10^{-7}$ |
| RME Scenario 3 | $8.9 \times 10^{-3}$ | $1.7 \times 10^{-3}$ |
| RME Scenario 4 | $8.0 \times 10^{-3}$ | $8.0 \times 10^{-3}$ |

The post-removal RME Scenarios 3 and 4 presented unacceptable levels of cancer risk. At the time the ROD was signed, none of the RME Scenarios presented an unacceptable level of noncancer risk.

The baseline risk assessment also includes an Ecological Risk Assessment (ERA). Although potential ecological risks were identified for organisms living in Willow Creek, the uncertainties of any such risks were high due to the limited amount of data collected from the creek and the number of other sources of the same contaminants that may be entering Willow Creek on a continuing basis via runoff and storm sewers emptying into the creek upstream of the Site. Since it was determined that site contaminants entering the creek from upstream sources were at higher levels than the levels measured adjacent to the Site, it was determined that no further ecological assessment would be conducted and no ecological targets were identified.

# 4.0 Remedial Actions

## 4.1 Remedy Selection

The ROD for the Site was signed by the Division Director of the Superfund Division of EPA Region VII on September 19, 2000. Remedial Action Objectives (RAOs) were developed during the Feasibility Study (FS) utilizing data collected during the RI to aid in the development and screening of remedial alternatives that were considered for the ROD. The RAOs for this action are to prevent exposure to groundwater containing contaminants that represent an unacceptable risk to human health or the environment, to limit or prevent the migration of the contaminated groundwater plume, to restore the groundwater to drinking water quality, and to maintain site conditions which prevent exposure to residual soil contaminants that could pose an unacceptable risk to human health or the environment.

The RAO for groundwater which is protective of human health and the environment involves the prevention of ingestion or direct contact with groundwater having an unacceptable level of carcinogenic risk. The action levels for groundwater were determined based upon the following hierarchy: (1) the maximum contaminant level (MCL) pursuant to the Safe Drinking Water Act for the contaminant when an MCL is available; (2) for contaminants without an MCL, the action level was calculated based on an excess lifetime cancer risk of $1 \times 10^{-6}$; and (3) when the calculated risk-based action level is below the laboratory detection limit, the detection limit is used as the action level, provided it falls within the acceptable cancer risk range of $1 \times 10^{-4}$ to $1 \times 10^{-6}$. EPA's MCLs, pursuant to the Safe Drinking Water Act for public water supplies are identified as Applicable or Relevant and Appropriate Requirements (ARARs) for this Site. The MCLs represent levels which are considered safe for human consumption. There are MCLs for two of the contaminants of concern at this Site, benzene and benzo(a)pyrene, and they are 5 µg/L and 0.2 µg/L, respectively. There are no MCLs for the other carcinogenic PAHs. The action levels for the compounds other than benzene and benzo(a)pyrene were developed using the process described above. The action levels for those contaminants were based upon the detection limits that can be detected in a groundwater sample using available analytical methods and represent a lifetime cancer risk of $1 \times 10^{-5}$ to $8 \times 10^{-5}$, which are within the acceptable cancer risk range and are protective of human health.

**Groundwater Cleanup Levels**
**in µg/L**

| Contaminant | |
|---|---|
| Benzene | 5.0 |
| Benzo(a)pyrene | 0.2 |
| Benzo(k)fluoranthene | 0.2 |
| Benzo(a)anthracene | 0.1 |
| Chrysene | 0.2 |
| Benzo(b)fluoranthene | 0.2 |
| Indeno(1,2,3-c,d)pyrene | 0.4 |
| Dibenz(a,h)anthracene | 0.3 |

The RAO for soil which is protective of human health and the environment involves the prevention or minimization of direct contact exposures (inhalation, dermal contact, ingestion, etc.) with soil having a carcinogenic risk in excess of $10^{-6}$ or a hazard index for noncarcinogens greater than 1.0. Specific soil clean-up criteria were not established for this Site because the removal action has eliminated exposure to soil which exceeds the threshold for carcinogenic or noncarcinogenic risk when the property is used for purposes other than residential use.

The selected remedy for the Site was monitored natural attenuation of groundwater with institutional controls. In the event that the monitoring data indicate that monitored natural attenuation of groundwater is no longer effective in remediating the groundwater contaminants at the Site, groundwater pumping and treatment with discharge to the sanitary sewer and institutional controls will be implemented as a contingency remedy.

### 4.2 Remedy Implementation

In a CD entered into with the United States on July 29, 2002, Alliant and KCPL agreed to perform the RD/RA and pay EPA oversight costs associated with the cleanup of the Site. The Remedial Design (RD) was conducted in conformance with the ROD. The RD was approved by EPA on January 8, 2003.

The major components of the RA, as stated in the ROD, include the following:

- Implementation of an institutional control in the form of restrictions on the Site property which will prohibit future residential development; prohibit the construction of basements in any nonresidential buildings which might be constructed on the Site in the future; and prohibit the installation of any water supply wells on the Site which might be used for municipal, industrial, or domestic purposes.

- Continued listing of the Site on the Registry of Hazardous Waste or Hazardous Substance Disposal Sites pursuant to Iowa Administrative Code 455B.426. According to Iowa Administrative Code 148.6(5), written approval of the director of the Iowa Department of Natural Resources (IDNR) is required prior to any substantial change in the use of the listed site. In addition, written approval is also required to sell, convey, or transfer title of the listed site.

- The development and implementation of a groundwater monitoring and maintenance plan. This plan includes the details for groundwater sampling, analysis, and the inspection of selected wells identified in the areas of contamination and downgradient from contaminated zones. Additional monitoring wells may need to be installed in the future, in the event that the network of monitoring wells which already exist for this Site no longer provide the information necessary to determine whether the remedy continues to be protective. Groundwater monitoring will be conducted at a minimum frequency of twice per year for the first five years and no less than annually until the clean-up levels have been met.

The ROD and CD state that EPA will consider natural attenuation to be occurring at this Site in an acceptable manner and rate if:

- An examination of the groundwater chemistry identifies conditions that are favorable for the occurrence of biodegradation.

- A reduction in the concentrations of PAHs and BTEX along the flow path downgradient of the former source area occurs.

- Monitoring and modeling results indicate that natural attenuation is occurring at a rate sufficient to prevent the spread of the contaminant plume.

If these conditions were not being met the Contingency Remedy would be implemented.

A Declaration of Restrictive Covenants for the Site was recorded by the Cerro Gordo County Recorder on August 27, 2003, which included the following use restrictions:

- Unless approved in writing by EPA, groundwater underlying the Property shall not be utilized for municipal, domestic, or industrial purposes. This excludes the installation of additional or replacement monitoring wells, or wells constructed for the purposes of pumping and treating the groundwater, if determined necessary by EPA.

- Unless approved in writing by EPA, the Property shall not be used for residential purposes.

- Unless approved in writing by EPA, buildings utilized for the purpose of industrial or commercial uses on the property shall not contain a basement.

This Restrictive Covenant remains in effect for the Site. In addition to the Restrictive Covenant, the Site continues to be listed on the State of Iowa Registry of Hazardous Waste or Hazardous Substance Disposal Sites.

Following EPA approval of the RD, quarterly groundwater monitoring began in March 2003 and has been conducted every quarter since that time. It has not been necessary to install

any additional monitoring wells. The groundwater monitoring results have been reported in quarterly Technical Memoranda submitted to EPA. Annual Progress Reports for 2003, 2004, 2005, and 2006 have been reviewed for this five-year review. These reports include a summary of all field activities conducted at the Site during the year, all groundwater monitoring data since the beginning of the RA as well as one round of groundwater monitoring data collected prior to the removal of the contaminated soil and source material, and natural attenuation modeling and trend analysis. The natural attenuation modeling and trend analysis is conducted annually to determine the efficacy of the remedy.

### 4.3 System Operations/Operation and Maintenance

Alliant has conducted quarterly groundwater and surface water monitoring since March 2003. During each sampling event, water levels in the monitoring wells and Willow Creek are measured so that groundwater flow direction may be determined. Wells are sampled in two zones, the water table and what is referred to as the intermediate zone. Groundwater monitoring results for water table and intermediate zones are presented in Attachments C and D, respectively. Surface water monitoring results for Willow Creek are presented in Attachment E.

Groundwater samples are collected from ten water table wells and three intermediate zone wells. They are analyzed for benzene and PAHs. Analysis for lead was also performed through March 2005 when it was determined that the elevated levels of lead that had been detected in some samples during the RI were the result of the sample collection method utilized rather than the result of contamination from the Site. Samples from all of these monitoring wells are also analyzed for several parameters that are used to determine the effectiveness of natural attenuation as a remedy. Surface water samples are collected from Willow Creek during each sampling event and analyzed for the same contaminants and natural attenuation parameters as the groundwater samples.

Each monitoring event also included a visual inspection of the Site surface, vegetation, fencing, and monitoring wells. No areas of stressed ground cover vegetation were noted, and the Site fencing appeared to be in good condition. Similarly, the monitoring well surface completions continue to be in good condition and the wells secure.

Annually, the data collected from the Site is used to determine whether natural attenuation continues to be an effective remedy to address groundwater contamination at the Site. Natural attenuation modeling is conducted for the wells along the primary flow path (MW-23R to MW-37 to MW-4) using BIOSCREEN Natural Attenuation Decision Support System (Bioscreen®) software. Bioscreen® is a public domain, Excel-based screening model developed to estimate the effect natural attenuation is having on the contaminant plume. To identify trends of increasing, decreasing, or stable concentrations, the results from all the quarterly monitoring events are subjected to a Mann-Kendall statistical trend analysis using an electronic spreadsheet developed by the Indiana Department of Environmental Management. This identifies whether the contaminant concentrations at each sampling location are increasing, decreasing, or indicative of no trend. This is one other tool used to determine the effectiveness of natural attenuation.

The estimate in the ROD for Operation and Maintenance (O&M) costs during the first five years of operation was approximately $53,200 per year. The actual O&M costs for the past five years, shown in Table 4-1, were provided by Alliant. The O&M cost estimate in the ROD after the fifth year of operation is $26,600. This was based on an assumption that the frequency of groundwater sampling would be reduced from the quarterly sampling required during the first five years of the RA.

The O&M costs reported for the first five years of operation are significantly higher than those estimated in the ROD. This is primarily due to the fact that the cost estimate in the ROD was based on semiannual groundwater sampling during the first five years of operation rather than the quarterly sampling that has taken place. It is anticipated that the average annual O&M costs will be significantly reduced during the next five years as it is expected that the sampling frequency will be reduced.

**Table 4-1**
**Annual Operation and Maintenance Costs**

| Year | Total Cost |
|---|---|
| 2003 | $ 37,027 |
| 2004 | 64,694 |
| 2005 | 100,539 |
| 2006 | 111,539 |
| 2007 | 90,365 |

## 5.0 Progress Since the Last Review

This is the first five-year review for this site.

## 6.0 Five-Year Review Process

### 6.1 Administrative Components

Alliant and KCPL were notified of the initiation of the five-year review on September 19, 2007. The five-year review was conducted by Diana Engeman, EPA Remedial Project Manager for the Site, with assistance by other members of the regional technical staff including a regional toxicologist. Dan Cook of the IDNR and Stuart Schmitz of the Iowa Department of Public Health assisted in the review as representatives of support agencies.

## 6.2 Community Involvement

On November 1, 2007, a notice was placed in the *Mason City Globe Gazette* that a five-year review was to be conducted and provided information on how to contact EPA to provide input. A letter stating the same, as well as a history of the Site, was sent to elected officials, members of the media, and community members. The letter invited the recipients to submit any comments they might have to EPA. No comments have been received. On November 5 and 6, 2007, a community interviews with the City Administrator and surrounding business owners were conducted by EPA Remedial Project Manager and the Community Involvement Coordinator. None of the people interviewed expressed any concerns or issues related to the Site.

Soon after approval of this Five-Year Review Report, a notice will be placed in the same local newspaper announcing that the Report is complete, and that it is available to the public at the Mason City Public Library in Mason City, Iowa, and EPA Region VII office.

## 6.3 Document Review

This five-year review consisted of a review of relevant documents including Technical Memoranda and Annual Progress Reports (see Attachment B).

## 6.4 Data Review and Evaluation

The plans for execution of the RA are thoroughly described in the RD Report. This RD includes plans for site inspection and maintenance, groundwater and surface water monitoring, and aquifer modeling. The Site map, Attachment A, shows the location of each of the monitoring wells as well as other features of the Site.

Site Inspection and Maintenance

Each quarter, at the time groundwater sampling occurred, a visual inspection of the Site surface, vegetation, fencing, and monitoring wells was conducted. During the past five years the monitoring wells have remained in good condition and secured. There have not been problems with soil erosion or maintaining a good vegetative cover. There has been some landscaping of the Site including small berms, shrubs, and native grasses. Alliant continues to fence the entire Site. The company still uses a garage on the property and stores a small amount of equipment there as well. A power substation continues to operate in the southwest corner of the property.

Groundwater and Surface Water Monitoring

Groundwater monitoring of the water table and intermediate zone wells and surface water in Willow Creek has been conducted quarterly since March 2003. This has generally taken place in March, June, September, and December of each year. During each of these sampling events water levels were measured in each of the monitoring wells as well as in the creek so that the direction of groundwater flow could be determined. The groundwater flow direction has been fairly consistent but is influenced at the water table by the position of the low-head dam in Willow Creek. The dam has only two positions, up and down. It has been noted during each

sampling event what the position of the dam was at that time. Generally, the dam is up during March and December and down during June and September. The only exception to that during the past five years is that the dam was up in September 2003. At the shallow water table aquifer, groundwater enters the Site from the southwest and moves across the Site in the same direction. During the sampling events when the dam is in the "up" position, groundwater also moves around the western end of the retaining wall along Willow Creek to enter the Site. Water levels in the intermediate zone wells indicate flow is generally to the west and are unaffected by the position of the dam.

During each sampling event, each of the monitoring wells and surface water from Willow Creek are sampled for benzene and all 16 of the PAHs. Through March 2005, samples were also collected for lead analysis. Groundwater and surface water is also sampled for natural attenuation parameter. The natural attenuation parameters include field-measured parameters including potential of hydrogen (pH), oxygen-reduction potential, and dissolved oxygen, and the laboratory-measured parameters listed in Attachment F. The analytical results of each of these sampling events have been documented in Technical Memoranda 18 through 31 and Annual Progress Reports for 2003, 2004, 2005, and 2006. The Annual Progress Report for 2007 may not be completed until shortly after this five-year review is completed but the quarterly monitoring results for the first three quarters of 2007 were included in this review.

There are ten water table aquifer wells that have been sampled quarterly since March 2003. Groundwater from five of these wells, MW-3R, MW-13, MW-21, MW-36, and MW-37, has not exceeded any action level during the past five years. MW-2R consistently has elevated levels of benzene and intermittent exceedances for benzo(a)anthracene. This well is in a known source area where it was not possible to excavate all of the contaminated soil. MW-14R and MW-23 have intermittent exceedances for benzene and some PAHs. These wells are also in former source areas. MW-6 exceeded the MCL for benzene during March 2005 and 2006. To verify the March 2006 benzene results, the well was resampled for Volatile Organic Compounds (VOCs) and PAHs. The second sampling had similar benzene results and detectable levels of other VOCs, not necessarily related to the Site. During 2004, landscape timbers and fill soil were placed around MW-6 to create a berm. Samples were collected of these timbers. Results of this sampling indicated that some of the VOCs may have been the result of leaching from the timbers. However, benzene was not detected in the timber sample and is more likely present from the Site as it has been present in MW-6 when the dam in Willow Creek is in the "up" position, causing groundwater to move in the direction of this well. There have been no additional detections of any contaminants in MW-6 since March 2006.

There are three intermediate zone wells that have been sampled quarterly since March 2003. They are MW-8, MW-22, and MW-38. There have been no exceedances of any action level in MW-22. MW-8 had one slight exceedance of the MCL for benzene in June 2006. Other than that no other action level has exceeded. MW-38 contains Dense, Nonaqueous Phase Liquid (DNAPL) so therefore is very heavily contaminated. It is believed that this well intersects a fracture in the bedrock where coal tar has become lodged, and is hydraulically connected to the water table aquifer.

A cleanup level for lead in groundwater was not established in the ROD because it had not been determined whether elevated levels of lead found in two wells, MW-13 and MW-14, were representative of site-related contamination that posed an unacceptable level of risk to human health. All of the monitoring wells were sampled for lead from March 2003 through March 2005 using a collection method that reduced the amount of turbidity of the samples. This was believed to be more representative of water that someone might drink than the more turbid samples that were collected during the RI. Utilizing the improved sample collection method none of the wells exhibited elevated levels of lead. Following the March 2005 sampling event EPA removed the requirement to analyze the samples for lead.

Evaluation of Effectiveness of MNA

The Bioscreen® modeling shows that concentrations of the compounds of concern appear to be degrading at a rate approximated by a first-order decay scenario. The results of the modeling have been consistent throughout the past five years and support the inference that natural attenuation is occurring at the Site at a predictable rate.

Statistical trend analysis of the data for the past 16 quarters of monitoring indicates stable conditions with no distinct trends. The only exception is total BTEX at MW-23R where an increasing trend was reported. However, it is suspected this trend is a result of the Willow Creek dam being in the "up" position during more of the sampling events over the last two years and under "dam up" flow conditions, the concentrations reported are higher.

Based on the analytical and modeling results, the extent and magnitude of groundwater impacts at the Site appear to be stable and provide evidence that natural attenuation processes are at work. Therefore, Monitored Natural Attenuation (MNA) is effective in controlling potential exposure and migration of residual site impacts.

Institutional Controls

The Declaration of Restrictive Covenants for the Site was recorded on August 27, 2003, and remains in effect. This Covenant continues to function as an effective element of the remedy for this Site. The Site continues to be listed on the state of Iowa Registry of Hazardous Waste or Hazardous Substance Disposal Sites, providing an additional layer of control over future use of the property.

## 6.5 Site Inspection

An inspection of the Site was conducted on November 6, 2007, by EPA Remedial Project Manager. The purpose of the inspection was to assess the protectiveness of the remedy, including the condition of the monitoring wells and compliance with the Restrictive Covenant. Dean Hargens, Senior Environmental Engineer for Alliant, was also present for the inspection.

The Site was fenced on all sides and the gate locked. These access restrictions are not a requirement of the remedy for the Site but are done by Alliant to prevent trespassing on their property. All monitoring wells were located and appeared to be locked and in good condition. Community members interviewed, including owners of three nearby businesses, reported no problems or concerns with the Site.

The Restrictive Covenant includes a requirement that the property shall not be used for residential purposes, which it is not. It also prohibits industrial or commercial buildings with a basement. The only building on the Site is a garage, without a basement, which was there before any environmental activities at the Site took place. The Covenant prohibits utilization of groundwater underlying the property for municipal, domestic, or industrial purposes. There is no evidence that any such uses are occurring. No activities were observed that would violate the activity and use limitations of the Restrictive Covenant.

## 7.0 Technical Assessment

### 7.1 Question A: Is the remedy functioning as intended by the decision documents?

The review of Site documents, ARARs, risk assumptions, and the results of the Site inspection indicate that the remedy is continuing to function as intended by the ROD. The soil removal action eliminated exposure to contaminated soil and minimized the ongoing contribution to groundwater contamination. The groundwater monitoring and evaluation of the natural attenuation process demonstrate that natural attenuation is occurring at this Site in an acceptable manner and rate, consistent with the three criteria established in the ROD and CD. These criteria are as follows:

- An examination of the groundwater chemistry identifies conditions that are favorable for the occurrence of biodegradation.

- A reduction in the concentrations of PAHs and BTEX along the flow path downgradient of the former source area occurs.

- Monitoring and modeling results indicate that natural attenuation is occurring at a rate sufficient to prevent the spread of the contaminant plume.

Monitored natural attenuation is limiting the migration of the contaminated groundwater plume while slowly restoring groundwater to levels that do not pose an unacceptable level of risk. During the time when contaminant levels in the groundwater exceed the action levels the effective implementation of the Restrictive Covenant and listing on the State Registry prevent exposure to contaminated groundwater.

Necessary maintenance has been performed and appears to be effective. During the past five years the costs have exceeded the estimate in the ROD primarily because groundwater sampling occurred twice as frequently as was assumed for the ROD cost estimate. It is anticipated that the sampling frequency will decrease during the next five years and the costs will decrease significantly as well.

The Restrictive Covenant that is in place on the Site includes a requirement that there not be any residential use, buildings with basements, or utilization of the groundwater. No activities were observed that violate these restrictions.

### 7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of remedy selection still valid?

Changes in Standards and To Be Considered Values

Only groundwater cleanup levels were established for the Site because contaminated soil and waste pile materials were excavated and treated in all areas exceeding risk-based action levels for commercial/industrial use, except in limited areas where the soil was inaccessible. The groundwater cleanup levels for benzene and benzo(a)pyrene are based on the Federal MCL. The cleanup levels for the remaining polynuclear aromatic hydrocarbons (PAHs) were originally derived based on an excess individual lifetime cancer risk of $1 \times 10^{-6}$. However, available analytical methods could not achieve these concentrations and the final cleanup levels are based on the minimum laboratory detection limit, which were all within EPA's target cancer risk range of $10^{-6}$ to $10^{-4}$.

In 2005 EPA published the revised "Guidelines for Carcinogen Risk Assessment" and the "Supplemental Guidance for Assessment Susceptibility from Early-Life Exposure to Carcinogens," which impacts the cancer risk estimates for the PAHs. This was well after the ROD for this Site was issued in 2000. The Supplemental Guidance provides generic age-dependent adjustment factors (ADAFs) for use when estimating cancer risks from early-life exposures for carcinogens that have a mutagenic mode of action, such as benzo(a)pyrene. Therefore for this review, the groundwater cleanup levels from the ROD were compared to the EPA Region VI Human Health Medium-Specific Screening Levels (MSSLs) because they incorporate the generic ADAFs for benzo(a)pyrene and the remaining carcinogenic PAHs. All cleanup levels are within the target cancer risk range, except for dibenz(a,h)anthracene, which is slightly greater than an excess individual lifetime cancer risk of $1 \times 10^{-4}$.

**Groundwater Cleanup Levels for Carcinogenic PAHs**

| Contaminant | Site Cleanup Level (µg/L) | Region 6 MSSL (µg/L) | Cleanup Level Cancer Risk |
|---|---|---|---|
| Benzo(a)pyrene | 0.2 | 0.0029 | 7E-05 |
| Benzo(k)fluoranthene | 0.2 | 0.29 | 7E-07 |
| Benzo(a)anthracene | 0.1 | 0.029 | 3E-06 |
| Chrysene | 0.2 | 2.9 | 7E-08 |
| Benzo(b)fluoranthene | 0.2 | 0.029 | 7E-06 |
| Indeno(1,2,3-cd)pyrene | 0.4 | 0.029 | 1E-05 |
| Dibenz(a,h)anthracene | 0.3 | 0.0029 | 1E-04 |

There are no newly promulgated standards for groundwater contaminants at this Site that call into question the protectiveness of the remedy. To be considered, values were not used in selecting cleanup levels for this Site.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. There have been no changes in the land use assumptions that would affect the protectiveness of the remedy. As discussed below under Question C, subsurface vapor intrusion has been identified as an additional potential future exposure pathway.

There is no reason to believe that any new contaminants or contaminant sources exist at the Site. There are no known toxic byproducts of the remedy at the Site. Intrinsic bioremediation of the Site contaminants has been demonstrated to result in nonhazardous byproducts.

There have been changes in the toxicity factors for contaminants of concern at the Site that could affect the protectiveness of the remedy. The oral reference dose for naphthalene has been revised from 0.04 to 0.02 mg/kg/day since the ROD was issued. Also, an inhalation reference concentration is now available on EPA's Integrated Risk Information System (IRIS) for evaluating the potential health hazard for the inhalation route of exposure. Tables 5-1(a) and (a-1) of the Addendum to the Baseline Risk Assessment show a naphthalene Hazard Quotient (HQ) of 0.72 for an adult and 0.89 for a child resident ingesting groundwater at a concentration found in MW-23. If the HQs were recalculated using the current toxicity values for naphthalene, the values would exceed 1.0 or a level of concern. In addition, naphthalene was detected above a health-based screening level in several groundwater samples collected during the most recent sampling event. Thus, there is sufficient justification for now considering naphthalene a contaminant of concern in groundwater.

Even though 2-methylnaphthalene is a common PAH found at former manufactured gas plant sites, it was not identified as a chemical of potential concern (COPC) in the Baseline Risk Assessment because toxicity values were unavailable at that time. An oral reference dose is now available in IRIS for evaluating the potential noncancer health hazards of this contaminant. The most recent groundwater monitoring data show the presence of 2-methylnaphthalene at a concentration of 288 µg/L in MW-38, which is above a health-based screening level.

Toxicity values have also changed for benzene, as well as for several COPCs (e.g., arsenic, toluene, xylene, and vinyl chloride) evaluated in the human health risk assessment. However, these changes do not significantly change the risk assessment results and thus, do not impact the effectiveness of the remedy.

There are no additional changes to contaminant characteristics known at this time that could impact the protectiveness of the remedy.

Changes in Risk Assessment Methodologies

There have been changes in the standardized risk assessment methodologies since the ROD for this Site, but it has been determined that these changes do not affect the protectiveness of the remedy. It is now standard risk assessment practice in EPA Region VII to quantify the cancer risks from dermal contact with PAHs, which were not quantified in the Baseline Risk Assessment. EPA Region VII also uses a different approach when estimating the health risks from inhalation of VOCs during household use of contaminated groundwater (i.e., bathing, showering, cooking, etc.). Finally, several exposure assessment input parameters are slightly different than values currently used. These changes do not have a significant impact on the conclusions of the risk assessment and do not affect the protectiveness of the remedy.

Evaluation of RAOs

The response actions taken address the threats posed by this Site and continue to be protective through (1) the prevention of exposure to groundwater containing contaminants that represent an unacceptable risk to human health or the environment, to limit or prevent the migration of the contaminated groundwater plume, to restore the groundwater to drinking water quality; and (2) maintaining site conditions which prevent exposure to residual soil contaminants that could pose an unacceptable risk to human health or the environment. The RAOs continue to be appropriate for this Site and the remedy is progressing as expected toward achieving these objectives.

### 7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No ecological targets were identified during the Baseline Risk Assessment and none were identified during this five-year review, and therefore, monitoring of ecological targets is not necessary. No weather-related events have affected the protectiveness of the remedy.

The approach to evaluating the vapor intrusion pathway has changed since the Remedial Investigation and the Baseline Risk Assessment were conducted. While there is a Restrictive Covenant prohibiting basements in any future buildings constructed on the Site, a concrete slab will not eliminate the movement of benzene from groundwater into indoor air. A modification to the Restrictive Covenant may be necessary to ensure the remedy remains protective of human health.

**Technical Assessment Summary**

According to the data reviewed and the Site inspection, the remedy is functioning as intended by the ROD. There have been no changes to the physical conditions of the Site that would affect the protectiveness of the remedy.

During implementation of the remedy, Alliant has complied with all ARARs cited in the ROD and the ARARs have not changed. Since the groundwater cleanup levels were developed,

EPA has published revised "Guidelines for Carcinogen Risk Assessment" and the "Supplemental Guidance for Assessment Susceptibility from Early-Life Exposure to Carcinogens," which impacts the cancer risk estimates for the PAHs. The result of comparing the groundwater cleanup levels in the ROD with those that could be developed using the revised procedures are that all of the cleanup levels are within the target cancer risk range, except for dibenz(a,h)anthracene, which is slightly greater than an excess individual lifetime cancer risk of $1 \times 10^{-4}$. The current cleanup level for dibenz(a,h)anthracene was set at the minimum detection limit that was attainable at the time the FS was developed. It may be possible for a laboratory to attain a lower detection limit at this time.

The oral reference dose for naphthalene has changed and an inhalation reference dose is now available for evaluating the potential health hazard for the inhalation route of exposure. Recalculating the HQ for naphthalene results in a value greater than 1.0 which is a level of concern. Naphthalene in groundwater should be considered a contaminant of concern. Similarly, 2-methylnaphthalene was not identified as a COPC in the Baseline Risk Assessment because toxicity values were unavailable at that time. An oral reference dose is now available for evaluating the potential noncancer health hazards of 2-methylnaphthalene. Recent groundwater monitoring data indicates the presence of 2-methylnaphthalene at a concentration above a health-based screening level.

There have been changes to toxicity values but none that significantly change the risk assessment results and thus do not impact the effectiveness of the remedy. There also have been some changes in standardized risk assessment methodologies but none of these changes have a significant impact on the conclusions of the risk assessment and do not adversely impact the protectiveness of the remedy.

The vapor intrusion pathway for exposure to site contaminants was not evaluated using the current methodology prior to the ROD even though it was recognized that building a structure with a basement on the Site would need to be further evaluated prior to construction. The existing Environment Covenant may need to be modified to ensure that a building would not be constructed on the property in the future that would permit the contamination of indoor air with benzene moving from the groundwater on the Site. The garage currently on the property does not pose concerns because it is a garage with limited occupancy and significant ventilation from the outside.

It may be necessary to modify the ROD to document any change to the cleanup level for dibenz(a,h)anthracene in groundwater, implement cleanup levels for naphthalene and 2-methylnaphthalene in groundwater, and modify the Environmental Covenant.

# 8.0 Issues

**Table 8-1**
**Issues**

| Issues | Affects Current Protectiveness (Y/N) | Affects Future Protectiveness (Y/N) |
|---|---|---|
| Cleanup level for dibenz(a,h)anthracene in groundwater exceeds the excess individual lifetime cancer risk of $1x10^{-4}$ | Y | Y |
| No cleanup level has been determined for naphthalene in groundwater | Y | Y |
| No cleanup level has been determined for 2-methylnaphthalene in groundwater | Y | Y |
| Current Environmental Covenant may not be protective if building were constructed on-site | N | Y |

# 9.0 Recommendations and Follow-up Actions

For all of the recommendations and follow-up actions listed in Table 9-1, Alliant is the party responsible for implementing the actions and EPA is the oversight agency. The IDNR will be kept informed of activities at the Site.

**Table 9-1**
**Recommendations and Follow-up Actions**

| Issue | Recommendations and Follow-up Actions | Milestone Date | Affects Protectiveness (Y/N) | |
|---|---|---|---|---|
| | | | Current | Future |
| Cleanup level for dibenz(a,h)anthracene in groundwater exceeds the excess individual lifetime cancer risk of $1x10^{-4}$ | Determine whether a lower detection limit within the acceptable risk range is achievable and if so implement a revised cleanup level for dibenz(a,h)anthracene | 3/31/2009 | Y | Y |
| No cleanup level has been determined for naphthalene in groundwater | Establish a risk-based cleanup level for naphthalene | 3/31/2009 | Y | Y |
| No cleanup level has been determined for 2-methylnaphthalene in groundwater | Establish a risk-based cleanup level for 2-methylnaphthalene | 3/31/2009 | Y | Y |
| Current Environmental Covenant may not be protective if building were constructed on site in the future due to possible vapor intrusion | Modify Environmental Covenant to provide that any structures constructed on the property shall be engineered to address vapor intrusion from VOCs unless sufficient testing shall be performed prior to construction to satisfy the EPA and INDR that vapor intrusion will not present a health risk to building occupants | 3/31/2009 | N | Y |
| ROD may not include all appropriate groundwater action levels and all appropriate limitations on property use | Modify ROD to incorporate changes described above | 12/31/2009 | N | Y |

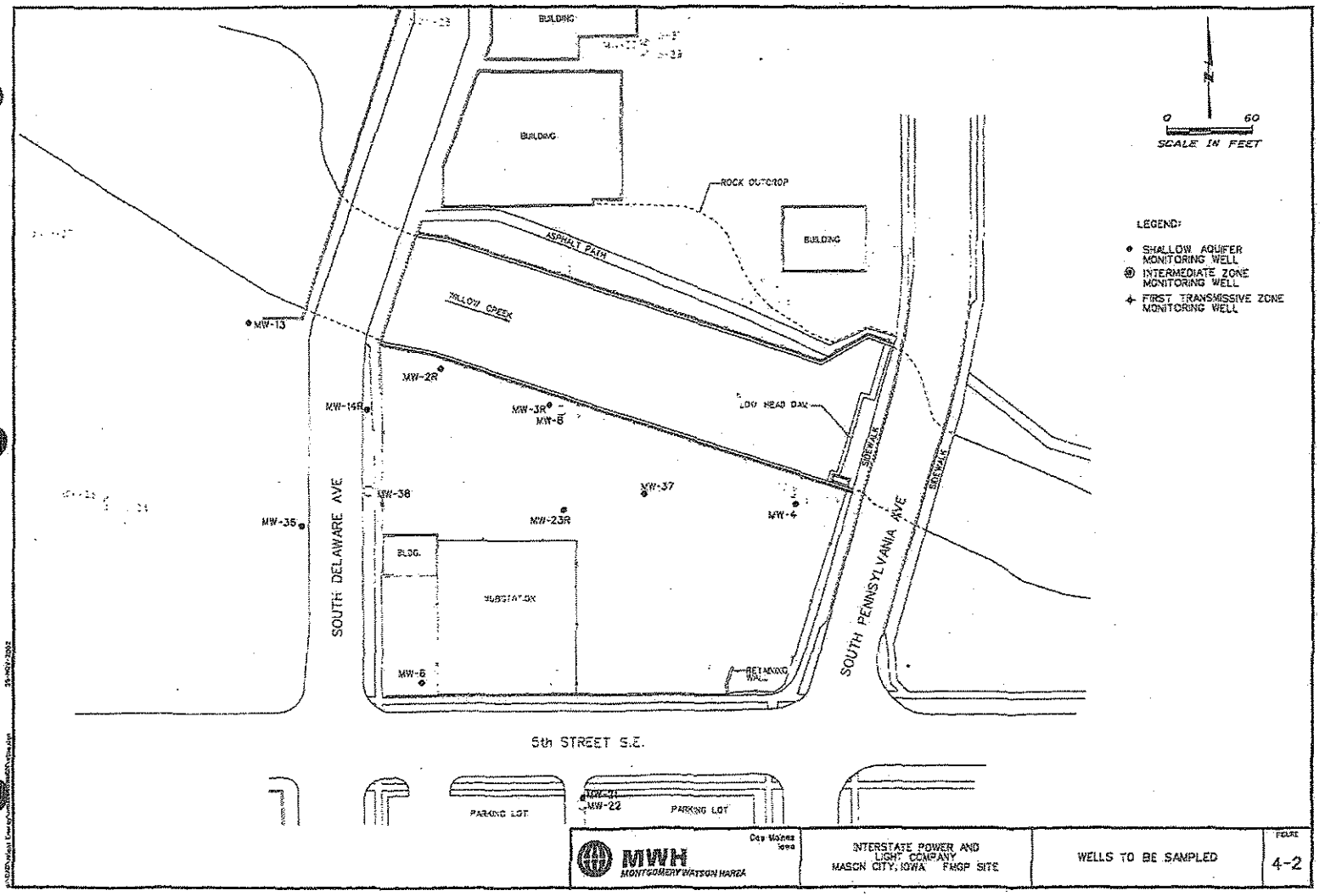
## 10.0 Protectiveness Statement

The remedy at the Site is protective of human health and the environment in the short term because there is no evidence of current exposure. The remedy will be fully protective when the recommendations made in this Five-Year Review Report have been implemented.

## 11.0 Next Review

The next five-year review for the Site is required by March 26, 2013, five years from the date of this review.

# Attachment A
# Site Map



## Attachment B
## List of Documents Reviewed

2003 Annual Report, Monitored Natural Attenuation Activities, April 2004.

2004 Annual Report, Monitored Natural Attenuation Activities, March 2005.

2005 Annual Report, Monitored Natural Attenuation Activities, March 2006.

2006 Annual Report, Monitored Natural Attenuation Activities, March 2007.

Addendum to the Interim Baseline Risk Assessment, June 1994.

Declaration of Restrictive Covenants, August 5, 2003.

E-mail from Dean Hargens to Diana Engeman, Regarding Costs Charged to Mason City Coal Gasification Site, November 7, 2007.

E-mail from Dean Hargens to Diana Engeman, Regarding Mason City Costs for Past Five Years, December 12, 2007.

Interim Baseline Risk Assessment, September 1993.

Letter from Dean Hargens, Alliant Energy, Regarding Submittal of Abandoned Well Plugging Records, July 6, 2005.

Memorandum, Five-Year Review Technical Assessment, January 31, 2008.

Monitored Natural Attenuation Remedial Design, December 2002.

Record of Decision, Mason City Coal Gasification Site, Mason City, Iowa, September 19, 2000.

Remedial Design and Remedial Action Consent Decree, July 29, 2002.

Technical Memorandum No. 31, Quarterly Monitored Natural Attenuation Groundwater Monitoring Report, Second Quarter 2007, September 14, 2007.

Technical Memorandum No. 32, Quarterly Monitored Natural Attenuation Groundwater Monitoring Report, Third Quarter 2007, November 13, 2007.

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW02-GW-004 | MW02R-GW-005 | MW02R-GW-006 | MW02R-GW-007 | MW02R-GW-008 | MW02R-GW-NA1 | MW02R-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.1305 | 0.0050 U | 0.0228 | 0.1584 | 0.0149 | NA | 0.0040 U |
| Benzene | µg/L | **1,320** | **1,410** | **621** | **406** | **148** | **144** | **229** |
| Ethylbenzene | µg/L | 332 | 446 | 458 | 268 | 139 | 140 | 40 |
| Toluene | µg/L | 122 | 267 | 230 | 94 | 28.7 | 28 | 212 |
| Xylenes | µg/L | 459 | 862 | 842 | 480 | 232 | 219 | 203 |
| Acenaphthene | µg/L | 120 | 59 | 92.9 | 70 | 11.1 | 20. U | 55.1 |
| Acenaphthylene | µg/L | 10 U | 12.3 | 2.1 U | 73.2 | 7.5 | 2. U | 67.2 |
| Anthracene | µg/L | 38 | 6.21 | 9.47 | 12.5 | 1.82 | 5.2 | 6.61 |
| Benzo(a)anthracene[a] | µg/L | **4.7** | **0.6** | **0.86 U** | **2.57** | **1.08** | **0.4** | **0.53** |
| Benzo(a)pyrene[a] | µg/L | **3.2** | **0.38** | **2.2 U** | **0.714** | 0.056 U | **0.3** | **0.37** |
| Benzo(b)fluoranthene[a] | µg/L | **1.3** | 0.15 U | **0.39 U** | **0.725** | 0.056 U | 0.1 | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | 1.2 | 0.23 | 1.6 U | 1.48 | 0.056 U | 0.1 U | 0.2 |
| Benzo(k)fluoranthene[a] | µg/L | **0.63** | 0.12 U | **0.63 U** | 0.054 U | **0.3** | 0.1 | 0.10 U |
| Chrysene[a] | µg/L | **4.3** | **0.34** | **0.57 U** | **5.43** | **0.553** | **0.7** | **0.27** |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.13 U | **0.52 U** | 0.054 U | 0.056 U | 0.1 U | 0.10 U |
| Fluoranthene | µg/L | 19 | 4.07 | 3.9 | 9.04 | 5.55 | 2. U | 2.21 |
| Fluorene | µg/L | 100 | 34.6 | 36.4 | 54.7 | 7.8 | 2.1 | 33.5 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **1.1** | 0.13 | **1.4 U** | **1** | 0.056 U | 0.1 U | 0.10 U |
| Naphthalene | µg/L | 10 U | 4.3 | 1,330 | 898 | 35 | 2. U | 1.03 |
| Phenanthrene | µg/L | 130 | 3.13 | 42.4 | 52.7 | 6.11 | 1.7 | 32 |
| Pyrene | µg/L | 5.5 | 2.76 | 2.9 U | 6.71 | 2.37 | 6.6 | 0.49 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | 0.58 | 0.008 U | 0.38 |
| Alkalinity | mg/L | NS | NS | NS | NS | 161 | 46 | 209 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1.35 | 1.11 | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | 1.93 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | 0.3 U | 0.51 |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 5.6 | 3.3 | 4.7 |
| Chloride | mg/L | NS | NS | NS | NS | 93 | 19 | 26.1 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 0.1 U | 0.2 | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.1 U | 1.7 | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 359 | 803 | 172 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.114 | 0.18 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW02R-GW-010 | MW02R-GW-011 | MW02R-GW-012 | MW02R-GW-013 | MW02R-GW-014 | MW02R-GW-015 | MW02R-GW-016 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00151 B | 0.00050 U | 0.00050 U |
| Benzene | µg/L | **152** | **262** | **203** | **189** | **187** | **51.3** | **182** |
| Ethylbenzene | µg/L | 242 | 139 | 294 | 304 | 298 | 57 | 162 |
| Toluene | µg/L | 29.4 | 24.4 | 40.4 | 41.9 | 43.9 | 7.32 | 22.4 |
| Xylenes | µg/L | 184 | 162 | 250 | 239 | 237 | 52.5 | 146 |
| Acenaphthene | µg/L | 63.6 | 32.6 | 52.4 | 127 | 91.6 | 4.94 | 37.8 |
| Acenaphthylene | µg/L | 17 | 34.2 | 35.6 | 119 | 53 | 0.12 U | 40.3 |
| Anthracene | µg/L | 5.3 | 2.4 | 5.58 | 14.7 | 12 | 0.044 | 2.87 |
| Benzo(a)anthracene[a] | µg/L | **0.73 U** | **0.13 U** | **0.234** | **1.1** | **0.282** | 0.034 U | **0.34 U** |
| Benzo(a)pyrene[a] | µg/L | **1.1 U** | 0.19 U | 0.050 U | **0.983** | 0.029 U | 0.030 U | **0.30 U** |
| Benzo(b)fluoranthene[a] | µg/L | **0.56 U** | 0.10 U | 0.035 U | **0.454** | 0.038 U | 0.039 U | **0.40 U** |
| Benzo(g,h,i)perylene | µg/L | 0.56 U | 0.10 U | 0.035 U | 0.719 | 0.036 U | 0.037 U | 0.37 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.56 U | 0.10 U | 0.038 U | 0.311 | 0.14 U | 0.14 U | **1.5 U** |
| Chrysene[a] | µg/L | **0.56 U** | 0.10 U | 0.09 | **0.93** | 0.175 | 0.031 U | **0.31 U** |
| Dibenzo(a,h)anthracene[a] | µg/L | **0.56 U** | 0.10 U | 0.039 U | 0.097 | 0.025 U | 0.026 U | 0.26 U |
| Fluoranthene | µg/L | 3 | 0.19 U | 5.23 | 0.049 U | 6.8 | 0.27 | 0.70 U |
| Fluorene | µg/L | 31.8 | 16.6 | 42.3 | 70.8 | 62.6 | 0.027 U | 24 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.56 U** | 0.10 U | 0.034 U | **0.562** | 0.038 U | 0.039 U | 0.40 U |
| Naphthalene | µg/L | 3.9 | 613 | 32.2 | 2,430 | 1,840 | 0.043 U | 984 |
| Phenanthrene | µg/L | 18.3 | 11.4 | 39.8 | 66.9 | 53.4 | 0.019 U | 16 |
| Pyrene | µg/L | 1.9 | 1.9 | 2.45 | 6.06 | 2.73 | 0.2 | 1.1 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.273 | 0.3 | 0.714 | 0.522 | 0.384 | 0.047 | 0.227 |
| Alkalinity | mg/L | 243 | 147 | 296 | 264 | 244 | 75 | 136 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 0.77 | 0.92 | 1.02 | 0.9 | 0.45 | 0.7 |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 1.09 | 1.09 | 2.34 | 1.26 | 0.69 | 0.9 |
| Orthophosphate | mg/L | 0.69 | 0.92 | 0.67 | 0.57 | 0.47 | 0.30 U | 0.46 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.010 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.4 | 4 | 4.7 | 3.3 | 3.3 | 2.8 | 3.9 |
| Chloride | mg/L | 37.5 | 27.8 | 32.6 | 34 | 47.6 | 14.2 | 19.5 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 106 | 440 | 69.2 | 74.5 | 104 | 1,080 | 842 |
| Iron, Dissolved | mg/L | 0.168 | 0.16 | 0.169 | 0.229 | 0.256 | 0.100 U | 0.322 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW02R-GW-017 | MW02R-GW-018 | MW02R-GW-019 | MW02R-GW-020 | MW02R-GW-021 | MW02R-GW-022 | MW02R-GW-023 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 |
| | Dam Position: | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.00050 U | 0.0016 U | NS | NS | NS | NS | NS |
| Benzene | µg/L | **159** | **183** | **152** | **248** | **186** | **208** | **190** |
| Ethylbenzene | µg/L | 177 | 327 | 140 | 212 | 217 | 320 | 158 |
| Toluene | µg/L | 24.2 | 46.5 | 19.4 | 30.3 | 33.1 | 36.6 | 19.6 |
| Xylenes | µg/L | 142 | 246 | 149 | 196 | 181 | 244 | 155 |
| Acenaphthene | µg/L | 72.1 | 81 | 53.1 | 42.2 | 80.4 | 89.7 | 25.4 |
| Acenaphthylene | µg/L | 72.3 | 0.18 U | 0.17 U | 0.18 U | 16 | 0.170 U | 0.0580 U |
| Anthracene | µg/L | 6.16 | 8.74 | 4.98 | 5.15 | 8.73 | 7.29 | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | **0.34 U** | **0.198** | **0.127** | **0.125** | **0.138** | **0.121 U** | 0.0631 J |
| Benzo(a)pyrene[a] | µg/L | **0.30 U** | 0.020 U | 0.019 U | 0.048 | 0.0370 U | 0.0370 U | 0.119 |
| Benzo(b)fluoranthene[a] | µg/L | **0.39 U** | 0.038 U | 0.038 U | 0.038 U | 0.0230 U | 0.0230 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.37 U | 0.033 U | 0.033 U | 0.033 U | 0.0535 | 0.0295 | 0.0178 J |
| Benzo(k)fluoranthene[a] | µg/L | **1.4 U** | 0.024 U | 0.023 U | 0.024 U | 0.0320 U | 0.0320 U | 0.0150 U |
| Chrysene[a] | µg/L | **0.31 U** | 0.021 U | 0.069 | 0.11 | 0.164 | 0.139 | 0.0697 J |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.26 U | 0.034 U | 0.034 U | 0.034 U | 0.0330 U | 0.0330 U | 0.0100 U |
| Fluoranthene | µg/L | 0.68 U | 5.74 | 3.27 | 4.32 | 4.43 | 4.22 | 1.68 |
| Fluorene | µg/L | 31 | 45.7 | 34.1 | 27.8 | 53 | 48.9 | 4.06 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.39 U | 0.040 U | 0.039 U | 0.039 U | 0.0380 U | 0.0380 U | 0.00700 U |
| Naphthalene | µg/L | 1,240 | 1,880 | 0.10 U | 0.10 U | 2.46 | 387 | 0.831 |
| Phenanthrene | µg/L | 32.5 | 42.2 | 21.6 | 21.8 | 37.3 | 37.2 | 0.00700 U |
| Pyrene | µg/L | 2.35 | 0.037 U | 10.6 | 10.5 | 15.3 | 0.0360 U | 1.77 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.204 | 0.64 | 0.265 | 0.3 | 0.551 | 0.862 | 0.346 |
| Alkalinity | mg/L | 254 | NA | 155 | 205 | 297 | 254 | 182 |
| Nitrogen, Ammonia | mg/L | 0.63 | 0.66 | 0.55 | 0.67 | 0.65 | 0.86 | 0.64 |
| Nitrogen, Total Kjeldahl | mg/L | 0.98 | 0.98 | 0.86 | 1.04 | 1.15 | 1.32 | 0.89 |
| Orthophosphate | mg/L | 0.43 | 0.71 | 0.30 U | 0.6 | 0.56 | 0.59 | 0.31 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.3 | 4.4 | 3.2 | 4.65 | 5.41 | 6.67 | 2.86 |
| Chloride | mg/L | 27.9 | 41.5 | 27.7 | 21.3 | 29 | 35.0 | 26.7 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.4 | 0.5 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.5 U |
| Sulfate | mg/L | 258 | 74.2 | 535 | 330 | 95.1 | 57.8 | 306 |
| Iron, Dissolved | mg/L | 0.213 | 0.14 | 0.127 | 0.306 | 0.189 | 0.253 | 0.089 |

## ATTACHMENT C

### GROUNDWATER ANALYTICAL RESULTS
### WATER TABLE AQUIFER

| | Sample ID: | MW02R-GW-024 | MW02R-GW-025 | MW02R-GW-026 | MW02R-GW-027 | MW02R-GW-028 |
|---|---|---|---|---|---|---|
| | Date: | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS |
| Benzene | µg/L | **243** | **157** | **134** | **121** | **145** |
| Ethylbenzene | µg/L | 328 | 279 | 270 | 112 | 87.4 |
| Toluene | µg/L | 34.1 | 34.4 | 22.6 | 13.2 | 20.0 U HI |
| Xylenes | µg/L | 218 | 183 | 169 | 122 | 94.8 |
| Acenaphthene | µg/L | 68.3 | 99.6 | 60.5 | 47.9 | 34.0 |
| Acenaphthylene | µg/L | 68.2 | 0.0850 U | 8.62 | 0.0850 U | 6.41 |
| Anthracene | µg/L | 7.77 | 11.2 | 5.92 | 4.27 | 2.11 |
| Benzo(a)anthracene[a] | µg/L | **0.139** | **0.231** | 0.0886 J | 0.0923 J | 0.0602 J |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0930 J | 0.0320 U | 0.0544 J | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0748 J | 0.0130 U | 0.0394 J | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.141 | 0.158 | 0.0777 J | 0.106 | 0.0748 J |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 4.11 | 6.34 | 3.70 | 3.36 | 1.97 |
| Fluorene | µg/L | 47.3 | 71.1 | 37.8 | 31.8 | 19.8 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 1,500 | 250 | 1.05 | 121 | 0.698 |
| Phenanthrene | µg/L | 37.4 | 52.7 | 25.5 | 15.7 | 7.36 |
| Pyrene | µg/L | 14.7 | 21.4 | 10.3 | 7.74 | 3.67 |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.013 U | 0.010 U | 0.007 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.013 U | 0.010 U | 0.007 U |
| Methane | mg/L | 0.568 | 0.902 | 0.549 | 0.212 | 0.206 |
| Alkalinity | mg/L | 302 | 291 | 225 | 180 | 152 |
| Nitrogen, Ammonia | mg/L | 0.92 | 1.06 | 0.72 | 0.58 | 0.40 |
| Nitrogen, Total Kjeldahl | mg/L | 1.33 | 1.42 | 1.24 | 1.05 | 1.04 |
| Orthophosphate | mg/L | 0.72 | 0.67 | 0.51 | 0.36 | 0.33 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.97 | 3.87 | 3.06 | 3.62 | 4.26 |
| Chloride | mg/L | 30.6 | 32.1 | 47.0 | 36.6 | 20.7 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.3 | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 45.4 | 33.4 | 130 | 295 | 660 |
| Iron, Dissolved | mg/L | 0.266 | 0.268 | 0.198 | 0.048 | 0.100 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW03-GW-004 | MW03R-GW-005 | MW03R-GW-006 | MW03R-GW-007 | MW03R-GW-008 | MW03R-GW-NA1 | MW03R-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0212 | 0.0164 | 0.1565 | 0.1293 | 0.511 | NA | 0.0040 U |
| Benzene | µg/L | **7.3** | 0.9 | 0.5 U | 0.5 U | 0.5 U | 1. U | 1.0 U |
| Ethylbenzene | µg/L | 14.2 | 3.2 | 1.0 U | 1.0 U | 1.0 U | 1. U | 1.0 U |
| Toluene | µg/L | 1.2 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1. U | 1.0 U |
| Xylenes | µg/L | 8 | 3.4 | 3.0 U | 3.0 U | 3.0 U | 1. U | 3.0 U |
| Acenaphthene | µg/L | 18 U | 24 | 0.48 | 0.535 | 0.239 | 2. U | 1.71 |
| Acenaphthylene | µg/L | 10 U | 21.3 | 0.082 U | 0.14 U | 0.14 U | 2. U | 2.82 |
| Anthracene | µg/L | 8 | 1.57 | 0.066 | 0.056 U | 0.142 | 0.5 U | 0.13 |
| Benzo(a)anthracene[a] | µg/L | **3.4** | **0.3** | 0.1 | **0.111** | 0.081 | 0.1 U | 0.10 U |
| Benzo(a)pyrene[a] | µg/L | **2.8** | **0.21** | 0.12 | 0.056 U | 0.088 | 0.2 | 0.10 U |
| Benzo(b)fluoranthene[a] | µg/L | **1.7** | 0.15 U | 0.015 U | 0.056 U | 0.056 U | 0.1 | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | 1.1 | 0.18 U | 0.1 | 0.069 | 0.072 | 0.2 | 0.10 U |
| Benzo(k)fluoranthene[a] | µg/L | **1.2** | 0.12 U | 0.024 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Chrysene[a] | µg/L | **1.5 U** | 0.19 | 0.05 | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.13 U | 0.1 | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Fluoranthene | µg/L | 9.6 | 1.0 U | 0.050 U | 0.064 | 0.166 | 0.2 U | 0.10 U |
| Fluorene | µg/L | 5.8 | 23.2 | 0.12 U | 0.306 | 0.345 | 0.5 U | 0.19 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.43 U** | 0.13 U | 0.052 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Naphthalene | µg/L | 10 U | 7.14 | 0.24 | 0.669 | 4.01 | 2. U | 1.56 |
| Phenanthrene | µg/L | 6.4 U | 8.44 | 0.26 | 0.193 | 0.498 | 0.5 U | 0.65 |
| Pyrene | µg/L | 10 | 0.66 | 0.11 U | 0.14 U | 0.142 | 0.2 U | 0.19 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NS | NA | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NS | NA | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | NS | 0.007 U | 0.165 |
| Alkalinity | mg/L | NS | NS | NS | NS | NS | 38 | 93 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | NS | 1.04 | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | NS | 0.704 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | NS | 0.3 U | 0.30 U |
| Sulfide, Total | mg/L | NS | NS | NS | NS | NS | 0.1 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | NS | 1.1 | 1.4 |
| Chloride | mg/L | NS | NS | NS | NS | NS | 15 | 20.2 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | NS | 3 | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | NS | 1.5 | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | NS | 476 | 409 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.03 U | 0.030 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW03R-GW-010 | MW03R-GW-011 | MW03R-GW-012 | MW03R-GW-013 | MW03R-GW-014 | MW03R-GW-015 | MW03R-GW-016 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00091 B | 0.00050 U | 0.0050 U |
| Benzene | µg/L | 0.5 | 0.5 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 1.6 | 0.25 U | 0.25 U |
| Xylenes | µg/L | 3.0 U | 3.0 U | 0.38 U | 0.52 | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 0.91 | 0.19 U | 0.031 U | 1.88 | 0.297 | 0.076 U | 0.166 |
| Acenaphthylene | µg/L | 0.61 | 0.19 U | 0.055 U | 1.71 | 0.663 | 0.13 U | 0.12 U |
| Anthracene | µg/L | 0.19 U | 0.19 U | 0.024 U | 0.062 | 0.065 | 0.025 U | 0.25 U |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.13 U** | 0.028 U | 0.028 U | 0.033 U | 0.034 U | 0.034 U |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U | 0.030 U | 0.030 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U | 0.040 U | 0.040 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.036 U | 0.038 U | 0.037 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.038 U | 0.038 U | 0.14 U | 0.15 U | 0.15 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.032 U | 0.032 U | 0.030 U | 0.031 U | 0.031 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.10 U | 0.039 U | 0.039 U | 0.025 U | 0.026 U | 0.026 U |
| Fluoranthene | µg/L | 0.19 U | 0.19 U | 0.049 U | 0.049 U | 0.067 U | 0.070 U | 0.070 U |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.042 U | 0.042 U | 0.026 U | 0.027 U | 0.027 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U | 0.040 U | 0.040 U |
| Naphthalene | µg/L | 0.72 | 0.42 | 0.054 U | 1.6 | 0.173 | 0.044 U | 0.111 |
| Phenanthrene | µg/L | 0.2 | 0.10 U | 0.035 U | 0.364 | 0.018 U | 0.019 U | 0.019 U |
| Pyrene | µg/L | 0.19 U | 0.19 U | 0.099 U | 0.099 U | 0.11 U | 0.11 U | 0.11 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.007 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.007 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U |
| Methane | mg/L | 0.064 | 0.012 | 0.005 U | 0.012 | 0.007 U | 0.006 U | 0.007 |
| Alkalinity | mg/L | 147 | 46 | 210 | 126 | 105 | 94 | 49 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 0.2 | 0.14 | 0.29 | 0.25 | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 0.64 | 0.31 | 0.4 | 0.38 | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.33 | 0.30 U | 0.66 | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 2 | 0.9 | 1.2 | 1.4 | 0.8 | 1.4 | 1.4 |
| Chloride | mg/L | 32.4 | 23.6 | 34.7 | 32.2 | 22.5 | 11.4 | 10.3 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.7 | 0.9 | 0.1 U | 0.1 U | 1.6 | 0.2 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 114 | 911 | 99.4 | 148 | 170 | 1,250 | 1,870 |
| Iron, Dissolved | mg/L | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.100 U | 0.030 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW03R-GW-017 | MW03R-GW-018 | MW03R-GW-019 | MW03R-GW-020 | MW03R-GW-021 | MW03R-GW-022 | MW03R-GW-023 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 |
| | Dam Position: | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.00050 U | 0.0016 U | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.59 | 0.25 U | 0.170 U | 0.10 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 0.74 | 0.43 U | 0.63 U | 0.44 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.25 U | 0.09 U | 0.09 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.64 | 0.38 U | 0.93 U | 0.24 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.89 | 0.13 U | 0.13 U | 0.13 U | 0.130 U | 0.130 U | 0.0490 U |
| Acenaphthylene | µg/L | 1.19 | 0.17 U | 0.17 U | 0.18 U | 0.170 U | 0.170 U | 0.0850 U |
| Anthracene | µg/L | 0.033 | 0.0094 U | 0.0095 U | 0.0096 U | 0.00930 U | 0.00930 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.034 U | 0.019 U | 0.019 U | 0.020 U | 0.0190 U | 0.0190 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.030 U | 0.019 U | 0.019 U | 0.020 U | 0.0370 U | 0.0370 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.039 U | 0.037 U | 0.038 U | 0.038 U | 0.0230 U | 0.0230 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.037 U | 0.032 U | 0.033 U | 0.033 U | 0.0190 U | 0.0190 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.14 U | 0.023 U | 0.023 U | 0.024 U | 0.0320 U | 0.0320 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.031 U | 0.020 U | 0.020 U | 0.021 U | 0.0200 U | 0.0200 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.026 U | 0.033 U | 0.034 U | 0.034 U | 0.0330 U | 0.0330 U | 0.0100 U |
| Fluoranthene | µg/L | 0.069 U | 0.032 U | 0.033 U | 0.033 U | 0.0320 U | 0.0320 U | 0.0100 U |
| Fluorene | µg/L | 0.027 U | 0.029 U | 0.030 U | 0.030 U | 0.0290 U | 0.0290 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.039 U | 0.038 U | 0.039 U | 0.039 U | 0.0380 U | 0.0380 U | 0.00700 U |
| Naphthalene | µg/L | 0.99 | 0.10 U | 0.10 U | 0.10 U | 0.100 U | 0.100 U | 0.157 J |
| Phenanthrene | µg/L | 0.17 | 0.015 U | 0.015 U | 0.015 U | 0.0150 U | 0.0150 U | 0.0185 J |
| Pyrene | µg/L | 0.11 U | 0.036 U | 0.037 U | 0.037 U | 0.0360 U | 0.0360 U | 0.0190 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.008 U | 0.008 U | 0.010 U | 0.016 U | 0.010 U | 0.013 U |
| Ethane | mg/L | 0.010 U | 0.008 U | 0.008 U | 0.010 U | 0.016 U | 0.010 U | 0.013 U |
| Methane | mg/L | 0.045 | 0.006 U | 0.007 | 0.007 U | 0.011 U | 0.007 U | 0.009 U |
| Alkalinity | mg/L | 129 | NA | 71 | 107 | 230 | 224 | 96 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1.7 | 1.0 | 0.9 | 1.24 | 1.02 | 0.95 | 0.89 |
| Chloride | mg/L | 13 | 38 | 22.9 | 15.6 | 28.8 | 38.0 | 32.9 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 4.3 | 1.3 | 0.2 | 6.9 | 5.9 | 2.9 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.8 | 0.1 | 0.1 U | 0.1 U | 0.4 |
| Sulfate | mg/L | 1,100 | 116 | 451 | 53.7 | 138 | 51.0 | 327 |
| Iron, Dissolved | mg/L | 0.044 | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW03R-GW-024 | MW03R-GW-025 | MW03R-GW-026 | MW03R-GW-027 | MW03R-GW-028 |
|---|---|---|---|---|---|---|
| | Date: | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.137 J | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.0627 J | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.0890 J | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.0384 J | 0.00982 J | 0.00700 U | 0.00700 U | 0.00700 U |
| Pyrene | µg/L | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.015 U | 0.010 U | 0.010 U | 0.007 U | 0.010 U |
| Ethane | mg/L | 0.015 U | 0.010 U | 0.010 U | 0.007 U | 0.010 U |
| Methane | mg/L | 0.013 | 0.007 U | 0.007 U | 0.005 U | 0.007 U |
| Alkalinity | mg/L | 177 | 226 | 229 | 120 | 82 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.17 | 0.10 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1.26 | 0.78 | 0.92 | 1.41 | 1.41 |
| Chloride | mg/L | 30.9 | 35.7 | 40.5 | 30.6 | 22.6 |
| Nitrogen, Nitrate | mg/L | 0.3 | 2.4 | 5.5 | 2.8 | 1.2 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.6 | 1.0 |
| Sulfate | mg/L | 122 | 76.9 | 86.0 | 395.0 | 553.0 |
| Iron, Dissolved | mg/L | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.100 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW04-GW-004 | MW04-GW-005 | MW04-GW-006 | MW04-GW-007 | MW04-GW-008 | MW04-GW-NA1 | MW04-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | 0.0050 U | 0.0050 U | 0.0050 U | 0.0053 | 0.0040 U | NA | 0.0040 U |
| Benzene | µg/L | **8.6** | 3.4 | 1.4 | 1.2 | 1 | 1. U | 1.0 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1. U | 1.0 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1. U | 1.0 U |
| Xylenes | µg/L | 1.0 U | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 1. U | 3.0 U |
| Acenaphthene | µg/L | 18 U | 0.50 U | 1.6 | 0.14 U | 2.72 | 6 | 0.19 U |
| Acenaphthylene | µg/L | 10 U | 2.34 | 0.089 U | 0.14 U | 0.14 U | 2. U | 0.19 U |
| Anthracene | µg/L | 6.6 U | 0.30 U | 0.063 U | 0.056 U | 0.056 U | 0.5 U | 0.10 U |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | 0.055 U | 0.036 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(a)pyrene[a] | µg/L | **0.23 U** | 0.10 U | 0.094 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.18 U | 0.15 U | 0.016 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 0.18 U | 0.069 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.17 U | 0.12 U | 0.026 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Chrysene[a] | µg/L | **1.5 U** | 0.060 U | 0.024 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.13 U | 0.022 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U |
| Fluoranthene | µg/L | 2.1 U | 0.10 U | 0.054 U | 0.056 U | 0.056 U | 0.5 | 0.10 U |
| Fluorene | µg/L | 2.1 U | 0.75 | 0.13 U | 0.11 U | 0.11 U | 0.5 U | 0.19 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.43 U** | 0.13 U | 0.057 U | 0.056 U | 0.056 U | 0.1 U. | 0.10 U |
| Naphthalene | µg/L | 10 U | 0.38 U | 0.22 | 0.056 U | 0.056 U | 2. U | 0.10 U |
| Phenanthrene | µg/L | 6.4 U | 0.060 U | 0.061 U | 0.056 U | 0.056 U | 0.5 U | 0.10 U |
| Pyrene | µg/L | 2.7 U | 0.084 U | 0.12 U | 0.14 U | 0.14 U | 0.7 | 0.19 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | 0.05 | 0.007 U | 0.024 |
| Alkalinity | mg/L | NS | NS | NS | NS | 351 | 342 | 369 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1.29 | 1.06 | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | 1.66 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | 0.39 | 0.30 U |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.13 | 0.14 | 0.42 |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 14.7 | 3.6 | 4.7 |
| Chloride | mg/L | NS | NS | NS | NS | 45.7 | 22 | 23 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 105 | 133 | 104 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.071 | 0.683 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW04-GW-010 | MW04-GW-011 | MW04-GW-012 | MW04-GW-013 | MW04-GW-014 | MW04-GW-015 | MW04-GW-016 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00128 B | 0.00050 U | 0.0050 U |
| Benzene | µg/L | 0.5 U | 0.5 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 1 | 0.25 U | 0.39 |
| Xylenes | µg/L | 3.0 U | 3 | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 0.19 U | 0.19 U | 0.709 | 0.354 | 0.205 | 0.672 | 0.387 |
| Acenaphthylene | µg/L | 0.19 U | 0.19 U | 0.055 U | 0.055 U | 0.12 U | 0.12 U | 0.12 U |
| Anthracene | µg/L | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.024 U | 0.024 U | 0.056 |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.13 U** | 0.028 U | 0.028 U | 0.033 U | 0.033 U | 0.034 U |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U | 0.029 U | 0.030 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U | 0.038 U | 0.039 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.18 | 0.035 U | 0.035 U | 0.036 U | 0.036 U | 0.037 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.038 U | 0.038 U | 0.14 U | 0.14 U | 0.14 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.032 U | 0.032 U | 0.030 U | 0.030 U | 0.031 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.14 | 0.039 U | 0.039 U | 0.025 U | 0.025 U | 0.026 U |
| Fluoranthene | µg/L | 0.19 U | 0.19 U | 0.049 U | 0.049 U | 0.067 U | 0.067 U | 0.069 U |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.042 U | 0.042 U | 0.026 U | 0.155 | 0.027 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U | 0.038 U | 0.039 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | 0.054 U | 0.054 U | 0.042 U | 0.042 U | 0.043 U |
| Phenanthrene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.018 U | 0.018 U | 0.019 U |
| Pyrene | µg/L | 0.19 U | 0.19 U | 0.099 U | 0.145 | 0.11 U | 0.11 U | 0.166 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | 0.010 U | 0.008 U | 0.010 U | 0.058 U | 0.008 U | 0.008 U |
| Ethane | mg/L | NS | 0.010 U | 0.008 U | 0.010 U | 0.058 U | 0.008 U | 0.008 U |
| Methane | mg/L | NS | 0.007 U | 0.006 | 0.008 | 0.06 | 0.039 | 0.019 |
| Alkalinity | mg/L | NS | 376 | 286 | 364 | 347 | 458 | 546 |
| Nitrogen, Ammonia | mg/L | NS | 0.8 | 0.71 | 0.89 | 0.45 | 0.9 | 1.05 |
| Nitrogen, Total Kjeldahl | mg/L | NS | 1.15 | 0.87 | 0.94 | 0.79 | 1.48 | 1.47 |
| Orthophosphate | mg/L | NS | 1.48 | 0.78 | 0.62 | 0.30 U | 0.35 | 0.34 |
| Sulfide, Total | mg/L | NS | 0.10 U | 0.1 | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | 5 | 4.1 | 3.1 | 3.9 | 5.2 | 4.9 |
| Chloride | mg/L | NS | 29.4 | 29.6 | 31.3 | 38.1 | 33.2 | 26.4 |
| Nitrogen, Nitrate | mg/L | NS | 0.1 U | 0.1 | 0.1 U | 0.1 | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | 0.1 U | 0.1 U | 0.1 U | 0.1 | 0.1 U | 0.1 U |
| Sulfate | mg/L | NS | 174 | 91.9 | 35.3 | 93.8 | 513 | 511 |
| Iron, Dissolved | mg/L | NS | 0.931 | 0.08 | 0.030 U | 0.030 U | 3.32 | 1.05 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW04-GW-017 | MW04-GW-018 | MW04-GW-019 | MW04-GW-020 | MW04-GW-021 | MW04-GW-022 | MW04-GW-023 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 |
| | Dam Position: | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | 0.00050 U | 0.0016 U | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.25 U | 0.25 U | 0.170 U | 0.17 | 0.500 U | 0.500 U | 0.700 |
| Ethylbenzene | µg/L | 0.43 U | 0.43 U | 0.63 U | 0.44 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.25 U | 0.09 U | 0.09 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.38 U | 0.38 U | 0.93 U | 0.24 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.073 U | 0.257 | 1.46 | 0.13 U | 0.798 | 0.911 | 0.442 |
| Acenaphthylene | µg/L | 0.12 U | 0.17 U | 0.17 U | 0.18 U | 0.175 U | 0.170 U | 0.0850 U |
| Anthracene | µg/L | 0.024 U | 0.0095 U | 0.201 | 0.0096 U | 0.00959 U | 0.00930 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.033 U | 0.019 U | 0.019 U | 0.020 U | 0.0196 U | 0.0190 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.029 U | 0.019 U | 0.019 U | 0.020 U | 0.0381 U | 0.0370 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.038 U | 0.037 U | 0.038 U | 0.0237 U | 0.0230 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.036 U | 0.033 U | 0.032 U | 0.033 U | 0.0196 U | 0.0190 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.14 U | 0.023 U | 0.023 U | 0.024 U | 0.0330 U | 0.0320 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.030 U | 0.020 U | 0.020 U | 0.021 U | 0.0206 U | 0.0200 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.025 U | 0.034 U | 0.033 U | 0.034 U | 0.0340 U | 0.0330 U | 0.0100 U |
| Fluoranthene | µg/L | 0.067 U | 0.033 U | 0.032 U | 0.033 U | 0.0330 U | 0.0320 U | 0.0100 U |
| Fluorene | µg/L | 0.026 U | 0.030 U | 1.18 | 0.030 U | 0.0299 U | 0.511 | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.038 U | 0.039 U | 0.038 U | 0.039 U | 0.0392 U | 0.0380 U | 0.00700 U |
| Naphthalene | µg/L | 0.042 U | 0.10 U | 0.10 U | 0.10 U | 0.103 U | 0.253 | 0.0540 U |
| Phenanthrene | µg/L | 0.018 U | 0.015 U | 0.174 | 0.015 U | 0.0155 U | 0.0150 U | 0.124 |
| Pyrene | µg/L | 0.11 U | 0.037 U | 0.649 | 0.037 U | 0.277 | 0.0360 U | 0.246 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.007 U | 0.014 U | 0.008 U | 0.008 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.007 U | 0.014 U | 0.008 U | 0.008 U | 0.010 U |
| Methane | mg/L | 0.007 U | 0.007 U | 0.014 | 0.010 U | 0.006 | 0.006 | 0.007 U |
| Alkalinity | mg/L | 486 | NA | 488 | 516 | 515 | 407 | 430 |
| Nitrogen, Ammonia | mg/L | 0.34 | 0.69 | 0.91 | 0.54 | 1.01 | 0.47 | 0.93 |
| Nitrogen, Total Kjeldahl | mg/L | 0.84 | 0.95 | 1.27 | 1.04 | 1.42 | 0.82 | 1.39 |
| Orthophosphate | mg/L | 0.30 U | 0.51 | 0.51 | 0.75 | 0.30 U | 0.52 | 0.60 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.1 | 5.5 | 4.8 | 5.74 | 5.35 | 11.3 | 4.05 |
| Chloride | mg/L | 20.4 | 21.4 | 28.8 | 25.9 | 21.9 | 34.6 | 33.7 |
| Nitrogen, Nitrate | mg/L | 0.2 | 0.1 | 0.1 U | 0.6 | 0.2 | 0.2 | 1.5 |
| Nitrogen, Nitrite | mg/L | 0.6 | 0.1 U | 0.1 U | 0.5 | 0.1 U | 0.1 U | 0.5 |
| Sulfate | mg/L | 490 | 159 | 391 | 334 | 501 | 91.4 | 334 |
| Iron, Dissolved | mg/L | 0.061 | 0.258 | 0.451 | 0.105 | 0.214 | 0.060 | 0.099 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW04-GW-024 | MW04-GW-025 | MW04-GW-026 | MW04-GW-027 | MW04-GW-028 |
|---|---|---|---|---|---|---|
| | Date: | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.600 | 0.945 | 0.592 | 0.803 | 0.506 |
| Acenaphthylene | µg/L | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0912 J | 0.399 | 0.145 | 0.0100 U | 0.0730 J |
| Benzo(a)anthracene[a] | µg/L | 0.00300 U | **0.128** | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.00500 U | 0.121 | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0100 U | 0.798 | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.230 | 0.780 | 1.18 | 0.945 | 0.827 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.0540 U | 2.37 | 0.0540 U | 0.0540 U | 0.0571 J |
| Phenanthrene | µg/L | 0.159 | 1.08 | 0.158 | 0.197 | 0.194 |
| Pyrene | µg/L | 0.123 | 1.99 | 0.412 | 0.266 | 0.153 |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.008 U | 0.007 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.008 U | 0.007 U | 0.010 U |
| Methane | mg/L | 0.007 U | 0.007 | 0.005 U | 0.025 | 0.007 U |
| Alkalinity | mg/L | 416 | 366 | 310 | 421 | 435 |
| Nitrogen, Ammonia | mg/L | 0.37 | 0.59 | 0.62 | 0.79 | 0.89 |
| Nitrogen, Total Kjeldahl | mg/L | 0.86 | 1.32 | 0.94 | 1.45 | 1.10 |
| Orthophosphate | mg/L | 0.34 | 0.40 | 0.38 | 0.29 | 0.51 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.20 | 3.65 | 2.86 | 4.45 | 4.80 |
| Chloride | mg/L | 30.0 | 33.5 | 41.8 | 32.4 | 28.5 |
| Nitrogen, Nitrate | mg/L | 0.5 | 0.3 | 0.4 | 0.5 | 0.2 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 122 | 73.4 | 66.3 | 358 | 158 |
| Iron, Dissolved | mg/L | 0.180 | 0.100 | 0.072 | 0.071 | 0.172 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW06-GW-004 | MW06-GW-005 | MW06-GW-006 | MW06-GW-007 | MW06-GW-008 | MW06-GW-NA1 | MW06-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0209 | 0.0050 U | 0.0050 U | 0.0509 | 0.0091 | NA | 0.0040 U |
| Benzene | µg/L | 1.0 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 5. U | 1.0 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 5. U | 1.0 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 5. U | 1.0 U |
| Xylenes | µg/L | 1.0 U | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 5. U | 3.0 U |
| Acenaphthene | µg/L | 18 U | 0.50 U | 0.078 U | 0.14 U | 0.14 U | 2. U | 0.19 U |
| Acenaphthylene | µg/L | 10 U | 1.60 U | 0.084 U | 0.14 U | 0.14 U | 2. U | 0.19 U |
| Anthracene | µg/L | 6.6 U | 0.030 U | 0.060 U | 0.055 U | 0.056 U | 0.5 U | 0.10 U |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | 0.055 U | 0.034 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(a)pyrene[a] | µg/L | **0.23 U** | 0.10 U | 0.088 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.18 U | 0.15 U | 0.015 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 0.18 U | 0.065 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.17 U | 0.12 U | 0.025 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Chrysene[a] | µg/L | **1.5 U** | 0.060 U | 0.023 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.13 U | 0.021 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Fluoranthene | µg/L | 2.1 U | 0.10 U | 0.052 U | 0.055 U | 0.056 U | 0.2 U | 0.10 U |
| Fluorene | µg/L | 2.1 U | 0.082 U | 0.12 U | 0.11 U | 0.11 U | 0.5 U | 0.19 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.43 U** | 0.13 U | 0.054 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Naphthalene | µg/L | 10 U | 3.38 | 0.038 U | 0.055 U | 0.056 U | 2. U | 0.10 U |
| Phenanthrene | µg/L | 6.4 U | 0.060 U | 0.058 U | 0.055 U | 0.056 U | 0.5 U | 0.10 U |
| Pyrene | µg/L | 2.7 U | 0.084 U | 0.11 U | 0.14 U | 0.14 U | 0.2 U | 0.19 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | 0.02 U | 0.007 U | 0.01 |
| Alkalinity | mg/L | NS | NS | NS | NS | 428 | 422 | 426 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1 U | 0.273 | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | 0.865 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | 0.3 U | 0.49 |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 1.5 | 2.1 | 1.5 |
| Chloride | mg/L | NS | NS | NS | NS | 169 | 54 | 42.2 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 0.7 | 0.3 | 0.3 |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 661 | 408 | 256 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.763 | 3.34 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW06-GW-010 | MW06-GW-011 | MW06-GW-012 | MW06-GW-013 | MW06-GW-014 | MW06-GW-015 | MW06-GW-016 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0015 U | 0.0016 | 0.00182 B | 0.00050 U | 0.00050 U |
| Benzene | µg/L | 0.5 U | 0.5 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 1.71 | 0.25 U | 0.25 U |
| Xylenes | µg/L | 3.0 U | 3.0 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 0.19 U | 0.19 U | 0.031 U | 0.031 U | 0.073 U | 0.073 U | 0.073 U |
| Acenaphthylene | µg/L | 0.19 U | 0.19 U | 0.055 U | 0.055 U | 0.12 U | 0.12 U | 0.12 U |
| Anthracene | µg/L | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.024 | 0.024 U | 0.024 U |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.13 U** | 0.028 U | 0.028 U | 0.033 U | 0.033 U | 0.033 U |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U | 0.029 U | 0.029 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U | 0.038 U | 0.038 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.036 U | 0.036 U | 0.036 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.038 U | 0.038 U | 0.14 U | 0.14 U | 0.14 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.032 U | 0.032 U | 0.030 U | 0.030 U | 0.030 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.10 U | 0.039 U | 0.039 U | 0.025 U | 0.025 U | 0.025 U |
| Fluoranthene | µg/L | 0.19 U | 0.19 U | 0.049 U | 0.049 U | 0.067 U | 0.067 U | 0.067 U |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.042 U | 0.042 U | 0.026 U | 0.026 U | 0.026 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U | 0.038 U | 0.038 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | 0.054 U | 0.054 U | 0.042 U | 0.042 U | 0.042 U |
| Phenanthrene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.018 U | 0.018 U | 0.018 U |
| Pyrene | µg/L | 0.19 U | 0.19 U | 0.099 U | 0.099 U | 0.11 U | 0.11 U | 0.11 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U |
| Ethane | mg/L | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U |
| Methane | mg/L | 0.005 U | 0.007 U | 0.021 | 0.018 | 0.008 | 0.006 U | 0.007 U |
| Alkalinity | mg/L | 324 | 457 | 361 | 325 | 309 | 418 | 459 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 0.10 U | 0.35 | 0.28 | 0.32 | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 0.25 | 0.49 | 0.38 | 0.47 | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.82 | 0.84 | 0.46 | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1.3 | 1.2 | 1.6 | 1.4 | 1.2 | 1.2 | 1 |
| Chloride | mg/L | 16.2 | 89.5 | 26 | 30 | 20.5 | 305 | 95.1 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 5.8 | 0.1 U | 0.1 U | 0.2 | 9.3 | 5 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.5 U | 0.1 U |
| Sulfate | mg/L | 167 | 318 | 219 | 203 | 152 | 350 | 208 |
| Iron, Dissolved | mg/L | 0.876 | 0.211 | 0.21 | 0.566 | 1.38 | 0.446 | 0.145 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW06-GW-017 | MW06-GW-018 | MW06-GW-019 | MW06-GW-020 | MW06-GW-021 | MW06-GW-022 | MW06-GW-023 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 |
| | Dam Position: | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.00093 | 0.0016 U | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.25 U | **5.76** | 0.170 U | 0.10 U | 0.500 U | **40.1 / 54.1** | 0.500 U |
| Ethylbenzene | µg/L | 0.43 U | 0.43 U | 0.63 U | 0.44 U | 1.00 U | 1.00 U / 1.00 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.25 U | 0.09 U | 0.09 U | 1.00 U | 1.00 U / 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.38 U | 0.38 U | 0.93 U | 0.24 U | 3.00 U | 3.00 U / 3.77 | 3.00 U |
| Acenaphthene | µg/L | 0.074 U | 0.341 | 0.13 U | 0.13 U | 0.133 U | 3.37 | 0.0490 U |
| Acenaphthylene | µg/L | 0.12 U | 0.17 U | 0.17 U | 0.18 U | 0.173 U | 0.170 U | 0.0850 U |
| Anthracene | µg/L | 0.024 U | 0.0095 U | 0.0093 U | 0.0096 U | 0.00949 U | 0.00930 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.033 U | 0.019 U | 0.019 U | 0.020 U | 0.0194 U | 0.0190 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.029 U | 0.019 U | 0.019 U | 0.020 U | 0.0378 U | 0.0370 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.038 U | 0.037 U | 0.038 U | 0.0235 U | 0.0230 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.036 U | 0.033 U | 0.032 U | 0.033 U | 0.0194 U | 0.0190 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.14 U | 0.023 U | 0.023 U | 0.024 U | 0.0327 U | 0.0320 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.030 U | 0.020 U | 0.020 U | 0.021 U | 0.204 U | 0.0200 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.025 U | 0.034 U | 0.033 U | 0.034 U | 0.0337 U | 0.0330 U | 0.0100 U |
| Fluoranthene | µg/L | 0.068 U | 0.033 U | 0.032 U | 0.033 U | 0.0327 U | 0.0320 U | 0.0100 U |
| Fluorene | µg/L | 0.026 U | 0.030 U | 0.029 U | 0.030 U | 0.0296 U | 0.0290 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.038 U | 0.039 U | 0.038 U | 0.039 U | 0.0388 U | 0.0380 U | 0.00700 U |
| Naphthalene | µg/L | 0.042 U | 0.10 U | 0.10 U | 0.10 U | 0.102 U | 2.94 | 0.0540 U |
| Phenanthrene | µg/L | 0.018 U | 0.015 U | 0.015 U | 0.015 U | 0.0153 U | 0.0150 U | 0.00700 U |
| Pyrene | µg/L | 0.11 U | 0.037 U | 0.036 U | 0.037 U | 0.0367 U | 0.0360 U | 0.0190 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.007 U | 0.013 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.007 U | 0.013 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.005 U | 0.032 | 0.007 U | 0.006 U | 0.007 U | 0.016 | 0.007 U |
| Alkalinity | mg/L | 443 | NA | 431 | 497 | 442 | 385 | 362 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.31 | 0.30 U | 0.30 U | 0.39 | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1 | 1.5 | 1 | 1.84 | 1.65 | 2.17 | 1.15 |
| Chloride | mg/L | 200 | 46.8 | 314 | 31.4 | 80.9 | 36.0 | 571 |
| Nitrogen, Nitrate | mg/L | 5.4 | 0.3 | 9 | 7.2 | 1.3 | 0.1 U | 7.3 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 292 | 288 | 302 | 123 | 424 | 383 | 390 |
| Iron, Dissolved | mg/L | 0.198 | 0.073 | 0.536 | 0.083 | 0.436 | 0.572 | 0.409 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW06-GW-024 | MW06-GW-025 | MW06-GW-026 | MW06-GW-027 | MW06-GW-028 |
|---|---|---|---|---|---|---|
| | Date: | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Pyrene | µg/L | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.008 U | 0.010 U | 0.013 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.008 U | 0.010 U | 0.013 U | 0.010 U |
| Methane | mg/L | 0.007 U | 0.009 | 0.007 U | 0.009 U | 0.007 U |
| Alkalinity | mg/L | 386 | 415 | 388 | 346 | 393 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.15 | 0.21 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 0.8 | 1.59 | 0.86 | 1.1 | 1.38 |
| Chloride | mg/L | 457 | 155 | 566 | 762 | 432 |
| Nitrogen, Nitrate | mg/L | 6.6 | 0.9 | 6.0 | 8.9 | 5.1 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 2.5 U | 0.1 U |
| Sulfate | mg/L | 337 | 475 | 237 | 293 | 223 |
| Iron, Dissolved | mg/L | 0.186 | 0.046 | 0.184 | 0.126 | 0.573 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW13-GW-004 | MW13-GW-005 | MW13-GW-006 | MW13-GW-007 | MW13-GW-008 | MW13-GW-NA1 | MW13-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.862 | 0.137 | 0.0099 | 0.49 | 0.015 | NA | 0.1005 |
| Benzene | µg/L | 1.0 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 1. U | 1.0 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1. U | 1.0 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1. U | 1.0 U |
| Xylenes | µg/L | 1.0 U | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 1. U | 3.0 U |
| Acenaphthene | µg/L | 18 U | 0.050 U | 0.076 U | 0.14 U | 0.14 U | 2. U | 0.19 U |
| Acenaphthylene | µg/L | 10 U | 1.6 U | 0.082 U | 0.14 U | 0.14 U | 2. U | 0.19 U |
| Anthracene | µg/L | 6.6 | 0.030 U | 0.058 U | 0.058 U | 0.102 | 0.5 U | 0.15 |
| Benzo(a)anthracene[a] | µg/L | **0.21 U** | **0.26** | 0.033 U | **0.112** | **0.155** | 0.1 U | **0.25** |
| Benzo(a)pyrene[a] | µg/L | **0.23 U** | **0.25** | 0.086 U | 0.083 | 0.165 | 0.1 U | **0.28** |
| Benzo(b)fluoranthene[a] | µg/L | 0.18 U | 0.15 U | 0.015 U | 0.058 U | 0.062 | 0.1 U | 0.12 |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 0.23 | 0.063 U | 0.105 | 0.139 | 0.1 U | 0.17 |
| Benzo(k)fluoranthene[a] | µg/L | 0.17 U | 0.12 U | 0.024 U | 0.058 U | 0.091 | 0.1 U | 0.10 U |
| Chrysene[a] | µg/L | **1.5 U** | 0.060 U | 0.022 U | 0.092 | 0.104 | 0.1 U | 0.19 |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.18 U | 0.020 U | 0.058 U | 0.058 U | 0.1 U | 0.10 U |
| Fluoranthene | µg/L | 2.1 U | 0.55 | 0.050 U | 0.279 | 0.365 | 0.2 | 0.47 |
| Fluorene | µg/L | 2.1 U | 0.082 U | 0.12 U | 0.12 U | 0.12 U | 0.5 U | 0.19 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.43 U** | 0.13 U | 0.052 U | 0.077 | 0.105 | 0.1 U | 0.13 |
| Naphthalene | µg/L | 10 U | 0.38 U | 0.037 U | 0.058 U | 0.058 U | 2. U | 0.10 U |
| Phenanthrene | µg/L | 6.4 U | 0.19 | 0.056 U | 0.125 | 0.265 | 0.5 U | 0.33 |
| Pyrene | µg/L | 2.7 U | 0.63 | 0.11 U | 0.315 | 0.393 | 0.2 | 0.74 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NS | NA | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NS | NA | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | NS | 0.0083 | 0.061 |
| Alkalinity | mg/L | NS | NS | NS | NS | NS | 152 | 97 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | NS | 0.692 | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | NS | 1.83 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | NS | 0.54 | 0.6 |
| Sulfide, Total | mg/L | NS | NS | NS | NS | NS | 0.1 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | NS | 4 | 4.8 |
| Chloride | mg/L | NS | NS | NS | NS | NS | 24 | 28.7 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | NS | 2.5 | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | NS | 0.3 | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | NS | 325 | 329 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.034 | 0.031 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW13-GW-010 | MW13-GW-011 | MW13-GW-012 | MW13-GW-013 | MW13-GW-014 | MW13-GW-015 | MW13-GW-016 | MW13-GW-017 |
|---|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 | Dec-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | | |
| Lead | mg/L | 0.0071 | 0.0040 U | 0.0015 U | 0.0015 U | 0.00372 B | 0.00098 | 0.00368 | 0.0015 |
| Benzene | µg/L | 0.5 U | 0.5 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 3.0 U | 3.0 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 0.19 U | 0.19 U | 0.031 U | 0.073 U | 0.073 U | 0.073 U | 0.076 U | 0.076 U |
| Acenaphthylene | µg/L | 0.19 U | 0.19 U | 0.055 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| Anthracene | µg/L | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.036 | 0.029 | 0.154 | 0.025 U |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.13 U** | 0.028 U | 0.033 U | 0.033 U | 0.046 | 0.046 | 0.034 U |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.029 U | 0.029 U | 0.029 U | 0.030 U | 0.030 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.038 U | 0.038 U | 0.038 U | 0.040 U | 0.040 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.036 U | 0.036 U | 0.036 U | 0.037 U | 0.037 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.038 U | 0.14 U | 0.14 U | 0.14 U | 0.15 U | 0.15 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.032 U | 0.030 U | 0.040 U | 0.046 | 0.031 U | 0.031 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.10 U | 0.039 U | 0.025 U | 0.025 U | 0.025 U | 0.026 U | 0.026 U |
| Fluoranthene | µg/L | 0.22 | 0.19 U | 0.049 U | 0.067 U | 0.067 U | 0.067 U | 0.070 U | 0.070 U |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.042 U | 0.026 U | 0.026 U | 0.026 U | 0.027 U | 0.027 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.038 U | 0.038 U | 0.038 U | 0.040 U | 0.040 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | 0.154 | 0.042 U | 0.042 U | 0.042 U | 0.612 | 0.044 U |
| Phenanthrene | µg/L | 0.12 | 0.10 U | 0.035 U | 0.018 U | 0.018 U | 0.075 | 0.521 | 0.019 U |
| Pyrene | µg/L | 0.19 U | 0.19 | 0.099 U | 0.11 U | 0.11 U | 0.134 | 0.11 U | 0.11 U |
| *MNA Parameters* | | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.017 | 0.024 | 0.007 U | 0.046 | 0.007 | 0.005 U | 0.041 | 0.04 |
| Alkalinity | mg/L | 92 | 121 | 241 | 128 | 109 | 123 | 140 | 110 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 0.55 | 0.12 | 0.47 | 0.21 | 0.37 | 0.30 U | 0.62 |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 0.83 | 0.31 | 0.7 | 0.64 | 0.72 | 0.63 | 1.16 |
| Orthophosphate | mg/L | 0.83 | 1.06 | 0.78 | 0.59 | 0.49 | 0.54 | 0.46 | 0.53 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.8 | 4.5 | 2.8 | 3.5 | 3.8 | 3.2 | 3.8 | 4 |
| Chloride | mg/L | 37.1 | 36.4 | 32.2 | 36 | 74.6 | 54.2 | 33.3 | 49.6 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.2 | 0.2 | 0.1 U | 0.1 U | 0.3 | 0.5 | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 655 | 400 | 73.4 | 300 | 363 | 355 | 168 | 392 |
| Iron, Dissolved | mg/L | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.100 U | 0.030 U | 0.030 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW13-GW-018 | MW13-GW-019 | MW13-GW-020 | MW13-GW-021 | MW13-GW-022 | MW13-GW-023 | MW13-GW-024 | MW13-GW-025 |
|---|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 | Sep-06 | Dec-06 |
| | Dam Position: | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down | Dam Up |
| *Compliance Parameters* | **Units** | | | | | | | | |
| Lead | mg/L | 0.0016 U | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.25 U | 0.170 U | 0.10 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 0.43 U | 0.63 U | 0.44 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.09 U | 0.09 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.38 U | 0.93 U | 0.24 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.13 U | 0.13 U | 0.13 U | 0.134 U | 0.130 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.17 U | 0.17 U | 0.17 U | 0.175 U | 0.170 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0095 U | 0.057 | 0.04 | 0.00959 U | 0.00930 U | 0.0327 J | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.019 U | 0.069 | 0.026 | 0.0196 U | 0.0190 U | 0.0609 J | 0.00311 J | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.019 U | 0.173 | 0.051 | 0.0381 U | 0.0370 U | 0.0623 J | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.083 | 0.038 U | 0.0237 U | 0.0230 U | 0.0625 J | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.033 U | 0.037 | 0.075 | 0.0196 U | 0.0190 U | 0.0455 J | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.023 U | 0.04 | 0.023 U | 0.0330 U | 0.0320 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.020 U | 0.059 | 0.020 U | 0.0206 U | 0.0200 U | 0.0594 J | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.034 U | 0.034 U | 0.057 | 0.0340 U | 0.0330 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.033 U | 0.219 | 0.043 | 0.0330 U | 0.0320 U | 0.154 | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.030 U | 0.030 U | 0.030 U | 0.0299 U | 0.0290 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.039 U | 0.039 U | 0.074 | 0.0392 U | 0.0380 U | 0.0426 J | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.265 | 0.10 U | 0.10 U | 0.103 U | 0.100 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.015 U | 0.063 | 0.015 U | 0.0155 U | 0.0150 U | 0.0661 J | 0.00780 J | 0.00700 U |
| Pyrene | µg/L | 0.037 U | 0.312 | 0.161 | 0.0371 U | 0.0360 U | 0.266 | 0.0190 U | 0.0190 U |
| *MNA Parameters* | | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.007 U | 0.017 | 0.052 | 0.007 U | 0.007 U | 0.007 | 0.052 | 0.007 U |
| Alkalinity | mg/L | NA | 140 | 143 | 125 | 232 | 191 | 242 | 250 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.48 | 0.94 | 0.30 U | 0.30 U | 0.55 | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.95 | 1.33 | 0.60 U | 0.60 U | 1.01 | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.5 | 0.67 | 0.91 | 0.46 | 0.34 | 0.59 | 0.60 | 0.33 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.1 | 3.6 | 5.09 | 3.15 | 2.83 | 3.67 | 3.24 | 2.19 |
| Chloride | mg/L | 62.3 | 62.7 | 48.1 | 36.7 | 52.5 | 39.8 | 31.5 | 38.5 |
| Nitrogen, Nitrate | mg/L | 4.6 | 0.2 | 0.1 U | 8.3 | 4.9 | 0.2 | 0.1 U | 3.7 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 119 | 391 | 378 | 177 | 66.0 | 311 | 82 | 70.7 |
| Iron, Dissolved | mg/L | 0.030 U | 0.030 U | 0.063 | 0.030 U | 0.030 U | 0.032 | 0.030 U | 0.030 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW13-GW-026 | MW13-GW-027 | MW13-GW-028 |
|---|---|---|---|---|
| | Date: | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | |
| Lead | mg/L | NS | NS | NS |
| Benzene | µg/L | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.0490 U | 0.0544 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.0850 U | 0.0944 U | 0.0850 U |
| Anthracene | µg/L | 0.0100 U | 0.0356 J | 0.0304 J |
| Benzo(a)anthracene[a] | µg/L | 0.00300 U | 0.0453 J | 0.0446 J |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0356 U | 0.0508 J |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0144 U | 0.0416 J |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.0100 U | 0.00969 J |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0167 U | 0.0224 J |
| Chrysene[a] | µg/L | 0.00500 U | 0.0500 U | 0.0399 J |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0111 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0100 U | 0.123 | 0.133 |
| Fluorene | µg/L | 0.0100 U | 0.0111 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00778 U | 0.0397 J |
| Naphthalene | µg/L | 0.0540 U | 0.0600 U | 0.0540 U |
| Phenanthrene | µg/L | 0.00700 U | 0.0969 J | 0.0686 J |
| Pyrene | µg/L | 0.0190 U | 0.265 | 0.243 |
| *MNA Parameters* | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.006 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.006 U |
| Methane | mg/L | 0.007 U | 0.021 | 0.029 |
| Alkalinity | mg/L | 207 | 196 | 170 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.4 | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.85 | 1.19 |
| Orthophosphate | mg/L | 0.30 U | 0.54 | 0.50 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 6.19 | 4.15 | 4.39 |
| Chloride | mg/L | 30.1 | 44.7 | 44.5 |
| Nitrogen, Nitrate | mg/L | 8.8 | 0.1 | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 163 | 374 | 313 |
| Iron, Dissolved | mg/L | 0.030 U | 0.381 | 0.279 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW14-GW-004 | MW14R-GW-005 | MW14R-GW-006 | MW14R-GW-007 | MW14R-GW-008 | MW14R-GW-NA1 | MW14R-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 1.1 | 0.998 | 0.452 | 17 | 0.904 | NA | 0.61 |
| Benzene | µg/L | 2.8 | **19.6** | 1.5 | 2.1 | **10** | **7.3** | 3.4 |
| Ethylbenzene | µg/L | 1.6 | 68.6 | 2.5 | 46.5 | 40.6 | 2.9 | 1.0 U |
| Toluene | µg/L | 1.0 U | 10.4 | 1.0 U | 2.5 | 1.6 | 1. U | 6.3 |
| Xylenes | µg/L | 1.0 U | 148 | 14.1 | 58.4 | 55.8 | 9.3 | 31.2 |
| Acenaphthene | µg/L | 18 U | 75.3 | 21.4 | 74.5 | 111 | 20. U | 36.7 |
| Acenaphthylene | µg/L | 10 U | 257 | 34 | 231 | 138 | 124 | 139 |
| Anthracene | µg/L | 6.6 U | 18.8 | 9.47 | 17.2 | 17.7 | 10.7 | 18.4 |
| Benzo(a)anthracene[a] | µg/L | **1.7** | **1.4 U** | **0.67** | **1.6** | **0.86** | **0.9** | **3.06** |
| Benzo(a)pyrene[a] | µg/L | **1.2** | **2.5 U** | **0.44 U** | 0.058 U | 0.056 U | **0.4** | **1.82** |
| Benzo(b)fluoranthene[a] | µg/L | **0.62** | **3.8 U** | 0.076 U | 0.058 U | 0.056 U | 0.2 | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 4.5 U | 0.32 U | 0.058 U | 0.146 | 0.3 | 0.82 |
| Benzo(k)fluoranthene[a] | µg/L | **0.51** | **3.0 U** | 0.12 U | 0.058 U | 0.056 U | 0.2 | **0.52** |
| Chrysene[a] | µg/L | **1.5 U** | **1.5 U** | **0.37** | **0.881** | 0.056 U | **0.9** | **1.56** |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | **3.3U** | 0.10 U | 0.058 U | 0.056 U | 0.1 U | 0.12 |
| Fluoranthene | µg/L | 7.8 | 13.4 | 8.17 | 7.57 | 9.5 | 2. U | 10 U |
| Fluorene | µg/L | 2.1 U | 176 | 0.61 U | 154 | 108 | 23.4 | 54.9 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.57** | **3.3 U** | 0.26 U | 0.058 U | 0.056 U | 0.1 | **0.56** |
| Naphthalene | µg/L | 10 U | 459 | 0.19 U | 552 | 160 | 29 | 15.9 |
| Phenanthrene | µg/L | 6.4 U | 90 | 27.4 | 76.3 | 77.7 | 18.3 | 75.3 |
| Pyrene | µg/L | 7.4 | 8.75 | 10.1 | 5.51 | 6.6 | 11.6 | 19 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | 0.04 | 0.007 U | 0.033 |
| Alkalinity | mg/L | NS | NS | NS | NS | 256 | 242 | 302 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1 U | 0.144 | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | 0.94 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | 0.3 U | 0.46 |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 2.9 | 3.3 | 3.4 |
| Chloride | mg/L | NS | NS | NS | NS | 33.9 | 25 | 26.9 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 1.3 | 1 | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.3 | 0.3 | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 82 | 149 | 429 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.03 U | 0.274 |

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
WATER TABLE AQUIFER

| | Sample ID: | MW14R-GW-010 | MW14R-GW-011 | MW14R-GW-012 | MW14R-GW-013 | MW14R-GW-014 | MW14R-GW-015 | MW14R-GW-016 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0026 | 0.0015 U | 0.00200 B | 0.00064 | 0.00268 |
| Benzene | µg/L | 0.9 | **12** | 2.33 | **5.94** | **8.13** | **18.8** | **14** |
| Ethylbenzene | µg/L | 1.0 U | 17.8 | 0.43 U | 4.46 | 4.86 | 24.2 | 12.8 |
| Toluene | µg/L | 1.0 U | 1.0 U | 0.25 U | 0.47 | 1.84 | 1.24 | 1.01 |
| Xylenes | µg/L | 18.6 | 26.5 | 2.3 | 15.8 | 19.3 | 42.4 | 35.2 |
| Acenaphthene | µg/L | 21.3 | 23.6 | 2.87 | 27.5 | 24.2 | 32.6 | 25.5 |
| Acenaphthylene | µg/L | 61 | 74.9 | 0.055 U | 81.9 | 69.8 | 105 | 116 |
| Anthracene | µg/L | 3.4 | 3.6 | 1.38 | 6.5 | 5.16 | 7.32 | 6.87 |
| Benzo(a)anthracene[a] | µg/L | **0.16** | **0.34** | **0.268** | **0.366** | **0.368** | **0.28** | **0.35 U** |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.16 | **0.231** | 0.029 U | **0.31 U** |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.099 | 0.038 U | **0.40 U** |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.141 | 0.087 | 0.145 | 0.036 U | 0.38 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.038 U | 0.062 | 0.14 U | 0.14 U | **1.5 U** |
| Chrysene[a] | µg/L | 0.10 U | 0.2 | **0.209** | **0.234** | **0.235** | 0.124 | **0.32 U** |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.10 U | 0.039 U | 0.039 U | 0.025 U | 0.025 U | 0.26 U |
| Fluoranthene | µg/L | 2.9 | 4.6 | 1.92 | 5.05 | 8.67 | 4.93 | 4.35 |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.042 U | 0.042 U | 11.2 | 0.26 U | 0.28 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.083 | 0.132 | 0.038 U | 0.40 U |
| Naphthalene | µg/L | 1.9 | 9.5 | 0.218 | 1.88 | 2.45 | 20.7 | 4.69 |
| Phenanthrene | µg/L | 0.91 | 26.3 | 0.342 | 19.4 | 10.9 | 25.4 | 22.9 |
| Pyrene | µg/L | 4 | 3.6 | 1.79 | 3.87 | 3.48 | 2.12 | 1.2 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.101 U | 0.010 U | 0.010 U | 0.008 U | 0.010 U |
| Methane | mg/L | 0.009 | 0.021 | 0.013 | 0.103 | 0.097 | 0.043 | 0.044 |
| Alkalinity | mg/L | 254 | 220 | 245 | 272 | 267 | 226 | 241 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 0.37 | 0.15 | 0.41 | 0.49 | 0.93 | 0.92 |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 0.74 | 0.45 | 0.53 | 0.88 | 1.28 | 1.17 |
| Orthophosphate | mg/L | 0.54 | 0.51 | 0.46 | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 3 | 3.5 | 2.7 | 2.7 | 2.6 | 2.9 | 3.5 |
| Chloride | mg/L | 36.8 | 31.5 | 33.5 | 36.1 | 35.8 | 43.5 | 50.5 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 6.7 | 0.1 U | 0.1 U | 0.4 | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 319 | 362 | 210 | 326 | 345 | 649 | 726 |
| Iron, Dissolved | mg/L | 0.123 | 0.063 | 0.030 U | 0.142 | 0.463 | 1.2 | 1.15 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW14R-GW-017 | MW14R-GW-018 | MW14R-GW-019 | MW14R-GW-020 | MW14R-GW-021 | MW14R-GW-022 | MW14R-GW-023 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 |
| | Dam Position: | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0025 | 0.0076 | NS | NS | NS | NS | NS |
| Benzene | µg/L | **7.61** | 0.34 | **11** | **17.2** | 1.37 | 0.500 U | **11.0** |
| Ethylbenzene | µg/L | 4.87 | 0.43 U | 13.8 | 24.2 | 1.00 U | 1.00 U | 12.0 |
| Toluene | µg/L | 0.64 | 0.25 U | 0.94 | 0.7 | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 17.7 | 0.85 | 20.4 | 31.8 | 3.67 | 3.00 U | 16.2 |
| Acenaphthene | µg/L | 34.3 | 8.12 | 33.6 | 33.5 | 20.4 | 2.56 | 14.7 |
| Acenaphthylene | µg/L | 121 | 18.5 | 74.1 | 80.2 | 52.7 | 6.4 | 38.5 |
| Anthracene | µg/L | 7.69 | 2.36 | 6.81 | 6.99 | 6.79 | 0.523 | 2.04 |
| Benzo(a)anthracene[a] | µg/L | **0.44** | **0.206** | **0.422** | **0.26** | **0.244** | **0.29** | **0.117** |
| Benzo(a)pyrene[a] | µg/L | 0.059 U | **0.217** | **0.308** | 0.11 | 0.0370 U | 0.195 | 0.0915 J |
| Benzo(b)fluoranthene[a] | µg/L | 0.078 U | 0.12 | 0.142 | 0.038 U | 0.0230 U | 0.0859 | 0.0632 J |
| Benzo(g,h,i)perylene | µg/L | 0.073 U | 0.094 | 0.073 | 0.033 U | 0.0781 | 0.308 | 0.0417 J |
| Benzo(k)fluoranthene[a] | µg/L | **0.29 U** | 0.024 U | 0.024 U | 0.024 U | 0.0320 U | 0.149 | 0.0325 J |
| Chrysene[a] | µg/L | **0.28 U** | **0.297** | **0.37** | **0.212** | **0.285** | **0.349** | 0.101 |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.051 U | 0.034 U | 0.034 U | 0.034 U | 0.0330 U | 0.0330 U | 0.0100 U |
| Fluoranthene | µg/L | 6 | 2.99 | 6.08 | 5.25 | 4.58 | 1.16 | 1.55 |
| Fluorene | µg/L | 0.053 U | 0.030 U | 0.030 U | 0.030 U | 14.1 | 0.828 | 8.65 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.078 U | 0.104 | 0.071 | 0.039 U | 0.0380 U | 0.111 | 0.0393 J |
| Naphthalene | µg/L | 4.12 | 0.38 | 7.16 | 5.82 | 1.14 | 0.173 | 2.88 |
| Phenanthrene | µg/L | 10.7 | 2.81 | 20.3 | 20.2 | 16.3 | 0.423 | 2.19 |
| Pyrene | µg/L | 5.6 | 2.35 | 15.1 | 13.4 | 13.1 | 1.03 | 3.37 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.091 | 0.007 U | 0.044 | 0.041 | 0.007 U | 0.007 U | 0.029 |
| Alkalinity | mg/L | 271 | NA | 139 | 243 | 267 | 243 | 244 |
| Nitrogen, Ammonia | mg/L | 0.92 | 0.30 U | 0.4 | 0.57 | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 1.22 | 0.60 U | 0.67 | 0.79 | 0.60 U | 0.60 U | 0.61 |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.44 | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 3.8 | 3.7 | 3 | 3.64 | 3.16 | 2.52 | 2.81 |
| Chloride | mg/L | 51.4 | 62.7 | 39.8 | 33.6 | 44.5 | 48.6 | 40.2 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 3.1 | 0.1 U | 0.1 U | 3 | 4.5 | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 761 | 120 | 346 | 558 | 267 | 88.1 | 423 |
| Iron, Dissolved | mg/L | 1.08 | 0.030 U | 0.031 | 0.181 | 0.037 | 0.030 U | 0.050 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW14R-GW-024 | MW14R-GW-025 | MW14R-GW-026 | MW14R-GW-027 | MW14R-GW-028 |
|---|---|---|---|---|---|---|
| | Date: | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS |
| Benzene | µg/L | 4.53 | 0.500 U | 1.05 | **10.2** | **10.6** |
| Ethylbenzene | µg/L | 4.72 | 1.00 U | 1.00 U | 14.1 | 20.0 |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 11.3 | 3.00 U | 3.00 U | 14.3 | 22.7 |
| Acenaphthene | µg/L | 20.1 | 5.56 | 4.87 | 27.8 | 37.5 |
| Acenaphthylene | µg/L | 48.2 | 11.1 | 8.48 | 80.1 | 92.5 |
| Anthracene | µg/L | 4.80 | 2.43 | 0.707 | 4.61 | 6.43 |
| Benzo(a)anthracene[a] | µg/L | **0.199** | **0.169** | **0.300** | **0.215** | **0.221** |
| Benzo(a)pyrene[a] | µg/L | 0.152 | 0.110 | **0.366** | 0.162 | 0.152 |
| Benzo(b)fluoranthene[a] | µg/L | 0.104 | 0.0972 J | **0.252** | 0.116 | 0.124 |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.139 J | 0.0365 J | 0.0300 J |
| Benzo(k)fluoranthene[a] | µg/L | 0.0393 J | 0.0583 J | 0.121 | 0.0495 J | 0.0466 J |
| Chrysene[a] | µg/L | **0.245** | 0.146 | **0.301** | **0.217** | **0.249** |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0181 J | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 3.22 | 3.11 | 2.06 | 3.35 | 4.38 |
| Fluorene | µg/L | 14.3 | 0.0100 U | 0.0100 U | 23.9 | 27.4 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.181 | 0.0435 J | 0.0648 J |
| Naphthalene | µg/L | 11.9 | 0.603 | 0.0540 U | 5.30 | 6.62 |
| Phenanthrene | µg/L | 11.1 | 1.85 | 0.493 | 13.3 | 18.6 |
| Pyrene | µg/L | 8.27 | 4.58 | 2.24 | 7.35 | 11.4 |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.067 | 0.007 U | 0.007 U | 0.057 | 0.061 |
| Alkalinity | mg/L | 272 | 267 | 225 | 216 | 217 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.33 | 0.62 |
| Nitrogen, Total Kjeldahl | mg/L | 0.76 | 0.63 | 0.60 U | 0.67 | 0.98 |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.11 | 0.10 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 2.84 | 2.24 | 3.13 | 3.01 | 2.90 |
| Chloride | mg/L | 35.0 | 38.6 | 42.5 | 38.7 | 28.2 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 3.3 | 5.9 | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 367 | 103 | 119 | 733 | 700 |
| Iron, Dissolved | mg/L | 0.055 | 0.030 U | 0.030 U | 0.125 | 0.421 |

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
WATER TABLE AQUIFER

| | Sample ID: | MW21-GW-004 | MW21-GW-005 | MW21-GW-006 | MW21-GW-007 | MW21-GW-008 | MW21-GW-NA1 | MW21-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS | NS | 0.0050 U |
| Benzene | µg/L | NS | NS | NS | NS | NS | NS | 1.0 U |
| Ethylbenzene | µg/L | NS | NS | NS | NS | NS | NS | 1.0 U |
| Toluene | µg/L | NS | NS | NS | NS | NS | NS | 1.0 U |
| Xylenes | µg/L | NS | NS | NS | NS | NS | NS | 3.0 U |
| Acenaphthene | µg/L | NS | NS | NS | NS | NS | NS | 0.19 U |
| Acenaphthylene | µg/L | NS | NS | NS | NS | NS | NS | 0.19 U |
| Anthracene | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Benzo(a)anthracene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Benzo(a)pyrene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Benzo(b)fluoranthene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Benzo(k)fluoranthene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Chrysene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Dibenzo(a,h)anthracene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Fluoranthene | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Fluorene | µg/L | NS | NS | NS | NS | NS | NS | 0.19 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Naphthalene | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Phenanthrene | µg/L | NS | NS | NS | NS | NS | NS | 0.10 U |
| Pyrene | µg/L | NS | NS | NS | NS | NS | NS | 0.19 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NS | NS | 0.007 U |
| Ethane | mg/L | NS | NS | NS | NS | NS | NS | 0.007 U |
| Methane | mg/L | NS | NS | NS | NS | NS | NS | 0.009 |
| Alkalinity | mg/L | NS | NS | NS | NS | NS | NS | 280 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | NS | NS | 1.0 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | NS | NS | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | NS | NS | 0.30 U |
| Sulfide, Total | mg/L | NS | NS | NS | NS | NS | NS | 0.42 |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | NS | NS | 1 |
| Chloride | mg/L | NS | NS | NS | NS | NS | NS | 119 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | NS | NS | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | NS | NS | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | NS | NS | 88.3 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | NS | 1.4 |

## ATTACHMENT C

## GROUNDWATER ANALYTICAL RESULTS
## WATER TABLE AQUIFER

| | Sample ID: | MW21-GW-010 | MW21-GW-011 | MW21-GW-012 | MW21-GW-013 | MW21-GW-014 | MW21-GW-015 | MW21-GW-016 | MW21-GW-017 |
|---|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 | Dec-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00306 B | 0.00050 U | 0.00050 U | 0.00050 U |
| Benzene | µg/L | 0.5 U | 0.5 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 0.82 | 0.25 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 3.0 U | 3.0 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 0.19 U | 0.19 U | 0.031 U | 0.031 U | 0.073 U | 0.073 U | 0.073 U | 0.076 U |
| Acenaphthylene | µg/L | 0.19 U | 0.19 U | 0.055 U | 0.055 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| Anthracene | µg/L | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.024 U | 0.024 U | 0.092 | 0.025 U |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.13 U** | 0.028 U | 0.028 U | 0.033 U | 0.033 U | 0.033 U | 0.034 U |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U | 0.029 U | 0.029 U | 0.030 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U | 0.038 U | 0.038 U | 0.040 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.036 U | 0.036 U | 0.036 U | 0.037 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.129 | 0.038 U | 0.14 U | 0.14 U | 0.14 U | 0.15 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.032 U | 0.032 U | 0.030 U | 0.030 U | 0.030 U | 0.031 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.10 U | 0.287 | 0.039 U | 0.025 U | 0.025 U | 0.025 U | 0.026 U |
| Fluoranthene | µg/L | 0.19 U | 0.19 U | 0.049 U | 0.049 U | 0.067 U | 0.067 U | 0.067 U | 0.070 U |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.042 U | 0.042 U | 0.026 U | 0.026 U | 0.026 U | 0.027 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U | 0.038 U | 0.038 U | 0.040 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | 0.252 | 0.054 U | 0.042 U | 0.042 U | 0.427 | 0.044 U |
| Phenanthrene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.018 U | 0.018 U | 0.304 | 0.019 U |
| Pyrene | µg/L | 0.19 U | 0.19 U | 0.099 U | 0.099 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| *MNA Parameters* | | | | | | | | | |
| Ethylene | mg/L | 0.017 U | 0.007 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.007 U |
| Ethane | mg/L | 0.017 U | 0.007 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.007 U |
| Methane | mg/L | 0.013 | 0.022 | 0.044 | 0.038 | 0.043 | 0.007 U | 0.007 U | 0.025 |
| Alkalinity | mg/L | 230 | 267 | 263 | 234 | 275 | 250 | 227 | 241 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 0.19 | 0.2 | 0.24 | 0.18 | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 0.35 | 0.24 | 0.46 | 0.39 | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.52 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.24 | 0.10 U | 0.14 | 0.24 | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1.2 | 0.9 | 0.8 | 0.9 | 0.7 | 0.4 | 0.8 | 0.9 |
| Chloride | mg/L | 155 | 135 | 150 | 167 | 186 | 203 | 241 | 344 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.2 | 0.1 U | 0.1 U | 0.1 | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 75.9 | 87.7 | 80.9 | 71.6 | 95.6 | 94.8 | 82.5 | 80.6 |
| Iron, Dissolved | mg/L | 0.97 | 2.49 | 3.01 | 1.41 | 1.23 | 3.39 | 2.29 | 1.84 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW21-GW-018 | MW21-GW-019 | MW21-GW-020 | MW21-GW-021 | MW21-GW-022 | MW21-GW-023 | MW21-GW-024 | MW21-GW-025 |
|---|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 | Sep-06 | Dec-06 |
| | Dam Position: | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down | Dam Up |
| *Compliance Parameters* | Units | | | | | | | | |
| Lead | mg/L | 0.0016 U | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.25 U | 0.170 U | 0.10 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 0.43 U | 0.63 U | 0.44 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.09 U | 0.09 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.38 U | 0.93 U | 0.24 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.13 U | 0.13 U | 0.14 U | 0.134 U | 0.130 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.17 U | 0.17 U | 0.18 U | 0.175 U | 0.170 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0095 U | 0.0095 U | 0.0098 U | 0.00959 U | 0.00930 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.019 U | 0.019 U | 0.020 U | 0.0196 U | 0.0190 U | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.019 U | 0.019 U | 0.020 U | 0.0381 U | 0.0370 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.038 U | 0.039 U | 0.0237 U | 0.0230 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.033 U | 0.033 U | 0.034 U | 0.0196 U | 0.0190 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.023 U | 0.023 U | 0.024 U | 0.0330 U | 0.0320 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.020 U | 0.020 U | 0.021 U | 0.0206 U | 0.0200 U | 0.00500 U | 0.00547 J | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.034 U | 0.034 U | 0.035 U | 0.0340 U | 0.0330 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.033 U | 0.033 U | 0.034 U | 0.0330 U | 0.0320 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.030 U | 0.030 U | 0.030 U | 0.0299 U | 0.0290 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.039 U | 0.039 U | 0.040 U | 0.0392 U | 0.0380 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.103 U | 0.100 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.015 U | 0.015 U | 0.016 U | 0.0155 U | 0.0150 U | 0.00700 U | 0.0109 J | 0.00700 U |
| Pyrene | µg/L | 0.037 U | 0.037 U | 0.038 U | 0.0371 U | 0.0360 U | 0.0190 U | 0.0190 U | 0.0190 U |
| *MNA Parameters* | | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.013 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.013 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.02 | 0.009 U | 0.01 | 0.039 | 0.007 U | 0.007 | 0.018 | 0.040 |
| Alkalinity | mg/L | NA | 236 | 243 | 240 | 258 | 270 | 250 | 226 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.1 | 0.13 | 0.10 U | 0.11 | 0.10 U | 0.16 | 0.19 | 0.17 |
| Total Organic Carbon | mg/L | 0.9 | 0.8 | 2.02 | 0.87 | 2.94 | 0.83 | 0.64 | 0.63 |
| Chloride | mg/L | 249 | 332 | 229 | 317 | 128 | 342 | 266 | 18.9 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 5.4 | 0.1 U | 0.1 U | 0.1 U | 0.3 | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 283 | 109 | 106 | 102 | 25.1 | 116 | 117 | 21.1 |
| Iron, Dissolved | mg/L | 1.4 | 2.45 | 0.79 | 0.943 | 0.559 | 1.08 | 1.25 | 0.588 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW21-GW-026 | MW21-GW-027 | MW21-GW-028 |
|---|---|---|---|---|
| | Date: | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | |
| Lead | mg/L | NS | NS | NS |
| Benzene | µg/L | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.00300 U | 0.00421 J | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.00500 U | 0.0111 J | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0100 U | 0.0295 J | 0.0100 U |
| Fluorene | µg/L | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.0314 J | 0.0339 J | 0.00700 U |
| Pyrene | µg/L | 0.0381 J | 0.0643 J | 0.0190 U |
| *MNA Parameters* | | | | |
| Ethylene | mg/L | 0.008 U | 0.013 U | 0.010 U |
| Ethane | mg/L | 0.008 U | 0.013 U | 0.010 U |
| Methane | mg/L | 0.005 U | 0.026 | 0.030 |
| Alkalinity | mg/L | 283 | 230 | 219 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.69 |
| Orthophosphate | mg/L | 0.30 U | 0.19 | 0.10 U |
| Sulfide, Total | mg/L | 0.11 | 0.10 U | 0.18 |
| Total Organic Carbon | mg/L | 0.81 | 1.04 | 1.02 |
| Chloride | mg/L | 160 | 163 | 133 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 71.8 | 65.6 | 53.5 |
| Iron, Dissolved | mg/L | 0.451 | 0.633 | 0.493 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW23-GW-004 | MW23R-GW-005 | MW23R-GW-006 | MW23R-GW-007 | MW23R-GW-008 | MW23R-GW-NA1 | MW23R-GW-009 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0050 U | 0.0156 | 0.0322 | 0.842 | 0.316 | NA | 0.0040 U |
| Benzene | µg/L | **6.7** | **6.9** | **17.5** | 1.4 | 0.5 U | **25.2** | 1.8 |
| Ethylbenzene | µg/L | 18.2 | 1.0 U | 8.2 | 1.0 U | 1.0 U | 10. U | 1.0 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 10. U | 1.0 U |
| Xylenes | µg/L | 19.6 | 3.0 U | 10.4 | 3.0 U | 3.0 U | 10. U | 3.0 U |
| Acenaphthene | µg/L | 52 | 11.4 | 44.3 | 16.4 | 15.1 | 123 | 28.8 |
| Acenaphthylene | µg/L | 90 | 10.1 | 65.1 | 20.1 | 13.1 | 134 | 27.9 |
| Anthracene | µg/L | 23 | 1.35 | 4.8 | 2.71 | 2.1 | 7.5 | 2.06 |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.17** | **0.16 U** | **0.328** | **0.59** | 0.1 U | 0.10 U |
| Benzo(a)pyrene[a] | µg/L | **0.23 U** | 0.12 | **0.43 U** | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.18 U | 0.15 U | 0.075 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 0.18 U | 0.32 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.17 U | 0.12 U | 0.12 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Chrysene[a] | µg/L | **1.5 U** | 0.12 U | 0.11 U | **0.244** | **0.356** | 0.1 U | 0.10 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.13 U | 0.10 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Fluoranthene | µg/L | 6.4 | 0.9 | 3.25 | 2.2 | 2.18 | 2. U | 0.10 U |
| Fluorene | µg/L | 47 | 5.58 | 39.7 | 0.11 U | 5.5 | 31 | 2.77 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | **0.43 U** | 0.13 U | 0.26 U | 0.055 U | 0.056 U | 0.1 U | 0.10 U |
| Naphthalene | µg/L | 210 | 1.88 | 24.2 | 0.738 | 0.056 U | 16 | 0.37 |
| Phenanthrene | µg/L | 49 | 4.48 | 21.1 | 10.5 | 6.37 | 21.3 | 13.3 |
| Pyrene | µg/L | 4 | 0.73 | 0.55 U | 1.44 | 2.83 | 2. U | 0.19 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NA | 0.07 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NA | 0.07 U |
| Methane | mg/L | NS | NS | NS | NS | 0.08 | 0.0363 | 0.036 |
| Alkalinity | mg/L | NS | NS | NS | NS | 236 | 198 | 329 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1 U | 1.61 | 1.5 |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | 2.07 | 10 U |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | 0.3 U | 0.30 U |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 3.6 | 3.3 | 3.8 |
| Chloride | mg/L | NS | NS | NS | NS | 110 | 55 | 16.7 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 1,050 | 1,140 | 548 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 7.13 | 17 |

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
WATER TABLE AQUIFER

| | Sample ID: | MW23R-GW-010 | MW23R-GW-011 | MW23R-GW-012 | MW23R-GW-013 | MW23R-GW-014 | MW23R-GW-015 | MW23R-GW-016 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00111 B | 0.00050 U | 0.00050 U |
| Benzene | µg/L | 1.2 | 0.65 | **43.8** | 4.39 | 1.62 | 0.25 U | 1.04 |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 30.8 | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.33 | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 3.0 U | 3.0 U | 13.4 | 2.19 | 1.5 | 0.38 U | 0.6 |
| Acenaphthene | µg/L | 37.8 | 20.3 | 42.5 | 46.3 | 47.8 | 21.7 | 29.3 |
| Acenaphthylene | µg/L | 40.4 | 10.7 | 52.3 | 36.6 | 34.2 | 8.5 | 16.8 |
| Anthracene | µg/L | 1.8 | 1.1 | 3.46 | 3.04 | 1.83 | 0.361 | 1.29 |
| Benzo(a)anthracene[a] | µg/L | **0.13 U** | **0.13 U** | **0.163** | **0.145** | **0.122** | 0.052 | **0.145** |
| Benzo(a)pyrene[a] | µg/L | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U | 0.029 U | 0.030 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U | 0.038 U | 0.040 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.036 U | 0.036 U | 0.038 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.038 U | 0.038 U | 0.14 U | 0.14 U | 0.15 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.076 | 0.064 | 0.059 | 0.054 | 0.059 |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.10 U | 0.039 U | 0.039 U | 0.025 U | 0.025 U | 0.026 U |
| Fluoranthene | µg/L | 2.4 | 1.8 | 2.87 | 0.049 U | 0.067 U | 1.69 | 2.36 |
| Fluorene | µg/L | 0.19 U | 2.5 | 17.7 | 0.042 U | 0.026 U | 2.12 | 0.027 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U | 0.038 U | 0.040 U |
| Naphthalene | µg/L | 0.72 | 1.3 | 20.9 | 0.375 | 0.622 | 0.042 U | 0.304 |
| Phenanthrene | µg/L | 6.1 | 1.6 | 15.1 | 11.9 | 11.7 | 0.018 U | 0.591 |
| Pyrene | µg/L | 3.2 | 2.3 | 0.5 U | 1.56 | 1.29 | 0.702 | 0.439 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.039 | 0.04 | 0.126 | 0.078 | 0.04 | 0.04 | 0.042 |
| Alkalinity | mg/L | 366 | 392 | 241 | 327 | 364 | 474 | 422 |
| Nitrogen, Ammonia | mg/L | 1.0 U | 1.32 | 1.26 | 1.62 | 1.42 | 1.23 | 1.02 |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 1.24 | 1.32 | 1.95 | 1.71 | 1.67 | 1.31 |
| Orthophosphate | mg/L | 0.67 | 0.78 | 0.62 | 0.32 | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.1 | 6.6 | 2.9 | 3.9 | 3.7 | 5.2 | 5.5 |
| Chloride | mg/L | 17.6 | 15.2 | 28.4 | 21 | 16.8 | 10.9 | 12.1 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 395 | 652 | 673 | 702 | 418 | 602 | 426 |
| Iron, Dissolved | mg/L | 15.2 | 12.9 | 8.24 | 13.1 | 13.9 | 9.88 | 9.79 |

## ATTACHMENT C

### GROUNDWATER ANALYTICAL RESULTS
### WATER TABLE AQUIFER

| | Sample ID: | MW23R-GW-017 | MW23R-GW-018 | MW23R-GW-019 | MW23R-GW-020 | MW23R-GW-021 | MW23R-GW-022 | MW23R-GW-023 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 |
| | Dam Position: | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.00050 U | 0.0016 U | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.45 | **66.6** | 2.27 | 3.64 | **31.2** | **54.1** | 0.500 U |
| Ethylbenzene | µg/L | 0.43 U | 49 | 1.86 | 0.44 U | 16.8 | 60.5 | 1.00 U |
| Toluene | µg/L | 0.25 U | 2.29 | 0.12 | 0.21 | 1.01 | 2.27 | 1.00 U |
| Xylenes | µg/L | 0.38 U | 45.2 | 1.41 | 2.9 | 9.16 | 19.6 | 3.00 U |
| Acenaphthene | µg/L | 26.6 | 40.9 | 23.6 | 27 | 33.6 | 42.6 | 17.0 |
| Acenaphthylene | µg/L | 14.1 | 48 | 12.8 | 17.1 | 30.3 | 0.850 U | 9.00 |
| Anthracene | µg/L | 1.13 | 3.47 | 2.12 | 1.37 | 2.26 | 2.83 | 1.37 |
| Benzo(a)anthracene[a] | µg/L | 0.075 | **0.169** | 0.019 U | 0.046 | 0.0713 | 0.0736 | 0.0539 J |
| Benzo(a)pyrene[a] | µg/L | 0.030 U | 0.019 U | 0.020 U | 0.020 U | 0.0370 U | 0.0370 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.039 U | 0.038 U | 0.037 U | 0.038 U | 0.0230 U | 0.0230 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.037 U | 0.033 U | 0.032 U | 0.033 U | 0.0190 U | 0.0190 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.14 U | 0.023 U | 0.023 U | 0.024 U | 0.0320 U | 0.0320 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.05 | 0.094 | 0.034 | 0.026 | 0.109 | 0.0964 | 0.0343 J |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.026 U | 0.034 U | 0.033 U | 0.034 U | 0.0330 U | 0.0330 U | 0.0100 U |
| Fluoranthene | µg/L | 2.25 | 3.72 | 2.63 | 3.03 | 3.37 | 3.04 | 2.14 |
| Fluorene | µg/L | 0.027 U | 0.030 U | 0.029 U | 0.030 U | 19.4 | 24.8 | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.039 U | 0.039 U | 0.038 U | 0.039 U | 0.0380 U | 0.0380 U | 0.00700 U |
| Naphthalene | µg/L | 0.48 | 32.2 | 0.544 | 0.529 | 16.5 | 14.3 | 0.0540 U |
| Phenanthrene | µg/L | 0.35 | 13.9 | 7.67 | 4.73 | 10.3 | 14.2 | 2.11 |
| Pyrene | µg/L | 0.81 | 0.779 | 7.64 | 5.5 | 6.68 | 0.0360 U | 4.65 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.013 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.013 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.04 | 0.068 | 0.034 | 0.034 | 0.058 | 0.080 | 0.047 |
| Alkalinity | mg/L | 462 | NA | 412 | 367 | 333 | 243 | 405 |
| Nitrogen, Ammonia | mg/L | 1.1 | 1.24 | 0.88 | 1.55 | 1.34 | 0.95 | 0.65 |
| Nitrogen, Total Kjeldahl | mg/L | 1.44 | 1.43 | 1 | 1.83 | 1.66 | 1.25 | 1.05 |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.32 |
| Sulfide, Total | mg/L | 0.120 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 5.5 | 3.8 | 5.9 | 6.7 | 4.01 | 6.59 | 5.31 |
| Chloride | mg/L | 11.3 | 28.5 | 13.2 | 16.7 | 23.3 | 28.4 | 13.3 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.5 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.5 U |
| Sulfate | mg/L | 53.2 | 1,010 | 1,010 | 893 | 862 | 701 | 989 |
| Iron, Dissolved | mg/L | 12.1 | 12.1 | 10.3 | 16.6 | 13.2 | 8.52 | 9.26 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW23R-GW-024 | MW23R-GW-025 | MW23R-GW-026 | MW23R-GW-027 | MW23R-GW-028 |
|---|---|---|---|---|---|---|
| | Date: | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS |
| Benzene | µg/L | **6.31** | **40.3** | **34.0** | 1.23 | 1.23 |
| Ethylbenzene | µg/L | 1.00 U | 17.7 | 23.3 | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.14 | 7.01 | 21.6 | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 30.9 | 41.5 | 41.7 | 24.2 | 16.1 |
| Acenaphthylene | µg/L | 20.8 | 31.0 | 30.6 | 15.6 | 9.29 |
| Anthracene | µg/L | 1.81 | 3.62 | 3.05 | 1.14 | 0.969 |
| Benzo(a)anthracene[a] | µg/L | 0.0532 J | 0.0763 J | 0.0828 J | 0.0404 J | 0.0510 J |
| Benzo(a)pyrene[a] | µg/L | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.0733 J | 0.0796 J | 0.0665 J | 0.0497 J | 0.102 |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 1.77 | 4.20 | 3.51 | 2.65 | 2.71 |
| Fluorene | µg/L | 14.1 | 23.4 | 21.1 | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.607 | 3.52 | 3.88 | 0.22 | 0.0540 U |
| Phenanthrene | µg/L | 7.00 | 13.3 | 10.1 | 2.2 | 0.00700 U |
| Pyrene | µg/L | 6.24 | 9.43 | 7.30 | 2.54 | 1.91 |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.007 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.007 U |
| Methane | mg/L | 0.037 | 0.054 | 0.044 | 0.027 | 0.018 |
| Alkalinity | mg/L | 264 | 263 | 184 | 336 | 494 |
| Nitrogen, Ammonia | mg/L | 1.46 | 1.12 | 0.69 | 0.65 | 0.62 |
| Nitrogen, Total Kjeldahl | mg/L | 1.72 | 1.24 | 0.98 | 1.26 | 1.01 |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.16 | 0.21 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 3.68 | 2.50 | 2.08 | 4.38 | 5.22 |
| Chloride | mg/L | 17.8 | 23.3 | 22.1 | 14.6 | 5.5 |
| Nitrogen, Nitrate | mg/L | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 1,110 | 859 | 919 | 1,210 | 787 |
| Iron, Dissolved | mg/L | 15.7 | 11.9 | 9.66 | 8.18 | 7.45 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW36-GW-NA1 | MW36-GW-009 | MW36-GW-010 | MW36-GW-011 | MW36-GW-012 | MW36-GW-013 | MW36-GW-014 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Jul-99 | Nov-01 | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | NA | 0.0040 U | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00120 B |
| Benzene | µg/L | 1. U | 1.0 U | 0.5 U | 0.5 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1. U | 1.0 U | 1.0 U | 1.0 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1. U | 1.0 U | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 1. U | 3.0 U | 3.0 U | 3.0 U | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 2. U | 0.19 U | 0.19 U | 0.19 U | 0.031 U | 0.073 U | 0.073 U |
| Acenaphthylene | µg/L | 2. U | 0.19 U | 0.19 U | 0.19 U | 0.055 U | 0.12 U | 0.12 U |
| Anthracene | µg/L | 0.5 U | 0.10 U | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.024 U |
| Benzo(a)anthracene[a] | µg/L | 0.1 U | 0.10 U | **0.13 U** | **0.13 U** | 0.028 U | 0.033 U | 0.033 U |
| Benzo(a)pyrene[a] | µg/L | 0.1 U | 0.10 U | 0.19 U | 0.19 U | 0.050 U | 0.029 U | 0.029 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.038 U | 0.038 U |
| Benzo(g,h,i)perylene | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.036 U | 0.036 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.136 | 0.14 U | 0.14 U |
| Chrysene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.032 U | 0.030 U | 0.030 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.039 U | 0.025 U | 0.025 U |
| Fluoranthene | µg/L | 0.2 U | 0.10 U | 0.19 U | 0.19 U | 0.049 U | 0.067 U | 0.067 U |
| Fluorene | µg/L | 0.5 U | 0.19 U | 0.19 U | 0.19 U | 0.042 U | 0.026 U | 0.026 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.034 U | 0.038 U | 0.038 U |
| Naphthalene | µg/L | 2. U | 0.10 U | 0.10 U | 0.10 U | 0.054 U | 0.042 U | 0.084 |
| Phenanthrene | µg/L | 0.5 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.018 U | 0.018 U |
| Pyrene | µg/L | 0.2 U | 0.19 U | 0.19 U | 0.19 U | 0.099 U | 0.11 U | 0.11 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NA | 0.006 U | 0.10 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U |
| Ethane | mg/L | NA | 0.006 U | 0.10 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U |
| Methane | mg/L | 0.009 U | 0.005 | 0.061 | 0.007 | 0.007 U | 0.007 U | 0.006 U |
| Alkalinity | mg/L | 270 | 398 | 324 | 341 | 286 | 329 | 319 |
| Nitrogen, Ammonia | mg/L | 0.1 U | 1.0 U | 1.0 U | 0.12 | 0.13 | 0.18 | 0.16 |
| Nitrogen, Total Kjeldahl | mg/L | 0.639 | 10 U | 10 U | 0.27 | 0.3 | 0.33 | 0.41 |
| Orthophosphate | mg/L | 0.3 U | 0.7 | 0.89 | 0.93 | 0.65 | 0.37 | 0.30 U |
| Sulfide, Total | mg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 3.4 | 1.6 | 1.9 | 1.9 | 1.9 | 1.6 | 1.5 |
| Chloride | mg/L | 33 | 28 | 45.2 | 50.4 | 40.2 | 40.1 | 66.4 |
| Nitrogen, Nitrate | mg/L | 6.2 | 3.1 | 0.8 | 4.8 | 2.9 | 3.6 | 3.7 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 158 | 91 | 120 | 119 | 101 | 115 | 121 |
| Iron, Dissolved | mg/L | 0.03 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.30 U | 0.030 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW36-GW-015 | MW36-GW-016 | MW36-GW-017 | MW36-GW-018 | MW36-GW-019 | MW36-GW-020 | MW36-GW-021 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Jun-04 | Sep-04 | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | 0.00050 U | 0.00050 U | 0.00050 U | 0.0016 U | NS | NS | NS |
| Benzene | µg/L | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.170 U | 0.10 U | 0.500 U |
| Ethylbenzene | µg/L | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.63 U | 0.44 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.09 U | 0.09 U | 1.00 U |
| Xylenes | µg/L | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.93 U | 0.24 U | 3.00 U |
| Acenaphthene | µg/L | 0.073 U | 0.073 U | 0.077 U | 0.13 U | 0.13 U | 0.13 U | 0.133 U |
| Acenaphthylene | µg/L | 0.12 U | 0.12 U | 0.13 U | 0.18 U | 0.17 U | 0.18 U | 0.173 U |
| Anthracene | µg/L | 0.024 U | 0.024 U | 0.025 U | 0.0096 U | 0.0095 U | 0.0096 U | 0.00949 U |
| Benzo(a)anthracene[a] | µg/L | 0.033 U | 0.033 U | 0.035 U | 0.020 U | 0.019 U | 0.020 U | 0.0194 U |
| Benzo(a)pyrene[a] | µg/L | 0.029 U | 0.029 U | 0.030 U | 0.020 U | 0.019 U | 0.020 U | 0.0378 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.038 U | 0.040 U | 0.038 U | 0.038 U | 0.038 U | 0.0235 U |
| Benzo(g,h,i)perylene | µg/L | 0.036 U | 0.036 U | 0.038 U | 0.033 U | 0.033 U | 0.033 U | 0.0194 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.14 U | 0.14 U | 0.15 U | 0.024 U | 0.023 U | 0.024 U | 0.0327 U |
| Chrysene[a] | µg/L | 0.030 U | 0.030 U | 0.032 U | 0.021 U | 0.020 U | 0.021 U | 0.0204 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.025 U | 0.025 U | 0.026 U | 0.034 U | 0.034 U | 0.034 U | 0.0337 U |
| Fluoranthene | µg/L | 0.067 U | 0.067 U | 0.070 U | 0.033 U | 0.033 U | 0.033 U | 0.0327 U |
| Fluorene | µg/L | 0.026 U | 0.026 U | 0.027 U | 0.030 U | 0.030 U | 0.030 U | 0.0296 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.038 U | 0.038 U | 0.040 U | 0.039 U | 0.039 U | 0.039 U | 0.0388 U |
| Naphthalene | µg/L | 0.042 U | 0.042 U | 0.71 | 0.10 U | 0.10 U | 0.10 U | 0.102 U |
| Phenanthrene | µg/L | 0.018 U | 0.018 U | 0.019 U | 0.015 U | 0.015 U | 0.015 U | 0.0153 U |
| Pyrene | µg/L | 0.11 U | 0.11 U | 0.12 U | 0.037 U | 0.037 U | 0.037 U | 0.0367 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.006 U | 0.165 | 0.007 U | 0.007 U | 0.007 U | 0.07 | 0.007 U |
| Alkalinity | mg/L | 341 | 344 | 312 | NA | 290 | 371 | 299 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.42 | 0.30 U | 0.8 | 0.38 | 0.30 U | 0.71 | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1.8 | 1.8 | 2.6 | 2.2 | 2 | 1.92 | 2.14 |
| Chloride | mg/L | 83.6 | 62.5 | 68.8 | 50.6 | 66.5 | 44.1 | 57.6 |
| Nitrogen, Nitrate | mg/L | 3.4 | 1.7 | 1.5 | 5.2 | 3.7 | 1.5 | 5.1 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 111 | 83.4 | 239 | 152 | 201 | 107 | 174 |
| Iron, Dissolved | mg/L | 0.100 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U |

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
WATER TABLE AQUIFER

| | Sample ID: | MW36-GW-022 | MW36-GW-023 | MW36-GW-024 | MW36-GW-025 | MW36-GW-026 | MW36-GW-027 | MW36-GW-028 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-06 | Jun-06 | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.130 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.170 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.00930 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.02 | 0.0184 J | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0370 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0230 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.0190 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0413 | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.0222 | 0.0649 J | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0330 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0320 U | 0.0687 J | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.0290 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.0416 | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.100 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.0150 U | 0.0240 J | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Pyrene | µg/L | 0.0360 U | 0.0758 J | 0.0190 U | 0.0190 U | 0.0195 J | 0.0190 U | 0.0190 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.007 U | 0.009 | 0.007 U | 0.007 U | 0.010 | 0.007 U | 0.007 U |
| Alkalinity | mg/L | 247 | 332 | 298 | 254 | 241 | 273 | 348 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.34 | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.35 | 0.30 U | 0.30 U | 0.35 | 0.29 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 1.90 | 1.49 | 1.78 | 1.72 | 2.71 | 2.56 | 2.47 |
| Chloride | mg/L | 46.7 | 42.5 | 45.5 | 42.5 | 57.0 | 77.7 | 55.4 |
| Nitrogen, Nitrate | mg/L | 6.9 | 3.1 | 2.5 | 2.1 | 4.1 | 5.9 | 3.3 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 87.2 | 117 | 142 | 120 | 133 | 281 | 167 |
| Iron, Dissolved | mg/L | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.030 U | 0.100 U |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW37-GW-NA1 | MW37-GW-009 | MW37-GW-010 | MW37-GW-011 | MW37-GW-012 | MW37-GW-013 | MW37-GW-014 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Jul-99 | Nov-01 | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | NA | 0.0040 U | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00113 B |
| Benzene | µg/L | 6.4 | 1.0 U | 0.5 U | 0.61 | 4.77 | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1. U | 1.0 U | 1.0 U | 1.0 U | 0.43 U | 0.56 | 0.43 U |
| Toluene | µg/L | 1. U | 1.0 U | 1.0 U | 1.0 U | 0.25 U | 0.25 U | 1.91 |
| Xylenes | µg/L | 1. U | 3.0 U | 3.0 U | 3.0 U | 1.28 | 0.53 | 0.38 U |
| Acenaphthene | µg/L | 33.9 | 1.4 | 1.4 | 3.4 | 13.4 | 10.3 | 4.67 |
| Acenaphthylene | µg/L | 20 U | 0.19 U | 0.19 U | 0.19 U | 3.94 | 3.66 | 0.12 U |
| Anthracene | µg/L | 0.7 | 1.10 U | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.024 U |
| Benzo(a)anthracene[a] | µg/L | 0.1 U | 0.10 U | **0.13 U** | **0.13 U** | 0.028 U | 0.028 U | 0.033 U |
| Benzo(a)pyrene[a] | µg/L | 0.1 U | 0.10 U | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U |
| Benzo(g,h,i)perylene | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.036 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.038 U | 0.038 U | 0.14 U |
| Chrysene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.032 U | 0.032 U | 0.030 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.099 | 0.039 U | 0.025 U |
| Fluoranthene | µg/L | 0.2 U | 0.12 | 0.19 U | 0.19 U | 0.049 U | 0.049 U | 0.067 U |
| Fluorene | µg/L | 5. U | 0.19 U | 0.19 U | 0.39 | 0.042 U | 0.042 U | 0.026 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U |
| Naphthalene | µg/L | 2. U | 0.10 U | 0.10 U | 0.10 U | 0.482 | 0.054 U | 0.042 U |
| Phenanthrene | µg/L | 0.5 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.018 U |
| Pyrene | µg/L | 0.2 U | 0.19 U | 0.19 U | 0.19 U | 0.099 U | 0.099 U | 0.11 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | NA | 0.007 U | 0.007 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | NA | 0.007 U | 0.007 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.0285 | 0.053 | 0.01 | 0.041 | 0.207 | 0.235 | 0.156 |
| Alkalinity | mg/L | 330 | 274 | 324 | 362 | 294 | 323 | 351 |
| Nitrogen, Ammonia | mg/L | 1.98 | 2.4 | 1.2 | 2.42 | 1.38 | 1.41 | 1.48 |
| Nitrogen, Total Kjeldahl | mg/L | 6.18 | 10 U | 10 U | 1.97 | 1.69 | 1.65 | 1.92 |
| Orthophosphate | mg/L | 0.3 U | 0.30 U | 0.54 | 1.13 | 0.99 | 0.54 | 0.55 |
| Sulfide, Total | mg/L | 0.8 | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 7.3 | 4.1 | 3.8 | 4.9 | 3.5 | 2.7 | 3.5 |
| Chloride | mg/L | 41 | 23.8 | 23.1 | 26.1 | 29.1 | 32.7 | 29.6 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.2 | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 454 | 982 | 770 | 886 | 281 | 162 | 336 |
| Iron, Dissolved | mg/L | 1.88 | 8.63 | 3.91 | 6.49 | 4.65 | 3.57 | 5.35 |

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
WATER TABLE AQUIFER

| | Sample ID: | MW37-GW-015 | MW37-GW-016 | MW37-GW-017 | MW37-GW-018 | MW37-GW-019 | MW37-GW-020 | MW37-GW-021 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Jun-04 | Sep-04 | Dec-04 | Mar-05 | Jun-05 | Sep-05 | Dec-05 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Up |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | 0.00050 U | 0.00050 U | 0.00050 U | 0.0016 U | NS | NS | NS |
| Benzene | µg/L | 0.25 U | 0.25 U | 0.25 U | 8.05 | 0.35 | 0.10 U | 4.14 |
| Ethylbenzene | µg/L | 0.43 U | 0.43 U | 0.43 U | 2.82 | 0.63 U | 0.44 U | 1.00 U |
| Toluene | µg/L | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.09 U | 0.09 U | 1.00 U |
| Xylenes | µg/L | 0.38 U | 0.38 U | 0.38 U | 0.69 | 0.22 U | 0.24 U | 3.00 U |
| Acenaphthene | µg/L | 3.11 | 3.65 | 2.68 | 7.95 | 5.01 | 2.23 | 2.53 |
| Acenaphthylene | µg/L | 0.13 U | 0.12 U | 0.12 U | 3.07 | 0.17 U | 1.01 | 0.679 |
| Anthracene | µg/L | 0.025 U | 0.131 | 0.025 U | 0.0095 U | 0.0095 U | 0.057 | 0.00930 U |
| Benzo(a)anthracene[a] | µg/L | 0.034 U | 0.034 U | 0.034 U | 0.019 U | 0.019 U | 0.020 U | 0.0190 U |
| Benzo(a)pyrene[a] | µg/L | 0.030 U | 0.030 U | 0.030 U | 0.019 U | 0.019 U | 0.020 U | 0.0370 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.040 U | 0.039 U | 0.040 U | 0.038 U | 0.038 U | 0.038 U | 0.0230 U |
| Benzo(g,h,i)perylene | µg/L | 0.038 U | 0.037 U | 0.037 U | 0.033 U | 0.033 U | 0.033 U | 0.0190 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.15 U | 0.14 U | 0.15 U | 0.023 U | 0.023 U | 0.024 U | 0.0320 U |
| Chrysene[a] | µg/L | 0.031 U | 0.031 U | 0.031 U | 0.020 U | 0.020 U | 0.021 U | 0.0200 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.026 U | 0.026 U | 0.026 U | 0.034 U | 0.034 U | 0.034 U | 0.0330 U |
| Fluoranthene | µg/L | 0.070 U | 0.068 U | 0.070 U | 0.033 U | 0.033 U | 0.033 U | 0.0320 U |
| Fluorene | µg/L | 0.027 U | 0.027 U | 0.027 U | 0.030 U | 0.030 U | 0.030 U | 0.341 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.040 U | 0.039 U | 0.040 U | 0.039 U | 0.039 U | 0.040 U | 0.0380 U |
| Naphthalene | µg/L | 0.044 U | 0.043 U | 0.044 U | 0.10 U | 0.10 U | 0.10 U | 0.100 U |
| Phenanthrene | µg/L | 0.019 U | 0.018 U | 0.019 U | 0.015 U | 0.015 U | 0.016 U | 0.0150 U |
| Pyrene | µg/L | 0.11 U | 0.159 | 0.11 U | 0.037 U | 1.01 | 0.199 | 0.0360 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.028 | 0.075 | 0.069 | 0.092 | 0.041 | 0.031 | 0.096 |
| Alkalinity | mg/L | 433 | 445 | 475 | NA | 345 | 312 | 356 |
| Nitrogen, Ammonia | mg/L | 1.68 | 1.84 | 1.78 | 1.43 | 1.67 | 1.72 | 1.41 |
| Nitrogen, Total Kjeldahl | mg/L | 2.29 | 2.18 | 2 | 1.67 | 2.03 | 2.09 | 1.76 |
| Orthophosphate | mg/L | 1.04 | 0.68 | 0.42 | 0.34 | 0.68 | 0.43 | 0.59 |
| Sulfide, Total | mg/L | 0.10 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 6.4 | 5.6 | 5.1 | 4.5 | 4.7 | 4.38 | 3.99 |
| Chloride | mg/L | 21.9 | 16.5 | 13.6 | 38.3 | 25.8 | 19.3 | 23.2 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 933 | 773 | 830 | 375 | 1,030 | 1,160 | 727 |
| Iron, Dissolved | mg/L | 2.81 | 6.73 | 7.69 | 5.91 | 4.03 | 11.8 | 9.23 |

**ATTACHMENT C**

**GROUNDWATER ANALYTICAL RESULTS**
**WATER TABLE AQUIFER**

| | Sample ID: | MW37-GW-022 | MW37-GW-023 | MW37-GW-024 | MW37-GW-025 | MW37-GW-026 | MW37-GW-027 | MW37-GW-028 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-06 | Jun-06 | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.820 | 0.500 U | 0.500 U | 2.50 U | 0.500 U | 0.500 U | 2.50 U, HI |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U | 5.00 U | 1.00 U | 1.00 U | 5.00 U, HI |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 5.00 U | 1.00 U | 1.00 U | 5.00 U, HI |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U | 15.0 U | 3.00 U | 3.00 U | 15.0 U, HI |
| Acenaphthene | µg/L | 15.0 | 1.43 | 2.86 | 10.6 | 12.1 | 5.74 | 4.55 |
| Acenaphthylene | µg/L | 5.87 | 0.0850 U | 0.793 | 2.35 | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.00930 U | 0.0100 U | 0.0598 J | 0.108 | 0.0141 J | 0.266 | 0.213 |
| Benzo(a)anthracene[a] | µg/L | 0.0190 U | 0.00300 U | 0.00846 J | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0370 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0230 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.0190 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0320 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.0200 U | 0.00500 U | 0.00754 J | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0330 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0320 U | 0.0100 U | 0.0100 U | 0.0602 J | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 2.32 | 0.243 | 0.951 | 1.05 | 2.10 | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.0380 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.100 U | 0.187 J | 0.0540 J | 0.0681 J | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.0150 U | 0.200 | 0.0962 J | 0.186 | 0.00700 U | 0.116 | 0.131 |
| Pyrene | µg/L | 0.0736 | 0.291 | 0.156 | 0.195 | 0.0190 U | 0.763 | 0.641 |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.013 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.013 U | 0.010 U |
| Methane | mg/L | 0.042 | 0.024 | 0.048 | 0.101 | 0.054 | 0.063 | 0.026 |
| Alkalinity | mg/L | 292 | 348 | 365 | 307 | 320 | 344 | 373 |
| Nitrogen, Ammonia | mg/L | 1.27 | 1.54 | 1.46 | 1.36 | 1.22 | 1.56 | 1.70 |
| Nitrogen, Total Kjeldahl | mg/L | 1.43 | 1.89 | 1.72 | 1.58 | 1.86 | 1.66 | 2.30 |
| Orthophosphate | mg/L | 0.73 | 0.72 | 0.37 | 0.30 U | 0.30 U | 0.9 | 0.89 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 23.2 | 4.40 | 4.43 | 2.97 | 2.93 | 4.67 | 5.35 |
| Chloride | mg/L | 37.4 | 24.9 | 22.2 | 31.1 | 31.6 | 24.6 | 18.6 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.5 | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.5 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 176 | 885 | 667 | 263 | 159 | 1,190 | 1,130 |
| Iron, Dissolved | mg/L | 4.74 | 3.21 | 7.03 | 5.28 | 4.60 | 3.29 | 2.36 |

**Notes:**

Data in blue indicate concentrations exceeding the respective cleanup goal.

[a] Suspected carcinogenic polynuclear aromatic hydrocarbon.

HI = Reporting limit elevated due to hydrocarbon interference.

J = Analyte detected at a level less than the reporting limit but greater than or equal to the method detection limit. Concentrations within this range are estimated.

MNA = Monitored natural attenuation. NA = Not analyzed.

mg/L = Milligrams per liter. NS = Not sampled.

µg/L = Micrograms per liter. U = Compound not detected at or above the value reported.

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW08-GW-004 | MW08-GW-005 | MW08-GW-006 | MW08-GW-007 | MW08-GW-008 | MW08-GW-NA1 | MW08-GW-009 | MW08-GW-010 | MW08-GW-011 | MW08-GW-012 | MW08-GW-013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 | Mar-03 | Jun-03 | Sep-03 | Dec-03 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down |
| *Compliance Parameters* | Units | | | | | | | | | | | |
| Lead | mg/L | 0.0050 U | 0.0050 U | 0.0074 | 0.0040 U | 0.0040 U | NA | 0.0040 U | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U |
| Benzene | µg/L | 101 | 90.7 | 148 | 135 | 123 | 263 | 123 | 0.5 U | 0.5 U | 0.29 | 2.68 |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 2.4 | 1.0 U | 1.0 U | 1.0 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 2 | 1.0 U | 1.0 U | 1.0 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 1.0 U | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 1.2 | 3.0 U | 3.0 U | 3.0 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 18 U | 0.50 U | 0.078 U | 0.14 U | 0.14 U | 2. U | 0.19 U | 0.19 U | 0.19 U | 0.185 | 0.05 |
| Acenaphthylene | µg/L | 10 U | 1.6 U | 0.084 U | 0.14 U | 0.14 U | 2. U | 0.19 U | 0.19 U | 0.19 U | 0.055 U | 0.055 U |
| Anthracene | µg/L | 6.6 U | 0.030 U | 0.060 U | 0.056 U | 0.056 U | 0.5 U | 0.10 U | 0.19 U | 0.19 U | 0.024 U | 0.024 U |
| Benzo(a)anthracene[a] | µg/L | 0.13 U | 0.055 U | 0.034 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.13 U | 0.13 U | 0.028 U | 0.028 U |
| Benzo(a)pyrene[a] | µg/L | 0.23 U | 0.10 U | 0.088 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.19 U | 0.19 U | 0.050 U | 0.050 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.18 U | 0.15 U | 0.015 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 0.18 U | 0.065 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.17 U | 0.12 U | 0.025 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.038 U | 0.038 U |
| Chrysene[a] | µg/L | 1.5 U | 0.060 U | 0.023 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.032 U | 0.032 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.3 U | 0.13 U | 0.021 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.039 U | 0.039 U |
| Fluoranthene | µg/L | 2.1 U | 0.10 U | 0.052 U | 0.056 U | 0.056 U | 0.2 U | 0.10 U | 0.19 U | 0.19 U | 0.049 U | 0.049 U |
| Fluorene | µg/L | 2.1 U | 0.082 U | 0.12 U | 0.11 U | 0.11 U | 0.5 U | 0.19 U | 0.19 U | 0.19 U | 0.042 U | 0.042 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.43 U | 0.13 U | 0.054 U | 0.056 U | 0.056 U | 0.1 U | 0.10 U | 0.10 U | 0.10 U | 0.034 U | 0.034 U |
| Naphthalene | µg/L | 10 U | 0.38 U | 0.038 U | 0.068 | 0.056 U | 2. U | 0.10 U | 0.10 U | 0.10 U | 0.067 | 0.054 U |
| Phenanthrene | µg/L | 6.4 U | 0.060 U | 0.058 U | 0.056 U | 0.056 U | 0.5 U | 0.2 | 0.10 U | 0.10 U | 0.035 U | 0.035 U |
| Pyrene | µg/L | 2.7 U | 0.18 | 0.11 U | 0.14 U | 0.14 U | 0.2 U | 0.19 U | 0.19 U | 0.19 U | 0.099 U | 0.099 U |
| *MNA Parameters* | | | | | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U | 0.010 U | 0.013 U | 0.01 U | 0.010 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NA | 0.007 U | 0.010 U | 0.013 U | 0.01 U | 0.010 U |
| Methane | mg/L | NS | NS | NS | NS | 0.18 | 0.0987 | 0.165 | 0.132 | 0.221 | 0.339 | 0.258 |
| Alkalinity | mg/L | NS | NS | NS | NS | 285 | 290 | 93 | 339 | 269 | 263 | 264 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1 U | 0.23 | 1.0 U | 1.0 U | 0.31 | 0.26 | 0.10 U |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | 1.02 | 10 U | 10 U | 0.63 | 0.32 | 0.44 |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | 0.3 U | 0.30 U | 0.30 U | 0.47 | 0.31 | 0.30 U |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.14 | 0.1 U | 0.10 U | 0.11 | 0.10 U | 0.22 | 0.16 |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 0.8 | 0.9 | 1.4 | 1.4 | 1 | 1 | 0.9 |
| Chloride | mg/L | NS | NS | NS | NS | 33.7 | 32 | 30.2 | 36.7 | 35.3 | 35.3 | 33.3 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 43.6 | 36 | 409 | 31.5 | 30 | 28.9 | 41.8 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | 0.672 | 0.030 U | 0.566 | 0.645 | 0.672 | 0.695 |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW08-GW-014 | MW08-GW-015 | MW08-GW-016 | MW08-GW-017 | MW08-GW-018 | MW08-GW-019 | MW08-GW-020 |
|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-04 | Jun-04 | Sep-04 | Dec-04 | Mar-05 | Jun-05 | Sep-05 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | |
| Lead | mg/L | 0.00091 B | 0.00050 U | 0.00050 U | 0.00050 U | 0.0016 U | NS | NS |
| Benzene | µg/L | 0.25 U | 0.39 | 3.71 | 0.25 U | 1.35 | 2.38 | 3.01 |
| Ethylbenzene | µg/L | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.63 U | 0.44 U |
| Toluene | µg/L | 1.45 | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.09 U | 0.09 U |
| Xylenes | µg/L | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.93 U | 0.24 U |
| Acenaphthene | µg/L | 0.073 U | 0.076 U | 0.077 U | 0.077 U | 0.13 U | 0.13 U | 0.13 U |
| Acenaphthylene | µg/L | 0.12 U | 0.13 U | 0.17 | 0.13 U | 0.17 U | 0.17 U | 0.17 U |
| Anthracene | µg/L | 0.024 U | 0.028 | 0.099 | 0.025 U | 0.0095 U | 0.0093 U | 0.0095 U |
| Benzo(a)anthracene[a] | µg/L | 0.033 U | 0.034 U | 0.035 U | 0.035 U | 0.019 U | 0.019 U | 0.019 U |
| Benzo(a)pyrene[a] | µg/L | 0.029 U | 0.030 U | 0.030 U | 0.030 U | 0.019 U | 0.019 U | 0.019 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.040 U | 0.040 U | 0.040 U | 0.038 U | 0.037 U | 0.038 U |
| Benzo(g,h,i)perylene | µg/L | 0.036 U | 0.038 U | 0.038 U | 0.038 U | 0.033 U | 0.032 U | 0.033 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.14 U | 0.15 U | 0.15 U | 0.15 U | 0.023 U | 0.023 U | 0.023 U |
| Chrysene[a] | µg/L | 0.030 U | 0.031 U | 0.032 U | 0.032 U | 0.020 U | 0.020 U | 0.020 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.025 U | 0.026 U | 0.026 U | 0.026 U | 0.034 U | 0.033 U | 0.034 U |
| Fluoranthene | µg/L | 0.067 U | 0.070 U | 0.070 U | 0.070 U | 0.033 U | 0.032 U | 0.033 U |
| Fluorene | µg/L | 0.026 U | 0.027 U | 0.027 U | 0.027 U | 0.030 U | 0.029 U | 0.030 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.038 U | 0.040 U | 0.040 U | 0.040 U | 0.039 U | 0.038 U | 0.039 U |
| Naphthalene | µg/L | 0.042 U | 0.044 U | 0.268 | 0.044 U | 0.10 U | 0.10 U | 0.10 U |
| Phenanthrene | µg/L | 0.018 U | 0.12 | 0.277 | 0.019 U | 0.015 U | 0.015 U | 0.015 U |
| Pyrene | µg/L | 0.11 U | 0.11 U | 0.12 U | 0.12 U | 0.037 U | 0.036 U | 0.037 U |
| *MNA Parameters* | | | | | | | | |
| Ethylene | mg/L | 0.014 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.005 U | 0.010 U |
| Ethane | mg/L | 0.014 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.005 U | 0.010 U |
| Methane | mg/L | 0.25 | 0.324 | 0.589 | 0.206 | 0.343 | 0.342 | 0.528 |
| Alkalinity | mg/L | 257 | 272 | 235 | 252 | NA | 283 | 288 |
| Nitrogen, Ammonia | mg/L | 0.10 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.4 | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.32 | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.15 | 0.12 | 0.10 U | 0.4 | 0.2 | 0.17 | 0.23 |
| Total Organic Carbon | mg/L | 0.8 | 1.4 | 1.2 | 1 | 1 | 0.9 | 1.09 |
| Chloride | mg/L | 31.9 | 31.5 | 29.4 | 31 | 34.7 | 37.7 | 33.2 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 32.4 | 28.9 | 17.7 | 24.7 | 33.4 | 31.8 | 28.5 |
| Iron, Dissolved | mg/L | 0.697 | 0.612 | 0.918 | 0.552 | 0.617 | 0.694 | 0.903 |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW08-GW-021 | MW08-GW-022 | MW08-GW-023 | MW08-GW-024 | MW08-GW-025 | MW08-GW-026 | MW08-GW-027 | MW08-GW-028 |
|---|---|---|---|---|---|---|---|---|---|
| | Date: | Dec-05 | Mar-06 | Jun-06 | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Up | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 3.5 | 0.64 | 5.72 | 4.72 | 3.52 | 1.27 | 5.35 | 1.37 |
| Ethylbenzene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.130 U | 0.130 U | 0.0590 J | 0.0517 J | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.170 U | 0.170 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.00930 U | 0.00930 U | 0.0100 U | 0.0100 U | 0.0666 J | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.0190 U | 0.0190 U | 0.00300 U | 0.00300 U | 0.0264 J | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.0370 U | 0.0370 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.0230 U | 0.0230 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.0190 U | 0.0190 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.0320 U | 0.0320 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.0200 U | 0.0200 U | 0.00500 U | 0.00500 U | 0.0124 J | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.0330 U | 0.0330 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.0320 U | 0.0320 U | 0.0100 U | 0.0100 U | 0.0921 J | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.0290 U | 0.0290 U | 0.0202 J | 0.0100 U | 0.123 | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.0380 U | 0.0380 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.100 U | 0.113 | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.275 | 0.0150 U | 0.0251 J | 0.00700 U | 0.28 | 0.00700 U | 0.0342 J | 0.00700 U |
| Pyrene | µg/L | 0.0360 U | 0.0360 U | 0.0190 U | 0.0190 U | 0.428 | 0.0190 U | 0.0278 J | 0.0190 U |
| *MNA Parameters* | | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.007 U | 0.010 U | 0.008 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.007 U | 0.010 U | 0.008 U | 0.010 U |
| Methane | mg/L | 0.526 | 0.406 | 0.587 | 0.607 | 0.463 | 0.436 | 0.543 | 0.606 |
| Alkalinity | mg/L | 287 | 266 | 296 | 294 | 287 | 295 | 298 | 295 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.82 | 0.64 | 0.60 U | 0.76 |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.10 U | 0.10 U |
| Sulfide, Total | mg/L | 0.2 | 0.25 | 0.18 | 0.17 | 0.13 | 0.18 | 0.15 | 0.18 |
| Total Organic Carbon | mg/L | 0.97 | 3.34 | 0.88 | 1.00 | 0.84 | 0.81 | 1.33 | 1.31 |
| Chloride | mg/L | 33 | 37.6 | 32.2 | 33.8 | 31.8 | 32.9 | 36.1 | 34.0 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 27.8 | 23.7 | 29.4 | 29.6 | 22.4 | 20.1 | 29.1 | 24.9 |
| Iron, Dissolved | mg/L | 0.79 | 0.719 | 0.834 | 0.964 | 0.908 | 0.714 | 0.899 | 1.01 |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW22-GW-004 | MW22-GW-005 | MW22-GW-006 | MW22-GW-007 | MW22-GW-008 | MW22-GW-NA1 | MW22-GW-009 | MW22-GW-010 | MW22-GW-011 | MW22-GW-012 | MW22-GW-013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date: | Aug-95 | Dec-96 | May-97 | Nov-97 | May-98 | Jul-99 | Nov-01 | Mar-03 | Jun-03 | Sep-03 | Dec-03 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down |
| *Compliance Parameters* | Units | | | | | | | | | | | |
| Lead | mg/L | 0.0050 U | 0.0050 U | 0.0098 | 0.0117 | 0.0114 | NS | 0.0040 U | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U |
| Benzene | µg/L | 1.0 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | NS | 1.0 U | 0.5 U | 0.5 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | NS | 1.0 U | 1.0 U | 1.0 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | NS | 1.0 U | 1.0 U | 1.0 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 1.0 U | 3.0 U | 3.0 U | 3.0 U | 3.0 U | NS | 3.0 U | 3.0 U | 3.0 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 18 U | 0.50 U | 0.076U | 0.13 U | 0.14 U | NS | 0.19 U | 0.19 U | 0.19 U | 0.031 U | 0.031 U |
| Acenaphthylene | µg/L | 10 U | 1.60 U | 0.082 U | 0.13 U | 0.14 U | NS | 0.19 U | 0.19 U | 0.19 U | 0.055 U | 0.055 U |
| Anthracene | µg/L | 6.6 U | 0.26 | 0.058 U | 0.054 U | 0.056 U | NS | 0.64 | 0.19 U | 0.19 U | 0.024 U | 0.024 U |
| Benzo(a)anthracene[3] | µg/L | 0.13 U | 0.055 U | 0.033 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.13 U | 0.13 U | 0.028 U | 0.028 U |
| Benzo(a)pyrene[3] | µg/L | 0.23 U | 0.10 U | 0.086 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.19 U | 0.19 U | 0.050 U | 0.050 U |
| Benzo(b)fluoranthene[3] | µg/L | 0.18 U | 0.15 U | 0.015 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U |
| Benzo(g,h,i)perylene | µg/L | 0.76 U | 0.18 U | 0.063 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U |
| Benzo(k)fluoranthene[3] | µg/L | 0.17 U | 0.12 U | 0.024 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.183 | 0.038 U |
| Chrysene[3] | µg/L | 1.5 U | 0.060 U | 0.022 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.032 U | 0.032 U |
| Dibenzo(a,h)anthracene[3] | µg/L | 0.3 U | 0.30 U | 0.020 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.039 U | 0.039 U |
| Fluoranthene | µg/L | 2.1 U | 0.10 U | 0.050 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.19 U | 0.19 U | 0.049 U | 0.049 U |
| Fluorene | µg/L | 2.1 U | 0.082 U | 0.12 U | 0.11 U | 0.11 U | NS | 0.19 U | 0.19 U | 0.19 U | 0.042 U | 0.042 U |
| Indeno(1,2,3-cd)pyrene[3] | µg/L | 0.43 U | 0.13 U | 0.052 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.034 U | 0.034 U |
| Naphthalene | µg/L | 10 U | 0.54 | 0.037 U | 0.082 | 0.056 U | NS | 1.23 | 0.10 U | 0.22 | 0.054 U | 0.054 U |
| Phenanthrene | µg/L | 6.4 U | 0.060 U | 0.056 U | 0.054 U | 0.056 U | NS | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U |
| Pyrene | µg/L | 2.7 U | 0.15 U | 0.11 U | 0.13 U | 0.14 U | NS | 0.19 U | 0.19 U | 0.19 U | 0.099 U | 0.099 U |
| *MNA Parameters* | | | | | | | | | | | | |
| Ethylene | mg/L | NS | NS | NS | NS | NA | NS | 0.007 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U |
| Ethane | mg/L | NS | NS | NS | NS | NA | NS | 0.007 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U |
| Methane | mg/L | NS | NS | NS | NS | 0.02 U | NS | 0.268 | 0.008 | 0.073 | 0.099 | 0.123 |
| Alkalinity | mg/L | NS | NS | NS | NS | 426 | NS | 211 | 182 | 224 | 245 | 236 |
| Nitrogen, Ammonia | mg/L | NS | NS | NS | NS | 1 U | NS | 1.0 U | 1.0 U | 0.26 | 0.25 | 0.29 |
| Nitrogen, Total Kjeldahl | mg/L | NS | NS | NS | NS | 10 U | NS | 10 U | 10 U | 0.79 | 0.35 | 0.47 |
| Orthophosphate | mg/L | NS | NS | NS | NS | 0.1 U | NS | 0.30 U | 0.30 U | 0.30 U | 0.36 | 0.30 U |
| Sulfide, Total | mg/L | NS | NS | NS | NS | 0.73 | NS | 0.32 | 0.1 | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | NS | NS | NS | NS | 1.4 | NS | 2.4 | 1.6 | 2.1 | 1.1 | 1 |
| Chloride | mg/L | NS | NS | NS | NS | 6.3 | NS | 61.5 | 44.2 | 18.5 | 9.2 | 8.4 |
| Nitrogen, Nitrate | mg/L | NS | NS | NS | NS | 0.1 U | NS | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.2 |
| Nitrogen, Nitrite | mg/L | NS | NS | NS | NS | 0.1 U | NS | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | NS | NS | NS | NS | 30.8 | NS | 15.6 | 26.4 | 29.2 | 39.8 | 39.1 |
| Iron, Dissolved | mg/L | NS | NS | NS | NS | NS | NS | 0.487 | 0.119 | 0.13 | 3.58 | 0.902 |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW22-GW-014 | MW22-GW-015 | MW22-GW-016 | MW22-GW-017 | MW22-GW-018 |
|---|---|---|---|---|---|---|
| | Date: | Mar-04 | Jun-04 | Sep-04 | Dec-04 | Mar-05 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up |
| *Compliance Parameters* | Units | | | | | |
| Lead | mg/L | 0.00167 B | 0.00050 U | 0.00050 U | 0.00050 U | 0.0016 U |
| Benzene | µg/L | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Ethylbenzene | µg/L | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| Toluene | µg/L | 0.78 | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| Xylenes | µg/L | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U |
| Acenaphthene | µg/L | 0.073 U | 0.073 U | 0.272 | 0.073 U | 0.13 U |
| Acenaphthylene | µg/L | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.18 U |
| Anthracene | µg/L | 0.024 U | 0.024 U | 0.224 | 0.024 U | 0.0096 U |
| Benzo(a)anthracene[4] | µg/L | 0.033 U | 0.033 U | 0.034 U | 0.033 U | 0.020 U |
| Benzo(a)pyrene[2] | µg/L | 0.029 U | 0.029 U | 0.030 U | 0.029 U | 0.020 U |
| Benzo(b)fluoranthene[4] | µg/L | 0.038 U | 0.038 U | 0.039 U | 0.038 U | 0.038 U |
| Benzo(g,h,i)perylene | µg/L | 0.036 U | 0.036 U | 0.037 U | 0.036 U | 0.033 U |
| Benzo(k)fluoranthene[4] | µg/L | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.024 U |
| Chrysene[4] | µg/L | 0.030 U | 0.030 U | 0.031 U | 0.030 U | 0.021 U |
| Dibenzo(a,h)anthracene[4] | µg/L | 0.025 U | 0.025 U | 0.026 U | 0.025 U | 0.034 U |
| Fluoranthene | µg/L | 0.067 U | 0.067 U | 0.136 | 0.067 U | 0.033 U |
| Fluorene | µg/L | 0.026 U | 0.026 U | 0.642 | 0.026 U | 0.030 U |
| Indeno(1,2,3-cd)pyrene[3] | µg/L | 0.038 U | 0.038 U | 0.039 U | 0.038 U | 0.039 U |
| Naphthalene | µg/L | 0.042 U | 0.042 U | 1.74 | 0.042 U | 0.10 U |
| Phenanthrene | µg/L | 0.018 U | 0.018 U | 0.826 | 0.018 U | 0.015 U |
| Pyrene | µg/L | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.037 U |
| *MNA Parameters* | | | | | | |
| Ethylene | mg/L | 0.008 U | 0.006 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.008 U | 0.006 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.025 | 0.04 | 0.091 | 0.108 | 0.072 |
| Alkalinity | mg/L | 160 | 222 | 198 | 267 | NA |
| Nitrogen, Ammonia | mg/L | 0.37 | 0.32 | 0.30 U | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.71 | 0.60 U | 0.60 U | 0.60 U | 0.60 U |
| Orthophosphate | mg/L | 0.30 U | 0.33 | 0.30 U | 0.30 U | 0.30 U |
| Sulfide, Total | mg/L | 0.12 | 0.10 U | 0.11 | 0.11 | 0.10 U |
| Total Organic Carbon | mg/L | 2.3 | 1.2 | 1.3 | 1.1 | 0.9 |
| Chloride | mg/L | 56.8 | 13.8 | 8.9 | 4.4 | 4.5 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 44.8 | 28.4 | 24 | 26.6 | 40.1 |
| Iron, Dissolved | mg/L | 0.557 | 0.786 | 0.768 | 3.29 | 5.4 |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW22-GW-019 | MW22-GW-020 | MW22-GW-021 | MW22-GW-022 | MW22-GW-023 | MW22-GW-024 | MW22-GW-025 | MW22-GW-026 | MW22-GW-027 | MW22-GW-028 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date: | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.170 U | 0.10 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 0.63 U | 0.44 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 0.09 U | 0.09 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.93 U | 0.24 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.13 U | 0.13 U | 0.135 U | 0.130 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.17 U | 0.323 | 0.177 U | 0.170 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0095 U | 0.021 | 0.00969 U | 0.0093 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Benzo(a)anthracene[a] | µg/L | 0.019 U | 0.020 U | 0.0198 U | 0.0190 U | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U | 0.00300 U |
| Benzo(a)pyrene[a] | µg/L | 0.019 U | 0.020 U | 0.0385 U | 0.0370 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.038 U | 0.0240 U | 0.0230 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.033 U | 0.033 U | 0.0198 U | 0.0190 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.023 U | 0.024 U | 0.0333 U | 0.0320 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.020 U | 0.021 U | 0.0208 U | 0.0200 U | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U | 0.00500 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.034 U | 0.034 U | 0.0344 U | 0.0330 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.033 U | 0.033 U | 0.0333 U | 0.0320 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluorene | µg/L | 0.030 U | 0.030 U | 0.0302 U | 0.0290 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U | 0.0100 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.039 U | 0.039 U | 0.0396 U | 0.0380 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | 0.104 U | 0.100 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U | 0.0540 U |
| Phenanthrene | µg/L | 0.015 U | 0.058 | 0.0156 U | 0.0150 U | 0.00700 U | 0.00974 J | 0.0103 J | 0.00700 U | 0.00700 U | 0.00700 U |
| Pyrene | µg/L | 0.037 U | 0.037 U | 0.0375 U | 0.0360 U | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U | 0.0190 U |
| *MNA Parameters* | | | | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.007 U | 0.014 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.007 U | 0.014 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.009 | 0.045 | 0.01 | 0.01 | 0.032 | 0.077 | 0.055 | 0.012 | 0.025 | 0.030 |
| Alkalinity | mg/L | 221 | 200 | 160 | 82 | 148 | 177 | 166 | 169 | 176 | 178 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.3 | 0.30 U | 0.31 | 0.30 | 0.30 | 0.30 U | 0.66 |
| Nitrogen, Total Kjeldahl | mg/L | 0.60 U | 0.60 U | 0.60 U | 0.66 | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.60 U | 0.71 |
| Orthophosphate | mg/L | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.11 | 0.10 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.18 | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 0.8 | 1.01 | 0.99 | 5.05 | 1.74 | 1.17 | 0.86 | 0.90 | 1.29 | 1.14 |
| Chloride | mg/L | 3.2 | 3.3 | 3.2 | 338 | 48.0 | 29.2 | 224 | 14.2 | 13.3 | 8.7 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 41.2 | 31.2 | 25.3 | 95.3 | 24.4 | 17.2 | 61.0 | 22.5 | 18.5 | 21.3 |
| Iron, Dissolved | mg/L | 0.96 | 0.254 | 0.030 U | 0.158 | 0.059 | 0.067 | 0.030 U | 0.030 U | 0.060 | 0.100 U |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW38-GW-NA1 | MW38-GW-009 | MW38-GW-010 | MW38-GW-011 | MW38-GW-012 | MW38-GW-013 | MW38-GW-014 | MW38-GW-015 | MW38-GW-016 | MW38-GW-017 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date: | Jul-99 | Nov-01 | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 | Dec-04 |
| | Dam Position: | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | | | | |
| Lead | mg/L | NA | 0.0040 U | 0.0040 U | 0.0040 U | 0.0015 U | 0.0015 U | 0.00490 B | 0.0033 | 0.00050 U | 0.0014 |
| Benzene | µg/L | 1,640 | 1,540 | 400 | 630 | 981 | 1,030 | 146 | 582 | 515 | 1,420 |
| Ethylbenzene | µg/L | 2,500 | 1,450 | 1,390 | 1,080 | 1,790 | 1,960 | 651 | 1,310 | 995 | 1,650 |
| Toluene | µg/L | 1,910 | 1,870 | 988 | 832 | 1,580 | 1,410 | 340 | 925 | 856 | 1,740 |
| Xylenes | µg/L | 2,120 | 1,280 | 1,440 | 1,020 | 1,530 | 1,600 | 653 | 1,120 | 1,190 | 1,400 |
| Acenaphthene | µg/L | 239 | 54.6 | 890 | 122 | 212 | 257 | 180 | 330 | 113 | 145 |
| Acenaphthylene | µg/L | 2. U | 104 | 1,150 | 292 | 562 | 524 | 421 | 675 | 344 | 364 |
| Anthracene | µg/L | 15.6 | 16.5 | 871 | 58 | 125 | 105 | 61.2 | 198 | 49.8 | 67.8 |
| Benzo(a)anthracene[a] | µg/L | 1.12 | 5.05 | 343 | 33.9 | 48.5 | 47.9 | 25.4 | 93 | 19.6 | 35.5 |
| Benzo(a)pyrene[a] | µg/L | 1.7 | 4.94 | 343 | 25.9 | 44.7 | 42.1 | 20.7 | 79.7 | 12.7 | 31 |
| Benzo(b)fluoranthene[a] | µg/L | 0.1 U | 0.10 U | 85.4 | 8.2 | 17.3 | 16.1 | 8.04 | 35.1 | 4.65 | 16.4 |
| Benzo(g,h,i)perylene | µg/L | 1.2 | 2.26 | 167 | 10.4 | 18.8 | 18.8 | 9.93 | 40.2 | 6.85 | 13.8 |
| Benzo(k)fluoranthene[a] | µg/L | 0.1 U | 1.51 | 143 | 10.6 | 10.7 | 13.8 | 6.13 | 22.2 | 2.24 | 13.1 |
| Chrysene[a] | µg/L | 0.1 U | 5.0 U | 195 | 18.8 | 49.4 | 45.5 | 0.31 U | 99.7 | 13.2 | 35 |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.1 U | 0.36 | 25.1 | 2 | 3.84 | 2.6 | 1.22 | 7.04 | 0.26 U | 1.97 |
| Fluoranthene | µg/L | 17.6 | 11.8 | 1,010 | 74.5 | 154 | 139 | 76.7 | 274 | 55.2 | 95.1 |
| Fluorene | µg/L | 103 | 63.9 | 1,790 | 165 | 352 | 256 | 172 | 499 | 164 | 205 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.4 | 1.49 | 122 | 20 U | 18.2 | 15.8 | 0.39 U | 32.5 | 4.32 | 12.2 |
| Naphthalene | µg/L | 5,300 | 2,580 | 13,600 | 4,140 | 6,470 | 6,670 | 4,830 | 9,120 | 4,970 | 5,620 |
| Phenanthrene | µg/L | 98.3 | 80.8 | 3,040 | 213 | 488 | 398 | 242 | 887 | 193 | 297 |
| Pyrene | µg/L | 100 | 9.5 U | 1,330 | 82 | 203 | 112 | 76.5 | 240 | 37.4 | 96.1 |
| *MNA Parameters* | | | | | | | | | | | |
| Ethylene | mg/L | NA | 0.007 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.014 U |
| Ethane | mg/L | NA | 0.007 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.008 U | 0.014 U |
| Methane | mg/L | 0.364 | 0.055 | 0.021 | 0.007 U | 0.089 | 0.126 | 0.034 | 0.069 | 0.034 | 0.077 |
| Alkalinity | mg/L | 460 | 408 | 280 | 349 | 379 | 368 | 307 | 336 | 328 | 432 |
| Nitrogen, Ammonia | mg/L | 1.03 | 1.0 U | 1.0 U | 0.75 | 0.9 | 0.95 | 0.97 | 0.88 | 0.87 | 0.8 |
| Nitrogen, Total Kjeldahl | mg/L | 1.75 | 10 U | 10 U | 1.21 | 0.95 | 1.07 | 1.42 | 1.29 | 1.11 | 1.2 |
| Orthophosphate | mg/L | 0.3 U | 0.30 U | 0.65 | 0.91 | 1.66 | 0.30 U | 0.35 | 0.30 U | 0.30 U | 0.85 |
| Sulfide, Total | mg/L | 16.3 | 6.6 | 0.10 U | 3.1 | 12 | 13 | 1.8 | 7.8 | 0.43 | 3.3 |
| Total Organic Carbon | mg/L | 3.9 | 4.6 | 8.7 | 6.4 | 6.1 | 4.6 | 5 | 5.9 | 6 | 7.3 |
| Chloride | mg/L | 95 | 48.5 | 30.5 | 35.2 | 41.8 | 43.4 | 31.4 | 34.7 | 26.4 | 28.6 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 59 | 125 | 447 | 346 | 247 | 250 | 358 | 304 | 356 | 223 |
| Iron, Dissolved | mg/L | 0.033 | 0.068 | 4.75 | 2.15 | 0.998 | 0.531 | 2.35 | 1.98 | 2.17 | 0.264 |

ATTACHMENT D

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE ZONE

| | Sample ID: | MW38-GW-018 | MW38-GW-019 | MW38-GW-020 | MW38-GW-021 | MW38-GW-022 | MW38-GW-023 | MW38-GW-024 | MW38-GW-025 | MW38-GW-026 | MW38-GW-027 | MW38-GW-028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date: | Mar-05 | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| | Dam Position: | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | Units | | | | | | | | | | | |
| Lead | mg/L | 0.0174 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 1,330 | 1,940 | 1,080 | 1,020 | 987 | 1,040 | 888 | 606 | 556 | 396 | 509 |
| Ethylbenzene | µg/L | 1,580 | 1,500 | 1,420 | 1,550 | 1,690 | 1,290 | 881 | 968 | 901 | 888 | 550 |
| Toluene | µg/L | 1,420 | 2,140 | 1,300 | 1,160 | 1,260 | 1,050 | 751 | 382 | 275 | 208 | 360 |
| Xylenes | µg/L | 1,270 | 1,410 | 1,250 | 1,260 | 1,520 | 927 | 705 | 670 | 574 | 569 | 444 |
| Acenaphthene | µg/L | 392 | 20,300 | 374 | 380 | 285 | 162 | 235 | 188 | 183 | 108 | 108 |
| Acenaphthylene | µg/L | 796 | 21,900 | 458 | 590 | 384 | 258 | 280 | 195 | 213 | 166 | 155 |
| Anthracene | µg/L | 317 | 16,900 | 288 | 335 | 172 | 87.4 | 205 | 151 | 162 | 30.6 | 58.4 |
| Benzo(a)anthracene[a] | µg/L | 173 | 7,030 | 153 | 172 | 88.8 | 48.8 | 110 | 90.8 | 108 | 13.4 | 39.9 |
| Benzo(a)pyrene[a] | µg/L | 110 | 5,780 | 132 | 113 | 50.3 | 45.4 | 112 | 81.8 | 97.9 | 13.9 | 38.0 |
| Benzo(b)fluoranthene[a] | µg/L | 56.9 | 3,700 | 102 | 47.3 | 21.9 | 32.0 | 67.9 | 54.5 | 65.4 | 9.50 | 30.3 |
| Benzo(g,h,i)perylene | µg/L | 59.7 | 1,580 | 53.7 | 166 | 67.2 | 23.0 | 39.5 | 32.3 | 43.2 | 5.33 | 17.4 |
| Benzo(k)fluoranthene[a] | µg/L | 16.9 | 1,880 | 58.3 | 101 | 35.5 | 16.7 | 31.7 | 25.6 | 35.9 | 4.73 | 12.3 |
| Chrysene[a] | µg/L | 131 | 6,090 | 142 | 204 | 104 | 51.8 | 97.8 | 78.8 | 105 | 12.6 | 49.5 |
| Dibenzo(a,h)anthracene[a] | µg/L | 1.92 | 411 | 12.5 | 17.4 | 6.98 | 4.61 | 8.88 | 7.12 | 9.87 | 1.32 | 3.77 |
| Fluoranthene | µg/L | 429 | 27,700 | 435 | 478 | 242 | 137 | 276 | 253 | 374 | 50.5 | 131 |
| Fluorene | µg/L | 559 | 43,700 | 578 | 671 | 364 | 217 | 386 | 294 | 276 | 119 | 134 |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 42.3 | 1,790 | 61 | 58.6 | 30.7 | 23.0 | 41.5 | 34.3 | 48.7 | 5.42 | 17.6 |
| Naphthalene | µg/L | 7,330 | 194,000 | 6,740 | 7,380 | 3,830 | 4,690 | 3,840 | 2,450 | 2,280 | 4,340 | 1,820 |
| Phenanthrene | µg/L | 1,040 | 60,100 | 958 | 1,250 | 553 | 333 | 625 | 535 | 612 | 122 | 220 |
| Pyrene | µg/L | 523 | 88,100 | 1,640 | 345 | 331 | 559 | 1,090 | 901 | 1,010 | 176 | 386 |
| *MNA Parameters* | | | | | | | | | | | | |
| Ethylene | mg/L | 0.010 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Ethane | mg/L | 0.010 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U | 0.010 U |
| Methane | mg/L | 0.122 | 0.151 | 0.059 | 0.089 | 0.18 | 0.124 | 0.185 | 0.111 | 0.157 | 0.130 | 0.030 |
| Alkalinity | mg/L | NA | 426 | 376 | 396 | 443 | 402 | 440 | 420 | 423 | 378 | 301 |
| Nitrogen, Ammonia | mg/L | 0.94 | 0.87 | 0.9 | 0.92 | 0.85 | 0.97 | 1.14 | 0.96 | 1.05 | 1.05 | 0.87 |
| Nitrogen, Total Kjeldahl | mg/L | 1.44 | 3.00 U | 1.3 | 1.29 | 1.48 | 1.34 | 1.25 | 1.23 | 1.98 | 1.31 | 1.59 |
| Orthophosphate | mg/L | 0.43 | 0.43 | 0.77 | 0.65 | 0.30 U | 0.30 | 0.41 | 0.38 | 0.44 | 0.36 | 0.31 |
| Sulfide, Total | mg/L | 3.7 | 5.5 | 0.37 | 1.9 | 1.8 | 4.6 | 6.7 | 15 U | 1.3 | 5.5 | 1.6 |
| Total Organic Carbon | mg/L | 11.4 | 107 | 26.2 | 11.8 | 24.2 | 6.32 | 6.56 | 6.87 | 8.89 | 5.80 | 6.07 |
| Chloride | mg/L | 44.9 | 58.2 | 45.8 | 49.5 | 54.9 | 48.6 | 51.0 | 48.5 | 48.5 | 56.3 | 42.7 |
| Nitrogen, Nitrate | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 1.0 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 1.0 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 134 | 250 | 328 | 299 | 127 | 287 | 157 | 129 | 92.7 | 383 | 535 |
| Iron, Dissolved | mg/L | 0.279 | 0.228 | 0.961 | 0.101 | 0.04 | 0.206 | 0.052 | 0.030 U | 0.030 U | 0.104 | 0.506 |

Notes:

Data in blue indicate concentrations exceeding the respective cleanup goal.

[a] Suspected carcinogenic polynuclear aromatic hydrocarbon.

B = Compound detected in method blank.

J = Analyte detected at a level less than the reporting limit but greater than or equal to the method detection limit. Concentrations within this range are estimated.

MNA = Monitored natural attenuation.

mg/L = Milligrams per liter.

µg/L = Micrograms per liter.

NA = Not analyzed.

NS = Not sampled.

U = Compound not detected at or above the value reported.

**ATTACHMENT E**

**SURFACE WATER ANALYTICAL RESULTS**
**WILLOW CREEK**

| Sample ID: | WCUP-009 | WC01-SW-010 | WC01-SW-011 | WC01-SW-012 | WC01-GW-013 | WC01-GW-014 | WC01-GW-015 | WC01-SW-016 | WC01-SW-017 | WC01-SW-018 |
|---|---|---|---|---|---|---|---|---|---|---|
| Date: | Nov-01 | Mar-03 | Jun-03 | Sep-03 | Dec-03 | Mar-04 | Jun-04 | Sep-04 | Dec-04 | Mar-05 |
| Dam Position: | Dam Down | Dam Down | Dam Down | Dam Up | Dam Down | Dam Down | Dam Down | Dam Down | Dam Down | Dam Up |
| *Compliance Parameters* | **Units** | | | | | | | | | |
| Lead | mg/L | 0.0368 | 0.51 | 0.004 | 0.0015 U | 0.0015 U | 0.00134 B | 0.00050 U | 0.00096 | NS | 0.0017 |
| Benzene | µg/L | 1.0 U | 2 | 0.5 U | 0.34 | 0.25 U | 0.25 U | 0.28 | 0.25 U | NS | 0.25 U |
| Ethylbenzene | µg/L | 1.0 U | 3.5 | 1.0 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | NS | 0.43 U |
| Toluene | µg/L | 1.0 U | 14.8 | 1.0 U | 0.56 | 0.25 U | 1 | 0.25 U | 0.25 U | NS | 0.25 U |
| Xylenes | µg/L | 3.0 U | 18.5 | 3.0 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | 0.38 U | NS | 0.38 U |
| Acenaphthene | µg/L | 0.19 U | 0.19 U | 0.19 U | 0.031 U | 0.031 U | 0.073 U | 0.073 U | 0.077 U | NS | 0.13 U |
| Acenaphthylene | µg/L | 0.19 U | 0.19 U | 0.19 U | 0.055 U | 0.055 U | 0.12 U | 0.12 U | 0.13 U | NS | 0.17 U |
| Anthracene | µg/L | 0.10 U | 0.19 U | 0.19 U | 0.024 U | 0.024 U | 0.024 U | 0.024 U | 0.025 U | NS | 0.0095 U |
| Benzo(a)anthracene[a] | µg/L | 0.10 U | **0.13 U** | **0.13 U** | 0.028 U | 0.028 U | 0.033 U | 0.033 U | 0.035 U | NS | 0.019 U |
| Benzo(a)pyrene[a] | µg/L | 0.10 U | 0.19 U | 0.19 U | 0.050 U | 0.050 U | 0.029 U | 0.029 U | 0.031 U | NS | 0.019 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.038 U | 0.038 U | 0.040 U | NS | 0.038 U |
| Benzo(g,h,i)perylene | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.036 U | 0.036 U | 0.038 U | NS | 0.033 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.038 U | 0.038 U | 0.14 U | 0.14 U | 0.15 U | NS | 0.023 U |
| Chrysene[a] | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.032 U | 0.032 U | 0.030 U | 0.030 U | 0.061 | NS | 0.020 U |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.10 U | 0.1 | 0.10 U | 0.039 U | 0.039 U | 0.025 U | 0.025 U | 0.162 | NS | 0.034 U |
| Fluoranthene | µg/L | 0.10 U | 0.19 U | 0.19 U | 0.049 U | 0.049 U | 0.067 U | 0.067 U | 0.071 U | NS | 0.033 U |
| Fluorene | µg/L | 0.19 U | 0.19 U | 0.19 U | 0.042 U | 0.042 U | 0.026 U | 0.026 U | 0.028 U | NS | 0.030 U |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.034 U | 0.034 U | 0.038 U | 0.038 U | 0.040 U | NS | 0.039 U |
| Naphthalene | µg/L | 2.92 | 1.5 | 0.59 | 0.054 U | 0.054 U | 0.042 U | 0.042 U | 0.045 U | NS | 0.10 U |
| Phenanthrene | µg/L | 0.10 U | 0.10 U | 0.10 U | 0.035 U | 0.035 U | 0.018 U | 0.018 U | 0.019 U | NS | 0.015 U |
| Pyrene | µg/L | 0.19 U | 0.19 U | 0.19 U | 0.099 U | 0.099 U | 0.11 U | 0.11 U | 0.12 U | NS | 0.037 U |
| *MNA Parameters* | | | | | | | | | | | |
| Ethylene | mg/L | 0.008 U | 0.008 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.008 U | 0.008 U | NS | 0.008 U |
| Ethane | mg/L | 0.008 U | 0.008 U | 0.010 U | 0.008 U | 0.010 U | 0.010 U | 0.008 U | 0.008 U | NS | 0.008 U |
| Methane | mg/L | 0.006 U | 0.006 U | 0.007 | 0.009 | 0.007 U | 0.007 | 0.008 U | 0.006 U | NS | 0.005 U |
| Alkalinity | mg/L | 215 | 184 | 200 | 225 | 246 | 208 | 205 | 192 | NS | NA |
| Nitrogen, Ammonia | mg/L | 1.0 U | 1.0 U | 0.22 | 0.10 U | 0.16 | 0.12 | 0.30 U | 0.30 U | NS | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 10 U | 10 U | 0.85 | 0.66 | 0.35 | 0.94 | 1.21 | 1.08 | NS | 1.03 |
| Orthophosphate | mg/L | 0.30 U | 0.32 | 1.51 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.82 | NS | 0.30 U |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | NS | 0.10 U |
| Total Organic Carbon | mg/L | 3.1 | 5.2 | 6.2 | 3.5 | 2.1 | 4.7 | 5.9 | 8.8 | NS | 5.5 |
| Chloride | mg/L | 28.4 | 38.7 | 19.7 | 33.4 | 34.9 | 44.6 | 22.6 | 15.4 | NS | 62.4 |
| Nitrogen, Nitrate | mg/L | 2.5 | 2.6 | 11 | 2.1 | 3.4 | 3.7 | 10.8 | 7.5 | NS | 4.1 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | 0.1 | 0.1 U | 0.1 U | 0.1 U | 0.1 U | 0.1 U | NS | 0.1 U |
| Sulfate | mg/L | 47.5 | 33.5 | 23.2 | 64.4 | 68.4 | 58.6 | 28.2 | 22.7 | NS | 35.5 |
| Iron, Dissolved | mg/L | 0.139 | 0.7 | 0.032 | 0.030 U | 0.030 U | 0.030 U | 0.264 | 0.082 | NS | 0.030 U |

**ATTACHMENT E**

**SURFACE WATER ANALYTICAL RESULTS**
**WILLOW CREEK**

| Sample ID: | WC01-SW-019 | WC01-SW-020 | WC01-SW-021 | WC01-SW-022 | WC01-SW-023 | WC01-SW-024 | WC01-SW-025 | WC01-SW-026 | WC01-SW-027 | WC01-SW-028 |
|---|---|---|---|---|---|---|---|---|---|---|
| Date: | Jun-05 | Sep-05 | Dec-05 | Mar-06 | Jun-06 | Sep-06 | Dec-06 | Mar-07 | Jun-07 | Sep-07 |
| Dam Position: | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down | Dam Up | Dam Up | Dam Down | Dam Down |
| *Compliance Parameters* | **Units** | | | | | | | | | |
| Lead | mg/L | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Benzene | µg/L | 0.170 U | 0.1 | NS | 0.500 U | 0.500 U | 0.500 U | NS | 0.500 U | 0.500 U | 0.500 U |
| Ethylbenzene | µg/L | 0.63 | 0.44 U | NS | 1.00 U | 1.00 U | 1.00 U | NS | 1.00 U | 1.00 U | 1.00 U |
| Toluene | µg/L | 0.09 U | 0.23 | NS | 1.00 U | 1.00 U | 1.00 U | NS | 1.00 U | 1.00 U | 1.00 U |
| Xylenes | µg/L | 0.93 U | 0.24 U | NS | 3.00 U | 3.00 U | 3.00 U | NS | 3.00 U | 3.00 U | 3.00 U |
| Acenaphthene | µg/L | 0.13 U | 0.13 U | NS | 0.130 U | 0.0490 U | 0.0584 J | NS | 0.0490 U | 0.0490 U | 0.0490 U |
| Acenaphthylene | µg/L | 0.17 U | 0.18 U | NS | 0.170 U | 0.0850 U | 0.0850 U | NS | 0.0850 U | 0.0850 U | 0.0850 U |
| Anthracene | µg/L | 0.0095 U | 0.0096 U | NS | 0.00930 U | 0.0100 U | 0.128 | NS | 0.0100 U | 0.0100 U | 0.0242 J |
| Benzo(a)anthracene[a] | µg/L | 0.019 U | 0.020 U | NS | 0.0190 U | 0.00300 U | 0.0715 J | NS | 0.00300 U | 0.00300 U | 0.0111 J |
| Benzo(a)pyrene[a] | µg/L | 0.019 U | 0.020 U | NS | 0.0370 U | 0.0320 U | 0.0320 U | NS | 0.0320 U | 0.0320 U | 0.0320 U |
| Benzo(b)fluoranthene[a] | µg/L | 0.038 U | 0.038 U | NS | 0.0230 U | 0.0130 U | 0.0130 U | NS | 0.0130 U | 0.0130 U | 0.0130 U |
| Benzo(g,h,i)perylene | µg/L | 0.033 U | 0.033 U | NS | 0.0190 U | 0.00900 U | 0.00900 U | NS | 0.00900 U | 0.00900 U | 0.00900 U |
| Benzo(k)fluoranthene[a] | µg/L | 0.023 U | 0.024 U | NS | 0.0320 U | 0.0150 U | 0.0150 U | NS | 0.0150 U | 0.0150 U | 0.0150 U |
| Chrysene[a] | µg/L | 0.020 U | 0.021 U | NS | 0.0200 U | 0.00500 U | 0.0607 J | NS | 0.00500 U | 0.00500 U | 0.00760 J |
| Dibenzo(a,h)anthracene[a] | µg/L | 0.034 U | 0.034 U | NS | 0.0330 U | 0.0100 U | 0.0100 U | NS | 0.0100 U | 0.0100 U | 0.0100 U |
| Fluoranthene | µg/L | 0.033 U | 0.033 U | NS | 0.0320 U | 0.0100 U | 0.238 | NS | 0.0100 U | 0.0100 U | 0.0852 J |
| Fluorene | µg/L | 0.030 U | 0.030 U | NS | 0.0290 U | 0.0100 U | 0.190 | NS | 0.0100 U | 0.0100 U | 0.0343 J |
| Indeno(1,2,3-cd)pyrene[a] | µg/L | 0.039 U | 0.039 U | NS | 0.0380 U | 0.00700 U | 0.00700 U | NS | 0.00700 U | 0.00700 U | 0.00700 U |
| Naphthalene | µg/L | 0.10 U | 0.10 U | NS | 0.100 U | 0.151 J | 1.14 | NS | 0.0540 U | 0.0540 U | 0.399 |
| Phenanthrene | µg/L | 0.015 U | 0.015 U | NS | 0.0150 U | 0.00700 U | 0.483 | NS | 0.00700 U | 0.00700 U | 0.111 |
| Pyrene | µg/L | 0.037 U | 0.037 U | NS | 0.0360 U | 0.0190 U | 0.717 | NS | 0.0190 U | 0.0190 U | 0.203 |
| *MNA Parameters* | | | | | | | | | | |
| Ethylene | mg/L | 0.008 U | 0.008 U | NS | 0.010 U | 0.010 U | 0.010 U | NS | 0.007 U | 0.010 U | 0.007 U |
| Ethane | mg/L | 0.008 U | 0.008 U | NS | 0.010 U | 0.010 U | 0.010 U | NS | 0.007 U | 0.010 U | 0.007 U |
| Methane | mg/L | 0.006 | 0.005 | NS | 0.007 U | 0.007 U | 0.012 | NS | 0.005 U | 0.007 U | 0.005 U |
| Alkalinity | mg/L | 217 | 195 | NS | 243 | 213 | 241 | NS | 215 | 232 | 260 |
| Nitrogen, Ammonia | mg/L | 0.30 U | 0.30 U | NS | 0.30 U | 0.30 U | 0.30 U | NS | 0.32 | 0.30 U | 0.30 U |
| Nitrogen, Total Kjeldahl | mg/L | 0.8 | 0.94 | NS | 1.04 | 0.60 U | 0.79 | NS | NS | 0.76 | 0.92 |
| Orthophosphate | mg/L | 0.30 U | 0.41 | NS | 0.30 U | 0.30 U | 0.33 | NS | 0.42 | 0.14 | 0.21 |
| Sulfide, Total | mg/L | 0.10 U | 0.10 U | NS | 0.10 U | 0.10 U | 0.10 U | NS | 0.10 U | 0.10 U | 0.10 U |
| Total Organic Carbon | mg/L | 4.9 | 5.25 | NS | 5.56 | 3.02 | 3.3 | NS | 5.06 | 5.1 | 4.74 |
| Chloride | mg/L | 27.3 | 30.3 | NS | 49.1 | 23.4 | 33.8 | NS | 26.8 | 26.6 | 25.7 |
| Nitrogen, Nitrate | mg/L | 9 | 1.8 | NS | 4.8 | 9.7 HT | 2.2 | NS | 12.0 | 10.7 | 4.3 |
| Nitrogen, Nitrite | mg/L | 0.1 U | 0.1 U | NS | 0.1 U | 0.1 HT | 0.1 U | NS | 0.1 U | 0.1 U | 0.1 U |
| Sulfate | mg/L | 29.3 | 45.8 | NS | 32.1 | 31.9 | 56.2 | NS | 26.9 | 33.4 | 37.2 |
| Iron, Dissolved | mg/L | 0.030 U | 0.035 | NS | 0.044 | 0.032 | 0.030 U | NS | 0.030 U | 0.031 | 0.100 U |

**Notes:**

[a] Suspected carcinogenic polynuclear aromatic hydrocarbon.
B = Compound detected in method blank.
HT = This result was analyzed outside of the Environmental Protection Agency (EPA) recommended holding time.
J = Analyte detected at a level less than the reporting limit but greater than or equal to the method detection limit. Concentrations within this range are estimated.
MNA = Monitored natural attenuation.
mg/L = Milligrams per liter.
µg/L = Micrograms per liter.
NS = Not sampled due to frozen surface of Willow Creek.
U = Compound not detected at or above the value reported.

# ATTACHMENT F
# ANALYTICAL PARAMETERS

| Parameters | Analytical Methods |
|---|---|
| Alkalinity | SM 2320B |
| Ammonia-Nitrogen | SM 4500 $NH_3$ |
| BTEX | EPA 8260 |
| Chloride | EPA 9056 |
| Iron, Dissolved | EPA 200.7 (Field filtered) |
| Methane | ASTM D1945 |
| Nitrate-Nitrogen | EPA 300.0 |
| Nitrite-Nitrogen | EPA 300.0 |
| Orthophosphate | SM 4500 PE |
| Polynuclear Aromatic Hydrocarbons | EPA8310 |
| Sulfate | EPA 300.0 |
| Sulfide | EPA 376.2 |
| Total Heterotrophic Bacteria | SM 9221 B (Modifided) |
| Total Kjeldahl Nitrogen | EPA 351.3 |
| Total Organic Carbon | EPA 9060 |

Notes:
BTEX – benzene, toluene, ethylbenzene, and xylenes
EPA – Environmental Protection Agency
SM – Standard Methods for the Examination of Water and Wastewater
ASTM – American Society for Testing and Materials