



November 29, 2018 DAT-2018-043

Mr. Raman Iyer Section Manager Washington State Department of Ecology, Northwest Regional Office 3190 160th Avenue SE Bellevue, WA 98008-5452

Subject: Submittal of Supplemental Feasibility Study, Powder Mill Gulch, Boeing Everett Site; Agreed Order DE96HS-N274

Dear Mr. lyer:

As requested by Ecology's August 6, 2018 letter regarding *The Boeing Everett Site, Final Decision to Submit Supplemental Feasibility Study, Agreed Order DE96HS-274*, The Boeing Company (Boeing) hereby submits the Supplemental Feasibility Study (SFS) for the Boeing Everett tricholorethene (TCE) plume at Powder Mill Gulch (PMG).

Boeing appreciates the opportunity to present an innovative technology which emerged after the submittal of the feasibility study report (AECOM/LAI 2015) and meets both Boeing and Ecology's desire for an increased mass removal rate and a quicker restoration timeframe. In the SFS, Boeing has presented, evaluated and compared a fifth remedial alternative (Alternative 5) for PMG with the four alternatives presented in the feasibility study report (AECOM/LAI 2015), and evaluated the use of several points of compliance (POC) in conjunction with implementation of Alternative 5 as requested in Ecology's letter. Additionally, Boeing has evaluated a standard POC option (POC Option 1) as well as an additional conditional POC (CPOC) option (POC Option 2a) as necessary and/or allowable under MTCA to be used with Alternative 5.

Alternative 5 is comprised of dynamic groundwater recirculation (DGR) in the downgradient plume and enhanced in situ bioremediation (EISB) in the source area. The SFS evaluation shows Alternative 5 as the preferred remedy because it will increase TCE mass recovery, provide enhanced hydraulic capture and control of the TCE plume, treat residual contamination in the source area, and reduce the overall restoration time frame compared to the other alternatives.

The results of the SFS POC evaluation shows that Option 1 (standard POC) is the appropriate and preferred POC option. The SFS POC evaluation results in Option 2a (transition zone CPOC) as the preferred option if Ecology's sets the cleanup level in groundwater equal to the surface water quality standard (SWQS), thereby necessitating use of a CPOC because it will not be practicable to meet the SWQS in groundwater in a reasonable restoration timeframe.

Thank you for the opportunity to provide this SFS and the collaboration between Boeing and Ecology leading up to its preparation. We look forward to discussing the SFS with you and your team and hope that this may lead us to a mutually agreeable remedy and cleanup levels for the PMG TCE plume, while reserving the legal rights Boeing has asserted.



Mr. Raman Iyer DAT-2018-043 Page 2

Please contact me if you have any questions.

Sincerely,

Katie Moxley Manager, Environmental Remediation The Boeing Company (425) 237-1905 (office) (206) 579-2110 (mobile)

CC (electronic copy):

Darin Rice, Tom Buroker, Dean Yasuda, Thea Levkovitz, Department of Ecology Ivy Anderson, Assistant Attorney General, Attorney for Department of Ecology Deborah Taege, Stanley Alpert, The Boeing Company Mike Dunning, Perkins Coie Mike Palacios, Heather Griffin, Mark Sadler, Wendy McClure, City of Everett Scott Lathrop, Exotic Tool Welding Inc. Roger Hoot, Dianne Riter, BBNC Edgar Wellbaum, Well Energy Corp Greg Bertch, Bertch Capital Partners Kristin Paul, Benjamin Hochron, PGIM Real Estate Robert List, MMA Environmental Dr. Tong Li, Groundwater Solutions

#### References

AECOM/LAI (AECOM and Landau Associates, Inc.). 2015. *Feasibility Study for Upland Areas* and Powder Mill Gulch, BCA Everett Plant. November 16.

# Agency Review Draft Supplemental Feasibility Study Report BCA Everett Plant – Powder Mill Gulch Everett, Washington

November 29, 2018

Prepared for

The Boeing Company



130 2nd Avenue South Edmonds, WA 98020 (425) 778-0907

# **Agency Review Draft Supplemental Feasibility Study Report BCA Everett – Powder Mill Gulch Everett**, Washington

This document was prepared by, or under the direct supervision of, the technical professionals noted below.

Document prepared by:

**Principal Engineer** 

Piper M. Roelen, PE

Document reviewed by:

**Quality Reviewer** 

Jerry R. Ninteman, PE

Date: November 29, 2018 Project No.: 0025175.118.012 File path: P:\025\175\FileRm\R\Feasibility Study\2018 FS Supplement\Boeing\_Evt\_PMG\_112918\_SuppFS\_AgencyReviewDraft\_FinalDraft.docx Project Coordinator: IJL



This page intentionally left blank.

## **EXECUTIVE SUMMARY**

This supplemental feasibility study (SFS) for the Powder Mill Gulch (PMG) area of the Boeing Commercial Airplane (BCA) Everett Plant site (Site) located in Everett, Washington has been prepared as requested by the Washington State Department of Ecology (Ecology) in Ecology's August 6, 2018 letter (Ecology 2018) pursuant to Agreed Order No. DE 96HS-N274 (Agreed Order). The Boeing Company (Boeing) agreed to prepare the SFS as discussed in its August 21, 2018 letter (Boeing 2018b). The feasibility study (FS) report for the PMG area (AECOM and Landau Associates, Inc. [LAI] 2015) developed by Boeing and submitted to Ecology in 2015 included an evaluation of four remedial alternatives for cleanup of the groundwater trichloroethene (TCE) plume in PMG to drinking water cleanup levels at the standard point of compliance (POC; i.e., throughout groundwater in PMG). The FS evaluation was performed in accordance with the Washington State Model Toxics Control Act (MTCA).

As discussed in the above-referenced letters, this SFS:

- presents and evaluates a new (fifth) remedial alternative (Alternative 5) for PMG that will satisfy regulatory requirements; and
- evaluates Alternative 5 using several options for a standard POC or a conditional point of compliance (CPOC).

As requested by Ecology, Boeing's evaluation of the remedial alternatives and the standard POC and CPOC options are performed using the MTCA disproportionate cost analysis (DCA) process in Washington Administrative Code (WAC) 173-340-360(3)(e).

# **Remedial Alternatives Evaluation**

The following four remedial action alternatives were evaluated in the FS to address contaminated media at the Site:

- Alternative 1: Continued Operation of Existing Groundwater Extraction and Treatment (GET) System, and Institutional Controls
- Alternative 2: Enhanced *In Situ* Bioremediation (EISB) in the Source Area, Continued Operation of Existing GET System, and Institutional Controls
- Alternative 3: Focused *In Situ* Chemical Oxidation (ISCO), Continued Operation of Existing GET System, and Institutional Controls
- Alternative 4: Focused EISB, Continued Operation of Existing GET System, and Institutional Controls

This SFS develops a fifth remedial action alternative for PMG for comparison and evaluation with the four remedial alternatives provided in the FS. This new remedial alternative is:

• Alternative 5: Dynamic Groundwater Recirculation (DGR) in the Downgradient Plume and EISB in the Source Area (and Institutional Controls, if necessary). Alternative 5 includes

modifying and upgrading the existing GET system by adding groundwater injection wells and additional extraction wells. This groundwater recirculation system will be dynamically operated to optimize mass recovery through adaptive management as a DGR system. DGR is a relatively new and promising remedial technology that Boeing became aware of after submittal of the FS report that is applicable to the PMG solid waste management unit (SWMU) and should remove groundwater contamination in the TCE plume at a faster rate than the other alternatives presented in the FS thus reducing the restoration time frame. Alternative 5 also includes implementation of additional EISB in the source area to treat residual contamination following previous source area interim action cleanup efforts.

As demonstrated in this SFS, Alternative 5 meets MTCA threshold and other requirements,<sup>1</sup> is permanent to the maximum extent practicable, and is the preferred remedial alternative for cleanup of the PMG SWMU. Alternative 5 will increase contaminant mass recovery rates above those already achieved by the GET system by modifying groundwater flow paths to provide flushing of pore spaces not currently accessed under natural or GET system-influenced flow conditions, accelerate the clean-up time frame through overall increased aquifer flushing rates, and provide additional hydraulic control of contamination in the downgradient portion of the groundwater plume through operation of new groundwater injection and extraction wells. Similar to Alternative 2, EISB will also be used for additional remediation of the source area. In the event that a CPOC is selected by Ecology after review of this SFS, institutional controls will be implemented in accordance with MTCA.

## **Point of Compliance Options Evaluation**

In addition to evaluating the additional remedial alternative (Alternative 5), at the direction of Ecology, this SFS also evaluates the use of several different standard POCs and CPOCs for Alternative 5.

In Ecology's August 6, 2018 letter, Ecology requested the evaluation of four groundwater POC options using the surface water quality standard (SWQS; 0.3 micrograms per liter [ $\mu$ g/L] TCE) as the groundwater cleanup level (CUL), including one standard POC and three CPOC options. For the evaluation of the CPOCs, Ecology states that it is assumed that groundwater at the Site must be protective of drinking water throughout the groundwater (i.e., at the standard POC) upgradient of the established CPOC locations using a cleanup level of 4  $\mu$ g/L TCE based on drinking water standards.

This is a modified approach to evaluating a standard POC option. It uses the drinking water standard of 4  $\mu$ g/L for a portion of the groundwater, but also includes a second cleanup level for groundwater that is equal to the SWQS (0.3  $\mu$ g/L TCE) to be used at the three CPOC options Ecology requested be evaluated (at monitoring wells upgradient of the creek, at the Boeing property line, and immediately

<sup>&</sup>lt;sup>1</sup> As defined in WAC 173-340-360(2)(a&b) – protect human health and the environment, comply with cleanup standards, comply with applicable state and federal laws, provide for compliance monitoring, provide for a reasonable restoration time frame, and consider public concerns.

downgradient of the source area). Finally, Ecology also requested evaluation of a standard POC using the SWQS in groundwater throughout the site.

In addition to the four groundwater POC options identified by Ecology, Boeing evaluates a fourth CPOC option, and the standard POC option for groundwater using drinking water standards. The fourth CPOC option evaluated by Boeing uses the SWQS for groundwater in the transitional zone at the creek which is applicable under MTCA and Ecology guidance (Ecology 2017a) for groundwater abutting surface water. The Ecology guidance document defines the transitional zone (including sediment pore water and the hyporheic zone) as groundwater and shows applicable locations of transitional zone CPOCs in figures.<sup>2</sup> All the POC options evaluated provide that a standard POC for surface water (i.e., throughout the creek) must meet a cleanup level equal to the SWQS (0.3  $\mu$ g/L TCE).

Because Ecology requires for this SFS both the standard POC for groundwater using drinking water standards and the standard POC for surface water using the SWQS be met for all the CPOC options evaluated, each CPOC option identified below (Option 2a, 2b, 3, and 4) consists of the standard POC for groundwater and surface water using the drinking water standard (4 µg/L TCE) and SWQS (0.3 µg/L TCE), respectively (i.e., Option 1), modified with an additional CPOC where the SWQS must be met in groundwater. The six POC options evaluated are as follows:<sup>3</sup>

- Option 1: Groundwater and Surface Water Standard POCs—drinking water standard (4 μg/L TCE) must be met in monitoring wells throughout the groundwater TCE plume and the SWQS (0.3 μg/L TCE) must be met within the creek water at sampling points immediately above the creek bed.
- Option 2a: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC in the Transitional Zone at the Creek—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 µg/L TCE) must also be met in pore water/hyporheic zone sampling points beneath the creek bed or immediately adjacent to the creek.
- Option 2b: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC in the Monitoring Wells Upgradient of the Creek<sup>4</sup>—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 μg/L TCE) must also be met at existing monitoring wells upgradient of the creek (see Figure 4-2b).
- Option 3: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC at Boeing Property Line and Upgradient of the Creek on Boeing Property—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 µg/L TCE) must also be met at existing monitoring wells along the Boeing property line and upgradient of the creek on Boeing property (and at all groundwater monitoring points downgradient of these wells; see Figure 4-3).
- Option 4: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC Immediately Downgradient of the Source Area—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 µg/L TCE) must also be met at monitoring wells

<sup>&</sup>lt;sup>2</sup> See Ecology 2017a - terminology, physical setting definitions, and policy highlight (pages 1-3), and Figure 5a (page 16).

<sup>&</sup>lt;sup>3</sup> POC Options 2b through 5 correspond to POC Options A through D from Ecology's decision letter (Ecology 2018).

<sup>&</sup>lt;sup>4</sup> Ecology's letter referred to these wells as being located in the "buffer zone," which is not a MTCA-defined term.

located immediately downgradient of the TCE source area/detention basin (and at all groundwater monitoring points downgradient of these wells; see Figure 4-4).

• **Option 5: Groundwater Standard POC Using SWQS**—the SWQS (0.3 μg/L TCE) must be met in monitoring wells throughout the groundwater TCE plume and in creek water sampling points immediately above the creek bed (see Figure 4-5).

The use of both a standard and conditional POC is inconsistent with application of CPOCs in groundwater under MTCA.<sup>5</sup> Notwithstanding that issue, per Ecology's direction, Boeing developed POC Options 2b through 4 that assume the TCE drinking water cleanup level will be met in groundwater at the standard POC (i.e., including all points upgradient of these CPOCs).

As requested by Ecology, the evaluation of the POC options for Alternative 5 includes using the MTCA DCA process to determine which POC option is "permanent to the maximum extent practicable under WAC 173-340-360(3)." This requested methodology is an unconventional application of the MTCA DCA process for evaluating POCs because it is intended to be used to evaluate the application of different remedial technologies rather than POC options. Because the POC options are all being applied to the same remedial alternative in the same manner, in order to perform this unique POC DCA analysis, Boeing focused on those elements of the DCA criteria that provide a basis for meaningful comparisons between the POC options.

As demonstrated in this SFS, POC Option 1 is permanent to the maximum extent practicable and is the preferred POC option for use in combination with Alternative 5. Using the standard POC location, as provided for in POC option 1, Alternative 5 is protective of all known and potential human and ecological exposure pathways; provides for the highest overall benefits and is not disproportionately costly; is technically achievable in a reasonable restoration time frame; in combination with the applicable, relevant, and appropriate cleanup levels for both groundwater and surface water, is consistent with MTCA, the Clean Water Act, and state SWQS (WAC 173-201A) regulations; and would not require use of a CPOC. As demonstrated in the DCA, the other POC options are disproportionately costly to implement and achieve, do not provide additional overall benefit, and are inconsistent with MTCA.

As described in this SFS, the selection of POC Option 1 is also based on a large body of technical data, relevant case studies, and professional literature, all of which demonstrate that it is technically impracticable to achieve cleanup of chlorinated solvents in groundwater to concentrations much lower than the state drinking water standard (i.e.,  $4 \mu g/L TCE$ ) in a reasonable restoration time frame. As this body of evidence shows, technical impracticability is primarily due to back diffusion and/or desorption-limited processes in an aquifer that may persist for many decades and lead to asymptotic declines in chlorinated solvent concentrations over very long time frames. Because each of the other

<sup>&</sup>lt;sup>5</sup> WAC 173-340-720(8)(a) states that "Ground water cleanup levels shall be attained in all ground waters from the point of compliance to the outer boundary of the hazardous substance plume" (i.e., for CPOCs at all points in the plume downgradient of the approved CPOC location, not upgradient thereof).

POC options for the PMG SWMU requires meeting the SWQS (0.3  $\mu$ g/L TCE) in groundwater within the TCE plume, this body of data indicates that it will be technically impracticable to achieve compliance at any of the other POCs in a reasonable restoration time frame, with the exception of POC Option 2a (groundwater CPOC in the transition zone beneath the creek) where significant contaminant attenuation may occur due to transition/hyporheic zone biologic and geochemical effects.

Based on the results of the evaluation requested by Ecology, Alternative 5—DGR in the Downgradient Plume and EISB in the Source Area—is the preferred, protective, and effective remedy, and that Option 1—Groundwater and Surface Water Standard POCs—is the preferred, protective, and achievable POC for the PMG area.

# **TABLE OF CONTENTS**

#### Page

EVECI								
EAECC	amodial	Alternatives Evaluation						
	Remedial Alternatives Evaluation							
10								
1.0 INTRODUCTION								
1.	1 ว	Site Description and Background						
1.	2	Drevious Site Investigations						
1.	3	Previous Site Investigations						
1.	4 F	Previous Internin Actions/ Remedial Actions						
1.	5	Nature and Extent of Contamination/Conceptual Site Model						
2.0	DEVEL	OPMENT OF ADDITIONAL REMEDIAL ACTION ALTERNATIVE						
2.	1	Summary of 2015 FS Remedial Alternatives						
	2.1.1	Alternative 1: Continued Operation of Existing GET System and Institutional						
		Controls2-1						
	2.1.2	Alternative 2: EISB Source Area Remediation, Continued Operation of Existing						
		GET System, and Institutional Controls2-2						
	2.1.3	Alternative 3: Focused ISCO Remediation, Continued Operation of Existing GET						
		System, and Institutional Controls2-2						
	2.1.4	Alternative 4: EISB Source Area and Downgradient Plume Remediation,						
		Continued Operation of Existing GET System, and Institutional Controls2-3						
2.	2	Additional Remedial Action Alternative—Alternative 5: Dynamic Groundwater						
		Recirculation and Source Area EISB2-4						
	2.2.1	Basis of Selection of Dynamic Groundwater Recirculation						
	2.2.2	Alternative 5—DGR Pilot Study2-6						
	2.2.3	Alternative 5—Dynamic Groundwater Recirculation Conceptual Plan2-8						
	2.2.4	Alternative 5—Source Area EISB2-9						
	2.2.5	Alternative 5—Institutional Controls2-10						
2.	3	Evaluation of Alternative 5 for Compliance with MTCA Requirements2-10						
	2.3.1	Protection of Human Health and the Environment—WAC 173-340-360(2)(a)(i). 2-						
		10						
	2.3.2	Compliance with Cleanup Standards—WAC 173-340-360(2)(a)(ii)2-11						
	2.3.3	Compliance with Applicable or Relevant and Appropriate Requirements—WAC						
		173-340-360(2)(a)(iii)2-11						
	2.3.4	Provide for Compliance Monitoring—WAC 173-340-360(2)(a)(iv)2-11						
	2.3.5	Use Permanent Solutions—WAC 173-340-360(2)(b)(i)						
	2.3.6	Provide for a Reasonable Restoration Time Frame—WAC 173-340-360(2)(b)(ii) 2-						
		12						
	2.3.7	Consideration of Public Concern—WAC 173-340-360(2)(b)(iii)2-15						

3.0	DETAI	LED EVALUATION OF REMEDIAL ACTION ALTERNATIVES		
З	8.1	Requirements for a Permanent Solution to the Maximum Extent Practicable3-1		
З	8.2	Alternative 5 Benefit Analysis		
З	8.3	Results of Disproportionate Cost Analysis		
4.0	EVALU	IATION OF GROUNDWATER POINT OF COMPLIANCE4-1		
4	l.1	Practicability of Meeting the Surface Water Cleanup Level in Groundwater Throughout		
		the Site in a Reasonable Restoration Time Frame4-2		
	4.1.1	Technical Impracticability of Meeting Surface Water Standards in Groundwater4-		
		2		
	4.1.2	Reasonableness of Estimated Restoration Time Frames to Meet Cleanup		
		Standards at Evaluated Points of Compliance4-4		
4	1.2	Factors for Use of an Off-Property Conditional Point of Compliance4-4		
4	1.3	WAC 173-340-360 Evaluation and Disproportionate Cost Analysis for Optional Points of		
		Compliance4-7		
	4.3.1	Points of Compliance Being Evaluated4-7		
	4.3.2	Point of Compliance Evaluation Criteria4-10		
	4.3.3	Point of Compliance Evaluation Results4-16		
5.0	CONC	LUSIONS OF SUPPLEMENTAL FEASIBILITY STUDY5-1		
5	5.1	Preferred Cleanup Action5-1		
5	5.2	Appropriate and Preferred Point of Compliance for Alternative 55-1		
6.0	USE OF THIS REPORT6-1			
7.0	REFERENCES7-1			

### FIGURES

<u>Figure</u>	<u>Title</u>
1-1	Vicinity Map

- 2-1 Conceptual Layout Alternative 5: Source Area Enhanced *In Situ* Bioremediation, Dynamic Groundwater Recirculation, and Institutional Controls
- 3-1 Summary of Remedial Alternatives Relative Benefits Ranking All Alternatives
- 4-1 Option 1: Groundwater and Surface Water Standard POCs
- 4-2a Option 2a: Groundwater CPOC in the Transition Zone Beneath the Creek
- 4-2b Option 2b: Groundwater CPOC in the Monitoring Wells Upgradient of the Creek
- 4-3 Option 3: Groundwater CPOC at Boeing Property Line and Upgradient of the Creek on Boeing Property
- 4-4 Option 4: Groundwater CPOC Immediately Downgradient of the Source Area
- 4-5 Option 5: Groundwater Standard POC Using SWQS
- 4-6a Summary of POC Options
- 4-6b Comparison of POC Options
- 4-7 Groundwater-Surface Water Transect Locations
- 4-7a Groundwater-Surface Water Transect A (South End of Plume)
- 4-7b Groundwater-Surface Water Transect B (Mid Portion of Plume)
- 4-7c Groundwater-Surface Water Transect C (North End of Plume)
- 4-8 Summary of Point of Compliance Relative Benefits Ranking Alternative 5
- 4-9 Time Frame and Cost for Alternative 5 to Reach Various Cleanup Levels

### **TABLES**

#### Table <u>Title</u>

- 2-1 Restoration Time Frame Summary All Remedial Alternatives
- 3-1 Benefits Analysis and Ranking Considerations Alternative 5
- 3-2 Disproportionate Cost Analysis Summary All Remedial Alternatives
- 4-1 Restoration Time Frame Summary Alternative 5 Point of Compliance Options
- 4-2 Benefits Analysis and Ranking Considerations Alternative 5 Point of Compliance Evaluation
- 4-3 Disproportionate Cost Analysis Summary Alternative 5 Point of Compliance Evaluation

### **APPENDICES**

#### <u>Appendix</u> <u>Title</u>

- A Groundwater Modeling Technical Memorandum
- B Remedial Cost Estimates
  - B-1a Remedial Alternative 1 Updated Cost Estimate
  - B-1b Remedial Alternative 2 Updated Cost Estimate
  - B-1c Remedial Alternative 3 Updated Cost Estimate
  - B-1d Remedial Alternative 4 Updated Cost Estimate
  - B-1e Remedial Alternative 5 Detailed Cost Estimate

- C Point of Compliance Cost Estimates
  - C-1a POC Option 1 Cost Estimate
  - C-1b POC Option 2a Cost Estimate
  - C-1c POC Option 2b Cost Estimate
  - C-1d POC Option 3 Cost Estimate
  - C-1e POC Option 4 Cost Estimate
  - C-1f POC Option 5 Cost Estimate

### LIST OF ABBREVIATIONS AND ACRONYMS

μg/L	micrograms per liter
AFB	Air Force Base
Agreed Order	Agreed Order No. DE 96HS-N274
AOCs	areas of concern
ARAR	applicable, relevant, and appropriate requirement
BCA	Boeing Commercial Airplane
Boeing	The Boeing Company
СРОС	conditional point of compliance
COC	constituent of concern
CSM	conceptual site model
CUL	cleanup level
CVOC	chlorinated volatile organic compound
DCA	disproportionate cost analysis
DGR	dynamic groundwater recirculation
Ecology	Washington State Department of Ecology
EISB	enhanced in situ bioremediation
ЕРА	US Environmental Protection Agency
ESTCPEnv	ironmental Security Technology Certification Program
FS	feasibility study
gal	gallon
GET	groundwater extraction and treatment
GR	groundwater recirculation
ISCO	<i>in situ</i> chemical oxidation
LAI	Landau Associates, Inc.
MCL	maximum contaminant level
MTCA	Washington State Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
0&M	operations and maintenance
OM&M	operations, maintenance, and monitoring
PMG	Powder Mill Gulch
POC	point of compliance
RI	remedial investigation
SFS	supplemental feasibility study
Site	Boeing Everett - Powder Mill Gulch
SWMUs	solid waste management units
SWQS	surface water quality standards
TCE	trichloroethene
тос	total organic carbon
UIC	Underground Injection Control
WAC	Washington Administrative Code

## **1.0 INTRODUCTION**

This document is submitted on behalf of The Boeing Company (Boeing) and presents the results of a supplemental feasibility study (SFS) for the Powder Mill Gulch (PMG) area of the Boeing Commercial Airplane (BCA) Everett Plant site located in Everett, Washington (Site; Figure 1-1). The SFS was requested by the Washington State Department of Ecology (Ecology) in its August 2018 letter (Ecology 2018) pursuant to Agreed Order No. DE 96HS-N274 (Agreed Order). A feasibility study (FS) report (AECOM and Landau Associates, Inc. [LAI] 2015) was prepared for all the Upland Area and PMG solid waste management units (SWMUs) and areas of concern (AOCs) and submitted for Ecology's review in November 2015. Ecology provided a response to the FS in August 2016 (Ecology 2016). This SFS assumes that the reader is generally familiar with the contents of the 2015 FS report and Ecology's response.

Boeing prepared this SFS to:

- present and evaluate a new remedial alternative that was proposed by Boeing (Boeing 2017b, 2018a) for PMG that will satisfy applicable regulatory requirements and is preferable to other alternatives previously considered because it achieves Site cleanup more rapidly through increased hydraulic control and enhanced mass removal and aquifer flushing; and
- evaluate several standard point of compliance (POC) and conditional point of compliance (CPOC) options.

Boeing has presented its position to Ecology that applying surface water quality standards (SWQS) to groundwater is not authorized by law (Boeing 2017a). However, Ecology has requested that Boeing evaluate the feasibility of meeting the SWQS in groundwater at PMG. Boeing provides the requested evaluation in this report without waiving its rights on that issue.

The 2015 FS report included an evaluation of four remedial alternatives for cleanup of the groundwater trichloroethene (TCE) plume in PMG. As identified in Ecology's letter (Ecology 2018), this SFS develops a fifth remedial action alternative for PMG, compares and evaluates the new remedial alternative with the four remedial alternatives presented in the FS, and evaluates the use of different standard POCs and CPOCs for the fifth remedial alternative. Finally, this SFS identifies a preferred remedial alternative that will address the contamination at the PMG area of the Site as required by Washington Administrative Code (WAC) 173-340-360, under the Washington State Model Toxics Control Act (MTCA).

# 1.1 Site Description and Background

A description of the Site/PMG is provided in the FS report.

## 1.2 Site History/Background

A discussion of the history and background of the Site/PMG is provided in the FS report.

### **1.3 Previous Site Investigations**

A discussion of the remedial investigation (RI) and other previous investigations at PMG is provided in the FS report.

# **1.4 Previous Interim Actions/Remedial Actions**

A discussion of previous and ongoing interim actions and other remedial actions performed at PMG is provided in the FS report.

# **1.5** Nature and Extent of Contamination/Conceptual Site Model

A description of the nature and extent of contamination at PMG and a conceptual site model (CSM) are provided in the FS report.

### 2.0 DEVELOPMENT OF ADDITIONAL REMEDIAL ACTION ALTERNATIVE

The following sections briefly summarize the four remedial action alternatives included in the FS report (and, as applicable, as subsequently modified by Ecology) and provide a detailed summary of a new, fifth remedial action alternative developed by Boeing (Alternative 5). In order to fully evaluate Alternative 5, it must be evaluated and compared against the four alternatives presented in the 2015 FS in compliance with the MTCA FS process; Section 3 of this SFS provides that evaluation. Section 4 then provides an evaluation of the applicability of POCs for use in conjunction with the implementation of Alternative 5. Sections 3 and 4 also present disproportionate cost analyses.

# 2.1 Summary of 2015 FS Remedial Alternatives

Four remedial action alternatives were evaluated in the FS to address contaminated media at the Site. The four alternatives are:

- Alternative 1: Continued Operation of Existing Groundwater Extraction and Treatment (GET) System, and Institutional Controls
- Alternative 2: Enhanced *In Situ* Bioremediation (EISB) in the Source Area, Continued Operation of Existing GET System, and Institutional Controls
- Alternative 3: Focused *In Situ* Chemical Oxidation (ISCO), Continued Operation of Existing GET System, and Institutional Controls
- Alternative 4: Focused EISB, Continued Operation of Existing GET System, and Institutional Controls

A brief summary of each of these remedial alternatives is included in the sections below. The alternatives as presented in the 2015 FS were modified and further defined by Ecology's FS response and subsequent submittals from Boeing. The descriptions of the alternatives in the section below incorporate these modifications.

# 2.1.1 Alternative 1: Continued Operation of Existing GET System and Institutional Controls

Alternative 1 consists of continued operation of the existing GET system supplemented by institutional controls. Alternative 1 includes:

- Continued GET System Operations: Operating the 12 existing groundwater extraction wells for groundwater hydraulic control and capture, and the existing groundwater treatment system for treatment of the extracted groundwater and compliant discharge of the treated groundwater to Powder Mill Creek through a National Pollutant Discharge Elimination System (NPDES) permitted outfall. The objectives of the GET system are to:
  - Minimize discharge of impacted groundwater to surface water and migration of impacted groundwater off of Boeing property;

- Increase flushing of the aquifer in the downgradient plume for long-term groundwater restoration and cleanup to the applicable cleanup standards; and treat extracted groundwater to permanently remove contamination from the aquifer for offsite destruction/disposal.
- Institutional Controls: Establishing institutional controls on Boeing and offsite areas of the PMG SWMU until cleanup standards are met to:
  - Prevent use of groundwater and surface water as a drinking water source;
  - Prevent human consumption of surface water or freshwater organisms;
  - Limit human contact with surface water for recreational purposes; and
  - Limit intrusive activities that would bring workers into contact with contaminated groundwater, limit exposure risks, and ensure protection of workers when intrusive activities are necessary.

# 2.1.2 Alternative 2: EISB Source Area Remediation, Continued Operation of Existing GET System, and Institutional Controls

Like Alternative 1, Alternative 2 includes continued operation of the GET system and institutional controls, but also includes performing EISB for cleanup of residual source area contamination (beneath the detention basin). Alternative 2 includes:

- EISB Source Area Remediation: Perform focused EISB in the source area using electron donor to stimulate microbial degradation of residual concentrations of TCE and/or breakdown products and minimize future contributions to downgradient groundwater contamination. Electron donor would be introduced to the subsurface through a network of injection wells or donor borings installed in the detention basin;
- GET System Operations: Operating existing GET system for groundwater hydraulic control, capture, and treatment of contaminated groundwater to minimize discharge of impacted groundwater to surface water and migration of impacted groundwater off of Boeing property, and to increase flushing of the aquifer for restoration and cleanup of groundwater; and
- Institutional Controls: Establish institutional controls on Boeing and offsite areas of the PMG SWMU until cleanup standards are met to prevent use of groundwater and surface water as a drinking water source, prevent human consumption of surface water or freshwater organisms, limit human contact with surface water for recreational purposes, and prevent or limit worker contact with contaminated groundwater.

# 2.1.3 Alternative 3: Focused ISCO Remediation, Continued Operation of Existing GET System, and Institutional Controls

Like Alternative 1, Alternative 3 includes continued operation of the GET system and institutional controls, but also includes performing focused ISCO remediation for cleanup of areas with comparatively elevated TCE concentrations, such as the source area and discrete "TCE focus areas" north and south of Seaway Boulevard. Alternative 3 includes:

• ISCO TCE Focus Area Remediation: Perform remediation using ISCO where TCE focus areas remain to accelerate groundwater remediation. This would include periodic injections of a

strong chemical oxidant (sodium persulfate and an activating agent) into the saturated zone through a network of injection wells to treat contaminated groundwater through direct oxidation of contaminant mass. Injections of sodium persulfate would be repeated at the TCE focus areas (four to six injection events anticipated) until rebound no longer results in groundwater concentrations above treatment goals;

- GET System Operations: Operating existing GET system for groundwater hydraulic control, capture, and treatment of contaminated groundwater to minimize discharge of impacted groundwater to surface water and migration of impacted groundwater off of Boeing property, and to increase flushing of the aquifer for restoration and cleanup of groundwater; and
- Institutional Controls: Establishing institutional controls on Boeing and offsite areas of the PMG SWMU until cleanup standards are met to prevent use of groundwater and surface water as a drinking water source, prevent human consumption of surface water or freshwater organisms, limit human contact with surface water for recreational purposes, and prevent or limit worker contact with contaminated groundwater.

### 2.1.4 Alternative 4: EISB Source Area and Downgradient Plume Remediation, Continued Operation of Existing GET System, and Institutional Controls

Like Alternative 1, Alternative 4 includes continued operation of the GET system and institutional controls. Also similar to Alternative 2, Alternative 4 includes EISB for remediation of the source area; however, as specified by Ecology, this alternative also includes EISB in the downgradient plume wherever necessary to achieve cleanup of groundwater. Alternative 4 includes:

- EISB Groundwater Remediation: Perform focused EISB in the source area and downgradient plume using electron donor to stimulate microbial degradation of TCE and/or chlorinated breakdown products for *in situ* destruction of contaminant mass. Electron donor would be introduced to the subsurface through a network of injection wells or donor borings installed in the detention basin and downgradient areas of the contaminant plume as necessary to achieve cleanup standards;
- GET System Operations: Operate existing GET system for groundwater hydraulic control, capture, and treatment of contaminated groundwater to minimize discharge of impacted groundwater to surface water and migration of impacted groundwater off of Boeing property, and to increase flushing of the aquifer for restoration and cleanup of groundwater;
- As seen during the performance of EISB in the source area as part of the ongoing source area interim action, toxic byproducts, such as vinyl chloride, arsenic, iron, and manganese, are temporarily generated by and/or as a result from the EISB reductive dechlorination process. Because injected electron donor and these byproducts will be present in the downgradient portion of the plume and may be captured by the GET system (which, as required by Ecology, may not be shut down during or after donor injection events), this alternative would also require an expansion of the groundwater treatment system to include construction and operation of pre-treatment trains for total organic carbon (TOC) and metals so that they will not foul the GET system air stripper (chlorinated solvent treatment train) or be passed through the treatment system and discharged into Powder Mill Creek (at the treatment system, NPDES-permitted outfall); and

• Institutional Controls: Establish institutional controls on Boeing and offsite areas of the PMG SWMU until cleanup standards are met to prevent use of groundwater and surface water as a drinking water source, prevent human consumption of surface water or freshwater organisms, limit human contact with surface water for recreational purposes, and prevent or limit worker contact with contaminated groundwater.

### 2.2 Additional Remedial Action Alternative—Alternative 5: Dynamic Groundwater Recirculation and Source Area EISB

This section presents an additional remedial action alternative (Alternative 5) not included with the four alternatives presented in the FS report. Alternative 5 is presented as discussed in Ecology's letter (Ecology 2018). Alternative 5 addresses Ecology's concerns related to achieving cleanup standards at the PMG SWMU in a more rapid time frame, and also limits the risks of detrimental discharges of bioremediation byproducts to Powder Mill Creek and fouling the GET system.

Alternative 5 adds groundwater injection wells and additional extraction wells to convert the GET system into a groundwater recirculation (GR) system. Through adaptive management and dynamic operation of the GR system, the remedial approach/technology would be used that has come to be known as "dynamic groundwater recirculation" (DGR) (Suthersan et al. 2015). This DGR system will increase contaminant mass recovery rates by modifying groundwater flow paths to provide flushing of pore spaces not readily or as quickly accessed under natural or GET system-influenced flow conditions, accelerate the clean-up time frame through overall increased aquifer flushing rates, and provide additional hydraulic control of contamination in the downgradient portion of the groundwater plume through operation of new groundwater injection and extraction wells. Similar to Alternative 2, EISB will also be used for additional remediation of the source area.<sup>6</sup> Institutional controls will be used in accordance with MTCA, if necessary, in the event that a CPOC is selected by Ecology after review of this SFS.

The sequence for design and implementation for Alternative 5 would be as follows:

- 1) Use initial modeling and existing GET system infrastructure to design and perform a DGR pilot study;
- 2) Use the pilot study results to inform and update the groundwater flow model and perform full-scale design and installation of the DGR system;
- 3) Optimize operations of the DGR system for maximum aquifer flushing and mass recovery through dynamic operation and manipulation of hydraulic gradients and groundwater flow paths throughout the downgradient plume. Through the optimization process, the need for additional injection or extraction wells will be evaluated, and such wells will be added if necessary; and

<sup>&</sup>lt;sup>6</sup> Note that DGR is not proposed in the source area because EISB has already been performed in this area with positive results, and the presence of TOC and bioremediation byproducts in the source area would present a substantial risk of fouling DGR extraction wells, injection wells, and the groundwater treatment system.

4) Continue to optimize DGR system operations as the plume contracts and is cleaned up. If ongoing evaluation determines the need for additional injection wells on the future exterior of the plume boundary, such wells will be added as necessary.

The following sections provide the basis of selection for DGR, a plan for pilot study, a description of the conceptual design and implementation of DGR, and a summary description of the components and approach for implementation of Alternative 5.

### 2.2.1 Basis of Selection of Dynamic Groundwater Recirculation

Operation of a standard GET system, like the one currently in operation at PMG, is an effective and proven approach for providing hydraulic containment and capture of a dissolved-phase groundwater contaminant plume, and also provides some enhanced flushing of the contaminant plume through increased gradients and shortened flow paths. These effects have been observed and documented in each interim action monitoring report prepared since initiation of GET system operations at PMG in 2012, as evidenced by observed capture zones created by extraction wells and steady reductions in TCE concentrations in groundwater and surface water over the duration of operations.

GET systems are typically run in a static mode of operation (e.g., groundwater extraction at a set flow rate or level of groundwater drawdown) without substantial variation of extraction locations and rates. In this configuration, the gradients and flow paths do not vary over time and increased flushing often occurs only in the most conductive flow paths oriented in the direction of flow. A DGR system significantly enhances flushing and mass recovery compared to standard GET systems by shifting groundwater flow paths to access the less conductive and transverse flow paths that act as contaminant storage zones (Suthersan et al. 2017). This is accomplished through frequent selective changes to the operation and/or pumping rates of injection and extraction wells across the contaminant plume.

Several benefits can be realized with the addition of injection wells to, and dynamic operation and adaptive management of, the GET system to create a DGR system. These include:

- <u>Enhanced Containment</u>: Groundwater mounding at injection points located just outside of a plume can enhance plume containment through "pushing" groundwater (i.e., increasing hydraulic gradients) to supplement or complement the "pulling" effect of extraction wells.
- Increased Contaminant Mass Recovery: Varying the location and magnitude of groundwater injection and extraction will increase flushing throughout the capture zones along flow paths that may be stagnant or otherwise not accessed by the extraction wells alone. This allows for increased flushing, desorption, and recovery of additional contaminant mass at extraction wells from these flow paths.
- <u>Reduced Restoration Time Frame</u>: Enhanced mass recovery and flushing of the aquifer through more rapid and complete pore water exchanges will result in overall faster plume restoration.

The DGR approach has been shown to significantly improve contaminant removal rates compared to conventional GET approaches and reduces the restoration time frame by increasing mass recovery through advective flushing of multiple flow paths and increasing diffusive gradients (Suthersan et al. 2015). DGR is a relatively new concept for application to pump-and-treat style remedies, but has been documented to successfully achieve clean ups and reduce restoration time frames for chlorinated solvent plumes at Reese Air Force Base (AFB) in Lubbock, Texas and at a railroad property site in Allston, Massachusetts, and for an aviation fuel plume at a helicopter refueling facility spill site (Suthersan et al. 2017). The Reese AFB site is similar to PMG; it was a large, mature TCE plume where a pump-and-treat system was in operation, but conversion to and dynamic operation of a GR system, combined with source area bioremediation, dramatically expedited the cleanup from an estimated restoration time frame of more than 30 years to approximately 8 years (ITRC 2015).

Based on these principles and documented successful implementation of DGR at similar sites, DGR is a promising technology for expedited cleanup of the downgradient plume at the PMG SWMU.

### 2.2.2 Alternative 5—DGR Pilot Study

Prior to full-scale design and implementation, a pilot study would be conducted to demonstrate proof of concept and provide additional information and data that would be utilized for the full-scale design. We anticipate that the pilot study would be conducted in the area of higher TCE concentrations around groundwater monitoring points P8, P10, EGW090, and possibly EGW133 (see Figure 2-1). The actual number and location of injection wells and extraction wells used and installed as part of the pilot study would be determined through detailed engineering design and hydraulic evaluation/modeling as reviewed and approved by Ecology. However, for the purposes of this SFS, the pilot study is assumed to include installation of three injection wells along the eastern edge of the plume south of Seaway Boulevard (on Boeing property) and will utilize all five of the existing extraction wells currently on Boeing property.

The pilot test is anticipated to take at least 1 year to complete (not including planning, design, Ecology work plan review and approval, and construction, which could take 1–2 years to complete) to gather sufficient data to inform design and installation of the full-scale system. Additional testing duration may be necessary to provide sufficient time to adequately observe and fully evaluate the effects of static groundwater injection/recirculation, evaluate the effects and benefits of dynamic operation of the pilot system under multiple configurations, and identify differences in contaminant trends between the pilot study compared to GET system operations only. It is assumed that during the pilot test, groundwater elevation and water quality data will be collected on a monthly basis for the first 3 months, then switched to a quarterly basis as deemed appropriate and adequate to observe and evaluate the effects of various injection and extraction scenarios during the course of the study. Data and parameters collected during the pilot test would be used for evaluation of effectiveness and for design of the full-scale system. Collected data and parameters would include:

- groundwater elevations at injection wells, extraction wells, and monitoring wells/piezometers in the target area;
- groundwater TCE concentrations in monitoring wells and from extraction wells in the target area;
- extraction and injection flow rates;
- hydraulic conductivity and flow capacity data, to the extent practicable, based on injection rates; and
- observation and analysis of reinjection well fouling and effectiveness of well rehabilitation measures (if needed).

Recommended criteria indicating success of the pilot study and results necessary to conclude that fullscale implementation will be appropriate and cost-effective should include:

- ability to approximate the modeled injection rates and degree of mounding at injection wells;
- demonstration that the pilot DGR system can observably increase hydraulic gradients and change/shift flow directions compared to current conditions;
- observations that the hydraulic influence of the DGR system will address all areas of the downgradient plume (i.e., groundwater mounding from injection wells is established around the perimeter of the pilot study area, and complementary capture zones are established by extraction wells);
- observation of significant increases (e.g., 10 to 50 percent depending on location) in mass flux of recovered TCE at extraction wells;
- demonstration of more rapid decreasing trends (than current trends) in groundwater TCE concentrations in target area monitoring wells over the course of the pilot study;
- continued hydraulic capture and control of the plume such that the DGR system achieves the interim action objectives of the Downgradient Plume Interim Action (as appropriately modified for the final remedial action); and
- firm projections based on the results of the pilot study that the final remedy, under full scale implementation, would result in reducing the restoration time frame by at least 50 percent as compared to projected GET system operations and justify the effort and expense of installing and operating the DGR system.

The combination of these recommended parameters should be used to evaluate whether a full-scale DGR system will be feasible, practicable, and effective over the remainder of the downgradient plume.<sup>7</sup> One of the primary metrics of successful design and operation of a dynamically operated GR system is the ability to manage flow path lengths and pore volume flushing times while still maintaining hydraulic control of the plume. Based on our initial evaluation and restoration time frame modeling (see Section 2.3.6), the reduction in downgradient plume restoration time frame as a result of operation of the GR system could be as much as 50 percent (north of Seaway Boulevard) to

<sup>&</sup>lt;sup>7</sup> Construction and implementation of the full-scale GR system will also be contingent upon receiving permission from offproperty land owners to trench, drill, and construct the system on their properties.

70 percent (south of Seaway Boulevard). <sup>8</sup> If the pilot study indicates reductions in restoration time frames significantly less than these projections, the cost of full-scale implementation may be determined to be disproportionately costly in comparison to other remedial alternatives that do not include such significant construction and implementation requirements, such as FS Alternative 2 (source area EISB and downgradient operation of the GET system).

### 2.2.3 Alternative 5—Dynamic Groundwater Recirculation Conceptual Plan

A conceptual layout of the approximate location of groundwater injection wells and new (and existing) extraction wells for a full-scale GR system is provided on Figure 2-1. This layout (subject to change based on the results of the pilot study) is based on the following considerations and limitations:

- current known TCE plume configuration;
- site topography, natural features (wetlands, surface water, vegetation), and infrastructure;
- location, spacing, and area of influence of the existing GET system extraction wells; and
- initial (pre-pilot study) groundwater modeling results (see Appendix A).

As indicated in Figure 2-1, the conceptual layout includes:

- approximately nine new injection wells installed outside the eastern edge of the plume south of Seaway Boulevard and outside the western edge of the plume north of Seaway Boulevard,<sup>9</sup> and
- 12 existing extraction wells and two new extraction wells installed within the core of the plume.

The exact number and location of injection wells and new extraction wells would be determined through detailed engineering design and hydraulic evaluation/modeling including information and data derived from the results of the pilot study. The use and operation of injection wells would have to be permit-authorized by Ecology's Underground Injection Control (UIC) program. For cost estimating purposes and to address Ecology's comments,<sup>10</sup> it is assumed that in addition to the nine new injection wells and two new extraction wells, up to five additional injection or extraction wells may be included as part of the final DGR system design and/or as part of future optimization. As

<sup>&</sup>lt;sup>8</sup> Assumes EISB is also implemented in the source area in addition to DGR system installation and operation in the downgradient plume.

<sup>&</sup>lt;sup>9</sup> Note that all proposed locations of new injection wells and extraction wells north of Seaway Boulevard are on property not owned or under Boeing's direct control; therefore, installation of these wells and associated DGR infrastructure is subject to approval of the owners of these respective properties.

<sup>&</sup>lt;sup>10</sup> Ecology's letter (Ecology 2018) indicated that "Ecology would revise this proposed additional alternative by adding groundwater extraction and injection wells to the interior of the groundwater plume on Boeing and City of Everett property to maximize the effectiveness of the system." Boeing's analysis is that it would not be prudent to install injection wells within the interior of the plume due to the associated risk of inadvertently spreading the boundaries of the plume and creating flow paths that would be counterproductive to the injection wells further upgradient. The cost estimates contained herein do, however, account for the potential for additional injection and extraction wells in the future as the plume contracts or if otherwise necessary. Boeing looks forward to further discussions with Ecology to develop the DGR pilot study.

necessary after operation and optimization of the new DGR system, other new injection and extraction wells not included in the initial system design may be added to supplement the system and to optimize the cleanup as the plume is decreased in size and/or to increase the effectiveness of the system through additional groundwater flow manipulation and increased flushing.

Injection wells would be supplied with treated groundwater from the existing GET system treatment train. Injection wells would be monitored through the existing GET system monitoring system that would be expanded and upgraded to include water level meters (pressure transducers) and flow meters at each injection well. The existing treated groundwater discharge line, which extends to the outfall on Powder Mill Creek beyond the north end of the plume, would be spliced/branched and valved appropriately to provide controllable and adjustable flow to each individual injection well. In addition to the existing discharge pump, booster pumps and intermediary storage tanks would be added, as necessary, to provide flow to each injection well located at higher elevations than the GET system discharge line. The new extraction wells would be tied into the existing collection and transfer piping network and instrumented and monitored in the same fashion as existing extraction wells.

For cost estimating purposes, we have assumed that up to four additional monitoring wells/piezometers may also need to be installed (during the pilot study and/or full scale implementation) to evaluate the hydrologic impacts on the groundwater table and groundwater quality resulting from operation of the injection wells. The exact number and locations would be determined through detailed engineering design and hydraulic evaluation/modeling.

### 2.2.4 Alternative 5—Source Area EISB

In addition to performing DGR in the downgradient portion of the plume, Alternative 5 also includes performance of EISB in the source area:

• EISB Source Area Remediation: Like Alternative 2, Alternative 5 includes performing focused EISB in the source area using electron donor to stimulate microbial degradation of residual concentrations of TCE and/or breakdown products and minimize future contributions to downgradient groundwater contamination. Electron donor would be introduced to the subsurface through a network of injection wells or donor borings installed in the detention basin.

Design of the source area EISB remedy (i.e., location and magnitude of donor injections) will be dependent on source area data at the time the design is performed. For cost estimating purposes, the injection locations and volumes are the same as for FS Alternative 2. It is assumed that up to three injection events will be performed over approximately a 3-year time frame. However, the total number of injection events will depend on monitoring data from the source area and downgradient of the source area subsequent to each prior event, with consideration for the effectiveness of the treatment and potential fouling issues of the DGR system or if other EISB-related impacts are observed in the downgradient plume (e.g., if TOC or dissolved metals resulting from EISB are observed

in proximity to DGR extraction or injection wells, donor injection events may need to be delayed or discontinued).

### 2.2.5 Alternative 5—Institutional Controls

Alternative 5 may also include institutional controls, if necessary.

Institutional Controls: If use of a CPOC is selected by Ecology (see Section 4), Alternative 5 will
include establishing institutional controls, as required by MTCA (WAC 173-340-440[4][e]) on
Boeing and offsite areas of the PMG SWMU until cleanup standards are met to prevent use of
groundwater and surface water as a drinking water source, prevent human consumption of
surface water or freshwater organisms, limit human contact with surface water for
recreational purposes, and prevent or limit worker contact with contaminated groundwater.

Existing signage along the creek on the City of Everett property will be maintained throughout the cleanup regardless of whether other institutional controls are implemented.

### 2.3 Evaluation of Alternative 5 for Compliance with MTCA Requirements

This section evaluates Alternative 5 with the requirements in WAC 173-340-360(2)(a)&(b). The regulation provides the threshold and other requirements defined by MTCA for selecting cleanup actions.

### 2.3.1 Protection of Human Health and the Environment—WAC 173-340-360(2)(a)(i)

Alternative 5 will be protective of human health and the environment because it will effectively reduce levels of TCE in the plume at a faster rate than any of the other alternatives as a result of the combination of EISB in the source area for mass reduction, DGR in the downgradient plume to flush the aquifer and to minimize discharge of contaminated groundwater to surface water, and the implementation of institutional controls, if necessary, during cleanup to minimize potential human contact with or use of groundwater or surface water at the site. The combination of these measures will be protective of human and ecological receptors. Specifically, Alternative 5 will achieve cleanup standards, including:

- cleanup of groundwater to concentrations that are protective of drinking water standards, surface water beneficial uses, and the soil vapor to indoor air pathway; and
- cleanup of surface water to concentrations that are protective of surface water beneficial uses, including use as drinking water, consumption of organisms, recreational contact, and use/exposure by ecological receptors.<sup>11</sup>

<sup>&</sup>lt;sup>11</sup> Boeing notes that these cleanup standards are conservative. Under current site conditions, there is negligible opportunity for exposure to contaminated groundwater or surface water at concentrations that represent a chronic or acute human or ecological exposure risk. There is currently no known usage of groundwater for drinking water or any other domestic purposes and the City of Everett supplies municipal water to all residents and businesses within the city limits. Surface water

### 2.3.2 Compliance with Cleanup Standards—WAC 173-340-360(2)(a)(ii)

Implementation of Alternative 5 will comply with the cleanup standards. Alternative 5 will achieve the groundwater and surface water cleanup standards as required by WAC 173-340-720 & -730 through active EISB treatment in the source area, and flushing, extraction, and treatment of groundwater in the downgradient plume through DGR. Alternative 5 should meet cleanup standards more rapidly than any other alternative. As further demonstrated in Section 3 below, compliance with these cleanup standards may be met at applicable POCs.

### 2.3.3 Compliance with Applicable or Relevant and Appropriate Requirements—WAC 173-340-360(2)(a)(iii)

Alternative 5 will comply with applicable state and federal laws, as required by WAC 173-340-710, in the same manner as the other four alternatives as summarized in Section 4 of the FS report. This will include, as necessary, revising the facility NPDES permit related to modification of the GET system to a DGR system, obtaining a UIC permit(s) for injection of treated groundwater related to the GR system and injection of donor for source area EISB, obtaining coverage under the construction stormwater general permit for system construction activities as necessary, and/or obtaining or complying with the substantive requirements of any other permit required by the City of Everett and Snohomish County.

### 2.3.4 Provide for Compliance Monitoring—WAC 173-340-360(2)(a)(iv)

Alternative 5 will comply with compliance monitoring requirements, as required by WAC 173-340-410, which include:

- Health and safety protection monitoring as provided under the procedures of the site-specific health and safety plan;
- Ongoing groundwater and surface water performance monitoring to evaluate progress in achieving cleanup objectives; and
- Confirmational monitoring in the form of sampling and monitoring of groundwater treatment system air and water effluent to comply with treatment goals and regulatory discharge limits, and final confirmation sampling after completion of the remedial action to comply with the cleanup standards in all applicable media.

### 2.3.5 Use Permanent Solutions—WAC 173-340-360(2)(b)(i)

In addition to threshold requirements, MTCA also requires that cleanup actions meet other requirements, including, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practicable (WAC 173-340-360[3]). Permanent solutions are cleanup actions

concentrations of TCE and other chlorinated volatile organic compounds (CVOCs) are below all ecological or human health hazard concentrations, except for human consumption of surface water as drinking water and consumption of organisms; however, there is no known current or likely future use of surface water from Powder Mill Creek as drinking water, and there is currently no known presence of fish in the section of Powder Mill Creek that is impacted with TCE. Soil vapor monitoring has demonstrated that the groundwater to indoor air pathway is not a pathway of concern in areas of the Site currently occupied by buildings.

that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a disproportionate cost analysis (DCA) is required (WAC 173-340-360[3][e]). A summary of the DCA process and results for evaluation of Alternative 5 against the other four alternatives presented in the FS report is included in Section 3. That analysis shows that because Alternative 5 will increase contaminant mass recovery rates, accelerate the clean-up time frame through overall increased aquifer flushing rates, provide additional hydraulic control for the downgradient TCE plume, and enhance TCE mass destruction in the source area, Alternative 5 is the cleanup action alternative that is permanent to the maximum extent practicable.

### 2.3.6 Provide for a Reasonable Restoration Time Frame—WAC 173-340-360(2)(b)(ii)

"Restoration time frame" is defined by MTCA (WAC 173-340-200) as "the period of time needed to achieve the required cleanup levels at the points of compliance established for the site." This section summarizes how the restoration time frame(s) was estimated for Alternative 5 and evaluates it with respect to the nine factors established in WAC 173-340-360(4)(b) to assess whether the alternative provides for a reasonable restoration time frame.

The estimated restoration time frames for achieving the cleanup standards at various points of compliance using Alternative 5 (see Section 4) were determined using groundwater modeling (GMS/MODFLOW; see Appendix A) in combination with one or both of two restoration time frame estimating models, the Batch Flushing model (US Environmental Protection Agency [EPA] 1988) and the BIOCHLOR Natural Attenuation Decision Support System model (BIOCHLOR, Version 2.2, 2002 release).<sup>12</sup> These models are both industry standard and EPA-accepted tools for this type of application (EPA 1988, 2018). The results of particle tracking related to the MODFLOW model were used to identify flow paths, distances, and travel times that could be used as input parameters for the Batch Flushing and BIOCHLOR modeling to estimate restoration time frames associated with the source area and downgradient plume areas of PMG.

For the purposes of this SFS, for Alternative 5, the total restoration time is assumed to be the longer of the restoration time frames for the source area (resulting from EISB) and the downgradient plume (resulting from DGR). Based on the same assumptions used for restoration time frame analysis of the other alternatives (i.e., standard POC for groundwater meeting the drinking water standard), the estimated restoration time frame for DGR is approximately 15 years for the downgradient plume and approximately 23 years for the source area (see Table 2-1). Because meeting the cleanup standards site-wide is dependent on cleanup of the source area, a total restoration time frame for Alternative 5 is projected to be approximately 23 years.

<sup>&</sup>lt;sup>12</sup> Data assumptions and input parameters for BIOCHLOR and Batch Flushing were the same as prior restoration time frame modeling for the Uplands/PMG FS as detailed in the *Restoration Time Frame Evaluation—Modeling Inputs/Sensitivity Analysis* Technical Memorandum (LAI 2017), except as described in Appendix A.

The restoration time frame for Alternative 5 is reasonable, based on the following MTCA restoration time frame evaluation factors in WAC 173-340-360(4)(b)(i)-(ix):

- Potential risks to human health and the environment: There is low risk to human health and the environment from implementation of Alternative 5. Because complete exposure pathways that present a potential, though limited, risk to human and ecological receptors are known to exist at the PMG SWMU (as described in Section 3.2.11 of the FS), Alternative 5 contains measures to address the exposure pathways and/or provide administrative or engineering controls to minimize exposure risk. Bioremediation of source area groundwater, along with flushing, capture, and treatment of contaminated groundwater in the downgradient plume will clean up the aquifer and minimize migration to Powder Mill Creek. Importantly, although the restoration time frame for the source area is longer than the downgradient plume to reach the drinking water standard, operation of the DGR system will result in conditions protective of the creek before the cleanup standards are met for the site as a whole (i.e., flushing of the downgradient aquifer and operation of the extraction wells for hydraulic control to minimize TCE discharge to the creek). Thus, the low potential risks to human health and the environment at the creek will be eliminated faster than for the entire plume, where the risks are even lower. In other words, the highest risk portion of the plume will be the fastest to reach cleanup standards. Also, Boeing does not and will not use groundwater on its property as a drinking water source. Therefore, this alternative is protective of human health and the environment.
- **Practicability of achieving shorter restoration time frame:** Based on analytical models (Batch Flushing model and BIOCHLOR), the restoration time frame for Alternative 5 is more rapid than for any of the other four alternatives presented in the FS (see Table 2-1). Accounting for the physical and administrative limitations of performing Alternative 5 at the PMG SWMU, it is not considered practicable to achieve a shorter restoration time frame. This is further demonstrated through the DCA evaluation, the results of which are described in Section 3.3.
- Current and future use of the site, surrounding areas, and associated resources that are, or may be affected by releases from the Site: The current use of the Boeing portion of the PMG SWMU is open space on an industrial property; the current use of the PMG SWMU off Boeing property (north of Seaway Boulevard) is for commercial/industrial office and warehousing, and open space.

Most of the undeveloped/open space portion of the Site is located in areas with steep slopes, wetlands, or surface water (or associated buffer zones) and is unlikely or unable to be developed due to regulatory restrictions and setbacks for development in and around slopes and surface water bodies.<sup>13</sup> Boeing is unlikely to develop the portion of the PMG SWMU on its property. The City of Everett-owned "Lot 9" property is deed-restricted for use as open space for municipal and recreational purposes. The commercial/industrial park areas of the PMG SWMU have only recently been developed with new business spaces and are unlikely to change significantly over the duration of the cleanup.

Utility workers (e.g., for underground power, sewer, and water) could encounter contaminated groundwater before cleanup levels are achieved, but proper use and implementation of administrative or institutional controls, if needed, can adequately manage

<sup>&</sup>lt;sup>13</sup> See Chapter 19.37 of the City Everett Municipal Code—the purpose of which is to designate, classify, and protect the critical areas of the Everett community by establishing standards for development and use of properties which contain or adjoin critical areas and thus protect the public health, safety, and welfare.

this potential risk. Human contact and ecological contact/ingestion of contaminated water in Powder Mill Creek represents a risk for current and future exposure. The City of Everett property is open to the public, but signage is posted regarding the cleanup to discourage contact with the creek. Powder Mill Creek contains no known fish or shellfish populations in the TCE-impacted portion (Beamer et al. 2013),<sup>14</sup> thus human consumption of organisms does not occur. Surface water concentrations are below ecological or human health hazard concentrations except for those protective of human consumption of surface water as drinking water. However, there is no known current usage of the creek water for drinking water and future use as such is unlikely (see next bullet).

- Availability of alternate water supplies: The City of Everett supplies municipal water to all
  residents and businesses within the city limits, which include the PMG SWMU and
  surrounding areas. Therefore, use of surface water or groundwater as a water supply is not
  needed and would not be allowed without permission from the City of Everett and/or granting
  of water rights from Ecology.
- Likely effectiveness and reliability of institutional controls: If necessary, as required by MTCA if a CPOC is used, institutional controls used in conjunction with Alternative 5 are expected to be effective at preventing groundwater use and direct contact with contaminated groundwater during the cleanup action. The Boeing property is a fenced and access-controlled industrial property. The non-Boeing commercial properties have no complete exposure pathways, and installation of water supply wells would not be allowed by the City of Everett (the City of Everett provides municipal water supply). Institutional controls related to surface water include posted signage regarding the cleanup to discourage access to and contact with surface water, and the creek contains no known fish or shellfish populations in the segment impacted by TCE. Surface water cleanup standards are expected to be achieved for the creek relatively quickly under Alternative 5, limiting the duration of institutional controls.
- Ability to control and monitor migration of hazardous substances from the Site: Monitoring data indicates that TCE concentrations in the groundwater plume are steadily declining. The PMG downgradient plume IA is currently minimizing migration of hazardous substances off Boeing property and into Powder Mill Creek. DGR is anticipated to accelerate groundwater restoration and further minimize contaminant migration. There is a substantial monitoring network in place and Alternative 5 includes performance and compliance monitoring to verify that these conditions continue to improve. Therefore, the groundwater plume is and will be well-controlled and well-monitored.
- **Toxicity of hazardous substances at the Site:** The main constituents of concern (COCs) at the PMG SWMU are chlorinated solvents. The toxicity of these constituents is moderate to human and ecological receptors. Based on the relatively low and declining concentrations of COCs present, and the limited exposure scenarios for complete exposure pathways that would be likely to occur for human or ecological receptors, the toxic effects of hazardous substances at the Site provide minimal risk for adverse impacts.
- Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the Site or under similar site conditions: The chlorinated volatile organic compounds (CVOCs) found in groundwater at the Site have moderate to high susceptibility for biodegradation. Monitoring data for CVOCs in surface water (creek and

<sup>&</sup>lt;sup>14</sup> Salmonid species have been identified in the lower 200 meters of Powder Mill Creek; however, none have been observed or documented upstream of Mukilteo Boulevard, a large culvert beneath which is an apparent fish passage barrier.

wetlands) and the groundwater transitional/hyporheic zone indicate that the CVOCs attenuate rapidly over relatively short distances approaching the discharge point into the creek. This attenuation is most likely due to natural processes (e.g., aerobic and anaerobic biotic and abiotic processes) that are documented in this groundwater zone and particularly effective in degrading chlorinated ethenes (Weatherill et al. 2017, EA 2005). The attenuation is a prominent factor in further reducing risk to potential receptors. PMG SWMU groundwater data indicate that rates of natural degradation in groundwater are relatively low, but the data from the interim actions performed to date indicate that naturally occurring processes that reduce contaminant concentrations can be enhanced significantly where relatively high contaminant mass remains. Source area EISB will further stimulate biological processes in this area, and DGR in the downgradient plume will further enhance natural physical processes.

Because of the low risk to human health or the environment under current and future land uses, and Alternative 5's strong performance under the other factors identified above, Alternative 5 will achieve cleanup of the PMG SWMU within a reasonable restoration time frame.

### 2.3.7 Consideration of Public Concern—WAC 173-340-360(2)(b)(iii)

Although Alternative 5 has not been presented to the public at this time, Boeing considered known or potential public concerns in developing Alternative 5. Boeing is not aware of any specific concerns that have been expressed by the public to date during previous meetings with neighborhood groups in the PMG area (e.g., Boulevard Bluffs Neighborhood Coalition) over performance of EISB in the source area or groundwater extraction in the downgradient plume (as related to the other alternatives that include these elements). As discussed above, Alternative 5 is designed to achieve cleanup standards that are protective of the creek more rapidly than the other alternatives presented in the FS. This SFS will be the subject of public review and comment and Boeing looks forward to participating in that process.

### **3.0 DETAILED EVALUATION OF REMEDIAL ACTION ALTERNATIVES**

This SFS report compares and evaluates each of the five remedial alternatives using the procedures for an FS specified in WAC 173-340-350 & -360. The evaluation process used for comparing remedial alternatives is described in detail in the FS report in Section 8.0 and associated figures. The evaluation of each alternative with MTCA requirements are detailed in the FS report at Section 8.0 for the four remedial alternatives evaluated in the FS, and in Section 2 of this SFS for Alternative 5.

For the DCA evaluation in this SFS, the same process of benefit scoring, weighting the evaluation criteria, and comparing the costs and benefits that was used in the FS is used here for evaluating all five remedial alternatives. For this evaluation, the benefit scoring used for the four FS alternatives (as modified by Ecology), are unchanged from those in the revised DCA included in Attachment 1D of Boeing's September 2017 formal dispute letter (Boeing 2017a). Cost estimates for the FS alternatives have been updated, as applicable, to reflect Ecology's modifications to the alternatives and, consistent with the assumptions of the FS, assume that the restoration time frames are based on achieving drinking water standards in groundwater.<sup>15</sup> The cost estimates are included in Appendix B along with the cost estimate for the new Alternative 5.

# 3.1 Requirements for a Permanent Solution to the Maximum Extent Practicable

The MTCA regulation requires that cleanup actions be permanent to the maximum extent practicable (WAC 173-340-360[2][b][i]). WAC 173-340-200 defines a permanent solution as one "in which [relevant cleanup standards] can be met without further action being required at the site being cleaned up or any other site involved with the cleanup action, other than the approved disposal site of any residue from the treatment of hazardous substances." However, the regulation requires that cleanup actions be permanent "to the maximum extent practicable." The regulation defines "practicable" as "capable of being designed, constructed, and implemented in a reliable and effective manner including consideration of cost. When considering cost under this analysis, an alternative shall not be considered practicable if the incremental costs of the alternative are disproportionate to the incremental degree of benefits provided by the alternative over other lower cost alternatives."

The regulation also provides a methodology for determining whether a cleanup action is permanent to the maximum extent practicable in WAC 173-340-360(3). That methodology includes the use of a DCA (WAC 173-340-360[3][e]).

<sup>&</sup>lt;sup>15</sup> Consistent with the FS evaluation, for direct comparison between the five FS alternatives, the analysis is based on each alternative meeting the groundwater and surface water cleanup levels (4 micrograms per liter [ $\mu$ g/L] TCE in groundwater and 0.3  $\mu$ g/L TCE in surface water) in their respective media at the standard POCs.

WAC 173-340-360(3)(e)(ii) provides a process under which remedial alternatives are reviewed, and WAC 173-340-360(3)(f) provides specified disproportionate cost evaluation criteria that are used to determine whether a cleanup action is permanent to the maximum extent practicable.

Under the DCA, costs are considered disproportionate to benefits if the incremental costs of the more permanent alternative exceed the incremental degree of benefits achieved by the other lower cost alternative (WAC 173-340-360[e][i]). MTCA further clarifies that "Where two or more alternatives are equal in benefits, the department shall select the less costly alternative provided that the requirements of subsection (2) of this section are met" (WAC 173-340-360[3][e][ii][C]).

# 3.2 Alternative 5 Benefit Analysis

Table 3-1 provides descriptions of the assumptions and considerations used for benefit scoring and ranking under each DCA evaluation criteria for Alternative 5. Based on the ranking considerations for Alternative 5 and comparison against the other four alternatives, the score/value assigned for each criterion (and associated weighting factor—consistent with the weighting factors used in the original FS/DCA)<sup>16</sup> are provided below:

- Protectiveness (30 percent): 9
- Permanence (20 percent): 9
- Effectiveness over the long term (20 percent): 9
- Management of short-term risks (10 percent): 8
- Technical and administrative implementability (10 percent): 8
- Consideration of public concerns (10 percent): 10
- Cost (not weighted): \$14,100,000

The rationale for the scores provided to each of these criteria is discussed in Section 3.3 below.

Based on the raw scores and the weighting factor assigned to each criterion, the **overall weighted benefit score for Alternative 5 is 8.9**.

# 3.3 Results of Disproportionate Cost Analysis

The results of the DCA for the five alternatives identified in Sections 2.1 and 2.2 are provided as attachments to this report. Table 3-2 provides a summary of the complete DCA evaluation with

<sup>&</sup>lt;sup>16</sup> Note that the use of weighting factors are not specifically included under MTCA; however, it has become a widely used and accepted practice by the regulated community and Ecology to assign weighting to the DCA criteria. For example, refer to the DCA for Whatcom Waterway/Bellingham Bay cleanup sites and associated Ecology guidance (Whatcom County Superior Court 2007, Ecology 2008). The weighting factors identified above are typical for FS DCA evaluations performed under MTCA; protectiveness, permanence, and long-term effectiveness criteria are typically weighted more heavily "since they are core to protecting human health and the environment" (Ecology 2017b). Additionally, Ecology guidance accepts and authorizes the use of alternative ranking and DCA criteria weighting. *See* Sediment Cleanup User's Manual II, at Section 12.4.5 and Appendix H (approving of ranking alternatives and using relative weights to DCA benefit criteria). Boeing used the weights provided in Appendix H, Section H.1.4 in this SFS DCA and in the 2015 FS Report.

comparisons of the benefit scores to the associated cost estimates related to each alternative, including the relative benefit-to-cost ratio used for comparing each alternative and identifying which alternative is considered permanent to the maximum extent practicable. Figure 3-1 provides a visual representation of the results provided in the tables. Appendix B includes the detailed cost estimates for Alternatives 1 through Alternative 5.

The following provides a brief summary of the rankings for each alternative for each DCA criteria:

- Protectiveness: Alternative 5 received the highest benefit ranking for the protectiveness criteria because it reduces risks more rapidly than any other alternative and achieves cleanup standards across the Site significantly faster than any of the other alternatives. As previously indicated by Ecology, "There is value in hastening groundwater cleanup...if it is technically practicable to achieve [shorter] groundwater and surface water (creek) restoration time frames...this is what we should do" (Ecology 2017c).
- Permanence: Alternative 5 received the highest benefit ranking for the permanence criteria because, in addition to irreversibly reducing contaminant toxicity, mass, and volume through source area *in situ* treatment and downgradient capture, DGR will further inhibit potential plume migration through treated water reinjection along the plume boundaries, which none of the other alternatives would do.
- Effectiveness over the long term: Alternative 5 received the highest benefit ranking for the long-term effectiveness criteria because it has the highest degree of certainty, compared to the other alternatives, that it will be successful in achieving site cleanup and be reliable while contaminant concentrations are above cleanup levels (over a shorter duration than the other alternatives).
- Management of short-term risks: Alternative 1 received the highest benefit ranking for the management of short-term risks criteria because it includes no additional drilling (unless required by Ecology for additional monitoring purposes) or construction activities that could pose risk to site workers.
- Technical and administrative implementability: Alternative 1 received the highest benefit ranking for technical and administrative implementability criteria because it includes no additional construction or implementation and minimal long term operations and maintenance (O&M); additional administrative requirements include only the implementation of institutional controls and ongoing compliance with the NPDES discharge permit (also required for all the other alternatives).
- Consideration of public concerns: All the alternatives are ranked equally for the consideration
  of public concerns criteria. Each alternative will consider public concerns in the same manner
  by responding to comments received during the required public comment period for the RI/FS
  (and possibly the cleanup action plan) as part of the cleanup process under MTCA.
- Cost: Alternative 1 is the least expensive alternative and Alternative 4 is the most expensive as summarized below (a breakdown of these costs is presented in Tables B-1a through B-1e) and summarized below.
  - Alternative 1: \$12.3 million
  - Alternative 2: \$14.0 million

- Alternative 5: \$14.1 million
- Alternative 3: \$21.6 million
- Alternative 4: \$22.3 million

Based on these benefit rankings for each criteria and the assigned weighting factors, the overall weighted benefit score for each alternative is as follows (from highest to lowest):

- Alternative 5: 8.9
- Alternative 3: 7.7
- Alternative 2: 7.5
- Alternative 4: 7.3
- Alternative 1: 6.9

Based on the weighted benefit scores identified above, Alternative 5 has the highest overall benefit score and is considered the most permanent alternative being evaluated. However, Alternative 5 is estimated to be more expensive than two other alternatives. Under the DCA, costs are considered disproportionate to benefits if the incremental costs of the more permanent alternative exceed the incremental degree of benefits achieved by the other lower cost alternative (WAC 173-340-360[e][i]).

To aid in determining whether the cost of Alternative 5 is disproportionate to its benefits and to provide a quantitative approach for direct comparison of each alternative (WAC 173-340-360[3][e][ii][C]), the benefit-to-cost ratio was determined for each alternative by dividing the calculated overall weighted benefit score by the cost of the alternative.<sup>17</sup> This benefit-to-cost ratio provides a metric to evaluate whether the cost of each alternative is commensurate with its benefits. The alternative with the next higher relative benefit-to-cost ratio than the most permanent alternative being evaluated is considered "permanent to the maximum extent practicable" so long as its benefits are also not disproportionate to its costs compared to other alternatives with still higher benefit-to-cost ratios.

The overall weighted benefit score, estimated cost, and calculated relative benefit-to-cost ratio identified by the DCA for each Alternative are as follows:

Remedial Alternative	Overall Weighted Benefit Score	Estimated Remedy Cost (\$millions)	Relative Benefit-to-Cost Ratio
Alternative 1	6.9	\$12.3	6.9
Alternative 2	7.5	\$14.0	6.6
Alternative 3	7.7	\$21.6	4.4
Alternative 4	7.3	\$22.23	4.0
Alternative 5	8.9	\$14.1	7.8

<sup>&</sup>lt;sup>17</sup> This value is also then multiplied by the cost of the lowest cost alternative to normalize and scale the data to fit on the chart.
A graph of the DCA results for the PMG SWMU/AOC showing the relative benefit and cost for each alternative is presented in Figure 3-1. Relative benefit scores for each alternative are shown by benefit (green) bars. Alternatives costs are shown by cost (red) bars. The figure also displays the relative benefit-to-cost ratios with an overlying (blue) line graph; the alternative with highest benefit-to-cost ratio has the highest benefit-to-cost score on this line.

Alternative 5 has both the highest benefit score and the third lowest cost of all the alternatives resulting in the highest benefit-to-cost ratio over both higher and lower cost alternatives (as illustrated on Figure 3-1). This indicates that more expensive alternatives are disproportionately costly to their incremental increase (or decrease in this case) in benefits, and less costly alternatives have lower benefits that cannot be justified by the decrease in cost. Therefore, based on the MTCA DCA evaluation, Alternative 5, which includes *in situ* groundwater treatment in the source area with EISB and DGR to treat groundwater in the downgradient plume, is permanent to the maximum extent practicable and is the preferred alternative.

## 4.0 EVALUATION OF GROUNDWATER POINT OF COMPLIANCE

Under the MTCA regulation (WAC 173-340), the cleanup standards for a site remedial action consist of concentrations to which hazardous substances present at the site must be cleaned up (cleanup levels [CULs]); the location where those CULs must be met (i.e., POCs), and other applicable, relevant, and appropriate requirements (ARARs) that apply to the site, including applicable requirements for how CULs and POCs must be applied (WAC 173-340-700[3]).

Ecology's August 6, 2018 letter (Ecology 2018), states that SWQS must be met at a POC in groundwater at PMG, and requested an evaluation of four POCs (one standard POC and three CPOCs) to determine whether a CPOC may be used for the PMG SWMU. As discussed in the Executive Summary and prior submittals to Ecology (Boeing 2017a), Boeing has made clear that Ecology's application of surface water standards to groundwater is not authorized by law. Nevertheless, as requested by Ecology, Boeing has evaluated groundwater POC options in this SFS using the SWQS (0.3 micrograms per liter [ $\mu$ g/L] TCE) as the groundwater CUL at the standard POC and three individual CPOC locations. In addition to the POC options identified by Ecology, Boeing evaluates a standard POC option for groundwater CUL in the transitional zone at the creek. All the POC options evaluated provide that a standard POC for surface water (i.e., throughout the creek) must meet a cleanup level equal to the SWQS (0.3  $\mu$ g/L TCE).

The MTCA regulation provides for the use of CPOCs for groundwater (WAC 173-340-720[8][c]&[d]). Ecology may approve use of a CPOC for the PMG SWMU, if this evaluation:

- 1) demonstrates that, by implementing Alternative 5, it is not practicable to meet the surface water CUL in groundwater throughout the Site in a reasonable restoration time frame such that the Site qualifies for use of a groundwater CPOC (WAC 173-340-720[8][c]); and
- identifies how the use of an on-property or off-property CPOC complies with WAC 173-340-720(8)(c)&(d).

Additionally, per its August 6, 2018 letter (Ecology 2018), Ecology has stated that this evaluation must also demonstrate that a CPOC is permanent to the maximum extent practicable by using the MTCA DCA process (WAC 173-340-360[3]) to evaluate Alternative 5 at a series of groundwater standard and conditional POC options for PMG.

The following sections use the MTCA feasibility study process (WAC 173-340-350[8][a]&[b]), including the regulatory and Ecology criteria above, to provide a technical practicability assessment, disproportionate cost analysis, and regulatory assessment to evaluate the appropriateness and applicability of using the drinking water CUL at the standard POC for groundwater, and the SWQS as the groundwater CUL at the standard POC and four CPOCs for groundwater.

## 4.1 Practicability of Meeting the Surface Water Cleanup Level in Groundwater Throughout the Site in a Reasonable Restoration Time Frame

WAC 173-340-720(8), regarding POCs, first requires an evaluation of WAC 173-340-350 through -390 to assess the practicability of meeting a reasonable restoration time frame. This section provides that evaluation and demonstrates that while the drinking water standard can be met at the standard POC in a reasonable restoration time frame, the surface water CUL in groundwater cannot be met in a reasonable restoration time frame throughout the Site.

WAC 173-340-350(8)(b)(i&ii) and 173-340-350(8)(c)(i)(F) state that (paraphrased) the FS shall include alternatives with the standard POC for each environmental media containing hazardous substances, unless those alternatives have been eliminated because the cost of those alternatives are clearly disproportionate (see Section 4.3 below) and the components of that alternative are not technically possible at the site. WAC 173-340-720(8)(c) also states that "Where it can be demonstrated...that it is not practicable to meet the cleanup level throughout the site within a reasonable restoration time frame, the department may approve a conditional point of compliance...".

# 4.1.1 Technical Impracticability of Meeting Surface Water Standards in Groundwater

WAC 173-340-350(8)(b)(ii) indicates that determining the feasibility of remedial alternatives or components should include evaluation of whether they will be "technically possible at the site". Based on the current state of the science for remediation of CVOC sites (discussed below), achieving extremely low cleanup levels, such as the SWQS for TCE of 0.3  $\mu$ g/L, in groundwater is not technically practicable in a reasonable time frame at nearly all cleanup sites. Thus, it is likely not currently possible to meet that extremely low surface water CUL for TCE throughout groundwater at the Site in a reasonable restoration time frame with available active remediation technologies.

In order for the SWQS to be achieved in groundwater throughout the PMG SWMU, TCE concentrations would have to be reduced over an order of magnitude below the state drinking water standard (4  $\mu$ g/L for TCE) or federal maximum contaminant level (MCL; 5  $\mu$ g/L for TCE), and the overall TCE concentrations in the source area would have to be reduced by approximately 5 orders of magnitude (99.999 percent reduction) from initial concentrations identified in the source area during the RI (i.e., more than 30,000  $\mu$ g/L TCE). Even from current high concentrations of approximately 300  $\mu$ g/L, a 3-order of magnitude (99.9 percent) reduction would be necessary to achieve the SWQS throughout the PMG SWMU. Available literature data, as discussed below, indicates that achieving such significant reductions to such low levels of CVOCs throughout the plume is essentially unachievable within a reasonable restoration time frame by active remedial technologies.

In a recent US Department of Defense Environmental Security Technology Certification Program (ESTCP) publication (ESTCP 2016), a large data mining and evaluation exercise was completed to

develop a comprehensive remediation performance and cost database. In this study, data from 235 Department of Defense CVOC cleanup sites were evaluated that used *in situ* remediation technologies, including 117 EISB sites, 70 ISCO sites, 23 thermal treatment sites, 21 chemical reduction sites, and 4 surfactant flushing sites.<sup>18</sup> The study evaluated CVOC concentrations at each site before and after cleanup, and the corresponding order of magnitude concentration reductions achieved at the site for the various remedial technologies. The results of the study identified that the mean concentration reduction for all 235 sites was 1.1 orders of magnitude (91 percent), and "Only 7% of 235 sites achieved MCLs (e.g., 5 µg/L for PCE and TCE) at every monitoring well..." (ESTCP 2016). These performance results were reportedly statistically consistent regardless of the time frame of active remediation or the duration of monitoring following the active treatment period.<sup>19</sup> More specifically and more pertinent to the PMG SWMU, only one site achieved both a final parent CVOC concentration that was at or below 1 µg/L (actual final concentration was not identified) and a concentration reduction of 5 orders of magnitude (99.999 percent).<sup>20</sup>

The ESTCP study builds on previous studies (e.g., ITRC 2011, NRC 2005, 2013) that reached similar conclusions regarding the impracticability of achieving typical CULs (e.g., MCLs) in a reasonable restoration time frame in aquifers impacted by a CVOC source zone. It is widely understood and accepted based on numerous studies and publications (e.g., Mackay and Cherry 1989, Ball et al. 1998, Chapman and Parker 2005, Sale et al. 2008) that the primary factor that limits an *in situ* remedial action's ability to achieve very low CULs is matrix diffusion (back diffusion and desorption) related to low-permeability soils such as silts and clays, which can be a very slow process and result in the cleanup of groundwater taking many decades.

The findings in these studies are directly applicable to the Site. Specifically, the matrix diffusion effects for TCE sorbed to silts in the aquifer may result in the ongoing presence of TCE in groundwater above the SWQS that may persist for many years to decades. Based on these findings, it is not technically practicable or feasible for Alternative 5 (or any other remedial alternative) to achieve the SWQS at the groundwater standard point of compliance within a reasonable restoration time frame under the factors provided in WAC 173-340-360(4).<sup>21</sup> Therefore, the MTCA criteria in WAC 173-340-720(8)(c) for use of a CPOC at the PMG SWMU have been satisfied if SWQS are used as CULs for groundwater.

<sup>&</sup>lt;sup>18</sup> Department of Defense cleanup sites provide a particularly relevant sample for consideration here because of the number of Department of Defense sites that historically used solvents, particularly TCE, and that have large, mature TCE groundwater plumes. (See generally ESTCP 2016.)

<sup>&</sup>lt;sup>19</sup> Active treatment durations for these projects ranged from less than 1 year to more than 13 years and monitoring periods after completion of active treatment ranged from less than 1 year to more than 18 years.

<sup>&</sup>lt;sup>20</sup> The specific identification of the hydrogeologic conditions, history, and nature and extent of contamination at this site were not reported, so direct comparisons to conditions at PMG SWMU were not possible.

<sup>&</sup>lt;sup>21</sup> However, based on previous evaluation of contaminant concentration attenuation in groundwater approaching the surface water body (Boeing 2017b), current Site data and data trends demonstrate that the SWQS can be achieved in groundwater in the transitional zone/hyporheic zone beneath the creek.

#### 4.1.2 Reasonableness of Estimated Restoration Time Frames to Meet Cleanup Standards at Evaluated Points of Compliance

Depending on the POC selected and the CUL required for that POC (see Section 4.3.1 below), the estimated restoration time frame for Alternative 5 ranges from 15 to 23 years, respectively, for downgradient plume and source area cleanup to the drinking water standards, and likely more than 44 years for cleanup of the entire groundwater plume to the SWQS.<sup>22</sup>

The relatively short restoration time frames (15 to 23 years) for cleanup of groundwater in the source area and downgradient plume (at the standard POC) to drinking water standards are considered reasonable based on the factors identified under WAC 173-340-360(4)(b) as shown in Section 2.3.6. Also as shown in Section 4.3.3, the standard POC in groundwater using the drinking water standards is permanent to the maximum extent practicable. Therefore, under MTCA, a CPOC would not be allowable,<sup>23</sup> and the standard POC using drinking water cleanup levels for groundwater should be selected for use at the Site.

However, if Ecology selects the SWQS as the CUL for groundwater, the much longer restoration time frame (44 years or more) for cleanup to the SWQS in groundwater throughout the Site is not reasonable, particularly when assessed in the context of the technical impracticability of doing so, as discussed in Section 4.1.1 above. Thus, the MTCA criteria in WAC 173-340-720(8)(c) for use of a CPOC at the Site would be satisfied (and necessary) if SWQS are used as CULs for groundwater. However, it will also be technically impracticable to meet the SWQS in a reasonable restoration time frame at Ecology's requested CPOC locations within the groundwater TCE plume. The exception to this issue may be the use of a CPOC located in the transitional/hyporheic zone (included in the CPOCs evaluated in Section 4.3), where the unique nature of contaminant attenuation in this zone (Weatherill et al. 2017, EA 2005) should allow for a reasonable restoration time frame.

# 4.2 Factors for Use of an Off-Property Conditional Point of Compliance

Under WAC 173-340-720(8), where a CPOC is to be set off-property, additional evaluation is required. This section turns to that demonstration.

Per WAC 173-340-720(8)(d)(i), certain conditions must be met in order to use a CPOC where the groundwater cleanup level is based on protection of surface water beneficial uses for a property abutting surface water (although such a CPOC would only be "off property" at locations on the City of

<sup>&</sup>lt;sup>22</sup> Note that, as described in Appendix A, experimental isotherm data from literature indicate that at low TCE concentrations in an aquifer, the assumption for retardation factors generally used in the Batch Flushing model are not reasonably predicted by linear isotherms due to desorption or back diffusion limited behaviors and are better predicted by non-linear isotherms such as those described by the Freundlich desorption isotherm. So for TCE concentration decreases between 4 µg/L and 0.3 µg/L, the Batch Flushing Model using the Freundlich equation predicts substantially longer site-wide restoration time frames.

<sup>&</sup>lt;sup>23</sup> WAC 173-340-350(8)(c)(i)(F) states "The feasibility study shall include alternatives with the standard point of compliance for each environmental media containing hazardous substances, unless those alternatives have been eliminated under (b) of this subsection, and may include, as appropriate, alternatives with conditional points of compliance."

Everett Lot 9 property, this situation also appears to be applicable to Boeing property abutting Powder Mill Creek). Each condition (paraphrased) is provided below, followed by specific comments relative to the site and Alternative 5 (in *italics*):

a) It must be demonstrated that contaminated groundwater is entering and will continue to enter the surface water even after implementation of the cleanup action.

Groundwater and surface water sampling data collected during current and ongoing implementation of the Phase 1 and Phase 2 interim actions has demonstrated that CVOCcontaminated groundwater discharge to the creek has been substantially reduced by operation of the GET system as documented in quarterly interim action monitoring reports submitted since GET system startup in 2012. However, ongoing creek sampling data shows that discharge to the creek continues (also documented in the same quarterly reports). That discharge is likely to continue despite operation of the current extraction wells and future operation of new extraction wells included in Alternative 5 until the TCE-impacted plume is depleted because it is impracticable to achieve complete containment of groundwater flow from this portion of the aquifer to the creek.

b) It must be demonstrated that it is not practicable to meet the CUL at a point within the groundwater before entering the surface water within a reasonable restoration time frame.

As demonstrated in Section 4.1 above and the references cited in that section, meeting the SWQS in groundwater is technically impracticable to achieve (other than in the transitional/hyporheic zone beneath the creek [Weatherill et al. 2017, EA 2005]) within a reasonable restoration time frame regardless of the remedial alternative selected. Table 4-1 and Figure 4-8 show the modeled restoration time frames and demonstrate the significant increase in restoration time frame length to achieve the SWQS within the plume without proportionate cleanup benefit. Based on the analysis in Section 4.1, the very long, unreasonable time frames estimated for achieving the SWQS in groundwater may be significantly underestimated due to matrix diffusion effects.

c) Use of a mixing zone to demonstrate compliance with surface water CULs is not allowed.

Use of a surface water mixing zone (as defined in WAC 173-201A) to demonstrate compliance with surface water CULs (SWQS) in surface water is not proposed under Alternative 5.

d) All known available and reasonable methods of treatment must be provided to groundwater discharges prior to release to surface water.

Multiple possible cleanup alternatives have been analyzed for this Site in the 2015 FS report and this SFS. As shown in Sections 2 and 3, conversion of the GET system to a DGR system enhances hydraulic control and capture of contaminated groundwater and provides all known available and reasonable methods for treatment and flow of groundwater before discharge to surface water.

Operation of the GET system has provided (and continues to provide) treatment of groundwater in the downgradient plume and has proven to be effective as documented in quarterly interim action monitoring reports submitted since GET system startup in 2012. Substantial source area treatment has already been completed resulting in significantly less mass available to discharge to surface water as documented in monthly and quarterly source area interim action progress reports from 2006 to 2018.

In addition to the significant cleanup results achieved by operation of the GET system, Alternative 5 enhances and expands the GET system and includes injection wells and additional extraction wells for enhanced downgradient plume capture and treatment and additional source area EISB treatment to further enhance and optimize protection of the surface water and reduction of restoration time frames. As discussed in Section 2.2.1, DGR systems are proven, effective systems to address large, mature solvent plumes. Thus, operation of the GET system and the implementation of Alternative 5 provide all known available and reasonable methods of treatment for this Site.

e) Groundwater discharges must not violate sediment quality values.

Previous sediment evaluations (AECOM 2016) have demonstrated sediment in Powder Mill Creek does not violate any applicable TCE and other CVOC sediment quality values and indicated that sediments in Powder Mill Creek are primarily granular in nature,<sup>24</sup> providing minimal potential for sorption of TCE/CVOCs to the sediment matrix. The decreases of TCE and other CVOC concentrations and discharges to Powder Mill Creek over time corresponding to the decreases from historically high concentrations in the aquifer represents a reduced risk of impacts to sediment quality because as these discharges provide progressively lower concentration gradient-driven potential for sorption to finegrained materials and/or organic materials in sediment and accumulation and increased potential for desorption.

f) Groundwater and surface water monitoring shall be conducted to assess long-term performance including for potential bioaccumulation.

Performance and compliance monitoring is included in Alternative 5 to assess long-term performance and will be planned and documented in an Ecology-approved cleanup action plan as required by MTCA. TCE is known to have low or negligible tendencies to bioaccumulate in the food chain or aquatic organisms based on low measured bioconcentration factors and estimated bioaccumulation factors (EPA 2017).

g) Notice of the proposal to use a CPOC shall be provided to the natural resource trustees, the Department of Natural Resources, and the US Army Corps of Engineers.

Such notice will be provided as required if a CPOC is selected for the PMG SWMU.

In addition to the conditions above, per WAC 173-340-720(8)(d)(ii), for properties near, but not abutting surface water "the affected property owners between the source of contamination and the surface water body must agree in writing to the use of the conditional point of compliance." This is applicable to the PMG SWMU because contamination in groundwater originating from the Boeing property also flows across other properties not owned by Boeing prior to discharge to portions of the surface water. Boeing anticipates that, if necessary, the owners of the Lot 9 property (City of Everett), the Powder Mill Business Center property (PowderMill Phase 1 LLC), and the Seaway Center property (Seaway West LLC) will be willing to provide written agreement to the use of a CPOC if selected and approved by Ecology, and Boeing will work with these owners and Ecology to secure their agreement.

<sup>&</sup>lt;sup>24</sup> The investigation results indicated that "The sediments generally consist of silt, silty sand, and sand. The sand size ranges from fine to coarse-grained sand" and "The thickness of soft sediment ranged from approximately 3 inches to 1 foot, and the average grain size was 80 percent sand" (AECOM 2016).

In summary, the conditions for use of a CPOC at a property abutting surface water, as found in WAC 173-340-720(8)(d)(i), have been or can be satisfied such that such a CPOC can be approved by Ecology.

## 4.3 WAC 173-340-360 Evaluation and Disproportionate Cost Analysis for Optional Points of Compliance

Sections 4.1 and 4.2 demonstrate that, consistent with MTCA, Ecology can approve an off-property groundwater CPOC in the absence of approval of the standard groundwater POC. This section evaluates the potential locations for the CPOCs that Ecology identified and requested Boeing to evaluate. Section 3.0 demonstrated that under WAC 173-340-360, Alternative 5 will be effective in more rapidly achieving cleanup standards. Additionally, Ecology requested that Boeing "include a Disproportionate Cost Analysis…looking at the new remedial alternative [Alternative 5] to meet all four potential groundwater points of compliance options [the options provided in Ecology's letter] to determine which of those are permanent to the maximum extent practicable under WAC 173-340-360(3)" (Ecology 2018, Attachment A). This section provides that analysis.

The DCA process specified in WAC 173-340-360(3) is intended to be used to evaluate whether remedial alternatives are (or are not) permanent to the maximum extent practicable and involves comparing the benefits of each alternative, based on a series of specified evaluation criteria (see WAC 173-340-360[3][f]), to the cost of each alternative, and selecting the alternative whose incremental costs are not disproportionate to the incremental benefits. Per Ecology's direction, this section describes the results of a DCA evaluation for the four POC options identified by Ecology as well as the standard POC option and a transitional zone CPOC option as required or allowable under MTCA.

#### 4.3.1 **Points of Compliance Being Evaluated**

The POC options and associated cleanup levels for each media that are being evaluated for Alternative 5 in this SFS are listed below. Each POC option must include meeting a cleanup level equal to the SWQS ( $0.3 \mu g/L$  TCE) at the standard POC for surface water (i.e., throughout the creek).<sup>25</sup> Ecology also stated in its letter (Ecology 2018) that "Ecology anticipates that groundwater throughout the site will meet a groundwater cleanup level protective of drinking water ( $4 \mu g/L$  TCE)." This statement was further clarified by Ecology in a September 21, 2018 meeting as a requirement applied to groundwater for each CPOC option regardless of where the SWQS is required to be met at any of the CPOC locations. Therefore, in addition to the four POC options Ecology requested for evaluation (Options 2b through 5 below), Boeing evaluates the standard POC option for groundwater and surface water using these groundwater and surface water cleanup levels as the appropriate and applicable baseline option for PMG (Option 1 below). Option 1 is protective of human and ecological receptors and is consistent with the POC used for evaluation of the five remedial alternatives as discussed in Section 3.

<sup>&</sup>lt;sup>25</sup> Boeing commits to address groundwater seeps as discussed in its November 16, 2017 letter (Boeing 2017b).

Ecology has instructed that: "where [groundwater] cleanup levels are based on protecting nearby surface water, compliance with those standards [e.g., the surface water quality criteria] *will generally be based on surface water monitoring performed as close as possible to the groundwater/surface water interface* [emphasis added]..." (Ecology 1991). MTCA (WAC 173-340-720[8][d][i&ii]) is a reflection of the regulatory implementation of this statement. At the Site, the closest points that are possible to the groundwater/surface water interface are in the creek immediately above the creek bed, as identified in POC Option 1, or in pore water immediately beneath the creek bed. Therefore, Boeing also evaluates a CPOC option using the SWQS for groundwater in the transitional zone (in pore water) at the creek (Option 2a below) that is applicable under MTCA and Ecology guidance (Ecology 2017a) for contaminated groundwater abutting surface water. The Ecology guidance document specifically clarifies and defines the transitional zone as groundwater, states that the transitional zone includes the hyporheic zone and sediment pore water, and illustrates CPOC locations in the transitional zone.<sup>26</sup>

Importantly, Ecology's requirement to meet the requirements for Option 1 under all circumstances consequently means that each CPOC option evaluated below (Options 2a through 4) consists of the standard POC for groundwater and surface water using the drinking water standard (4  $\mu$ g/L TCE) and SWQS (0.3  $\mu$ g/L TCE), respectively (i.e., Option 1), plus an additional CPOC where the SWQS must also be met in groundwater). The six POC options evaluated are:<sup>27</sup>

- **Option 1: Groundwater and Surface Water Standard POCs**—the drinking water standard (4  $\mu$ g/L TCE) must be met in monitoring wells throughout the groundwater TCE plume and the SWQS (0.3  $\mu$ g/L TCE) must also be met within the creek water at sampling points immediately above the creek bed (see Figure 4-1).
- Option 2a: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC in the Transitional Zone at the Creek—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 μg/L TCE) must also be met in pore water/hyporheic zone sampling points beneath the creek bed or immediately adjacent to the creek (see Figure 4-2a).<sup>28</sup>
- Option 2b: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC in the Monitoring Wells Upgradient of the Creek<sup>29</sup>—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 µg/L TCE) must also be met at existing monitoring wells upgradient of the creek (see Figure 4-2b).<sup>30</sup>

<sup>&</sup>lt;sup>26</sup> See Ecology 2017a—terminology, physical setting definitions, and policy highlight (pages 1–3), and Figure 5a (page 16).

<sup>&</sup>lt;sup>27</sup> POC Options 2b through 5 correspond to POC Options A through D from Ecology's decision letter (Ecology 2018).

<sup>&</sup>lt;sup>28</sup> Except on Boeing property where groundwater compliance samples will be located "within the surface water as close as technically possible to the point or points where ground water flows into the surface water" as allowable under WAC 173-340-720(8)(d)(i) for properties abutting surface water; also see Ecology Implementation Memorandum No. 16 (Ecology 2017a) Figure 4a and associated explanatory statements (page 13).

<sup>&</sup>lt;sup>29</sup> Ecology's letter referred to these wells as being located in the "buffer zone," which is not a MTCA-defined term.

<sup>&</sup>lt;sup>30</sup> For purposes of this SFS, these wells are assumed to include (from south to north) PMG-P20, PMG-P12A, PMG-P12B, PMG-P14A, PMG-P14B, PMG-P16, PMG-P18, PMG-P3, PMG-P5, PMG-P7, EGW202, EGW195, EGW197, EGW199, and EGW205. Per Ecology's request, Boeing has also included costs for installation and monitoring of up to seven additional monitoring wells upgradient of the creek to be used for POC Option 2b.

- Option 3: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC at Boeing Property Line and Upgradient of the Creek on Boeing Property—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 μg/L TCE) must also be met at existing monitoring wells along the Boeing property line and upgradient of the creek on Boeing property (and at all groundwater monitoring points downgradient of these wells; see Figure 4-3).<sup>31</sup>
- Option 4: Groundwater and Surface Water Standard POCs Modified to Include Groundwater CPOC Immediately Downgradient of the Source Area—modifying the standard MTCA requirements in Option 1, the SWQS (0.3 μg/L TCE) must also be met at monitoring wells located immediately downgradient of the TCE source area/detention basin (and at all monitoring points downgradient of these wells; see Figure 4-4).
- Option 5: Groundwater Standard POC Using SWQS—the SWQS (0.3 μg/L TCE) must be met in monitoring wells throughout the groundwater TCE plume and in the creek water at sampling points immediately above the creek bed (see Figure 4-5).

Figures 4-6a and 4-6b provide conceptual cross sections illustrating the relative locations of the four CPOC options (POC options 2a–4) in relation to Powder Mill Creek, the Boeing property line, and the source area.

The use of both a standard POC and CPOC is inconsistent with application of CPOCs in groundwater under MTCA.<sup>32</sup> Notwithstanding that issue, per Ecology's direction, Boeing evaluated POC Options 2b through 4 assuming the TCE drinking water cleanup level will be met at the standard POC (i.e., at all points *upgradient* of the CPOC) in addition to meeting the SWQS in groundwater at and downgradient of the CPOC.

As requested by Ecology, the evaluation of the POC options for Alternative 5 includes using the MTCA DCA process to determine which POC option is "permanent to the maximum extent practicable under WAC 173-340-360(3)." This requested methodology is unconventional for evaluating POCs because the DCA process is typically used to evaluate the application of different remedial technologies for a cleanup that may have various technical, administrative, and regulatory advantages and disadvantages that are assessed by each of the DCA criteria. Here, the POC options are all being applied to the same remedial alternative applied in the same manner at the Site. Therefore, as a result of the MTCA-specific definitions for several of the DCA evaluation criteria, there may be no or negligible distinguishing characteristics within the evaluation criteria to differentiate between the POC options. Or, because of the limited areas within the DCA criteria where distinctions may be drawn between the POC options, benefit scoring may result in counter-intuitive rankings. Because of these issues, it was necessary to focus on applicable DCA criteria that can be compared between the POC

<sup>&</sup>lt;sup>31</sup> Under WAC 173-340-720(8)(d)(i) Ecology may also approve the location for a CPOC that is "located within the surface water as close as technically possible to the point or points where ground water flows into the surface water" for properties abutting surface water.

<sup>&</sup>lt;sup>32</sup> WAC 173-340-720(8)(a) states that "Ground water cleanup levels shall be attained in all ground waters from the point of compliance to the outer boundary of the hazardous substance plume" (i.e., for CPOCs at all points in the plume downgradient of the approved CPOC location, not upgradient thereof).

options, primarily related to the time frame necessary to achieve the cleanup levels for surface water and groundwater at each POC and the technical challenges in being able to monitor and achieve the cleanup levels at these POCs. Therefore, these elements within the WAC 173-340-360(3)(f) criteria are the focus of the POC options DCA evaluation.

#### 4.3.2 **Point of Compliance Evaluation Criteria**

Because the same remedial technology is being evaluated in the same manner for all the POC options under Alternative 5 as Ecology requested, and because Ecology is requiring that groundwater meet drinking water criteria (4  $\mu$ g/L TCE) throughout the plume and that surface water meet the SWQS (0.3  $\mu$ g/L TCE) in the creek for *all* POC options, the sole variable for this DCA analysis is the location of the point(s) in groundwater at which the SWQS must be met. Therefore, while all elements of the DCA criteria were assessed, the most relevant elements of the DCA evaluation criteria to this sole variable (the location of the SWQS POC/CPOC) are used to compare the POC options for Alternative 5. The complete MTCA descriptions of each DCA evaluation criteria provided in WAC 173-340-360(3)(f) are listed below. However, only those elements where meaningful comparisons can be made between POC options actually impact the DCA evaluation of the POC options.

The following provides a brief summary explanation of how each element of each DCA criteria does or does not provide meaningful comparison as applied each of the POC options:

- <u>Protectiveness</u>—Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.
  - Elements that are equal between POC options:
    - Overall protectiveness of human health and the environment—Each POC alternative is considered to be equally protective of human health and the environment. Once compliance is achieved at the standard POC, as included in POC Option 1 (i.e., drinking water cleanup levels met in groundwater and SWQS met in surface water), which is required for all the POC options, surface water and groundwater will be protective of all applicable exposure pathways and human and environmental receptors. Specifically, when the SWQS are met at the surface water standard POC (at the point or points in the creek closest to where groundwater discharges to the creek), this condition will be protective of all surface water beneficial uses, including human consumption as drinking water and organisms as well as exposure for terrestrial and aquatic organisms. And when the drinking water CUL is met in groundwater at the standard POC (monitoring wells throughout the Site), this condition will be protective of use of the aquifer as a drinking water source and, as explained in the next paragraph, protective of surface water beneficial uses.

It was previously demonstrated that when drinking water cleanup levels were achieved in groundwater at the standard POC, SWQS would be met in the creek (Boeing 2017b, c). The data trends from this previous evaluation show that, if the drinking water cleanup level for TCE (4  $\mu$ g/L) is met throughout

groundwater, surface water TCE concentrations will not only meet but are predicted to be below the SWQS (0.3  $\mu$ g/L). Specifically, an evaluation of TCE concentrations in groundwater and surface water along groundwater flow path transects between the core of the plume and the creek demonstrated that once TCE concentrations have been reduced to 4  $\mu$ g/L in groundwater throughout the Site that the TCE concentrations in the creek would be well below the SWQS of 0.3  $\mu$ g/L, see Figure 4-7(and Figures 4-7a–c).

- Degree to which existing risks are reduced and time required to reduce risk at the facility—The potential degree to which existing risks can be reduced are negligible and equal between each POC option. Currently, risks at the Site are negligible as there are no uses of impacted surface or groundwater at the Site for drinking water, no known harvesting of aquatic organisms for consumption (because there are no known or documented presence of fish or shellfish in the impacted portion of the creek; Beamer et al. 2013), and TCE concentrations in surface water are below published EPA freshwater benchmark and screening level values for aquatic and terrestrial ecological receptors.<sup>33</sup> Furthermore, once compliance is achieved at the standard POC as included in POC Option 1 (which is required for all the POC options); there will be no risk to human health and the environment as described in the bullet above. Therefore, the risk cannot be meaningfully reduced through demonstration of compliance at any of the other POC options. Accordingly, the time required to reduce risk is also the same for each POC option.
- <u>On-site and off-site risks resulting from implementing the alternative</u>—As the application of the remedial technology is the same for each POC option, there is no difference in the on-site and off-site risks resulting from its implementation (which are negligible).
- Improvement of the overall environmental quality—The reduction of TCE concentrations from the drinking water standards to the SWQS in groundwater does not result in any substantive improvement of the overall environmental quality at the Site because the flora and fauna in the area of the groundwater plume will not be adversely impacted when the drinking water standard is met in groundwater (and the SWQS is met in surface water) under all the POC options.
- Elements where meaningful comparison can be made between POC options:
  - Time required to attain cleanup standards—Because each CPOC option requires additional reduction of TCE concentrations from the drinking water standard to the SWQS at groundwater monitoring locations progressively farther away from the creek and closer to the source area, the restoration time frame required for attaining the cleanup standards is also progressively longer for each POC located farther away from the creek.<sup>34</sup>

<sup>&</sup>lt;sup>33</sup> EPA Region 3 Freshwater Screening Benchmarks (July 2006); EPA Region 4 Freshwater Surface Water Screening Values (August 1999); and EPA Region 5 Ecological Screening Levels (August 2003).

<sup>&</sup>lt;sup>34</sup> Note, that the cleanup time frame to achieve the cleanup of groundwater to the drinking water standards and of surface water to the SWQS is anticipated to be equal for all the POC options; however, the restoration time frame, which is the time frame that the remedy will take as required to meet different levels at different POCs, is longer for each option that requires

- <u>Permanence</u>—The degree to which the alternative permanently reduces the toxicity, mobility, or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and quantity of treatment residuals generated.
  - Elements that are equal between POC options:
    - The degree to which the alternative permanently reduces the toxicity of hazardous substances—While Alternative 5 will reduce concentrations of TCE in groundwater thereby permanently reducing risk, the toxicity of TCE and other CVOCs in the downgradient groundwater plume are not reduced under Alternative 5 as they are not converted through the remedial alternative to less toxic by-products, but rather they are transferred onto activated carbon and landfilled. Therefore, this criterion is not applicable or different for any of the POC option locations.
    - <u>Degree to which the alternative permanently reduces the mobility of</u> <u>hazardous substances</u>—Alternative 5 will reduce the mobility of TCE and CVOCs in the groundwater plume equally through hydraulic control and capture regardless of any POC option location.
    - <u>Adequacy of the alternative in destroying the hazardous substances</u>— Alternative 5 will destroy TCE in equal measure in the downgradient plume through adsorption to granular activated carbon and disposition as hazardous waste through landfilling or thermal desorption and in the source area through EISB; therefore, this criterion is not applicable or different for any of the POC option locations.
    - <u>Reduction or elimination of hazardous substance releases and sources of</u> <u>releases</u>—There are no known remaining releases or sources of releases of hazardous substances at the Site; therefore, this criterion is not applicable or different for any of the POC option locations.
    - <u>The degree of irreversibility of waste treatment process</u>—The Alternative 5 DGR treatment system is an *ex situ* system; therefore, it is completely irreversible as it pertains to the TCE groundwater plume, regardless of the POC option selected. The treatment of contaminant mass in the source area and the associated irreversibility of the process through EISB will be equal regardless of the POC; therefore, this criterion is not applicable or different for any of the POC option locations.
  - Elements where meaningful comparison can be made between POC options:
    - <u>Degree to which the alternative permanently reduces the volume of</u> <u>hazardous substances</u>—Alternative 5 will reduce the volume (dimensions) of the groundwater plume equally through hydraulic flushing of the aquifer.

more of the groundwater to meet the SWQS. While this may seem counter-intuitive for POC options with lower cleanup levels to receive a lower protectiveness benefit scores due to the longer time required to reach the cleanup standards, this result is simply because the only element in the protectiveness criteria that allows for meaningful comparison between the POC options is time frame. Based on the risks and benefits to human health and the environment related to each POC option discussed above, each of the POC options are otherwise equally protective.

When the drinking water CUL (4  $\mu$ g/L) is met, the actual volume of TCE in the plume will be extremely low. Therefore, in comparison to the reduction in actual volume of TCE in the aquifer through reducing concentrations from current levels to 4  $\mu$ g/L, the volume of TCE will be only marginally reduced through further concentration reductions to the SWQS (0.3  $\mu$ g/L) at the various POC option locations progressively farther from the creek.<sup>35</sup>

- <u>The characteristics and quantity of treatment residuals generated</u>—Similar to the bullet above, based on the very small additional volume of TCE that will be removed under each POC option in relation to the distance from the creek where the SWQS are met, the quantity of treatment residuals generated (i.e., spent granular activated carbon) that will require management and disposition will be also be marginally increased.<sup>36</sup>
- <u>Effectiveness over the long term</u>—Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: Reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring.
  - Elements that are equal between POC options:
    - <u>Degree of certainty that the alternative will be successful</u>—Alternative 5 is likely to be successful in cleaning up the groundwater plume under all the POC options. The certainty of success in achieving the SWQS in groundwater is progressively less certain the farther the POC is away from the creek due to the technical impracticability issues discussed in Section 4.1 above. While this does provide a point of meaningful comparison between the POC options, the

- CPOC 3: 5 percent remaining at an average concentration of 0.3 μg/L downgradient of the CPOC and 4 μg/L upgradient of the CPOC
- CPOC 4: 2 percent remaining at an average concentration of 0.3  $\mu$ g/L downgradient of the CPOC and 4  $\mu$ g/L upgradient of the POC
- POC 5: 1 percent remaining at an average concentration of  $0.3 \,\mu$ g/L throughout the plume.

<sup>&</sup>lt;sup>35</sup> Assuming average groundwater plume dimensions of 2,800 feet long by 350 feet wide by 30 feet deep (which would be extremely conservative at the time the drinking water standard is met plume-wide—plume dimensions are anticipated to be significantly smaller by this time), with an average effective porosity of 0.33, and a current average TCE concentration of 40  $\mu$ g/L (rough estimate of average concentrations throughout the plume), there might be roughly 2 gallons of TCE left in the dissolved phase. Once the drinking water cleanup level (4  $\mu$ g/L TCE) is met, that volume could be on the order of a few cups. For comparison for each CPOC, the percent of the current minimal TCE volume remaining in the dissolved phase when cleanup levels are met at each POC would be approximately:

<sup>-</sup> CPOCs 1 and 2a: 10 percent remaining at an average concentration of 4  $\mu g/L$ 

<sup>•</sup> CPOC 2b: just under 10 percent remaining at an average concentration of 0.3  $\mu$ g/L downgradient of the CPOC and 4  $\mu$ g/L upgradient of the POC

<sup>&</sup>lt;sup>36</sup> The sorption capacity of vapor-phase granular activated carbon is approximately 10 to 20 percent TCE per mass of carbon (US Army Corps of Engineers, Engineering and Design, Adsorption Design Guide, Design Guide No. 1110-1-2, March 1, 2001); in other words, for every 1–2 pounds of TCE removed from groundwater, approximately 10 pounds of granular activated carbon treatment residual must be managed.

benefit analysis for this consideration is accounted for under the technical implementability criteria below.

- <u>Magnitude of residual risk with the alternative in place</u>—As described above, there is minimal risk for the Site currently; regardless of the POC option selected, this risk becomes even lower with Alternative 5 in place because of increased hydraulic control and capture of the groundwater plume.
- <u>Effectiveness of controls required to manage treatment residues or remaining</u> <u>wastes</u>—Treatment residues from the Alternative 5 treatment system will all managed *ex situ* and the management thereof will be provided through qualified hazardous waste management experts and considered highly effective. This criterion is not applicable or different for any of the POC option locations.
- <u>Relative degree of long-term effectiveness (of remedial technology/approach as listed under this criteria)</u>—The remedial technology/approach is the same regardless of POC option.
- Elements where meaningful comparison can be made between POC options:
  - Reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels— Alternative 5 relies on mechanical pumping systems, electronic monitoring and control systems, and electrical systems, many of which are exposed to the elements or operate in aqueous environments. The longer the DGR and treatment system is required to run, general system wearing, aging, and weathering, potential fouling of injection and extraction wells and pumps, electronic and computer monitoring and control system failures, power outages, and other electrical equipment failures will become more likely. Therefore, the longer the system is required to operate to achieve remedial action goals and objectives and to reach the lower SWQS progressively farther from the creek, the more likely that the system operations will become less efficient, effective, and reliable, and more prone to failure.
- <u>Management of short-term risks</u>—The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.
  - Elements that are equal between POC options:
    - <u>Effectiveness of measures that will be taken to manage risks</u>—Effectiveness measures for managing Alternative 5 construction and implementation risk is the same regardless of the POC option selected.
  - Elements where meaningful comparison can be made between POC options:
    - The risk to human health and the environment associated with the alternative during construction—Construction of the Alternative 5 DGR system and injection wells for EISB is the roughly the same regardless of the POC option selected; however, there would be a slight increase in risk related to the drilling and installation of additional monitoring wells for some of the POC options if required by Ecology.

- The risk to human health and the environment associated with the alternative during implementation—While the implementation of Alternative 5 is the same regardless of the POC option selected, the length of time that the system is operated, and the surface water and groundwater plume are monitored, is longer for each POC option where the SWQS must be met progressively farther from the creek. Although the risk to the workers performing operations, maintenance, and monitoring (OM&M) on the treatment system is small and manageable, progressively longer time frames for this work with each POC option represents progressively increased risk.
- <u>Technical and administrative implementability</u>—Ability to be implemented including consideration of whether the alternative is technically possible, availability of necessary offsite facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.
  - Elements that are equal between POC options:
    - <u>Availability of necessary off-site facilities, services and materials</u>—Same for Alternative 5 regardless of the POC option selected.
    - <u>Administrative and regulatory requirements</u>—Same for Alternative 5 regardless of the POC option selected.
    - <u>Scheduling, size, complexity</u>—Same for Alternative 5 regardless of the POC option selected.
  - Elements where meaningful comparisons can be made between POC options:
    - <u>Consideration of whether the alternative is technically possible</u>—As discussed in Section 4.1, meeting the SWQS in groundwater is considered progressively less technically practicable to achieve in a reasonable restoration time frame the closer to the source area the POC location is (i.e., where more of the plume and/or including the source area is required to meet the SWQS).
    - <u>Monitoring/access for construction operations and monitoring</u>—Because a large portion of the Alternative 5 system operations and monitoring will occur off of Boeing property, which requires property access agreements with three separate offsite property owners, commensurate with the length of additional time it takes to achieve the SWQS (including associated OM&M) progressively farther from the creek, the administrative implementability challenges for such activities are also increased.
    - Integration with existing facility operations—Because a portion of the Alternative 5 cleanup includes monitoring within the Boeing detention basin, where Boeing site services performs O&M of the detention basin liner and stormwater system treatment components, the presence of monitoring facilities (i.e., stickup monitoring wells) presents challenges related to integration with facility operations. Commensurate with the length of additional time it takes to achieve the SWQS in groundwater beneath detention basin, these challenges are increased.

- Integration with current or potential remedial actions—Because a portion of the Alternative 5 cleanup includes monitoring within the Boeing detention basin, where Boeing site services performs sediment removal activities related to current and likely future Site sediment remediation activities, the presence of monitoring facilities (i.e., stickup monitoring wells) presents challenges related to integration with these remedial actions. Commensurate with the length of additional time it takes to achieve the SWQS groundwater beneath the detention basin, these challenges are increased.
- <u>Consideration of public concerns</u>—Whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the Site.
  - All the POC options are ranked equally for the consideration of public concerns criteria. Each alternative will consider public concerns in the same manner by responding to comments received during the required public comment period for the RI/FS (and possibly the cleanup action plan) as part of the cleanup process under MTCA.
- <u>Cost</u>—The cost to implement the alternative, including the cost of construction, the net present value of any long-term costs, and agency oversight costs that are cost recoverable. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies shall describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action shall be estimated and the cost of replacement or repair of major elements shall be included in the cost estimate.
  - Elements that are equal between POC options:
    - <u>Cost of construction</u>—Same for Alternative 5 DGR system construction and EISB implementation, independent of the POC option selected; however, there would be increased costs related to the drilling and installation of additional monitoring wells, including accessing drilling area and restoration for locations within wetlands/buffer zones, for some of the POC options if required by Ecology.
  - Elements where meaningful comparisons can be made between POC options:
    - Long-term costs, including operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls, and agency oversight costs—Commensurate with the length of additional time it takes to achieve the SWQS in groundwater at POC option locations progressively farther from the creek, the associated costs for OM&M, maintaining institutional controls, and agency oversight costs also increase.

#### 4.3.3 **Point of Compliance Evaluation Results**

To conduct the POC/CPOC DCA, Boeing followed the same methodology as for the cleanup alternatives DCA analysis in Section 3. That is, the same weighting for the WAC 173-340-360(3)(f)

criteria were used, and a benefit score was assigned to each POC/CPOC alternative based on the assessment of each alternative's benefit for each factor. Table 4-2 provides a detailed discussion of our evaluation, which is briefly summarized here:

- Protectiveness: Options 1, 2a, and 2b received the highest benefit ranking for the protectiveness criteria because they most rapidly achieve cleanup standards compared to the other options. The restoration time frames are progressively longer for each POC option to achieve SWQS in groundwater at POC locations farther from the creek.<sup>37</sup>
- Permanence: Option 5 received a marginally higher benefit ranking for the permanence criteria because while each POC option irreversibly reduces contaminant toxicity and mobility to the same extent through source area *in situ* treatment and downgradient capture and *ex situ* treatment, Option 5 only marginally increases the volume of actual TCE removal over the other options based on the extremely low volumes of TCE that will remain once the drinking water cleanup level is reached. However, this also results in a higher quantity of treatment residuals that must be managed.
- Effectiveness over the long term: Option 1 received the highest benefit ranking for the longterm effectiveness criteria because it has the highest degree of certainty, compared to the other alternatives, that it will be the most reliable and successful in achieving cleanup levels across the Site. Because Alternative 5 relies on mechanical pumping systems, electronic monitoring and control systems, and electrical systems that are exposed to the elements or aqueous environment, the shorter the duration that the system is required to run to achieve cleanup levels, the less likely that the system operations will be prone to operational efficiency, effectiveness, reliability, and failure issues. The longer the system is required to run to reach the lower SWQS progressively farther from the creek, each of the other five options become progressively less reliable and less certain of the remedies' ability to achieve remedial action goals and objectives and meet the cleanup standards (see Section 4.1) in groundwater.
- Management of short-term risks: Option 1 and Option 2a each received the same and marginally higher benefit ranking than the other options for the short-term risk criteria due to slightly higher risk to workers during activities such as drilling additional monitoring wells associated with other POC options and the additional risk to workers associated with the duration of O&M activities. These risks are considered minimal and can be effectively and appropriately managed; nevertheless, the additional risks cannot be eliminated entirely.
- Technical and administrative implementability: Option 1 received the highest benefit ranking for technical and administrative implementability criteria because, as discussed in Section 4.1, it is considered technically impracticable to achieve cleanup of groundwater to the SWQS in a reasonable restoration time frame for most of other POC options, and the likelihood of achieving such success is decreased the farther from the creek and closer to, or including the source area. More specifically in relationship to the other POC options:
  - The degree of technical impracticability to achieve SWQS in groundwater in a reasonable restoration time frame the closer to the POC location is to the source area

<sup>&</sup>lt;sup>37</sup> As stated in Section 4.3.2, based on the risks and benefits to human health and the environment related to each POC option discussed above, each of the POC options are equally protective, but the benefits have been scored consistent with the MTCA-defined methodology discussed in this section. Note, however, that even if the protectiveness scores assigned in Table 4-2 and 4-3 were equal, this would not change to overall outcome or conclusions of the DCA evaluation for the POC options.

(i.e., where more of the plume and/or including the source area is required to meet the SWQS).

- The degree of administrative challenges associated with maintaining property access agreements with at three separate offsite property owners increases commensurate with the length of additional time it takes to achieve the SWQS (including associated OM&M) progressively farther from the creek. Additionally, Option 1 would not require use of institutional controls (and associated 5-year reviews) that would have to be maintained with the other options.
- The degree of challenges related to integration of the remedial action with existing facility operations (i.e., Boeing Site Services performance of O&M of the detention basin) increases commensurate with the length of additional time it takes to achieve the SWQS in groundwater beneath detention basin. Similarly, the degree of challenges related to integration with sediment and surface water remedial actions (e.g., stormwater solids/sediment removal activities) also increases with time.
- Consideration of public concerns: All the options are ranked equally for the consideration of
  public concerns criteria because each option is equally protective once cleanup levels
  protective of applicable human and ecological receptors is achieved (which is the case for POC
  Option 1 and consequently all other POC options). This criterion can be adjusted later if
  necessary after the public is allowed opportunity to review and comment on this SFS during
  the required public comment period for the RI/FS (and possibly cleanup action plan) as part of
  the cleanup process under MTCA.
- Cost: Option 1 is the least expensive alternative and Option 5 is the most expensive as summarized below (a breakdown of these costs is presented in Appendix C, Tables C-1a through C-1f) and summarized below.
  - Option 1: \$14.1 million
  - Option 2a: \$14.6 million
  - Option 2b: \$15.6 million
  - Option 3: \$16.8 million
  - Option 4: \$19.4 million
  - Option 5: \$22.2 million

Based on these benefit rankings for each criteria and the assigned weighting factors, the overall weighted benefit score for each alternative is as follows (from highest to lowest):<sup>38</sup>

- Option 1: 8.7
- Option 2a: 8.3
- Option 2b: 8.1
- Option 3: 7.8
- Option 4: 7.2
- Option 5: 6.8

<sup>&</sup>lt;sup>38</sup> Note that if weighting factors were not used, the DCA analysis would result in the same conclusions as presented herein.

The results for Alternative 5 as applied to each of the six POCs identified in Section 4.3.1 are provided in greater detail in attachments to this report. As noted above, Table 4-2 provides descriptions of the considerations for benefit scoring and ranking under each evaluation criteria for each POC, along with the raw score for each criterion. Table 4-3 provides a summary of the complete DCA evaluation with comparisons of the benefit scores to the associated cost estimates related to each POC, including the relative benefit-to-cost ratio (calculated by normalizing the benefit-to-cost ratio to the benefit-to-cost ratio of the option with the highest benefit score) used for comparing each POC and identifying which POC is considered permanent to the maximum extent practicable. Figure 4-8 provides a visual representation of the results provided in the tables.

Appendix C-1(a–f) includes the detailed cost estimate for Alternative 5 based on POC Options 1 through 5. The costs used for the evaluation of each POC are based on the specific modeled restoration time frames for each POC option (see Table 4-1), applied to the OM&M periods for DGR and EISB.<sup>39</sup> For Options 4 and 5, the cost estimates also assume that the downgradient cleanup of the Boeing property will depend on completion of source area cleanup. In order to minimize migration of TCE that may still be originating from the source area at concentrations over the SWQS, portions of the DGR system (e.g., GET system extraction wells) may need to continue to be operated until, and potentially several years after, the source area cleanup is completed (even after DGR has functionally cleaned up the downgradient portion of the plume). Costs for additional GET system operation are included in costs for POC Options 4 and 5. Figure 4-9 provides a comparison of the estimated restoration time frames to achieve progressively lower TCE concentrations/cleanup levels and the associated costs of the cleanup; this figure demonstrates how much longer and disproportionately costly it is to achieve cleanup levels lower than the TCE drinking water standard of 4  $\mu$ g/L.

Point of Compliance Option	Overall Weighted Benefit Score	Estimated Remedy Cost (\$millions)	Relative Benefit-to-Cost Ratio
Option 1	8.7	\$14.1	8.7
Option 2a	8.3	\$14.6	8.0
Option 2b	8.1	\$15.6	7.3
Option 3	7.8	\$16.8	6.5
Option 4	7.2	\$19.4	5.2
Option 5	6.8	\$22.2	4.3

The overall weighted benefit score, estimated cost, and relative benefit-to-cost ratio identified by the DCA for each POC are as follows:

<sup>&</sup>lt;sup>39</sup> Note that because Ecology is requiring that the drinking water cleanup level be met at all points upgradient of each of the CPOC options, the length of the associated restoration time frames for some of the CPOC options shown in Table 4-1 is dictated by achieving the drinking water cleanup level (4 μg/L TCE) upgradient of the CPOC rather than achieving the surface water cleanup level (0.3 μg/L TCE) at the CPOC itself.

Based on these results, POC Option 1 (groundwater and surface water standard POCs using the drinking water standard for groundwater throughout the TCE plume and the SWQS in the creek) has the highest benefit score and lowest cost (and highest benefit-to-cost ratio); therefore, it is the option that is permanent to the maximum extent practicable and the preferred option. Additionally, the standard POC location, as provided for in POC Option 1, in combination with the applicable, relevant, and appropriate cleanup levels for both groundwater and surface water, is consistent with MTCA, the Clean Water Act, and state surface water quality (WAC 173-201A) regulations.

## 5.0 **CONCLUSIONS OF SUPPLEMENTAL FEASIBILITY STUDY**

# 5.1 **Preferred Cleanup Action**

As directed by Ecology in its August 6, 2018 letter, this SFS includes analysis of Alternative 5 and an evaluation and comparison of Alternative 5 to the four remedial alternatives included in the FS, using the MTCA DCA process. Because Alternative 5 meets the MTCA threshold and other requirements,<sup>40</sup> and based on the results of the DCA evaluation in this SFS, Alternative 5 is the preferred remedial action alternative for the PMG SWMU/AOC. Alternative 5 consists of modifying and upgrading the existing GET system to convert and operate the system as a DGR system for cleanup of the downgradient portion of the groundwater plume and implementing EISB for additional remediation of the source area. In the event that a CPOC is selected by Ecology after review of this SFS, institutional controls will be implemented in accordance with MTCA.

Alternative 5 is the preferred remedial action over Alternatives 1, 2, 3, and 4 based on the following:

- Alternative 5 will increase TCE/contaminant mass recovery, provide enhanced hydraulic capture and control of the TCE plume, and reduce the restoration time frame compared to the other alternatives;
- Alternative 5 meets all MTCA threshold requirements, uses permanent solutions to the maximum extent practicable, and provides for a reasonable restoration time frame (depending on the POC authorized for the remedy);
- Implementation of DGR in the downgradient portion of the TCE plume is expected to achieve relatively rapid and effective TCE concentration reductions while simultaneously minimizing discharge of TCE to the creek and achieving the SWQS in the creek;
- Implementation of EISB in the source area is anticipated to effectively treat residual TCE contamination remaining in the source area beneath the detention basin; and
- Alternative 5 is the most permanent remedy evaluated in the SFS, and based on the results of the DCA, is permanent to the maximum extent practicable.

# 5.2 Appropriate and Preferred Point of Compliance for Alternative 5

In addition, per Ecology's direction, this SFS also evaluated the potential use of standard and conditional POC options to be used with Alternative 5. These POCs were evaluated using a similar but modified DCA process as that used to determine the preferred remedial alternative. That evaluation showed that POC Option 1 is permanent to the maximum extent practicable, provides the greatest benefits, and is not disproportionately costly. Option 1 consists of the following:

• Point of Compliance Option 1: Groundwater and Surface Water Standard POCs – the drinking water standard (4  $\mu$ g/L TCE) must be met in monitoring wells throughout the groundwater TCE

<sup>&</sup>lt;sup>40</sup> As defined in WAC 173-340-360(2)(a&b) – protect human health and the environment, comply with cleanup standards, comply with applicable state and federal laws, provide for compliance monitoring, provide for a reasonable restoration time frame, and consider public concerns.

plume and the SWQS (0.3  $\mu g/L$  TCE) must be met within the creek water at sampling points immediately above the creek bed.

The MTCA evaluation results in POC Option 1 as the preferred POC option to be used in implementing Alternative 5 for at the PMG SWMU/AOC based on the following:

- As discussed in Section 4.3.2, POC Option 1 is protective of current and future potential human and ecological receptors because current Site data indicate that when the drinking water CUL (4 μg/L) is met in groundwater, the SWQS (0.3 μg/L) will also be met in the creek;
- As discussed in Section 4.1.1, it is technically impractical to meet SWQS in groundwater (except in the transitional zone) in a reasonable restoration time frame;
- As discussed in Section 4.3.3, assuming for DCA purposes that it were technically practicable to meet SWQS in groundwater, it would be disproportionately costly to do so and attempting to do so would not provide additional overall benefit above POC Option 1; and
- POC Option 1 is within Ecology's authority because it does not use the SWQS as the cleanup level for groundwater.

## 6.0 USE OF THIS REPORT

This Supplemental Feasibility Study has been prepared for the exclusive use of The Boeing Company and applicable regulatory agencies for specific application to the Boeing Everett Site. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of LAI. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by LAI, shall be at the user's sole risk. LAI warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

## 7.0 **REFERENCES**

- AECOM and LAI. 2015. Draft Report: Feasibility Study for Upland Areas and Powder Mill Gulch, Boeing Commercial Airplanes Everett Plant, Everett, Washington. AECOM and Landau Associates, Inc. November 16.
- AECOM. 2016. Feasibility Study, Sediments and Surface Water, BCA Everett Plant, Everett, Washington. August 18.
- Ball, W.P, C. Liu, R.D. Wilson, and D.M. Mackay. 1998. Studies of Contaminant Diffusion in an Aquitard and Groundwater Remediation by Reactive Metals at Dover Air Force Base, Delaware. Airforce Research Laboratories, AFRL-ML-TY-TR-1998-4518. January 23.
- Beamer, E.M., W.T. Zackey, D. Marks, D. Teel, D. Kuligowski, and R. Henderson. 2013. Juvenile Chinook Salmon Rearing in Small Non-Natal Streams Draining into the Whidbey Basin. December 3.
- Boeing. 2017a. Formal Dispute Resolution Ecology's Final Decision under Informal Dispute Resolution Regarding the Upland Feasibility Study Report, dated July 20, 2017, and Written Statement of Boeing's Position on Disputed Items for the Boeing Everett Facility. The Boeing Company. September 8.
- Boeing. 2017b. Boeing Everett Uplands/Powder Mill Gulch Feasibility Study, Boeing's Alternative Proposals for Formally Disputed Items submitted September 8, 2017. The Boeing Company. November 16.
- Boeing. 2017c. Letter from Mr. Stanley Alpert, Boeing Environment, Health and Safety Law Group to Ms. Ivy Anderson, Office of the Attorney General. The Boeing Company. December 15.
- Boeing. 2018a. Boeing Everett Uplands/Powder Mill Gulch Feasibility Study, Boeing's Alternative Proposals for Formally Disputed Items submitted September 8, 2017, Supplement to Boeing's November 16, 2017 Alternative Proposals. The Boeing Company. January 22.
- Boeing. 2018b. Letter Re: Response Letter Ecology's Final Decision to Submit a Supplemental
   Feasibility Study (The Boeing Everett Site; Agreed Order DE96HS-N274), dated August 6, 2018. The
   Boeing Company. August 21.
- Chapman, S.W., and B.L Parker. 2005. Plume persistence due to aquitard back diffusion following dense nonaqueous phase liquid source removal or isolation. Water Resources Research, Vol. 41, No. 12. December 6.
- EA. 2005. Groundwater–surface water interactions in the hyporheic zone. Environment Agency, Science Report SC030155/SR1. July.
- Ecology. 1991. Responsiveness Summary for the Amendments to the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC. Publication No. 91-09-918. Washington State Department of Ecology. January.

- Ecology. 2008. Annotated Outline for RI/FS Documents. Washington State Department of Ecology. July 24.
- Ecology. 2016. Letter Re: Ecology Contingent Approval and Modifications to the Draft Boeing Everett Uplands and Powder Mill Gulch Feasibility Study (FS) Report, dated November 13, 2015. Washington State Department of Ecology. August 18.
- Ecology. 2017a. Implementation Memorandum No. 16: Developing Conditional Points of Compliance at MTCA Sites Where Groundwater Discharges to Surface Water. Washington State Department of Ecology Publication No. 16-09-053. December 29.
- Ecology. 2017b. Sediment Cleanup User's Manual II (SCUM II), Guidance for Implementing the Cleanup Provisions of the sediment Management Standards, Chapter 173-204 WAC. Washington State Department of Ecology Publication No. 12-09-057. December.
- Ecology. 2017c. Letter Re: Ecology Final Decision Under Informal Dispute Resolution Regarding the Upland Feasibility Study (FS) report and Ecology Selected Remedies for the Boeing Everett Site. July 20.
- Ecology. 2018. Letter Re: The Boeing Everett Site, Final Decision to Submit a Supplemental Feasibility Study, Agreed Order DE96HS-N274. Washington State Department of Ecology. August 6.
- EPA. 1988. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites.
   EPA/540/G-88/003. Office of Research and Development Publication. US Environmental
   Protection Agency. December.
- EPA. 2017. Scope of the Risk Evaluation for Trichloroethylene. EPA-740-R1-7004. Office of Chemical Safety and Pollution Prevention. US Environmental Protection Agency. June.
- EPA. 2018. "BIOCHLOR, Natural Attenuation Decision Support System." US Environmental Protection Agency. <u>https://www.epa.gov/water-research/biochlor-natural-attenuation-decision-support-</u><u>system</u>. Accessed November 1.
- ESTCP. 2016. Development of an Expanded, High-Reliability Cost and Performance Database for In-Situ Remediation Technologies; ESTCP Project ER-201120. US Department of Defense Environmental Security Technology Certification. March.
- ITRC. 2011. Integrated DNAPL Site Strategy -Technology/Regulatory Guidance. Interstate Technology & Regulatory Council, DNAPL Site Characterization Team. November.
- ITRC. 2015. "Integrated DNAPL Site Characterization and Tools Selection (ISC-1), Appendix B." Interstate Technology & Regulatory Council, DNAPL Site Characterization Team. <u>https://www.itrcweb.org/DNAPL-ISC\_tools-selection/</u>.
- LAI. 2017. Technical Memorandum: Restoration Time Frame Evaluation—Modeling Inputs/Sensitivity Analysis, Powder Mill Gulch, Boeing Everett Facility, Everett, Washington. Landau Associates, Inc. September 20.

- Mackay, D.M. and J.A. Cherry. 1989. Groundwater contamination: pump-and-treat remediation. Environmental Science & Technology, 1989, Vol. 23, No. 6, pp 630–636. June.
- NRC. 2005. Contaminants in the Subsurface: Source Zone Assessment and Remediation. Committee on Source Removal of Contaminants in the Subsurface. Washington, D.C.: National Academies Press. National Research Council.
- NRC. 2013. Alternatives for Managing the Nation's Complex Contaminated Groundwater Sites. Washington, D.C.: National Academies Press. National Research Council.
- Sale, T., C. Newell, H. Stroo, R. Hinchee, and P. Johnson. 2008. Frequently Asked Questions Regarding Management of Chlorinated Solvents in Soil and Groundwater. ESTCP. August.
- Suthersan, S.S., J. Horst, M. Schonbrich, N. Welty, and J. McDonough. 2017. *Remediation Engineering: Design Concepts; Chapter 5 - Dynamic Groundwater Recirculation*. Second ed. Boca Raton, FL: CRC Press.
- Suthersan, S.S., E. Killenbeck, S. Potter, C. Divine, and M. Lefrancois. 2015. "Resurgence of Pump and Treat Solutions: Directed Groundwater Recirculation." *National Ground Water Association, Groundwater Monitoring & Remediation* 35 (2).
- Weatherill, J.J., A. Siavash , U. Schneidewind, S. Krause, S. Ullah, N. Cassid, M. Rivett. 2017. Natural attenuation of chlorinated ethenes in hyporheic zones: A review of key biogeochemical processes and in-situ transformation potential. Water Research, Vol. 128, pp. 362-382. October 30.
- Whatcom County Superior Court. 2007. Consent Decree No. 07 2 02257 7 RE Whatcom Waterway Site; State of Washington Department of Ecology v. Port of Bellingham, Washington State Department of Natural Resources, Meridian-Pacific Hwy L.L.C., and the City of Bellingham. Executed September 20, 2017; Entered September 24, 2007.







DRAFT Legend					Note 1. Black and white reproductio original may reduce its effect lead to incorrect interpretation	n of this color tiveness and on.
Samples Collected in October 202	17 Other Monitoring Locations	Proposed	Extraction Well 0.49 ≤ TCE <4µg/L	25 ≤ TCE <250 μg/L	0 250	500
⊗ Monitoring Well	🛛 Monitoring Well	Proposed	Injection Well 4 ≤ TCE <25 μg/L	250 ≤ TCE <500 μg/L		
riangle Piezometer	Piezometer				Scale in Feet	
●~ Seep	●∽ Seep			Data Sour	ces: Google Earth Pro. Aerial Phot	to Date: 5/18.
LANDAU Associates	Extraction Well		Supplemental Feasibility Study Boeing Commercial Airplanes Everett, Washington	Groundwater Re Concep	circulation System - tual Layout	Figure 2-1


































#### Table 2-1 Restoration Time Frame Summary - All Remedial Alternatives Boeing Everett - Powder Mill Gulch Everett, Washington

Cleanup	Resto	ration Time Fr	ame (years)		
Alternative	Batch-Flushing	Biochlor	Average	Total*	Comment
Alt 1 to GW CULs	28	45	37	37	GW CUL = 4 μg/L
Alt 1 to GW/SW CULs	45	73	59	59	SW CUL = 0.3 μg/L (SWQS as GW CUL)
Alt 2 to GW CULs	28	42	35	35	GW CUL = 4 μg/L
Alt 2 to GW/SW CULs	45	69	57	57	SW CUL = 0.3 μg/L (SWQS as GW CUL)
Alt 3 to GW CULs	21.5	33	27	30	GW CUL = 4 μg/L
Alt 3 to GW/SW CULs	39	60	50	53	SW CUL = 0.3 μg/L (SWQS as GW CUL)
Alt 4 to GW CULs	21.5	33	27	30	GW CUL = 4 μg/L
Alt 4 to GW/SW CULs	39	60	50	53	SW CUL = 0.3 μg/L (SWQS as GW CUL)
Alt 5 to GW CULs - Downgradient	15	N/A	N/A	22	GW CUL = 4 µg/L; Max. restoration time frame between
Alt 5 to GW CULs - Source Area	6	33	19	23	downgradient plume and source area = 23 years
Alt 5 to GW/SW CULs - Downgradient	35	N/A	N/A	20	SW CUL = $0.3 \mu g/L$ (SWQS as GW CUL); Max. restoration
Alt 5 to GW/SW CULs - Source Area	10	60	35	38	area = 38 years

Notes:

GW = groundwater
REL = remediation level
SW = surface water

N/A = not applicable, model results not applied to cleanup area

GW CUL = 4 μg/LDrinking waterSW CUL = 0.3 μg/LDrinking water and consumption of organisms

\*Total restoration time frames start from assumed CAP implementation (currently assumed 2021). For Alternatives 2–5, assume restoration time frames where *in situ* treatment takes 3 years from CAP implementation start date for treatment to occur and achieve max TCE concentration in treatment areas = 100  $\mu$ g/L (starting point of model degradation).

Page 1 of 1



### Table 3-1 Benefits Analysis and Ranking Considerations - Alternative 5 Boeing Everett - Powder Mill Gulch Everett, Washington

Alternative Number	:		Alternative 5
Description			Enhanced <i>In Situ</i> Bioremediation Source Area Treatment, Dynamic Groundwater Recirculation, and Institutional Controls
			Relative Benefits Ranking for Disproportionate Cost Analysis
Evaluation Criteria: WAC 173-340-360(3)(f)	Weighting Factor	Benefit Score	Ranking Considerations (1)
- Protectiveness	30%	9	<ul> <li>Superior</li> <li>Existing risks minimal: <ul> <li>no current or likely future use of groundwater (GW) for drinking water</li> <li>no current or likely future use of surface water (SW) for drinking water or consumption of organisms</li> <li>current SW concentrations below ecological risk values</li> </ul> </li> <li>Dynamic groundwater recirculation (DGR) and Source Area enhanced in situ bioremediation (EISB) will be used separately, but complementary, to achieve cleanup levels (CULs) in GW and SW</li> <li>Groundwater extraction and treatment (GET)/DGR system also used to minimize migration of contaminated GW to SW</li> <li>Significantly shorter time frame required to achieve cleanup standards for GW and SW than all other alternatives: <ul> <li>Estimated 15 years for DGR to achieve drinking water standard in Downgradient Plume and SW standard in Powder Mill Creek</li> <li>Estimated 23 years for EISB to achieve drinking water standard in Source Area</li> </ul> </li> <li>Attaining drinking water standards site-wide and protection of SW beneficial uses in the creek provide relatively high level of improvement of overall environmental quality</li> <li>ICs, if necessary, will further reduce site risks until remedy completed.</li> </ul>
- Permanence	20%	9	<ul> <li>Superior</li> <li>Source Area EISB permanently destroys volatile organic compounds (VOCs)<i>in situ</i>, reduces contaminant toxicity, mass, and volume through stimulation of biological reductive dechlorination, ultimately irreversibly degrading the contaminants down to benign breakdown products.</li> <li>DGR increases and enhances hydraulic control and capture through injection of treated groundwater along plume boundaries.</li> <li>DGR enhances VOCs mass and volume removal from site GW through increased aquifer and pore volume flushing, and ultimately destroys the contaminant through treatment/disposal of VOCs sorbed to granular activated carbon (GAC).</li> <li>ICs, if necessary, further prevent human exposure to contaminated media until implementation of cleanup achieves cleanup standards.</li> </ul>
- Effectiveness over the Long-Term	20%	9	<ul> <li>Superior</li> <li>Highest degree of certainty that Alternative 5 will effectively and reliably achieve cleanup over the other alternatives.</li> <li>Ability of DGR and EISB has been demonstrated to be successful in achieving cleanup of GW to federal drinking water standards.</li> <li>Cleanup of GW to drinking water standard protective of potential future exposure and has been demonstrated to result in attainment of SW standards (protective of SW beneficial uses).</li> <li>Exposure and risk during cleanup can be reliably mitigated by ICs, if necessary, and would be required for a significantly shorter duration than all the other alternatives.</li> </ul>
- Management of Short-Term Risk	10%	8	<ul> <li>Excellent</li> <li>The ability to manage short-term risks associated with Alternative 5 is relatively high because of the low risks associated with worker safety during DGR system construction (expansion of existing GET system), injection well drilling, and electron donor injection events, which include the injection of nontoxic and nonhazardous substances. <ul> <li>Minimal worker health risk from contact with contaminated media during drilling. Drilling will be completed by qualified HAZWOPER-certified driller.</li> <li>Minimal worker safety risk during drilling, DGR system construction, and EISB injections. Work will be completed by qualified HAZWOPER-certified contractor.</li> <li>Long term operations and maintenance (O&amp;M) of extraction/injection wells and treatment system present minor risks.</li> </ul> </li> </ul>
- Tech./Admin. Implementability	10%	8	<ul> <li>Excellent</li> <li>Technical implementation is relatively uncomplicated; proper installation of injection and extraction wells, treatment of GW and implementation of donor injection events in the source area provide limited technical challenges. Long-term O&amp;M of extraction/injectior wells and treatment system present minor challenges, but duration will be shorter than for other alternatives resulting in lower likelihoor of major equipment problems/replacement.</li> <li>Administration implementation challenges are very similar to other alternatives and include minor challenges such as modification of permitting for discharge of treated GW (National Pollutant Discharge Elimination System [NPDES] permit, and Underground Injection Control [UIC] permit), and filing ICs, if necessary.</li> </ul>
- Consideration of Public Concerns	10%	10	<ul> <li>Superior (assumed equal for all alternatives)</li> <li>Protective of human health and the environment.</li> <li>Provides at least the minimum level of protection under the Model Toxics Control Act (MTCA).</li> <li>Public comments/concerns will be addressed during Remedial Investigation/Feasibility Study/Cleanup Action Plan (RI/FS/CAP) public comment period(s).</li> </ul>
Estimated Cost (\$)			\$14,100,000
Benefit Score (1)		8.9	Excellent
Comparative Overall Benefit/Cost Ratio (1,2	2)	7.8	Excellent

Page 1 of 1

#### Notes:

(1) Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10).

(2) Benefit/Cost Ratio scaled (divided) by cost of lowest cost alternative in order to compare ranges similar in scale to comparative overall benefit,

as presented on Figure 3-1.

### Table 3-2 Disproportionate Cost Analysis Summary - All Remedial Alternatives Boeing Everett, Powder Mill Gulch Everett, Washington

Alternative Number and Name		Alternat	ive 1			Alterna	tive 2			Alterna	ative 3			Alternat	ive 4		Alternative 5				
	Continued ( Treatment ( In:	Groundwa GET) Syste stitutional	iter Extrac em Operat Controls	tion and tions and	Enhanced <i>In Situ</i> Bioremediation (EISB) Source Area Treatment w/GET System and Institutional Controls				Focused In Situ Chemical Oxidation (ISCO) Treatment w/GET System and Institutional Controls				Focused EIS and	B Treatme	ent w/GET al Contro	System Is	EISB Source Area Treatment, Dynamic Groundwater Recirculation (DGR), and Institutional Controls (if needed)				
Relative Benefits Ranking for Disproportionate Cost Analysis (Washington Administrative Code [WAC] 173-340- 360[2][b][i] and WAC 173-340-360[3][f])										_				_				_			
Comparative Overall Benefit (a)		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score	
- Protectiveness	Good	6	0.3	1.8	Excellent	7	0.3	2.1	Excellent	8	0.3	2.4	Excellent	7	0.3	2.1	Superior	9	0.3	2.7	
- Permanence	Good	5	0.2	1	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6	Excellent	7	0.2	1.4	Superior	9	0.2	1.8	
<ul> <li>Effectiveness over the Long-Term</li> </ul>	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6	Superior	9	0.2	1.8	
<ul> <li>Management of Short-Term Risks</li> </ul>	Superior	10	0.1	1	Superior	9	0.1	0.9	Good	6	0.1	0.6	Excellent	7	0.1	0.7	Excellent	8	0.1	0.8	
- Technical/Administrative Implementability	Superior	9	0.1	0.9	Excellent	8	0.1	0.7	Good	5	0.1	0.5	Good	5	0.1	0.5	Excellent	8	0.1	0.8	
- Consideration of Public Concerns	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	
Overall Weighted Benefit Score		6.9						7.5	7.7				7.3				8.9				

### Disproportionate Cost Analysis - Quantitative Evaluation

Overall Weighted Benefit Score	6.9	7.5	7.7	7.3	8.9
Estimated Remedy Cost	\$12,300,000	\$14,000,000	\$21,600,000	\$22,300,000	\$14,100,000
Relative Benefit/Cost Ratio (b)	6.9	6.6	4.4	4.0	7.8
Most Permanent Solution	No	No	No	No	Yes
Lowest Cost Alternative	Yes	No	No	No	No
Costs Disproportionate to Incremental Benefits	Yes	Yes	Yes	Yes	Νο
Remedy that is Permanent to the Maximum Extent Practicable	No	No	No	No	Yes
Preferred Alternative	Νο	No	Νο	Νο	Yes

### Notes:

(a) Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10).

(b) Benefit/Cost Ratio scaled (multiplied) by lowest cost alternative score in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 3-1

#### Table 4-1 Restoration Time Frame Summary - Alternative 5 Point of Compliance Options Boeing Everett - Powder Mill Gulch Everett, Washington

			Restoration T	ime Frame (ye	ars)			Restoration Timeframe <sup>5)</sup>
Point of Compliance	Batch	-Flushing						(years; if groundwater
Option	Linear	Freundlich <sup>1)</sup>	Biochlor	Average	Total <sup>2)</sup>	Range <sup>3)</sup>	Comment	required to meet TCE = 4 ug/L
POC Option 1 - Downgradient	15	N/A	N/A	N/A	15	15	Standard POC:	N/A
POC Option 1 - Source Area	6	N/A	33	20	23	23	SW CUL = 4 μg/L (drinking water standard), SW CUL = 0.3 μg/L (SWQS)	N/A
POC Option 2a - Downgradient <sup>5)</sup>	16	17	N/A	N/A	16	16 - 17	Conditional POC (Transition Zone):	
POC Option 2a - Source Area	6	N/A	33	20	23	23	GW and SW CUL = 0.3 µg/L (SWQS)	9
POC Option 2b - Downgradient <sup>4,5)</sup>	20	24	N/A	N/A	20	20 - 24	Conditional POC (Monitoring Wells Upgradient of	
POC Option 2b - Source Area	6	N/A	33	20	23	23	GW and SW CUL = 0.3 µg/L (SWQS)	15
POC Option 3 - Downgradient	24	32	N/A	N/A	24	24 - 32	Conditional POC (Monitoring Wells at Boeing Property Line and Upgradient of Creek on Boeing	
POC Option 3 - Source Area	6	N/A	33	20	23	23	Property): GW and SW CUL = 0.3 μg/L (SWQS)	24
POC Option 4 - Downgradient <sup>6)</sup>	34	39	N/A	N/A	34	34 - 39	Conditional POC (Monitoring Wells	24
POC Option 4 - Source Area	8	10	45	27	30	30 - 31	GW and SW CUL = 0.3 μg/L (SWQS)	34
POC Option 5 - Downgradient	44	48	N/A	N/A	44	44 - 48	Standard POC:	81/0
POC Option 5 - Source Area	10	14	59	35	38	38 - 40	Gw CUL = 0.3 μg/L (SWQS); SW CUL = 0.3 μg/L (SWQS)	N/A

#### Abbreviations:

µg/L = micrograms per liter CAP = cleanup action plan

POC = point of compliance

SWQS = surface water quality standards

CUL = cleanup level

GW = groundwater

TCE = trichloroethene

N/A = not applicable, model results not applied to cleanup area

SW = surface water

Notes:

GW CUL =  $4 \mu g/L$ Drinking water SW CUL =  $0.3 \mu g/L$ Drinking water and consumption of organisms

1) Freundlich desorption isotherm used in Batch Flushing Model where linear isotherm do not apply (not in linear range of cleanup that apply at higher contaminant concentrations in groundwater) and Freundlich isotherm is a better predictor of groundwater cleanup time frames in low concentration ranges where controlled by desorption or back diffusion limited processes. Value shown includes additional time predicted for concentrations decreases from 4 µg/L to 0.3 µg/L.

2) Total restoration time frames start from assumed CAP implementation (currently assumed 2021). For Source Area, restoration timeframes assume in situ treatment takes 3 years from CAP implementation start date for treatment to occur and achieve max TCE concentration in treatment areas = 100 µg/L (starting point of model degradation).

3) Lower end of restoration time frame range use Batch Flushing model results where linear isotherm is applied. Upper end of restoration time frame range use Batch Flushing Model where Freundlich isotherm is applied. Restoration timeframes in downgradient plume for POC Options 1 through 3 do not include monitoring wells immediately downgradient of the source area which could take longer to reach SWQS because of residual TCE (and other CVOC) discharge from the source area (at concentrations >4 µg/L) during completion of source area cleanup. 4) Restoration timeframe for POC Option 2b assumes that additional time necessary to reduce concentrations from 4 µg/L to 0.3 µg/L at wells upgradient of the creek will be dependent upon shorter flow paths from the edge of a contracted plume located near the Lot 9 access road (i.e., not the current width of the plume).

5) Downgradient plume restoration time frame for these POC options shown in "Batch Flushing" (linear) column for the downgradient plume are dependent upon reaching TCE concentrations of 4 µg/L (drinking water standard); if 0.3 µg/L (SWQS) were only required for CPOC compliance, restoration time frames would be reduced to 9 and 15 years for Options 2a and 2b, respectively, as shown on column on far right. I.e., the restoration time frames for these CPOCs are longer to achieve the drinking water cleanup level (4 µg/LTCE) upgradient of the CPOC than to the time needed to achieve the surface water cleanup level (0.3 µg/L TCE) at the CPOC itself.

6) Downgradient plume restoration time frame shown in "Batch Flushing" (linear) column for downgradient plume assumes that DGR cleanup time is dependent upon source area cleanup; value shown assumes source area TCE concentrations must be reduced to 1.2 µg/L before DGR cleanup can be completed to SWQS in dowgradient plume.

 Table 4-2

 Benefits Analysis and Ranking Considerations - Alternative 5 Point of Compliance Evaluation

 Boeing Everett - Powder Mill Gulch

Everett, Washington

POC Ontion Number		BOC Option 1		POC Option 23		POC Option 2b		POC Option 3		
Point of Compliance Descr (1):	iption	Standard Point of Compliance - Drinking Water Standard (4 µg/L TCE) in GW, Surface Water Quality Standard (0.3 µg/L TCE) in SW		Groundwater Conditional Point of Compliance in Transitional Zone at Creek (0.3 µg/L TCE)		Groundwater Conditional Point of Compliance in Monitoring Wells Upgradient of Creek (0.3 µg/L TCE)		Groundwater Conditional Point of Compliance at Boeing Property Line and Upgradient of Creek on Boeing Property (0.3 µg/L TCE)		Groundwater ( Downgradien
				·		Relative Benefits Ranking for Disproportionate	Cost A	nalysis		
Evaluation Criteria: WAC 173-340-360(3)(f)	Weighting Factor	태 	Benefit Score	Ranking Considerations (1)	Benefit Score	Ranking Considerations (1)	Benefit Score	Ranking Considerations (1)	Benefit Score	Rank
- Protectiveness	30%	<ul> <li>Superior</li> <li>Protective of human health and the environment; when CULs met in GW (drinking water standards) and SW (surface water quality standards), all potential human and ecological receptors protected</li> <li>Existing risks minmal: <ul> <li>no current or likely future use of groundwater for drinking water (institutional controls [ICS] will be implemented to minimize future risk)</li> <li>no current or likely future use of surface water (SW) for drinking water or consumption of organisms (ICs will be implemented to minimize future risk)</li> <li>current SW concentrations below ecological risk values</li> </ul> </li> <li>Groundwater extraction and treatment (GET) to minimize migration of contaminated groundwater (GW) to SW</li> <li>Dynamic groundwater recirculation (DGR) and Source Area enhanced <i>in situ</i> bioremediation (EISB) to achieve cleanup levels (CULs) in GW and SW</li> <li>Shortest time required to achieve cleanup standards at this point of compliance: <ul> <li>fstimated 15 years for DGR to achieve drinking water standard in Downgradient Plume and surface water standard in Powder Mill Creek</li> <li>Estimated 23 years for EISB to achieve drinking water standard in Source Area</li> </ul> </li> </ul>	8.5	<ul> <li>Excellent/Superior</li> <li>Protective of human health and the environment; when CULs met in GW and SW under Option 1, all potential human and ecological receptors protected</li> <li>Existing risks minimal: <ul> <li>no current or likely future use of GW for drinking water (ICs will be implemented to minimize future risk)</li> <li>no current or likely future use of SW for drinking water or consumption of organisms (ICs will be implemented to minimize future risk)</li> <li>current SW concentrations below ecological risk values</li> <li>GET to minimize migration of contaminated GW to SW</li> <li>DGR and Source Area EISB to achieve CULs in GW and SW</li> <li>Second shortest time required to achieve drinking water standard in Downgradient Plume and surface water standard in monitoring points adjacent to/below Powder Mill Creek</li> <li>Estimated 23 years for EISB to achieve drinking water standard in Source Area</li> </ul> </li> </ul>	8.5	<ul> <li>Excellent</li> <li>Protective of human health and the environment; when CULs met in GW and SW under Option 1, all potential human and ecological receptors protected</li> <li>Existing risks minimal: <ul> <li>no current or likely future use of GW for drinking water (ICs will be implemented to minimize future risk)</li> <li>no current or likely future use of SW for drinking water or consumption of organisms (ICs will be implemented to minimize future risk)</li> <li>current SW concentrations below ecological risk values</li> <li>GET to minimize migration of contaminated GW to SW</li> <li>DGR and Source Area EISB to achieve clus in GW and SW</li> <li>Slightly longer time required to achieve cleanup standards at this point of compliance: <ul> <li>Estimated 20 years for DGR to achieve drinking water standard in Downgradient Plume and SW standard in wells upgradient of Powder Mill Creek</li> <li>Estimated 23 years for EISB to achieve drinking water standard in Source Area</li> <li>Attaining drinking water standards for Source Area majority of Downgradient Plume provide relatively high level of improvement of overall environmental quality.</li> </ul> </li> </ul></li></ul>	8	Excellent • Protective of human health and the environment; when CULs met in GW and SW under Option 1, all potential human and ecological receptors protected • Existing risks minimal: - no current or likely future use of GW for drinking water (ICs will be implemented to minimize future risk) - no current or likely future use of SW for drinking water or consumption of organisms (ICs will be implemented to minimize future risk) - current SW concentrations below ecological risk values • GET to minimize migration of contaminated GW to SW • DGR and Source Area EISB to achieve CULs in GW and SW • Moderately long time required to achieve cleanup standards at this point of compliance: - Estimated 24 years for DGR to achieve SW standards in off-property plume - Estimated 23 years for EISB to achieve drinking water standards in Source Area	7	Excellent • Protective of hum: CULs met in GW and and ecological recep • Existing risks minir - no current or likk (ICs will be impleme - no current or likk consumption of org- minimize future risk - current SW conc- GET to minimize m • DGR and Source A • Relatively long tim at this point of comp- - Estimated 34 yea Downgradient Plum- - Estimated 30 yea standards and low e achieve SW standard downgradient of Sour-
- Permanence	20%	<ul> <li>Excellent <ul> <li>Source Area EISB permanently destroys volatile organic compounds (VOCs) <i>in situ</i>, reduces contaminant toxicity, mass, and volume.</li> <li>DGR captures and removes VOC mass and volume from site GW and ultimately destroys the contaminant through treatment/disposal of VOCs sorbed to granular activated carbon (GAC).</li> <li>Actual volume of TCE reduced from current conditions is approximately 90 percent</li> </ul></li></ul>	8	<ul> <li>Excellent</li> <li>Source Area EISB permanently destroys VOCs in situ, reduces contaminant toxicity, mass, and volume.</li> <li>DGR captures and removes VOCs mass and volume from site GW and ultimately destroys the contaminant through treatment/disposal of VOCs sorbed to GAC.</li> <li>Actual volume of TCE reduced from current conditions is approximately 90 percent</li> </ul>	8	Excellent • Source Area EISB permanently destroys VOCs in situ , reduces contaminant toxicity, mass, and volume. • DGR captures and removes VOCs mass and volume from site GW and ultimately destroys the contaminant through treatment/disposal of VOCs sorbed to GAC. • Actual volume of TCE reduced from current conditions is approximately 90.3 percent • Quantity of treatment residuals marginally increased through additional TCE mass loading on GAC	8.5	Excellent/Superior • Source Area EISB permanently destroys VOCs <i>in situ</i> , reduces contaminant toxicity, mass, and volume. • DGR captures and removes VOCs mass and volume from site GW and ultimately destroys the contaminant through treatment/disposal of VOCs sorbed to GAC. • Actual volume of TCE reduced from current conditions is approximately 95 percent • Quantity of treatment residuals slightly increased through additional TCE mass loading on GAC	8.5	Excellent/Superior • Source Area EISB p reduces contaminan • DGR captures and GW and ultimately of treatment/disposal of • Actual volume of T approximately 97.9 j • Quantity of treatm through additional T
- Effectiveness over the Long-Term	20%	<ul> <li>Excellent</li> <li>Cleanup of GW to drinking water standard is likely to be achieved and will be protective of potential future exposure and has been demonstrated to result in attainment of SW standards (protective of SW beneficial uses).</li> <li>Relatively short time frame required to meet cleanup standards results in high degree of certainty that the remedy will continue to succesfully achieve cleanup goals and objectives while TCE concentrations are still above cleanup standards.</li> </ul>	7.5	Excellent • Cleanup of GW to drinking water standard is likely to be achieved and will be protective of potential future exposure and has been demonstrated to result in attainment of SW standards (protective of SW beneficial uses). • Exposure and risk during cleanup can be reliably mitigated by ICs. • Minimally longer time frame required to meet cleanup standards results in very slightly lower degree of certainty that the remedy will continue to succesfully achieve cleanup goals and objectives while TCE concentrations are still above cleanup standards.	7	Excellent • Cleanup of GW to drinking water standard is likely to be achieved and will be protective of potential future exposure and has been demonstrated to result in attainment of SW standards (protective of SW beneficial uses). • Exposure and risk during cleanup can be reliably mitigated by ICs. • Slightly longer time frame required to meet cleanup standards results in lower degree of certainty that the remedy will continue to succesfully achieve cleanup gals and objectives while TCE concentrations are still above cleanup standards.	7	<ul> <li>Excellent</li> <li>Cleanup of GW to drinking water standard is likely to be achieved and will be protective of potential future exposure and has been demonstrated to result in attainment of SW standards (protective of SW beneficial uses).</li> <li>Exposure and risk during cleanup can be reliably mitigated by ICs.</li> <li>Slightly longer time frame required to meet cleanup standards results in lower degree of certainty that the remedy will continue to succesfully achieve cleanup goals and objectives while TCE concentrations are still above cleanup standards.</li> </ul>	6.5	Good/Excellent Cleanup of GW to achieved and will be and has been demor standards (protectiv Exposure and risk of by ICs. Moderatly longer t standards results in the remedy will cont and objectives while cleanup standards d decreased efficiency electronic monitorin
- Management of Short-Term Risk	10%	<ul> <li>Excellent/Superior         <ul> <li>Minimal worker health risk from contact with contaminated media during drilling. Drilling will be completed by qualified HAZWOPER-certified driller.</li> <li>Minimal worker safety risk during drilling, DGR system construction, and EISB injections. Work will be completed by qualified HAZWOPER-certified contractor.</li> </ul> </li> <li>8.5 extraction/injection wells and treatment system present minor risks.</li> <li>Long-term sampling of monitoring wells in detention basin from a raft presents minor risks.</li> </ul>	8.5	Excellent/Superior <ul> <li>Minimal worker health risk from contact with contaminated media during drilling. Drilling will be completed by qualified HAZWOPER-certified driller.</li> <li>Minimal worker safety risk during drilling, DGR system construction, and EISB injections. Work will be completed by qualified HAZWOPER-certified contractor.</li> <li>Long-term O&amp;M of extraction/injection wells and treatment system present minor risks.</li> <li>Long-term sampling of monitoring wells in detention basin from a raft presents minor risks.</li> </ul>	8	Excellent • Minimal worker health risk from contact with contaminated media during drilling. Drilling will be completed by qualified HAZWOPER-certified driller. • Minimal worker safety risk during drilling, DGR system construction, and EISB injections. Work will be completed by qualified HAZWOPER-certified contractor. • Slightly longer long-term 0&M period for extraction/injection wells and treatment system presents slightly higher risks to workers. • Slightly longer long-term sampling of monitoring wells in detention basin from a raft present slightly higher risks.	8	Excellent • Minimal worker health risk from contact with contaminated media during drilling. Drilling will be completed by qualified HAZWOPER-certified driller. • Minimal worker safety risk during drilling, DGR system construction, and EISB injections. Work will be completed by qualified HAZWOPER-certified contractor. • Slightly longer long-term O&M period for extraction/injection wells and treatment system presents slightly higher risks to workers. • Slightly longer long-term sampling of monitoring wells in detention basin from a raft present slightly higher risks.	7.5	Excellent • Minimal worker he media during drilling HAZWOPER-certifiec • Minimal worker sa construction, and Els qualified HAZWOPEI • Moderately longer extraction/injection moderately higher ri • Moderately longer in detention basin fr

POC Option 4		POC Option 5
r Conditional Point of Compliance ent of Source Area (0.3 µg/L TCE)		Standard Point of Compliance - Surface Water Quality Standard (0.3 μg/L TCE) throughout Groundwater and Surface Water at Powder Mill Gulch
nking Considerations (1) man health and the environment; when nd SW under Option 1, all potential human eptors protected nimal:	Benefit Score	Ranking Considerations (1) Good • Protective of human health and the environment; when CULs met in GW and SW under Option 1, all potential human and ecological receptors protected • Existing risks minimal:
ikely future use of GW for drinking water nented to minimize future risk) ikely future use of SW for drinking water or granisms (ICs will be implemented to sk) ncentrations below ecological risk values e migration of contaminated GW to SW Area EISB to achieve CULs in GW and SW ime required to achieve cleanup standards mpliance: rears for DGR to achieve SW standards in me (dependent on Source Area restoration) vears for EISB to achieve drinking water v enough concentrations in Source Area to ards in monitoring wells immediately source Area	6	<ul> <li>no current or likely future use of GW for drinking water (ICs will be implemented to minimize future risk)</li> <li>no current or likely future use of SW for drinking water or consumption of organisms (ICs will be implemented to minimize future risk)</li> <li>current SW concentrations below ecological risk values</li> <li>GET to minimize migration of contaminated GW to SW</li> <li>DGR and Source Area EISB to achieve CULs in GW and SW</li> <li>Longest time required to achieve cleanup standards at this point of compliance:</li> <li>Estimated 44 years for DGR to achieve SW standards in Downgradient Plume (dependent on Source Area restoration)</li> <li>Estimated 38 years for EISB to achieve SW standards in Source Area.</li> </ul>
r 3 permanently destroys VOCs <i>in situ</i> , ant toxicity, mass, and volume. di removes VOCs mass and volume from site y destroys the contaminant through al of VOCs sorbed to GAC. f TCE reduced from current conditions is 9 percent tment residuals moderately increased I TCE mass loading on GAC	9	Superior • Source Area EISB permanently destroys VOCs <i>in situ</i> , reduces contaminant toxicity, mass, and volume. • DGR captures and removes VOCs mass and volume from site GW and ultimately destroys the contaminant through treatment/disposal of VOCs sorbed to GAC. • Actual volume of TCE reduced from current conditions is approximately 99 percent • Quantity of treatment residuals moderately increased through additional TCE mass loading on GAC
to drinking water standard is likely to be be protective of potential future exposure ionstrated to result in attainment of SW tive of SW beneficial uses). It during cleanup can be reliably mitigated er time frame required to meet cleanup in moderately lower degree of certainty that notinue to succesfully achieve cleanup goals ile TCE concentrations are still above is due to increased risk of system failure or cy due to issues with pumping systems, ring and controls, or electrical system.	6.5	Good/Excellent  Cleanup of GW to drinking water standard is likely to be achieved and will be protective of potential future exposure and has been demonstrated to result in attainment of SW standards (protective of SW beneficial uses). Exposure and risk during cleanup can be reliably mitigated by ICs. Moderatly longer time frame required to meet cleanup standards results in moderately lower degree of certainty that the remedy will continue to succesfully achieve cleanup goals and objectives while TCE concentrations are still above cleanup standards due to increased risk of system failure or decreased efficiency due to issues with pumping systems, electronic monitoring and controls, or electrical system.
health risk from contact with contaminated ing. Drilling will be completed by qualified ied driller. Safety risk during drilling, DGR system EISB injections. Work will be completed by YER-certified contractor. ter long-term O&M period for on wells and treatment system presents risks to workers. ter long-term sampling of monitoring wells from a raft present moderately higher risks.	7.5	Excellent Minimal worker health risk from contact with contaminated media during drilling. Drilling will be completed by qualified HAZWOPER-certified driller. Minimal worker safety risk during drilling, DGR system construction, and EISB injections. Work will be completed by qualified HAZWOPER-certified contractor. Moderately longer long-term O&M period for extraction/injection wells and treatment system presents moderately ligher risks to workers. Moderately longer long-term sampling of monitoring wells in detention basin from a raft present moderately higher risks.

Table 4-2 Benefits Analysis and Ranking Considerations - Alternative 5 Point of Compliance Evaluation Boeing Everett - Powder Mill Gulch Everett, Washington

POC Option Number: POC Option 1			POC Option 2a		POC Option 2b		POC Option 3				
Point of Compliance Descr (1):	iption		Standard Point of Compliance - Drinking Water Standard (4 μg/L TCE) in GW, Surface Water Quality Standard (0.3 μg/L TCE) in SW		Groundwater Conditional Point of Compliance in Transitional Zone at Creek (0.3 μg/L TCE)		Groundwater Conditional Point of Compliance in Monitoring Wells Upgradient of Creek (0.3 μg/L TCE)		Groundwater Conditional Point of Compliance at Boeing Property Line and Upgradient of Creek on Boeing Property (0.3 μg/L TCE)		Groundwate Downgradio
							Relative Benefits Ranking for Disproportionate C	ost An	alysis		
Evaluation Criteria: WAC 173-340-360(3)(f)	Weighting Factor	Benefit Score	Ranking Considerations (1)	Benefit Score	Ranking Considerations (1)	Benefit Score	Ranking Considerations (1)	Benefit Score	Ranking Considerations (1)	Benefit Score	Ra
- Tech/Admin. Implementability	10%	9	<ul> <li>Excellent</li> <li>Ability of DGR and EISB has been widely demonstrated to be successful in achieving cleanup of groundwater to drinking water standards (i.e., two orders of magnitude [99%] reduction).</li> <li>Technical implementation of system construction remedy implementation relatively uncomplicated; proper installation of injection and extraction wells, treatment of GW, and implementation of donor injection events provide limited technical challenges. Long-term O&amp;M period is shortest of all options; O&amp;M of extraction/injection wells and treatment system present minor challenges.</li> <li>Administration implementation of dondersor of treated groundwater (National Pollutant Discharge of treated groundwater (National Pollutant Discharge Elimination System (NPDES) permit, and Underground Injection Control [UIC] permit), and maintaining access agreements with offsite property owners; filing ICs and associated 5-year reviews not required.</li> <li>Integration with existing site operations (detention basin O&amp;M) and other current/future remedial actions (sediment/stormwater remediation work) presents some challenges.</li> </ul>	8	<ul> <li>Excellent</li> <li>Ability of DGR and EISB has been widely demonstrated to be successful in achieving cleanup of GW to drinking water standards (i.e., two orders of magnitude [99%] reduction). Site data demonstrates high likelihood of reaching SW standards at point of groundwater discharge to SW due to attenuation in transition/hyporheic zone.</li> <li>Technical implementation relatively uncomplicated; proper installation of injection and extraction wells, treatment of GW, and implementation of donor injection events provide limited technical challenges. Long-term O&amp;M period is second shortest of all options; O&amp;M of extraction/injection wells and treatment system present minor challenges.</li> <li>Minor technical challenges may be encountered with installation of pore water samplers and monitoring of GW adjacent to or beneath creek.</li> <li>Administration implementation challenges include modification of permitting for discharge of treated groundwater (NPDES permit, UIC permit), maintaining access agreements with ofsite property owners, and filing ICs/conducting 5-yr reviews.</li> <li>Integration with existing site operations (detention basin O&amp;M) and other current/future remedial actions (sediment/stormwater remediation work) presents some challenges.</li> </ul>	7	<ul> <li>Excellent</li> <li>Ability of DGR and EISB has been widely demonstrated to be successful in achieving cleanup of GW to drinking water standards (i.e., two orders of magnitude [99%) reduction). However, success in achieving three-order of magnitude (99.%) reductions in GW (to SWQS) have been shown to be technically infeasible through active remedial technologies; therefore, there is moderate uncertainty that the alternative will be successful in achieving cleanup standards in a reasonable restoration time frame at the monitoring wells upgradient of the creek for this CPOC.</li> <li>Technical implementation of donor injection events provide limited technical challenges. Long-term O&amp;M period slightly longer; O&amp;M of extraction/injection wells and treatment system present minor challenges.</li> <li>Administration implementation for discharge of treated groundwater (NPDES permit, UIC permit); challenges increase with longer remedial time frames for maintaining access agreements with ofsite property owners, and filing ICs/conducting 5-yr review.</li> <li>Challenges increase with time for integration with existing site operations (detention basin O&amp;M) and other current/future remedial actions (sediment/stormwater remediation work).</li> </ul>	5	<ul> <li>Good</li> <li>Ability of DGR and EISB has not been widely demonstrated to be successful in achieving cleanup of GW to SWQS; i.e., achieving three-order of magnitude (99.9%) reductions in GW have been shown to be technically infeasible through active remedial meausres. Therefore, there is moderately high uncertainty that the alternative will be successful in achieving cleanup standards in the core of the plume at and downgradient of the Boeing property line.</li> <li>Technical implementation is relatively uncomplicated; proper installation of injection and extraction wells, treatment of GW, and implementation of donor injection events provide limited technical challenges. Long-term O&amp;M likely to extend into period requiring major equipment replacement; O&amp;M of extraction/injection wells and treatment system may present more significant challenges with duration of remedy.</li> <li>Greater technical challenges may be encountered with 9- year longer sampling of GW and SW, maintenance of detention basis injection wells, and O&amp;M of DGR system.</li> <li>Administration implementation challenges include modification of permitting for discharge of treated groundwater (NPDES permit, UIC permit); challenges increase more with longer remedial time frames for maintaining access agreements with ofsite property owners, and filing ICs.</li> <li>Challenges increase more with time for integration with existing site operations (detention basin O&amp;M) and other current/future remedial actions (sediment/stormwater remediation work).</li> </ul>	3	Fair • Ability of DGR a to be successful in achieving three-on- have been shown remedial meausru- uncertainty that the cleanup standard downgradient of • Technical imple proper installation of groundwater, a, events provide lir very likely to exter replacement; O& treatment system with duration of n Greater technic year longer samp detention basis ir • Administration modification of p groundwater (NP considerably mor maintaining accee owners, and filing • Challenges incre- integration with e O&M) and other- (sediment/storm
- Consideration of Public Concerns	10%	10	Superior (assumed equal for all alternatives) • Protective of human health and the environment. • Provides at least the minimum level of protection under the Model Toxics Control Act (MTCA). • Public comments/concerns will be addressed during Remedial Investigation/Feasibility Study/Cleanup Action Plan (RI/FS/CAP) public comment period(s).	10	Superior (assumed equal for all alternatives) • Protective of human health and the environment. • Provides at least the minimum level of protection under MTCA. • Public comments/concerns will be addressed during RI/FS/CAP public comment period(s).	10	Superior (assumed equal for all alternatives)  • Protective of human health and the environment. • Provides at least the minimum level of protection under MTCA. • Public comments/concerns will be addressed during RI/FS/CAP public comment period(s).	10	Superior (assumed equal for all alternatives)  Protective of human health and the environment.  Provides at least the minimum level of protection under MTCA.  Public comments/concerns will be addressed during RI/FS/CAP public comment period(s).	10	Superior (assume • Protective of hu • Provides at leas MTCA. • Public commen during RI/FS/CA
Estimated Cost (\$)			\$14,100,000		\$14,600,000		\$15,600,000		\$16,800,000		
Overall Weighted Benefit Score (2)		8.65	Excellent/Superior	8.3	Excellent	8.05	Excellent	7.8	Excellent	7.2	
Comparative Overall Benefit/Cost Ratio (2,3	)	8.65	Excellent/Superior	8.0	Excellent	7.3	Good/Excellent	6.5	Good	5.2	

Notes: (1) POC Options 2a, 2b, 3, and 4 are modified from standard MTCA requirements in Option 1 to include meeting SWQS at location described

(2) Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10).
(3) Benefit/Cost Ratio scaled (divided) by cost of lowest cost point of compliance in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 4-8.

POC Option 4		POC Option 5
r Conditional Point of Compliance ent of Source Area (0.3 μg/L TCE)		Standard Point of Compliance - Surface Water Quality Standard (0.3 μg/L TCE) throughout Groundwater and Surface Water at Powder Mill Gulch
hking Considerations (1) The EISB has not been widely demonstrated a achieving cleanup of GW to SWQS; i.e., der of magnitude (99.9%) reductions in GW to be technically infeasible through active s. Therefore, there is relatively high he alternative will be successful in achieving in the core of the plume and immediately he Source Area. mentation is relatively uncomplicated; no f injection and extraction wells, treatment nd implementation of donor injection tited technical challenges. Long-term O&M and into period requiring major equipment W of extraction/injection wells and may present more significant challenges emedy. al challenges may be encountered with 19- ing of GW and SW, maintenance of jection wells, and O&M of DGR system. mplementation challenges include ermitting for discharge of treated DES permit, UIC permit); challenges increase e more with longer remedial time frames for s agreements with ofsite property ICS. ase considerably more with time for xisting site operations (detention basin	Benefit Score Score	Ranking Considerations (1) Poor • Ability of DGR and EISB has not been widely demonstrated to be successful in achieving cleanup of GW to SWQS; i.e., achieving three-order of magnitude (99.9%) reductions in GW have been shown to be technically infeasible through active remedial meausres. Therefore, there is very high uncertainty that the alternative will be successful in achieving cleanup standards in the core of the plume and in the Source Area. • Technical implementation relatively uncomplicated; proper installation of injection and extraction wells, treatment of groundwater, and implementation of donor injection events provide limited technical challenges. Longest O&M period of all options, very likely to extend into period requiring major equipment replacement; O&M of extraction/injection wells and treatment system may present more significant challenges with duration of remedy. • Greater technical challenges may be encountered with 29- year longer sampling of GW and SW, maintenance of detention basis injection wells, and O&M of DGR system with likely major equipment replacement. • Administration implementation challenges include modification of permiting for discharge of treated groundwater (NPDES permit, UIC permit); challenges increase substantially more more with longer remedial time frames for maintaining access agreements with ofsite property owners, and filing ICs. • Challenges increase substantially more with time for integration with existing site operations (detention basin
surrent/future remedial actions vater remediation work). d equal for all alternatives) man health and the environment. t the minimum level of protection under s/concerns will be addressed P public comment period(s).	10	<ul> <li>O&amp;M) and other current/future remedial actions (sediment/stormwater remediation work).</li> <li>Superior (assumed equal for all alternatives) <ul> <li>Protective of human health and the environment.</li> <li>Provides at least the minimum level of protection under MTCA.</li> <li>Public comments/concerns will be addressed during RI/FS/CAP public comment period(s).</li> </ul> </li> </ul>
\$19,400,000		\$22,200,000
Good	6.8	Good
Fair/Good	4.3	Fair

### Table 4-3 Disproportionate Cost Analysis Summary - Alternative 5 Point of Compliance Evaluation Boeing Everett - Powder Mill Gulch Everett, Washington

POC Option Number:		Optic	on 1		Option 2a					Option 2b				Option 3				<u>Optio</u>	o <u>n 4</u>		Option 5				
Point of Compliance Description (1):	Standard P Water St Surface (I	oint of Co andard (4 e Water Q 0.3 µg/L T	mpliance - μg/L TCE) uality Stan CE) in SW	Drinking in GW, dard	Ground Compliance	water Con in Transit (0.3 µg/	ditional Po tional Zone L TCE)	oint of e at Creek	Groundwater Conditional Point of Compliance in Monitoring Wells Upgradient of Creek (0.3 μg/L TCE)				Groundwater Conditional Point of Compliance at Boeing Property Line and Upgradient of Creek on Boeing Property (0.3 µg/L TCE)				Groundwater Conditional Point of Compliance Downgradient of Source Area (0.3 μg/L TCE)				Standard Point of Compliance - Surface Water Quality Standard (0.3 µg/L TCE) throughout Groundwater and Surface Water at Powder Mill Gulch				
Relative Benefits Ranking for Disproportionate Cost Analysis (Washington Administrative Code [WAC] 173- 340-360[2][b][i] and WAC 173-340-360[3][f])											-				-	_			_	_					
Comparative Overall Benefit (2)		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score	
- Protectiveness	Superior	9	0.3	2.7	Excellent/ Superior	8.5	0.3	2.55	Excellent/ Superior	8.5	0.3	2.55	Excellent	8	0.3	2.4	Excellent	7	0.3	2.1	Good	6	0.3	1.8	
- Permanence	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6	Excellent/ Superior	8.5	0.2	1.7	Excellent/ Superior	8.5	0.2	1.7	Superior	9	0.2	1.8	
- Effectiveness over the Long-Term	Excellent	8	0.2	1.6	Excellent	7.5	0.2	1.5	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4	Good/ Excellent	6.5	0.2	1.3	Good/ Excellent	6.5	0.2	1.3	
<ul> <li>Management of Short-Term Risks</li> </ul>	Excellent/ Superior	8.5	0.1	0.85	Excellent/ Superior	8.5	0.1	0.85	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7.5	0.1	0.75	Excellent	7.5	0.1	0.75	
- Technical/Administrative Implementability	Superior	9	0.1	0.9	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Good	5	0.1	0.5	Fair	3	0.1	0.3	Poor	1	0.1	0.1	
- Consideration of Public Concerns	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	Superior	10	0.1	1	
Overall Weighted Benefit Score				8.7				8.3				8.1				7.8				7.2				6.8	

### Disproportionate Cost Analysis - Quantitative Evaluation

Overall Weighted Benefit Score	8.7	8.3	8.1	7.8	7.2	6.8
Estimated Remedy Cost at POC	\$14,100,000	\$14,600,000	\$15,600,000	\$16,800,000	\$19,400,000	\$22,200,000
Relative Benefit/Cost Ratio (3)	8.7	8.0	7.3	6.5	5.2	4.3
Lowest Cost POC	Yes	Yes	No	No	No	No
Costs Disproportionate to Incremental Benefits	No	Yes	Yes	Yes	Yes	Yes
POC that is Permanent to the Maximum Extent Practicable	Yes	No	No	No	No	No
Preferred POC	Yes	No	No	No	No	No

#### Notes:

(1) POC Options 2a, 2b, 3, and 4 are modified from standard MTCA requirements in Option 1 to include meeting SWQS at location described

(2) Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10).

(3) Benefit/Cost Ratio scaled (multiplied) by lowest cost POC score in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 4-8.

APPENDIX A

**Groundwater Modeling Technical Memorandum** 

то:	Debbie Taege, The Boeing Company
FROM:	Ben Lee, PE and Piper Roelen, PE
DATE:	November 26, 2018
RE:	Preliminary Groundwater Modeling and Restoration Time Frame Modeling – Dynamic Groundwater Recirculation System Powder Mill Gulch – Boeing Everett Plant Everett, Washington Project No. 025175.118.012

# **Introduction and Objective**

The Boeing Company (Boeing) operates a groundwater extraction and treatment (GET) system within Powder Mill Gulch (PMG), north of its Everett manufacturing plant, to mitigate for historical groundwater impacts by volatile organic compounds (VOCs), primarily trichloroethene (TCE). The groundwater system of PMG has been previously investigated and documented in the remedial investigation report (URS and Landau Associates, Inc. [LAI] 2011) that was approved by the Washington State Department of Ecology (Ecology; Ecology 2011). Groundwater flow at the site has been simulated with a three-dimensional numerical groundwater flow model (model; LAI 2011) using Groundwater Modeling System (GMS)/MODFLOW to better understand groundwater hydrology at the site and for use in design and placement of the various GET system extraction wells. The model was originally constructed for the site in 2009 and has been updated and calibrated with site data periodically as successive phases and expansions of the GET system have been designed, installed, and brought into operation (LAI 2012 and 2014). The GET system was designed by LAI, and has been in operation since 2012 (with expansions in 2015 and 2016). It currently consists of 12 extraction wells and an air stripper treatment system. Treated groundwater from the GET system is discharged to Powder Mill Creek under a National Pollutant Discharge Elimination System (NPDES) permit. Optionally, the treated effluent may also be discharged to the City of Everett sanitary sewer system under a discharge permit.

Four remedial alternatives for cleanup of the PMG TCE plume were originally evaluated in a feasibility study (FS) report (AECOM and LAI 2015) that was submitted to the Washington State Department of Ecology (Ecology) in 2015. During subsequent communications and correspondence with Ecology, it was determined that an additional remedial alternative proposed by Boeing should be evaluated as part of a supplemental FS (SFS). As a part of this fifth alternative (identified as "Alternative 5" for the purposes of the SFS and this memorandum), Boeing proposed modifying and upgrading the existing GET system by adding nine groundwater injection wells and two additional extraction wells to convert the system into a groundwater recirculation (GR) system. Through adaptive management and dynamic operation of the GR system, dynamic groundwater recirculation (DGR) will be used to address contamination in the downgradient portion of the groundwater plume.



LAI developed a conceptual plan for proposed extraction and injection wells for the DGR system as shown in Figure 1. The plan was based on the preliminary modeling results included in this memorandum as well as the current known TCE plume configuration; site topography, natural features (wetlands, surface water, vegetation), and infrastructure; and the location, spacing, and area of influence of the existing GET system extraction wells. The nine proposed injection wells will inject treated groundwater pumped from the existing GET system (and from the two new extraction wells).

The MODFLOW groundwater model for the site has been modified to better simulate current groundwater flow conditions and to simulate the effect of the proposed extraction and injection wells. This technical memorandum summarizes changes made to model boundary conditions as well as results of simulations including the proposed extraction and injection wells. This memorandum also serves as a support document to the SFS report for PMG by providing backup and input information related to two restoration time frame estimating models used to estimate restoration time frames for cleanup alternatives discussed in the SFS.

# **Model Recharge Modifications**

Recent groundwater quality and elevation data within PMG suggest a slight northwesterly shift of the TCE plume boundary in the area of the Seaway Center property and Powder Mill Business Center (PMBC) property (north of Seaway Boulevard and west of Powder Mill Creek).<sup>1</sup> New commercial developments on the PMBC property (completed in 2015) and on the Seaway Center Property (completed in early 2018) appear to be the cause of this shift, most likely due to altered recharge patterns to the groundwater system of PMG. Specifically, precipitation recharge has been greatly reduced in areas newly covered with impervious material (i.e., buildings or pavement). These developments were constructed on previously forested areas and include impervious areas covering approximately 22.4 acres on the PMBC property and 11.3 acres on the Seaway Center property (approximately 34 total acres of new impervious area). Concurrently, precipitation recharge has likely been increased/concentrated in the location of a new stormwater infiltration pond on the north end of the PMBC property receiving runoff from the new impervious surfaces on that property. The stormwater pond located on the Seaway Center property is a lined detention pond that discharges to the City of Everett stormwater management system and does not infiltrate onsite.

Based on this new data, the following modifications to the model were implemented to simulate the recent changes in the recharge patterns near PMG noted above:

• Recharge to the approximately 22.4 acres of impervious ground surface at the PMBC property and the approximately 11.3 acres of impervious ground surface at the Seaway Center property

<sup>&</sup>lt;sup>1</sup> Two new monitoring wells were installed in this area in late October 2018 that are now being used to better understand and further evaluate the extent of the TCE plume and groundwater flow in this area.

associated with the new commercial developments<sup>2</sup> north of Seaway Boulevard was set to zero (i.e., 0.0 feet [ft] per day). Recharge to a new 1.0-acre infiltration facility associated with the PMBC property development was set to 0.18 ft per day<sup>3</sup> under steady state conditions. The impervious surfaces and the infiltration facility are shown on Figure 2.

The simulated groundwater contours resulting from the modifications to the model recharge array noted above are shown on Figure 3. MODPATH particle tracking flow path lines originating from select model cells and based on the simulated head resulting from the recharge array modifications are shown on Figure 4.

# **Modeling of Proposed Injection and Extraction Wells**

The two proposed extraction wells and nine proposed injection wells were each applied to model layer 1 as a well boundary condition (extraction wells were given negative discharge rates to indicate a withdrawal of water from the groundwater system; injection wells were given positive discharge rates to indicate an addition of water to the groundwater system). The proposed wells were applied to the model in locations shown on Figures 1 and 5. The extraction or injection rates applied to the proposed (and existing) wells are summarized in Table 1. The simulated steady state head under proposed additional extraction and injection conditions is shown on Figure 5.

Particle tracking was performed with MODPATH using the simulated steady state head under proposed extraction and injection conditions (along with extraction from existing extraction wells). The results of the particle tracking indicates that the proposed injection wells and extraction wells, in combination with the existing extraction wells, enhances containment and capture of the TCE plume, and enhances flushing of the plume by creating shorter groundwater flow paths between naturally occurring or injected clean groundwater outside the periphery of the plume and the extraction wells located inside the plume. Representative MODPATH particle flow path lines under proposed extraction and injection conditions are shown on Figure 6.<sup>4</sup>

# Application of Groundwater Modeling and Methodology for Restoration Time Frame Analysis

As indicated in Section 2.3.6 of the SFS report, estimated restoration time frames for achieving the cleanup standards at various points of compliance for the conceptual DGR system and source area

<sup>&</sup>lt;sup>2</sup> The impervious area of the new developments includes Buildings A, B, C, and D and the new parking lot on the PMBC property, and Buildings A and B and the new parking lots and the detention pond on the Seaway Center property.

<sup>&</sup>lt;sup>3</sup> 0.18 ft per day recharge is based on an average annual precipitation rate of 36.1 inches, a contributing area of approximately 22.35 acres (assuming all stormwater from the new development is routed to the infiltration facility), and an infiltration facility area of 1.0 acre. This value assumes that 100 percent of the stormwater that is routed to the facility is infiltrated.

<sup>&</sup>lt;sup>4</sup> Note that this figure represents steady state operation of the conceptual DGR system with all injection wells and extraction wells operating simultaneously at set flow rates (Table 1). Actual operation of the DGR system will result in multiple and varying flow directions depending on the configuration and flow rates for each injection and extraction well.

bioremediation (Alternative 5) were determined using groundwater GMS/MODFLOW modeling in combination with one or both of two restoration time frame estimating models, the Batch Flushing model (EPA 1988) and the BIOCHLOR Natural Attenuation Decision Support System model (BIOCHLOR, Version 2.2, 2002 release).<sup>5</sup> These models are both industry standard and EPA-accepted tools for this type of application (EPA 1988, 2018) and are the same models used for previous restoration time frame estimates provided in the FS and associated submittals prepared for Ecology for review.

The results from the particle tracking shown on Figure 6 were used to identify flow paths and distances/travel times that could be used as input parameters for the Batch Flushing and BIOCHLOR modeling to estimate restoration time frames associated with Alternative 5 in different areas of the site. Specifically, the flow paths between injection wells or the edge of the plume and extraction wells or identified point of compliance, as identified by the MODFLOW groundwater model, were used to identify flow path lengths/travel times for input into the Batch Flushing and/or BIOCHLOR models.

Consistent with the way restoration time frames were estimated for the four FS alternatives, an average of the results from the Batch Flushing model and BIOCHLOR was used for the restoration time frame for the source area. The rationale for using this average is based on the comparison of the results of the two models and the average of the two models to actual site data sets (LAI 2017). Existing site data at several locations within the core of the plume where groundwater TCE concentration reductions have been observed both before and after the influence of GET system operations showed a strong correlation with the average of the models under both pre- and post-extraction well pumping conditions, providing a greater degree of confidence and justification for using this average. For the source area, the estimate assumes that the highest TCE concentration (EISB) would be 100 micrograms per liter ( $\mu$ g/L).<sup>6</sup>

However, unlike the other four alternatives, only the Batch Flushing model was used to estimate the restoration time frame using Alternative 5, DGR, in the downgradient plume. The leading literature on DGR supports this use of the Batch Flushing model. Suthersan et al. (2015) reported that:

"The underlying basis for the design of a DGR system is the volume of water contained within the plume, and the number of pore volume flushes (PVFs) required to achieve water quality goals set forth by the performance objectives. Simple equations can be applied within the context of the [conceptual site model] (CSM) to begin the design process. An estimate for the volume of water needed to achieve remedial goals can be

<sup>&</sup>lt;sup>5</sup> Calculations, data assumptions, and input parameters for BIOCHLOR and Batch Flushing were the same as prior restoration time frame modeling (except as otherwise noted in this report) as detailed in the *Restoration Time Frame Evaluation— Modeling Inputs/Sensitivity Analysis* Technical Memorandum (LAI 2017).

<sup>&</sup>lt;sup>6</sup> Achieving cleanup to levels at or below this concentration would mean that source area concentrations have been reduced to similar concentrations as the rest of the diluted TCE groundwater plume outside of the source area; performing active EISB to reduce concentrations below that of the rest of the plume provides no additional benefit and is not considered cost-effective.

developed from concepts of complete mixed reactors often referred to as batch flush..."

This statement, along with the results of case studies for sites where DGR systems have been employed where significantly more rapid restoration time frames have been realized in comparison to pump-and-treat systems (ITRC 2015, Suthersan et al. 2017), indicates that the results of the Batch Flushing model are more representative of the restoration time frames that can be anticipated from implementation of DGR systems.

Therefore, using the flow path distances/travel times between injection wells and extraction wells as identified by the MODFLOW groundwater model, the Batch Flushing model was applied for flow paths that cross TCE focus areas in the downgradient plume to identify the most conservative restoration time frames for the plume as a whole.

# **BIOCHLOR and Batch Flushing Model Inputs**

Additional information on the background and theory of the Batch Flushing and BIOCHLOR models was included in LAI's restoration time frame modeling inputs and sensitivity analysis technical memorandum (LAI 2017). The inputs used for these two models are described below.

The inputs used for the BIOCHLOR and Batch Flushing Modeling were the same as those provided to Ecology in the restoration time frame memorandum (LAI 2017), except for the following:

**Travel distances (***L***):** The groundwater flow path distances, based on the MODFLOW groundwater model output, that were used for these two models for evaluation of Alternative 5 included the following approximate flow distances:

- From the upgradient edge of the source area to the downgradient edge, *L* = approximately 450 ft (same value used in previous source area modeling);<sup>7</sup>
- Across the TCE focus area south of Seaway Boulevard from proposed injection wells to extraction wells on the downgradient edge of the focus area, *L* = approximately 380 ft (or approximately 30 percent of the flow path length used for the other FS alternatives in this area of the site because of the effects of the DGR system);<sup>8</sup>
- Across the TCE focus area north of Seaway Boulevard from proposed injection wells to extraction wells on the downgradient edge of the focus area, *L* =approximately 450 ft (or approximately 50 percent of the flow path length used for the other FS alternatives in this area of the site because of the effects of the DGR system);<sup>7</sup>

<sup>&</sup>lt;sup>7</sup> Applies to point of compliance (POC) Options 1 through 5 for source area restoration time frame (through enhanced *in situ* bioremediation).

<sup>&</sup>lt;sup>8</sup> Applies to POC Options 1 through 5 for downgradient plume restoration time frame (through DGR); however, assumed Options 4 and 5 also reliant on source area restoration. Note that the restoration time frames for POC options 2a/2b are driven by the longer times necessary to meet drinking water standards upgradient of the actual POCs (see SFS Table 4-1).

- Across the plume south of Seaway Boulevard from proposed injection wells through monitoring wells adjacent to creek, L = approximately 420 ft;<sup>9,10</sup> and
- From west edge and across theoretical future contracted width of plume north of Seaway Boulevard through monitoring wells adjacent to creek, *L* =approximately 225 ft.<sup>8</sup>

### Gradient (i):

- For the source area, *i* = 0.027 feet per foot (ft/ft), value used to reflect slightly flatter gradients measured for this area of the site.
- Although the gradients in the Phase 1 and Phase 2 Interim Action (IA) areas are likely to be steeper as a result of groundwater injection wells operating in these areas in conjunction with the DGR system, because these gradients will be shifted and altered frequently during DGR operations, as a conservative measure the gradient values used for the models in these areas were kept constant with values used for the restoration time frame modeling done for the other four FS alternatives.

The results and discussion of the restoration time frame modeling for Alternative 5 are included in Section 2.3.6 of the SFS report. The results and discussion of the restoration time frame modeling for the evaluation of POC options are included in Sections 4.2, 4.3.1, and 4.3.3 of the SFS report.

# Freundlich Isotherm for Estimation of Restoration Time Frames for Low Concentrations

Section 4.1 of the SFS report includes discussion of restoration time frames that would be necessary based on a series of groundwater points of compliance. Several of these points of compliance include requirements for achieving very low TCE concentrations (i.e.,  $0.3 \mu g/L$ ) within the TCE plume. Prominent research references related to the behavior of chlorinated solvents in the environment (e.g., Pankow and Cherry 1996, Stroo and Ward 2010) discuss sorption and desorption processes for chlorinated solvents in the aqueous environment. These references, which are based on both experimental and full-scale field application data, consistently indicate that experimentally derived isotherms for chlorinated solvents, including TCE, are often not well described by linear isotherms (which is what the Batch Flushing model uses for the retardation factor equation for calculating restoration time frames) for certain segments of the isotherm curve. Rather, the isotherms show that the retardation factor is dependent on the solution concentration and is often better predicted by non-linear isotherms, such as the Freundlich desorption isotherm. This non-linear behavior of the isotherm data appears to be primarily due to sorption/desorption or diffusion/back diffusion limited interactions of the contaminants between the aquifer solid and aqueous matrices.

<sup>&</sup>lt;sup>9</sup> Applies to POC Option 2b for additional downgradient plume restoration time frame at monitoring wells adjacent to creek both north and south of Seaway Boulevard (through DGR).

<sup>&</sup>lt;sup>10</sup> Applies to POC Option 3 for additional downgradient restoration time frame at monitoring wells adjacent to creek south of Seaway Boulevard.

Therefore, the Batch Flushing Model was run again to provide a more realistic estimate of restoration time frames for the cleanup of TCE to very low concentrations. In previous Batch Flushing Modeling performed to estimate the time frames required for all TCE concentration decreases, including those between 4  $\mu$ g/L and 0.3  $\mu$ g/L, the linear form of the retardation factor equation was used, namely:

$$R = 1 + K_{oc} \cdot f_{oc} \cdot \frac{\rho_b}{\Theta_w} \tag{1}$$

where,

*R* is the retardation coefficient for a specific contaminant

- $K_{oc}$  is the organic carbon partition coefficient (milliliters per gram [mL/g])
- $f_{oc}$  is the fraction organic carbon in the aquifer
- $\rho_b$  is the bulk density of the aquifer material (grams per milliliter [g/mL])
- $\theta_w$  is the porosity (identified as "n" in the sensitivity analysis technical memorandum [LAI 2017]).

For updated Batch Flushing Modeling to estimate the time frames required for TCE concentration decreases between 4  $\mu$ g/L and 0.3  $\mu$ g/L, the retardation factor used was instead calculated using the Freundlich sorption/desorption isotherm equation:

$$R = 1 + \frac{\rho_b}{\theta_w} \cdot n_f \cdot K_f \cdot C_w^{(n_f - 1)}$$
(2)

where,

- $K_f$  is the Freundlich constant indicative of the adsorptive capacity of the soil (micrograms per gram [µg/g])
- $n_f$  is the Freundlich constant describing the degree of deviation from linearity
- $C_w$  is the aqueous phase contaminant concentration.

### Freundlich Constants (K<sub>f</sub> and n<sub>f</sub>):

The two Freundlich constants identified above are experimentally derived through batch and column studies. Based on a range of literature values (EPA 1996, Kret et al. 2015, Werth and Reinhard 1997, Zytner 2002) identified from experiments with TCE in fine to medium sand matrices, the following approximate mean values from these experiments (along with the aqueous phase TCE concentration) were used to determine the calculated retardation factor values used in the Batch Flushing Model runs:

$$K_f = 0.5$$
  
 $n_f = 0.9$   
 $C_w = 0.3 \,\mu g/L \,TCE.$ 

The resulting restoration time frame values—calculated by the Batch Flushing Model for the various point of compliance options evaluated in Section 4 of the SFS—typically defined the upper end of the

time frame ranges shown in Table 4-1 of the SFS. These values are shown to provide a frame of reference to show that restoration time frames for lower cleanup levels are likely to be substantially longer than predicted by the Batch Flushing Model using retardation factors based on linear isotherm equations.<sup>11</sup>

# **Use of This Report**

This Technical Memorandum has been prepared for the exclusive use of The Boeing Company and applicable regulatory agencies for specific application to the Boeing Everett Site. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of LAI. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by LAI, shall be at the user's sole risk. LAI warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

This document has been prepared under the supervision and direction of the following key staff.

LANDAU ASSOCIATES, INC.

Ben Lee, PE Senior Engineer

Piper Roelen, PE Principal

BDL/PMR/JRN/IJI [P:\025\175\FILERM\R\FEASIBILITY STUDY\2018 FS SUPPLEMENT\APPA\_GW MODEL MEMO\APPA GW MODELING TM FINAL\_112618.DOCX]

<sup>&</sup>lt;sup>11</sup> Note that using both the high and both the low values found in literature for K<sub>f</sub> (0.1 to 1.5  $\mu$ g/g) and n<sub>f</sub> (0.65 to 1.1) in Equation 2 yielded restoration time frames for reducing TCE concentrations from 4 to 0.3  $\mu$ g/L from approximately 60 percent lower to 127 percent higher than the difference of time between the results of the linear and Freundlich estimates shown in SFS Table 4-1.

## Attachments

- Figure 1. Groundwater Recirculation System Conceptual Layout
- Figure 2. Modified Recharge Areas
- Figure 3. Simulated Head Model Modifications
- Figure 4. Simulated Head and Flow Path Lines Model Modifications
- Figure 5. Simulated Head Proposed Extraction and Injection Wells
- Figure 6. Simulated Head and Flow Path Lines Injection Wells
- Table 1. Well Extraction/Injection Rates (Simulated)

## References

- AECOM and LAI. 2015. Draft Report: Feasibility Study for Upland Areas and Powder Mill Gulch, Boeing Commercial Airplanes Everett Plant, Everett, Washington. AECOM and Landau Associates, Inc. November 16.
- Ecology. 2011. Letter RE: Ecology Contingent Approved Uplands Remedial investigation (RI) Report.Washington State Department of Ecology, Hazardous Waste & Toxics Reduction Program.November 21.
- EPA. 1988. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites.
   EPA/540/G-88/003. Office of Research and Development Publication. US Environmental
   Protection Agency. December.
- EPA. 1996. Soil Screening Guidance: Technical Background Document; Appendix K, Table K-2.
   Collected K<sub>oc</sub> Values (Hydrophobic Organics). EPA/540/R95/128. Office of Solid Waste and
   Emergency Response, US Environmental Protection Agency. May.
- EPA. 2018. "BIOCHLOR, Natural Attenuation Decision Support System." US Environmental Protection Agency. <u>https://www.epa.gov/water-research/biochlor-natural-attenuation-decision-support-</u><u>system</u>. Accessed November 1.
- ITRC. 2015. "Integrated DNAPL Site Characterization and Tools Selection (ISC-1), Appendix B." Interstate Technology & Regulatory Council, DNAPL Site Characterization Team. www.itrcweb.org/DNAPL-ISC\_tools-selection.
- Kret, E., A. Kiecak, G. Malina, I. Nijenhuis, and A. Postawa. 2015. Identification of TCE and PCE Sorption and Biodegradation Parameters in a Sandy Aquifer for Fate and Transport Modelling: Batch and Column Studies. Environmental Science and Pollution Research International 22.13 (2015): 9877–9888. PMC. Web. 17. October.
- LAI. 2011. Work Plan, Phase 1 Downgradient Plume Interim Action, Powder Mill Gulch, Boeing Everett Plant, Washington. Appendix C – Numerical Groundwater Modeling Technical Memoranda.
   Landau Associates, Inc. October 14.

- LAI. 2012. Conceptual Design Report, Phase 2 Downgradient Plume Interim Action, Powder Mill Gulch, Everett, Washington. Appendix B – Groundwater Modeling Report. Landau Associates, Inc. December 3.
- LAI. 2014. Technical Memorandum: Powder Mill Gulch Phase 1 Downgradient Plume Interim Action Optimization, Numerical Groundwater Flow modeling – Extraction Optimization, Boeing Everett Facility, Everett, Washington. Landau Associates, Inc. September 12.
- LAI. 2017. Technical Memorandum: Restoration Time Frame Evaluation—Modeling Inputs/Sensitivity Analysis, Powder Mill Gulch, Boeing Everett Facility, Everett, Washington. Landau Associates, Inc. September 20.
- Pankow, J.F., and J.A. Cherry. 1996. *Dense Chlorinated Solvents and Other DNAPLs in Groundwater: History, Behavior, and Remediation*. Portland, OR: Waterloo Press.
- Stroo, H.F., and C.H. Ward. 2010. In Situ Remediation of Chlorinated Solvent Plumes. New York, NY: Springer.
- Suthersan, S.S., J. Horst, M. Schonbrich, N. Welty, and J. McDonough. 2017. *Remediation Engineering: Design Concepts; Chapter 5 - Dynamic Groundwater Recirculation*. Second ed. Boca Raton, FL: CRC Press.
- Suthersan, S.S., E. Killenbeck, S. Potter, C. Divine, and M. Lefrancois. 2015. "Resurgence of Pump and Treat Solutions: Directed Groundwater Recirculation." *National Ground Water Association, Groundwater Monitoring & Remediation* 35 (2).
- URS and LAI. 2011. Final: Remedial Investigation Report, BCA Everett Plant, Everett, Washington. URS Corporation and Landau Associates, Inc. November 4.
- Werth, C. and M. Reinhard. 1997. Effects of Temperature on Trichloroethylene Desorption from Silica Gel and Natural Sediments. 1. Isotherms. Environmental Science & Technology, Vol. 31, No. 3, 689-696.
- Zytner, R. 2002. Organic Compounds in Unsaturated Soil. School of Engineering. University of Guelph.





Legend					Note 1. Black and white reproduct original may reduce its effor lead to incorrect interpreta	ion of this color ectiveness and tion.
Samples Collected in October 2017	7 Other Monitoring Locations	Proposed	Extraction Well 0.49 $\leq$ TCE $<4\mu$ g/L	25 ≤ TCE <250 μg/L	0 250	500
⊗ Monitoring Well	Ø Monitoring Well	Proposed	Injection Well 4 ≤ TCE <25 μg/L	250 ≤ TCE <500 μg/L		
$\triangle$ Piezometer	Piezometer				Scale in Feet	
●~ Seep	●∽ Seep			Data Sourc	ces: Google Earth Pro. Aerial Pl	oto Date: 5/18.
LANDAU ASSOCIATES	Extraction Well		Supplemental Feasibility Study Boeing Commercial Airplanes Everett, Washington	Groundwater Re Concep	circulation System - tual Layout	Figure 1

11/28/18 P:\025\175\FileRm\R\Feasibility Study\2018 FS Supplement\AppA\_GW Model Memo\Fig\_2 Modified Recharge Areas.docx



11/28/18 P:\025\175\FileRm\R\Feasibility Study\2018 FS Supplement\AppA\_GW Model Memo\Fig\_3 Simulated Head - Model Modifications.docx



11/28/18 P:\025\175\FileRm\R\Feasibility Study\2018 FS Supplement\AppA\_GW Model Memo\Fig\_4 Simulated Head and Flow Pathlines - Model Modifications.docx



11/28/18 P:\025\175\FileRm\R\Feasibility Study\2018 FS Supplement\AppA\_GW Model Memo\Fig\_5 Simulated Head - Proposed Wells.docx



11/28/18 \\edmdata01\projects\025\175\FileRm\R\Feasibility Study\2018 FS Supplement\AppA\_GW Model Memo\Fig\_6 Injection Wells - Simulated Flow Pathlines.docx



### Table 1 Well Extraction/Injection Rates (Simulated) Boeing - Powder Mill Gulch Everett, Washington

Location	IA Area	Well ID	Extraction Rate (gpm)
		EGW175	24
		EGW182	27
	Phase 1	EGW183	22
		EGW215	2
		EGW216	21
		EGW176	1
Extraction Wells		EGW188	18
	Phase 2	EGW189	14
		EGW190	26
		EGW191	32
		EGW192	3
		EGW193	3
	Proposed	EGW-proposed-north	15
	Fioposed	EGW-proposed-south	25

Location	IA Area	Well ID	Injection Rate (gpm)
			25
		EIVVOI	23
		EIW02	25
		EIW03	25
		EIW04	25
Injection Wells	Proposed	EIW05	25
		EIW06	25
		EIW07	25
		EIW08	25
		EIW09	25

Abbreviations and Acronyms:

gpm = gallons per minute

IA = interim action

ID = identification

1 of 1

APPENDIX B

# **Remedial Cost Estimates**

### Table B-1a Comparison of Alternative Costs Exposure Pathway Model: EPM K Esperance Sand, North Complex, PMG SWMU

ALTERNA	TIVE 1		CONTINUED OPERATION OF	EXISTING GET SYST	TEM AND	INSTITUTI	ONAL CONTROLS
Clie Loc: Proj Esti Rep Last QA	ent ation ject mator oort Date t Updated Reviewer	*/**	Boeing BCA Everett Plant Upland Area Feasibility Study Piper Roelen 10/30/15 8/17/18 Jerry Ninteman	EPM Group Site Name Building Media Plume Length Max Plume Width Saturated Thickness	K Esperance N/A Groundwa 2,800 700 10 to 60	Sand/Powde ter FT FT FT FT	er Mill Gulch
			* highlighted cells indicate inputs a ** highlighted cells indicate inputs	modified from original 20 modified from 2016 revi	15 FS estim sed estimate	nates es	
Site/	Site/Problem Description		Chlorinated solvents in groundwate solvents in surface water in Powde	er within the Esperance Sa r Mill Creek at concentrat	and Aquifer	beneath Pov ling MTCA o	wder Mill Gulch and chlorinated cleanup standards.
Proj	posed Remedial	Action	Continued operation of GET system migration of chlorinated solvents in protection of human and ecologica	n for hydraulic control of n groundwater to surface l receptors.	chlorinated water, grour	solvents in andwater flush	groundwater, minimizing ning and restoration, and
Alte	ernative	1	Costs presented have an accuracy of	of +50% to -30% and are	suitable for	comparing a	lternatives
Spee	cific	2	Washington State Sales Tax is app	lied to Direct Costs only			
Assu	umptions	3	30-year real discount rate of 0.6%	per Office of Managemen	t and Budge	et, Circular A	A-94 Appendix C, Rev. Feb. 2018
		4	Operation of existing GET system	with 12 extraction wells.			
		5	Assumes GET system operation for	r 38 years to reach TCE C	CUL of 4 µg	/L	
		6	Assumes major equipment replace	ment at 20-year intervals			
		7	Annual groundwater and surface w	ater monitoring			

8 Six quarters of confirmation groundwater and surface water sampling

			DETAILED COST ESTIMAT	ГЕ			
Cost Type	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
	REMEDIAL DESIG	GN, PLA	NNING, AND GENERAL (Indirect Costs)				
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting				
		2	Cleanup action plan	1	LS	\$ 30,000 \$ 10,000	\$ 30,000
		3	Permits	1		\$ 10,000 \$ 10,000	\$ 10,000 \$ 10,000
-		4	Cleanup action construction report	1		\$ 10,000 \$ 20,000	\$ 10,000 \$
		6	Engineering/Remedial Design	8%	nct	\$ 20,000 \$ 50,000	\$ 4000
I		7	Construction management/oversight	6%	pet	\$ 50,000	\$ 3.000
L		8	Project management	5%	pct	\$ 11,071,000	\$ 553,550
LA		9	Ecology oversight	5%	pct	\$ 11,071,000	\$ 553,550
Z	Subtotal Remedial I	Design, P	lanning, and General Costs			-	\$ 1,164,100
ΞE	Indirect Contingency	and Unli	sted Engineering Services (%)	15%	pct	\$1,164,100	\$ 174,600
N	TOTAL INDIRECT	COST			I		\$1,339,000
CE	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
Π	REMEDIAL ACTIO	ON CON	STRUCTION - NOT APPLICABLE (Direct Costs)		1		
N			No New Construction Required	0	15	¢	\$
	Subtatal Romadial A	<sup>2</sup>	netruction Costs	0	LS	φ -	գ - «
	Direct Cost Continger	ncv and I	Julisted Engineering Services (%)	25%	net	\$0	φ - \$ -
	Contractor Bond Fee.	. Overhea	d. and Profit (%)	20%	pet	\$0	\$ -
	Washington State Sal	les Tax (%	6)	9.2%	pct	\$0	\$0
	TOTAL DIRECT C	COST					\$0
	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
	ANNUAL OPERAT	TION, MA	AINTENANCE, MONITORING, AND REPORTING				
		1	Electrical usage	1	yr	\$ 36,500	\$ 36,500
		2	Cell phone/GET system remote access charges	12	mo	<mark>\$ 369</mark>	\$ 4,428
		2	Cashan wasan	1		¢ 0.000	¢ 0.000
		3	Caldoll usage System monitoring/NDDES reporting	1	ea vr	<u>\$</u> 9,600 \$20,000	\$ 9,000 \$ 20,000
		4	System monitoring/141 DES reporting	1	y1	\$ 20,000	\$ 20,000
		5	$\Omega \& M$ labor and cost	1	vr	\$ 80,000	\$ 80.000
		6	NPDES annual renewal fee	1	vr	\$ 20,137	\$ 20.137
		7	Groundwater sampling	1	yrs	\$ 65,000	\$ 65,000
		8	Groundwater elevation monitoring	1	yrs	\$ 8,000	\$ 8,000
I		9	Surface water sampling	1	yrs	\$ 8,000	\$ 8,000
ζ.Ν		10	Reporting	1	yr	\$ 15,000	\$ 15,000
18	Subtotal Annual ON	<u>A&amp;M and</u>	d Reporting Cost	200/		¢266.700	<u>\$ 266,700</u>
N	Annual Monitoring C	lost Conti	Vers of Annual Monitoring	20%	pct vrs	\$200,700	\$ 55,500 \$ 11,520,000
	TOTAL ANNUAL O	<b>M&amp;M</b> Al	ND REPORTING COST	50	y13	ψ320,000	\$11.520.000
	Present-Worth Ann	ual OM&	<b>A And Reporting Cost</b> Presumed Discount Rate	0.6%	pct		\$10,333,000
	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
	NON-ROUTINE OF	PERATIO	ON, MAINTENANCE, MONITORING, AND REPORTI	NG		¢ 72.000	¢ 72.000
		1	Baseline groundwater/surface water sampling	1	event	\$ 73,000 \$ 150,000	\$ /3,000 \$ 150,000
		2	1.5 years quarterly confirmation sampling	6	event	\$ 130,000 \$ 73,000	\$ 130,000 \$ 138,000
		4	Cleanup completion report	1	LS	\$ 73,000 \$ 20.000	\$ 438,000 \$ 20.000
	Subtotal Non-Routin	ne OM&	M and Reporting Cost			+ _0,000	\$ 681,000
	Annual Monitoring C	Cost Conti	ngency and Unlisted Items (%)	20%	pct	\$681,000	\$ 136,200
	TOTAL NON-ROUT	TINE OM	&M AND REPORTING COST				\$817,000
	Present-Worth Non-	-Routine	OM&M and Reporting Cost Presumed Discount Rate	0.6%	pct		\$681,000
. T	ALTERNATIVE CO	OST SUN	AMARY				
AI	TOTAL PRESENT-V	WORTH	- REMEDIAL DESIGN, PLANNING, AND GENERAL COS	T (INDIRE	CT)		\$1,339,000
L.	TOTAL PRESENT-V	WORTH	REMEDIATION IMPLEMENTATION COST (DIRECT)				\$0
$\mathbf{O}$	TOTAL PRESENT-V	WORTH	OM&M COST (ANNUAL & NON-ROUTINE)				\$11,014,000
	TOTAL PRESEN	NT-WO	RTH COST				\$12,350,000
			Appropriate Cost Range (-30% - +50%)		TOTAL	\$ 8.650.000	\$ 18.530.000
0			FF F			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

F

#### Table B-1b Comparison of Alternative Costs Exposure Pathway Model: EPM K Esperance Sand, North Complex, PMG SWMU

Appendix B
November 21, 2018
Rev. 2

-

ALTERNATIVE 2		SOURCE AREA EISB CONTI	NUED OPERATION O	F GET SYS	STEM, AND	INSTITUTIONAL CONTROL
Client Location Project Estimator Report Date Last Updated QA Reviewer	*/**	Boeing BCA Everett Plant Upland Area Feasibility Study Piper Roelen 10/30/15 8/17/18 Jerry Ninteman	EPM Group Site Name Building Media Plume Length Max Plume Width Saturated Thickness	K Esperance N/A Groundwa 2,800 700 10 to 60	e Sand/Powde ater FT FT FT FT	er Mill Gulch
		* highlighted cells indicate inputs ** highlighted cells indicate input	s modified from original 2 ts modified from 2016 rev	015 FS estii vised estima	mates tes	
Site/Problem Desc	ription	Chlorinated solvents in groundwa chlorinated solvents in surface w	ater within the Esperance S ater in Powder Mill Creek	Sand Aquife at concentr	er beneath Po ations exceed	wder Mill Gulch and ding MTCA cleanup standards.
Proposed Remedia	ll Action	Injection of electron donor for en $\mu g/L$ ) in combination with contingroundwater, minimizing migratiand restoration, and protection of	hanced bioremediation of ued operation of GET sys on of chlorinated solvents human and ecological rec	groundwate tem for hyd in groundw ceptors.	er in detention raulic control vater to surfac	n basin source area (TCE > 100 l of chlorinated solvents in ce water, groundwater flushing
Alternative	1	Costs presented have an accuracy	v of +50% to -30% and are	suitable for	r comparing a	alternatives
Specific	2	Washington State Sales Tax is ap	plied to Direct Costs only			
Assumptions	3	30-year real discount rate of 0.6%	b per Office of Manageme	nt and Budg	get, Circular	A-94 Appendix C, Rev. Feb. 2018
	4	Installation of injection wells at 8	locations (3 depth interva	al wells each	n location)	
	5	Assume all wells installed to a d	epths of 30, 50, and 70 ft b	ogs (20 ft sc	reen each)	
	6	Well spacing at 15 ft OC crossgr	adient and 100 ft downgra	dient		
	7	Assume 3 injection events of electronic elec	ctron donor over 3-year pe	riod		
	8	Operation of existing GET system	n with 12 extraction wells			

- 9 Assumes GET system operation for 37 years (including 3 years of injection events) to reach TCE CUL of 4 µg/L
- 10 Assumes major equipment replacement at 20-year intervals
- 11 Annual groundwater and surface water monitoring
- 12 Six quarters of confirmation groundwater and surface water sampling

om quarter	s of communication ground water and surface water sumpring	
	<b>ΝΕΤΑΠ ΕΝ COST ΕSTIMATE</b>	

Type	Category	Item #	DETAILED COST ESTIMA Description	Quantity	Unit	τ	Unit Cost		Total
	DEMEDIAL DESIG	'N DI A	NNINC AND CENEDAL (Indirect Costs)						
	KEWIEDIAL DESIG	<b>JN, FLA</b>	Engineering/Proi Mgmt/Const Mgmt/Reporting						
		2	Cleanup action plan	1	LS	\$	30,000	\$	30,00
		3	Permits	1	LS	\$	15,000	\$	15,00
		4	Negotiate and implement institutional controls	1	LS	\$	10,000	\$	10,00
		5	Contract documents and contractor bidding/procurement	1	LS	\$	20,000	\$	20,00
		6	Cleanup action construction report	1	LS	\$	20,000	\$	20,00
		7	Engineering/Remedial Design	8%	pct	\$	797,000	\$	63,76
		8	Construction management/oversight	6%	pct	\$	797,000	\$	47,82
		9	Project management	5%	pct	\$	12,531,580	\$	626,57
Z		10	Ecology oversight	5%	pct	\$	12,531,580	\$	626,57
ō	Subtotal Remedial I	Design, P	lanning, and General Costs	1 = 0 (		1	¢1 450 500	\$	1,459,70
Ē	Indirect Contingency	and Unli	sted Engineering Services (%)	15%	pct		\$1,459,700	\$	219,00
	TOTAL INDIRECT	COST	<b>N</b> 1.4		<b>TT 1</b>	1 -			\$1,679,0
$\mathbf{T}_{\mathbf{I}}$	Category	Item #	Description	Quantity	Unit	ו	Unit Cost		Total
Z	REMEDIAL ACTIO	<u>ON CON</u>	STRUCTION - ELECTRON DONOR INJECTIONS (D	virect Costs)		1			
E		1	Install injection wells, wells/distribution	1	τc	¢	2 500	¢	2.50
Σ		2	Utility locate/clearing	1		\$	2,500	\$	2,50
Ц		5	Driller mobilization/demobilization	1	LS	\$	20,000	\$	20,00
L.		6	Drilling - injection wells (detention basin hotspot)	24	wells	\$	4,000	\$	96,00
Ų		1	weil development	24	wells	\$	500	\$	12,00
		8	ID w disposal Unjection of Electron Donor	/0	Drums	¢	200	ф	14,00
		9	Injection of Electron Donor	75	dave	¢	3 000	¢	225 00
		10	Durchase equipment/supplies for injection system seture	10	uays I C	¢ ¢	25,000	¢	223,00
		11	Materials and rentals for injection events	1	Lo	¢ ¢	23,000	ф ¢	23,00
		12	Water for injection events	285.000	gal	ф ¢	20,000	ф ¢	8 55
		13	Dopor for injection events	285,000	gai lbe	ф ¢	1.50	ф ¢	54.00
	Subtatal Domadial /	Action C	another that the costs	30,000	103	ψ	1.50	¢	517.10
	Direct Cost Continge	nev and	Unlisted Engineering Services (%)	25%	net	¢	517 100	φ ¢	120.30
	Contractor Bond Fee	Overher	ad and Profit (%)	23 /0	pet	¢ ¢	180.625	\$	36.10
	Washington State Sal	es Tax (	%)	<u> </u>	pet pet	\$	216 725	\$	19.90
	TOTAL DIRECT C	OST		7.270	per	Ψ	210,725	Ψ	\$702.00
	Category	Item #	Description	Quantity	Unit	Т	Unit Cost		Total
	ANNUAL OPERAT	TION M	AINTENANCE MONITORING AND REPORTING	Quantity	Unit		Jint Cost		Total
		1	Electrical usage	1	vr	¢	36 500	¢	36 50
		1	Call phone/GET system remote access charges	12	yı mo	ф ¢	36,300	ф ¢	4 42
		2	cen phone/GET system remote access charges	12	mo	φ	502	φ	4,420
		3	Carbon usage	1	0.0	¢	9,600	¢	9 60
		4	System monitoring/NPDES reporting	1	vr	\$	20,000	\$	20,000
		-	System monitoring for DES reporting	1	yı.	Ψ	20,000	Ψ	20,000
		5	O&M labor and cost	1	171	¢	80,000	¢	80.00
		5	NPDES appual renewal fee	1	yı vr	ф ¢	20,137	ф ¢	20,13
		7	Groundwater sampling	1	vrs	\$	65,000	\$	65.00
		8	Groundwater elevation monitoring	1	vrs	\$	8,000	\$	8.00
		9	Surface water sampling	1	vrs	\$	8,000	\$	8.00
		10	Reporting	1	vr	\$	15,000	\$	15.00
7	Subtotal Annual ON	A&M an	d Reporting Cost	· · ·		*		\$	266.70
	Annual Monitoring C	Cost Cont	ingency and Unlisted Items (%)	20%	pct		\$266,700	\$	53,30
3			Vegre of Annual Monitoring	25	vrs	1	\$320,000	\$	11,200,000
1&1			Teurs of Annual Monitoring	33	J10		· · ·	_	\$11.200.00
]M&I	<u>TOTAL ANNUAL O</u>	M&M A	ND REPORTING COST	33					511, 00,00
OM&I	<u>TOTAL ANNUAL O</u> Present-Worth Ann	M&M A ual OM&	ND REPORTING COST           &M and Reporting Cost         Presumed Discount Rate	0.6%	pct	+			\$10,075,00
OM&I	TOTAL ANNUAL O Present-Worth Ann <u>Catego</u> ry	M&M A ual OMa Item #	ND REPORTING COST  Main And Reporting Cost  Presumed Discount Rate  Description	0.6% Ouantity	pct Unit	<u> </u>	Unit Cost		\$10,075,00 <u>Tota</u> l
0M&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	M&M A ual OMa Item # PERATI	ND REPORTING COST M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORT	0.6% Ouantity ING	pct Unit	<u> </u>	Unit Cost		\$10,075,00 Total
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	M&M A ual OM Item # PERATI	ND REPORTING COST &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORT Baseline groundwater/surface water sampling	0.6% 0uantity ING 1	pct Unit event	<b>T</b>	Unit Cost 73,000	\$	<b>\$10,075,00</b> <b>Total</b> 73,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	<b>M&amp;M A</b> ual OM Item # PERATI 1 2	ND REPORTING COST &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORT Baseline groundwater/surface water sampling Quarterly groundwater sampling	0.6% 0uantity ING 1 9	pct Unit event event	<u>τ</u> \$ \$	Unit Cost 73,000 65,000	\$ \$	<b>\$10,075,00</b> <b>Total</b> 73,000 585,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	M&M A ual OMa Item # PERATI 1 2 3	Difference         Description           ON, MAINTENANCE, MONITORING, AND REPORT           Baseline groundwater/surface water sampling           Quarterly groundwater elevation monitoring	0.6% 0uantity ING 9 9	pct Unit event event event	<b>t</b>	Unit Cost 73,000 65,000 8,000	\$ \$ \$	<b>\$10,075,00</b> <b>Total</b> 73,000 585,000 72,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	<b>M&amp;M A</b> ual OMa Item # PERATI 1 2 3 4	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling         Quarterly groundwater sampling         Quarterly groundwater elevation monitoring         Quarterly surface water sampling	0.6% 0uantity ING 1 9 9	pct Unit event event event event	\$ \$ \$ \$	73,000 65,000 8,000 8,000	\$ \$ \$ \$	<b>11,003,00</b> <b>10,075,00</b> <b>Total</b> 73,000 585,000 72,000 72,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	<b>M&amp;M A</b> ual OMa Item # PERATI 1 2 3 4 5	ND REPORTING COST &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORT Baseline groundwater/surface water sampling Quarterly groundwater elevation monitoring Quarterly surface water sampling Quarterly surface water sampling GET system replacement cost	0.6% Ouantity ING 1 9 9 9	pct Unit event event event event event	<b>T</b> \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 8,000 150,000	\$ \$ \$ \$	<b>*10,075,00</b> <b>Total</b> 73,000 585,000 72,000 72,000 150,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	<b>M&amp;M A</b> ual OM Item # <b>PERATI</b> 1 2 3 4 5 6	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater sampling         Quarterly groundwater elevation monitoring       Quarterly surface water sampling         GET system replacement cost       1.5 years quarterly confirmation sampling	0.6% 0uantity ING 1 9 9 9 1 6	pct Unit event event event event event event	<b>t</b> \$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 8,000 150,000 73,000	\$ \$ \$ \$ \$	Total           73,000           585,000           72,000           72,000           150,000           438,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	<b>DM&amp;M A</b> <b>ual OM</b> . <b>Item #</b> <b>PERATI</b> 1 2 3 4 5 6 7	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater sampling         Quarterly groundwater sampling       Quarterly groundwater sampling         Quarterly surface water sampling       GET system replacement cost         1.5 years quarterly confirmation sampling       Cleanup completion report	0.6% Ouantity ING 9 9 9 1 6 1	pct Unit event event event event event LS	\$ \$ \$ \$ \$ \$ \$ \$	Jnit Cost           73,000           65,000           8,000           8,000           150,000           73,000           20,000	\$ \$ \$ \$ \$ \$ \$	<b>\$10,075,00</b> <b>Total</b> 73,000 585,000 72,000 72,000 150,000 438,000 20,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI	M&M A           ual OM.           Item #           PERATI           1           2           3           4           5           6           7           ne OM&	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater sampling         Quarterly groundwater sampling       Quarterly groundwater sampling         Quarterly surface water sampling       GET system replacement cost         1.5 years quarterly confirmation sampling       Cleanup completion report         M and Reporting Cost       Completion for the fourthermology	0.6% Ouantity ING 9 9 1 6 1	pct Unit event event event event event LS	\$ \$ \$ \$ \$ \$ \$ \$	Jnit Cost           73,000           65,000           8,000           8,000           150,000           73,000           20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C	M&M A ual OM. Item # PERATI 2 3 4 5 6 7 ne OM& Cost Cont	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater sampling         Quarterly groundwater sampling       Quarterly surface water sampling         Quarterly surface water sampling       GET system replacement cost         1.5 years quarterly confirmation sampling       Cleanup completion report         M and Reporting Cost       Ingency and Unlisted Items (%)         Ingency and Unlisted Items (%)       Correct	0.6% Ouantity ING 9 9 9 1 6 1 20%	pct Unit event event event event event LS pct	\$ \$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000 282,000 (1,410,000 282,000
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT	M&M A ual OM Item # PERATI 1 2 3 4 5 6 7 ne OM& Cost Cont TNE OM	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater sampling         Quarterly groundwater sampling       Quarterly surface water sampling         Quarterly surface water sampling       GET system replacement cost         1.5 years quarterly confirmation sampling       Cleanup completion report         M and Reporting Cost       Ingency and Unlisted Items (%)         [&& AND REPORTING COST       OMSM Cost         OMSM Colspan="2">Description	0.6% Ouantity ING 1 9 9 9 1 6 1 20%	pct Unit event event event event LS pct	\$ \$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,00 585,00 72,00 72,00 150,00 438,00 20,00 1,410,00 282,00 \$1,692,00 \$1,692,00 \$1,692,00
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	M&M A           ual OM.           Item #           PERATI           1           2           3           4           5           6           7           ne OM&           Cost Cont           TNE OM           -Routine	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater sampling         Quarterly groundwater elevation monitoring       Quarterly groundwater sampling         GET system replacement cost       1.5 years quarterly confirmation sampling         Cleanup completion report       M and Reporting Cost         ingency and Unlisted Items (%)       I&M AND REPORTING COST         OM&M and Reporting Cost       Presumed Discount Rate	0.6% 0uantity ING 1 9 9 9 1 6 1 20% 0.6%	pct Unit event event event event event LS pct	\$ \$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,00 585,00 72,00 72,00 150,00 438,00 20,00 1,410,00 282,00 \$1,692,00 \$1,548,00
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routii Annual Monitoring C TOTAL NON-ROUT Present-Worth Non	M&M A           ual OM.           Item #           PERATI           1           2           3           4           5           6           7           ne OM&           Cost Cont           TNE OM           -Routine	Tears of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling       Quarterly groundwater elevation monitoring         Quarterly groundwater elevation monitoring       Quarterly groundwater sampling         GET system replacement cost       1.5 years quarterly confirmation sampling         Cleanup completion report       M and Reporting Cost         ingency and Unlisted Items (%)       Items (%)         I&M AND REPORTING COST       OM&M and Reporting Cost	0.6% 0uantity ING 1 9 9 9 1 6 1 20% 0.6%	pct Unit event event event event LS pct pct	\$ \$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,00 585,00 72,00 72,00 150,00 438,00 20,00 1,410,00 282,00 \$1,692,00 \$1,548,00
OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non	M&M A           ual OM.           Item #           PERATI           1           2           3           4           5           6           7           ne OM&           Cost Cont           TNE OM           -Routine	ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling         Quarterly groundwater sampling         Quarterly groundwater elevation monitoring         Quarterly groundwater sampling         GET system replacement cost         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         I&M AND REPORTING COST         OM&M and Reporting Cost         Presumed Discount Rate	0.6%           Ouantity           ING           1           9           9           1           6           1           20%           0.6%	pct Unit event event event event LS pct pct	\$ \$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000 282,000 \$1,692,00 \$1,548,00
VT OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	M&M A ual OM Item # PERATI 2 3 4 5 6 7 7 ne OM& Cost Cont TINE OM -Routine	ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling         Quarterly groundwater sampling         Quarterly groundwater elevation monitoring         Quarterly surface water sampling         GET system replacement cost         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         I&M AND REPORTING COST         OM&M and Reporting Cost         Presumed Discount Rate	0.6% Ouantity ING 1 9 9 9 1 6 1 20% 0.6%	pct Unit event event event event LS pct	\$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000 \$1,692,000 \$1,548,0000 \$1,548,0000 \$1,548,0000 \$1,548,0000 \$1,548,0000 \$1,548,0000 \$1,548,0000 \$1,548,0000 \$1,548,00000 \$1,548,000000 \$1,548,00000000000000000000000000000000000
[AL] OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non ALTERNATIVE CC TOTAL PRESENT	M&M A ual OM Item # PERATI 1 2 3 4 5 6 7 7 ne OM& Cost Cont 7 <i>INE OM</i> -Routine	ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         GET system replacement cost         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         I&M AND REPORTING COST         OM&M and Reporting Cost         Presumed Discount Rate	0.6% Ouantity ING 1 9 9 9 1 1 6 1 20% 20% ST (INDIRE	pct Unit event event event event LS pct pct	\$ \$ \$ \$ \$ \$	<u>Jnit Cost</u> 73,000 65,000 8,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000 282,000 \$1,692,000 \$1,692,000 \$1,679,000
DTAL OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non ALTERNATIVE CC TOTAL PRESENT-Y TOTAL PRESENT-Y	M&M A ual OM Item # PERATI 1 2 3 4 5 6 7 7 ne OM & Cost Cont 7 <i>TNE OM</i> -Routine	ND REPORTING COST         &M and Reporting Cost         Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly surface water sampling         GET system replacement cost         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         I&M AND REPORTING COST         OM&M and Reporting Cost         Presumed Discount Rate	0.6% 0uantity ING 1 9 9 1 1 6 1 20% 0.6% ST (INDIRE	pct Unit event event event event LS pct pct	\$ \$ \$ \$ \$ \$	Jnit Cost           73,000           65,000           8,000           8,000           150,000           73,000           20,000           \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000 282,000 \$1,692,000 \$1,679,000 \$1,679,000 1,679,000
TOTAL OM&I	TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Present-Worth Non- TOTAL PRESENT-\ TOTAL PRESENT-\ TOTAL PRESENT-\	M&M A ual OM Item # PERATI 1 2 3 4 5 6 7 ne OM& 20st Cont 7 NE OM NORTH WORTH WORTH WORTH	ND REPORTING COST         &M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORT         Baseline groundwater/surface water sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         GET system replacement cost         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         I&M AND REPORTING COST         •OM&M and Reporting Cost         Presumed Discount Rate	0.6% 0uantity ING 1 9 9 1 1 6 1 20% 0.6% ST (INDIRE	pct Unit event event event event LS pct pct	\$ \$ \$ \$ \$ \$	Unit Cost 73,000 65,000 8,000 150,000 73,000 20,000 \$1,410,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$10,075,00 Total 73,000 585,000 72,000 72,000 150,000 438,000 20,000 1,410,000 282,000 \$1,692,000 \$1,679,000 \$702,000 1,679,000
# Table B-1c Comparison of Alternative Costs Exposure Pathway Model: EPM K Esperance Sand, North Complex, PMG SWMU

Appendix B	
November 21, 2018	
Rev. 2	

ALTERN	NATIVE 3		FOCUSED ISCO, CONTINUED	OPERATION OF GET	SYSTEM, A	AND INSTI	TUTIONAL CONTROLS
	Client Location Project Estimator Report Date Last Updated * QA Reviewer	*/**	Boeing BCA Everett Plant Upland Area Feasibility Study Piper Roelen 10/30/15 8/17/18 Jerry Ninteman	EPM Group Site Name Building Media Plume Length Max Plume Width Saturated Thickness	K Esperance 3 N/A Groundwat 2,800 700 10 to 60	Sand/Powde er FT FT FT FT	r Mill Gulch
			* highlighted cells indicate inputs ** highlighted cells indicate inputs	modified from original 20 modified from 2016 revis	15 FS estimat sed estimates	tes	
5	Site/Problem Descrip	tion	Chlorinated solvents in groundwat solvents in surface water in Powde	er within the Esperance Sa r Mill Creek at concentrat	and Aquifer b ions exceedir	eneath Powe ng MTCA cl	der Mill Gulch and chlorinated eanup standards.
1	Proposed Remedial A	ction	Injection of chemical oxidant (sod $> 250 \ \mu g/L$ ) in in combination with groundwater, minimizing migratio restoration, and protection of huma	ium persulfate) for contam h continued operation of G n of chlorinated solvents in an and ecological receptors	iinant oxidatio ET system fo n groundwate s.	on in ground or hydraulic er to surface	lwater in TCE focus areas (TCE control of chlorinated solvents in water, groundwater flushing and
1	Alternative	1	Costs presented have an accuracy	of +50% to -30% and are s	suitable for co	omparing alt	ernatives
5	Specific	2	Washington State Sales Tax is app	lied to Direct Costs only			
1	Assumptions	3	30-year real discount rate of 0.6%	per Office of Management	t and Budget,	, Circular A-	94 Appendix C, Rev. Feb. 2018
		4	Installation of injection wells at 27	locations in detention bas	in (3 depth in	nterval wells	each location)
		5	Installation of injection wells at 53	locations in South of Sea	way (2 depth	interval wel	ls each location)
		6	Installation of injection wells at 70	locations in North of Sea	way (2 depth	interval wel	ls each location)
		7	Assume wells installed to depths o	f 30, 50, and 70 ft bgs in d	letention basi	n (20-ft scre	en each)
		8	Assume wells installed to depths o	f 40 and 60 ft bgs South of	f Seaway (20	-ft screen ea	ch)
		9	Assume wells installed to depths o	f 45 and 60 ft bgs North of	f Seaway (15	-ft screen ea	ch)
		10	Well spacing at 15 ft OC crossgrad	lient and 30 ft downgradie	nt		
		11	Assume 6 injection events of sodiu	m persulfate and activatin	ig agent over	3-5-year per	riod
		12	Assume construction of iron/iron b	acteria pretreatment system	m for extracte	ed groundwa	ater with iron from ISCO
		13	Quarterly groundwater and surface	water monitoring during	injection peri	od	
		14	Operation of existing GET system	with 12 extraction wells			
		15	Assumes GET system operation for	or 30 years (including 3-5	years of injec	tion events)	to reach TCE CUL of 4 µg/L
		16	Assume O&M of iron/iron bacteria	a pretreatment facility and	biofouling m	naintenance of	of wells for 7 years
		17	Annual groundwater and surface w	ater monitoring			
		18	Six quarters of confirmation groun	dwater and surface water s	sampling		

			DETAILED COST ESTIMAT	L					
Cost	Category	Item #	Description	Quantity	Unit	1	Unit Cost		Total
Туре									
	REMEDIAL DESIG	GN, PLAI	NNING, AND GENERAL (Indirect Costs)						
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting						
		2	Cleanup action plan	1	LS	\$	30,000	\$	30,000
		3	Permits	1	LS	\$	20,000	\$	20,000
		4	Negotiate and implement institutional controls	1	LS	\$	10,000	\$	10,000
		5	Contract documents and contractor bidding/procurement	1	LS	\$	20,000	\$	20,000
		6	Cleanup action construction report	1	LS	\$	20,000	\$	20,000
		7	Engineering/Remedial Design	6%	pct	\$	6,600,000	\$	396,000
		8	Construction management/oversight	6%	pct	\$	6,600,000	\$	396,000
		9	Project management	5%	pct	\$	19,313,000	\$	965,650
	<u> </u>	10	Ecology oversignt	5%	pct	\$	19,313,000	\$	965,650
	Subtotal Remedial I	Design, Pl	anning, and General Costs	4 80/		r	¢2,022,200	\$	2,823,300
	Indirect Contingency	and Unlis	sted Engineering Services (%)	15%	pct		\$2,823,300	\$	423,500
	TOTAL INDIRECT	COST		<b>a</b>					\$3,247,000
	Category	Item #	Description	Quantity	Unit		Unit Cost		Total
$\Xi$	REMEDIAL ACTIO	ON CON	STRUCTION - OXIDANT INJECTIONS (Direct Costs)		r	1			
E		1	ISCO treatability study/pilot test	1	LS	\$	150,000	\$	150,000
		2	Install injection wells, wells/distribution						
Ę		3	Utility locates	1	LS	\$	7,500	\$	7,500
		4	Site prep/clearing/grubbing	1	LS	\$	350,000	\$	350,000
Ę		5	Driller mobilization/demobilization	1	LS	\$	20,000	\$	20,000
5				1.40	11	<i>•</i>	2 500	¢	100.000
13		6	Drilling - injection wells (Lot 9 ICE focus area)	140	wells	\$	3,500	\$	490,000
Ы		_	Drilling injustion wells (Desire Summer TOP for	107		¢	2 750	¢	207 500
			Drilling - injection wells (Boeing Seaway ICE focus area)	106	weils	¢	3,/50	\$	397,500
		8	Well development	81	wells	\$	4,000	\$ ¢	524,000
1		9	IDW disposel	527	Dree	\$ ¢	500	\$ ¢	103,500
1		10	ID w disposal ISCO materials/Injection of avidents	660	Drums	\$	200	\$	152,000
1		11	Initerials/Injection of oxidants	100	deve	¢	2 000	¢	1 440 000
		12	Durchese againment/supplies for injection system satur	480	uays	¢	25,000	ф Ф	1,440,000
		15	Materials and rentals for injection system setup	1	LS	¢	23,000	ф Ф	120,000
		14	Water for injection events	3120000	gol	ф ¢	20,000	ф Ф	93 600
		15	Ovidant for injection events	3120000	lbe	ф S	2.05	ф Х	639,600
		17	Construct Iron/Iron Bacteria Pre-treatment Facility	1	LS	\$	200,000	\$	200,000
	Subtotal Remedial A	Action Co	ensure from non Dactoria The dealment Facility		15	Ψ	200,000	\$	4 552 700
	Direct Cost Continge	nev and I	Inlisted Engineering Services (%)	25%	nct	T	\$4 552 700	\$	1 138 200
	Contractor Bond Fee	Overhea	d and Profit (%)	20%	nct		\$2,605,625	\$	521 100
	Washington State Sal	es Tax (%	()	9.2%	nct	\$	3 126 725	Ψ	\$287 700
	TOTAL DIRECT C	OST		712 70	per	7	0,020,020		\$6 500 000
		0.0-							Total
	Category	Item #	Description	Ouantity	Unit	1	Unit Cost		TOTAL
	Category ANNUAL OPERAT	Item #	Description MINTENANCE, MONITORING, AND REPORTING	Quantity	Unit	1	Unit Cost		10181
	Category ANNUAL OPERAT	Item #	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage	Quantity 1	Unit vr	\$	Unit Cost 36,500	\$	36,500
	Category ANNUAL OPERAT	Item #	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges	Quantity 1 12	Unit yr mo	\$ \$	Unit Cost 36,500 369	\$ \$	36,500 4,428
	Category ANNUAL OPERAT	Item #	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges	Quantity 1 12	Unit yr mo	1 \$ \$	Unit Cost 36,500 369	\$ \$	36,500 4,428
	Category ANNUAL OPERAT	Item #	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage	Quantity 1 12	Unit yr mo ea	\$ \$ \$	Unit Cost 36,500 369 9,600	\$ \$ \$	36,500 4,428 9,600
	Category ANNUAL OPERAT	Item # TON, MA	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	Quantity 1 12 1 1	Unit yr mo ea yr	\$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000	\$ \$ \$	36,500 4,428 9,600 20,000
	Category ANNUAL OPERAT	Item # TON, MA	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	<b>Quantity</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr	\$ \$ \$	Unit Cost 36,500 369 9,600 20,000	\$ \$ \$	36,500 4,428 9,600 20,000
	Category ANNUAL OPERAT	Item # TON, MA	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost	Quantity 1 12 1 1 1	Unit yr mo ea yr vr	\$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000	\$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000
	Category ANNUAL OPERAT	Item # TON, MA 1 2 3 4 5 6	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee	Quantity 1 12 1 1 1 1 1 1	Unit yr mo ea yr yr yr yr	\$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137	\$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000 20,137
	Category ANNUAL OPERAT	Item # TON, MA 1 2 3 4 5 6 7	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling	Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yr yr yrs	\$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000	\$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000 20,137 65,000
	Category ANNUAL OPERAT	Item # TON, MA 1 2 3 4 5 6 7 8	Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring	Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yr yrs yrs yrs	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Unit Cost 36,500 9,600 20,000 80,000 20,137 65,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000
	Category ANNUAL OPERAT	Item #           ION, MA           1           2           3           4           5           6           7           8           9	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling	Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yr yrs yrs yrs yrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 8,000	** **	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000
	Category ANNUAL OPERAT	Item #           ION, MA           1           2           3           4           5           6           7           8           9           10	Description INTEXANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Reporting	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yr yr yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000	** **	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 15,000
	Category ANNUAL OPERAT	Item #           ION, MA           1           2           3           4           5           6           7           8           9           10           10           10	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Reporting I Reporting Cost	Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yr yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000	**	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700
M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C	Item #           ION, MA           1           2           3           4           5           6           7           8           9           10           4M and           cost Conti	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting I Reporting Cost ngency and Unlisted Items (%)	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20%	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 8,000 15,000 \$266,700	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300
&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           10           10           10           10           10	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting I Reporting Cost ngency and Unlisted Items (%) Years of Annual Monitoring	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 \$266,700 \$320,000	** **	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 15,000 266,700 53,300 9,600,000
M&M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           4           5           6           7           8           9           10           4           5           6           7           8           9           10           4           5           6           7           8           9           10           4           5           5           6           7           8           9           10           4           5           6           7           8           9           10           4           5           5           6           7	Description INTERANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting I Reporting Cost ngency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$266,700 \$320,000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 15,000 266,700 9,600,000 <b>\$9,600,000</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and Continues	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting           I Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           CM and Reporting Cost           Presumed Discount Rate	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6%	Unit yr mo ea yr yr yr yrs yr yrs yr yrs yr yr yrs yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$266,700 \$320,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300 9,600,000 <b>\$9,600,000</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           AM and Cost Conti           M&M AN           ual OM&           Item #	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater sampling           Reporting           I Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yr pct pct Unit	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost	\$\$\$ \$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 266,700 53,300 9,600,000 \$9,600,000 \$8,762,000 Total
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           10           4           5           6           7           8           9           100           A&M and           ad OM&           Item #           PERATIONS	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater sampling           Reporting           I Reporting Cost           Ngency and Unlisted Items (%)           VD REPORTING COST           Wand Reporting Cost           Presumed Discount Rate           Description           N, MAINTENANCE, MONITORING, AND REPORTIN	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity G	Unit yr mo ea yr yr yrs yrs yrs yrs yrs pct Unit	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$266,700 \$320,000 Unit Cost 72,000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$7,62,000</b> <b>Total</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and cost Contii           wal OM& AM           Item #           PERATIC	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater sampling           Groundwater sampling           Reporting Cost           Ispervering Cost           Mand Reporting Cost           Mand Reporting Cost           Mand Reporting Cost           Presumed Discount Rate           Description           ON, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Bealgement Cost	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity G 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yrs yrs yrs yrs yrs pct Unit event event		Unit Cost	\$\$\$\$\$\$\$\$\$\$	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 9,600,000 \$9,600,000 \$9,600,000 \$9,600,000 Total
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and cost Conti           M&M AN           Item #           PERATIC           1           2           3	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           N, MAINTENANCE, MONITORING, AND REPORTING           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Riofouling Maintenance/Equipment Replacement	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Quantity G 1 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Unit yr mo ea yr yr yrs yrs yrs yrs yrs pct Unit event event event	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 15,000 \$2266,700 \$320,000 Unit Cost 73,000 150,000 60,000	** ** ********	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 15,000 266,700 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$7,62,000</b> <b>Total</b> 73,000 150,000
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and OM&           M&M AN           Val OM&           PERATIC           1           2           3           4	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater sampling           Groundwater devation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           DN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron/Biostemmer	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yr pct Unit event event event yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$320,000 Unit Cost 73,000 150,000 60,000 40,000		36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 15,000 266,700 9,600,000 \$ <b>9,600,000</b> <b>\$9,600,000</b> <b>\$3,300</b> <b>Total</b> 73,000 150,000 280,000
OM&M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and Cost Contit           Item #           PERATIO           1           2           3           4           2           3           4           2           3           4           2	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater sampling           Reporting           IReporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           DN, MAINTENANCE, MONITORING, AND REPORTING           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron/Biofouling Maintenance/Equipment Replacement	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs pct Unit event event yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 150,000 60,000 40,000 150,000 60,000 65,000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300 266,700 53,300 266,700 53,300 <b>53,300</b> <b>70,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$7,62,000</b> <b>150,000</b> <b>150,000</b> <b>150,000</b> <b>535,000</b> <b>150,000</b> <b>585,000</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           10           11           12           13           4           14           10           11           12           11           12           33           4           23           4           2           3	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           Wand Reporting Cost           Presumed Discount Rate           Description           N, MAINTENANCE, MONITORING, AND REPORTING           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater levation monitoring	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity G 1 1 7 7 9 9 9 9	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs pct Unit event event event event event event	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 8,000 \$266,700 \$320,000 \$320,000 Unit Cost 73,000 150,000 60,000 40,000 8,000 8,000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 53,300 9,600,000 \$9,600,000 \$9,600,000 \$7,000 150,000 420,000 280,000 58,700 0 73,000
OM&M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           10           11           2           12           13           4           5           6           7           8           9           10           14           12           3           4           2           3           4           2           3           4           2           3           4           2           3	Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Description Vears of Annual Monitoring VD REPORTING COST Maintenance/Equipment Replacement Iron/Biofouling Maintenance/Equipment Iron/Biofouling Maintenance/Equipment Iron/Biofouling Maintenance/Equipment Iron/Biofouling Maintenance/Equipment Iron/Biofouling Maintenance/Equipment Iron/Biofouling Maintenance/Equipment Iron/Biofouling I	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity G 1 1 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Unit yr mo ea yr yr yrs yrs yrs yrs yrs yrs	\$         \$	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 8,000 \$266,700 \$320,000 \$320,000 Unit Cost 73,000 150,000 60,000 40,000 8,00	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$7,000</b> 150,000 150,000 150,000 288,000 585,000 72,000
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and cost Conti           M&M An UAL           Item #           PERATIC           1           2           3           4           2           3           4           2           3           4           2           3           4	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           N, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron/Biofouling Maintenance/Equipment Replacement           Inon Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly surface water sampling           1.5 years quarterly confirmation sampling	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs pct Unit event event event event event event event event event	\$         \$	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 15,000 \$2266,700 \$320,000 Unit Cost 73,000 150,000 60,000 60,000 65,000 8,000 73,000 150,000 8,000 73,000 150	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 266,700 266,700 266,700 266,700 53,300 9,600,000 <b>\$8,762,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$3,762,000</b> <b>150,000</b> <b>\$55,000</b> 72,000 438,000
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and OM&           M&M AN           Val OM&           PERATIC           1           2           3           4           2           3           4           2           3           4           2           3           4           5           6	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater elevation monitoring           Quarterly groundwater confirmation sampling           1.5 years quarterly confirmation sampling           Cleanup completion report	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yr pct Unit event event event event event LS	s         s	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$320,000 150,000 150,000 150,000 60,000 150,000 65,000 8,000 8,000 8,000 150,000 65,000 8,000 8,000 150,000 100,000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 266,700 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and OM&           Item #           PERATION           1           2           3           4           2           3           4           2           3           4           5           6           6           6           6           6           6           7	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting           I Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           DN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly confirmation sampling           Cate opmoletion report           M and Reporting Cost	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yr pct Unit event event event event event event event event Event	s         s	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$320,000 000 \$320,000 150,000 60,000 40,000 65,000 8,000 8,000 150,000 65,000 8,000 150,000 65,000 8,000 150	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 15,000 266,700 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,60</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           12           33           4           5           6           7           8           9           10           12           33           4           22           34           4           2           3           4           2           3           4           2           3           4           5           6           6           6           10           10           10           12           33           4           5           6           6           6	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           eM and Reporting Cost           Presumed Discount Rate           Description           NN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly surface water sampling           Quarterly surface water sampling           Quarterly surface water sampling           Lise and Reporting Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sam	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs pct Unit event	S         S	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 8,000 \$2,000 \$266,700 \$320,000 \$2266,700 \$320,000 \$2,110,000 \$2,110,000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 15,000 266,700 53,300 9,600,000 \$9,600,000 \$8,762,000 Total 73,000 150,000 420,000 280,000 280,000 72,000 72,000 438,000 20,000 2,110,000
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and           ost Conti           Item #           PERATIC           1           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           5           6           ne OM&:           ost Conti	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           Wand Reporting Cost           Presumed Discount Rate           Description           NMAINTENANCE, MONTIORING, AND REPORTING           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           1.5 years quarterly confirmation sampling           1.6 years quarterly confirmation sampling           1.5 years quarterly confirmation sampling           1.6 yeany dunlisted Items (%)	Quantity  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs pct Unit even event	\$         \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 \$,000 \$266,700 \$320,000 0 0 0 0 0 0 0 0 0 0 0 0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,600</b> <b>150,000</b> <b>\$0,600</b> <b>150,000</b> <b>\$0,600</b> <b>150,000</b> <b>\$0,600</b> <b>150,000</b> <b>\$8,762,000</b> <b>150,000</b> <b>\$8,762,000</b> <b>150,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,532,000</b> <b>\$2,5</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-ROUTINE OI COTAL NON-ROUTINE OI TOTAL NON-ROUTINE OI	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and cost Contii           M&MAN           Item #           PERATIC           1           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           5           6           ne OM&:           cost Contii           TNE OM           Routine	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           Mand Reporting Cost           Presumed Discount Rate           Description           DN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Ino Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           1.5 years quarterly confirmation sampling           1.5 years quarterly confirmation sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           && MAND REPORTING COST           OM&M and Reporting Cost	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs pct Unit event event event event event event event event Event Event event event event Event	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 15,000 \$2266,700 \$320,000 Unit Cost 73,000 150,000 65,000 8,000 150,000 65,000 8,000 150,000 65,000 8,000 150,000 150,000 8,000 150,0		36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 266,700 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,000</b> <b>\$0,000</b> 280,000 585,000 72,000 438,000 20,000 2,110,000 2,110,000 <b>\$2,532,000</b> <b>\$3,159,000</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-ROUTI Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and OM&           Vertain Mark AN           val OM& AN           val OM& AN           PERATIC           1           2           3           4           2           3           4           2           3           4           5           6           ne OM&:           Foot Conti           ThE OM	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting           I Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           EM and Reporting Cost           Presumed Discount Rate           Description           NMINTENANCE, MONITORING, AND REPORTING           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron/Biofouling Maintenance/Equipment Replacement           Inon Pretreatment System O&M           Quarterly groundwater elevation monitoring           Quarterly groundwater sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           && AND REPORTING COST           OM&M and Reporting Cost           Presumed Discount Rate	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yr pct Unit event event event event event event event Event e	\$ <b>\$ \$ \$ \$</b> \$ <b>\$ \$ \$ \$</b> \$ <b>\$ \$ \$ \$</b> \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$320,000 Unit Cost 73,000 150,000 60,000 40,000 65,000 8,000 8,000 150,000 8,000 150,000 8,000 150,000 8,000 8,000 8,000 150,000 8,000 8,000 150,000 8,000 150,000 8,000 150,000 15	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 15,000 266,700 266,700 75,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,000</b> <b>\$0,000</b> 280,000 280,000 280,000 283,000 2,110,000 <b>\$2,532,000</b> <b>\$3,159,000</b>
OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and OM&           Ost Conti           Item #           PERATION           1           2           3           4           5           6           1           2           3           4           5           6           6           7           8           9           10           A&M and           2           3           4           5           6           6           6           6           6           7           7           8           9           10           2           3           4           5           <	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting           I Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           CM and Reporting Cost           Presumed Discount Rate           Description           DN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater elevation monitoring           Quarterly groundwater sampling           1.5 years quarterly confirmation sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           &M AND REPORTING COST           OM&M and Reporting Cost           Pr	Quantity 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs yrs pct Unit even	\$ <b>\$ \$ \$ \$ \$ \$ \$ \$</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$266,700 \$320,000 0 (0,000 40,000 60,000 40,000 65,000 8,000 3,000 50,000 8,000 150,000 65,000 8,000 3,000 20,000 150,000 100,000 1		36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 15,000 266,700 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$3,300</b> <b>70,000</b> <b>150,000</b> <b>\$0,000</b> <b>\$150,000</b> <b>\$3,762,000</b> <b>\$3,762,000</b> <b>\$3,532,000</b> <b>\$3,159,000</b>
TY DW&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Routin ALTERNATIVE CO	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           10           11           12           33           4           9           10           10           11           12           33           4           12           33           4           22           33           4           23           4           23           4           5           6           6           6           6           9           10           23           34           5           6           6           6           7           7           7           8           9           10	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           eM and Reporting Cost           Presumed Discount Rate           Description           NN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sampling           Quarterly surface water sampling           Quarterly surface water sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           &M AND REPORTING COST           OM&M and Reporting Cost           ngency and Unlisted Items (%)           &M	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yrs yrs yrs pct Unit event	\$ <b>\$ \$ \$ \$ \$ \$ \$ \$ \$</b> \$ <b>\$ \$ \$ \$ \$ \$</b>	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 8,000 \$266,700 \$320,000 0 \$266,700 \$320,000 0 0,000 40,000 60,000 8,000 8,000 8,000 150,000 60,000 8,000 8,000 150,000 8,000 8,000 150,000 8,000 150,000 8,000 150,000 8,000 150,000 8,000 150,000 150,000 8,000 150,000 150,000 8,000 150,000 100,000 1	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 53,300 9,600,000 53,300 9,600,000 53,300 73,000 Total 73,000 150,000 420,000 280,000 288,000 288,000 288,000 280,000 20,000 280,000 20,000 280,000 20,0000 20,000 20,0000 20,000 20,000 20,000 20,000 20,000 20
TAL OM&M	Category         ANNUAL OPERAT         Subtotal Annual ON         Annual Monitoring C         TOTAL ANNUAL O         Present-Worth Ann         Category         NON-ROUTINE OI         Subtotal Non-Routin         Annual Monitoring C         TOTAL NON-ROUTINE OI         Subtotal Non-Routin         Annual Monitoring C         TOTAL NON-ROUTINE OI         ALTERNATIVE CO         TOTAL PRESENT-Y         TOTAL DECENTY         TOTAL DECENTY	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           12           33           4           5           6           7           8           9           10           14           12           33           4           21           32           4           22           33           4           22           3           4           22           3           4           22           3           4           5           6           ne OM&           Cost Contine           OST SUN           WORTH I	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater sampling           Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           M and Reporting Cost           Presumed Discount Rate           Description           N, MAINTENANCE, MONITORING, AND REPORTING           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           1.5 years quarterly confirmation sampling           Cleaup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           & M AND REPORTING COST           OM&M and Reporting Cost           Presumed Discount Rate           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System O&M	Quantity	Unit yr mo ea yr yr yr yrs yrs yrs yrs yr pct Unit event	\$ <b>\$ \$ \$ \$ \$ \$ \$ \$ \$</b> \$ <b>\$ \$ \$ \$ \$ \$</b>	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 15,000 \$2266,700 \$320,000 <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5266,700</b> <b>5260,700</b> <b>5260,700</b> <b>527,000</b> <b>52,000</b> <b>52,000</b> <b>52,000</b> <b>52,000</b> <b>52,000</b> <b>52,000</b> <b>52,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>53,000</b> <b>5</b>		36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 15,000 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,600</b> <b>150,000</b> <b>\$0,600</b> <b>150,000</b> <b>\$0,600,000</b> <b>\$8,762,000</b> <b>70,000</b> <b>150,000</b> <b>\$8,762,000</b> <b>280,000</b> <b>\$85,000</b> <b>0</b> <b>280,000</b> <b>\$85,000</b> <b>150,000</b> <b>\$2,532,000</b> <b>\$3,159,000</b> <b>\$3,247,000</b> <b>6 500,000</b>
OTAL OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C 70TAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-ROUTINE OI CAL NON-ROUTINE OI TOTAL NON-ROUT Present-Worth Non- ROTAL PRESENT-Y TOTAL PRESENT-Y TOTAL PRESENT-Y	Item #           ION, MA           1           2           3           4           5           6           77           8           9           10           A&M and           cost Conti           M&MA I           11           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           2           3           4           5           6           ne OM&:           cost Conti           TNE OM           WORTH I           WORTH I           WORTH I	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           M and Reporting Cost           Presumed Discount Rate           Description           N, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Ino Pretreatment System O&M           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly confirmation sampling           Quarterly confirmation sampling           Quarterly confirmation sampling           Lis years quarterly confirmation sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           & MAND REPORTING COST      <	Quantity 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yrs yrs yrs yrs yrs pct Unit event eve	\$ <b>\$ \$ \$ \$ \$ \$ \$ \$ \$ \$</b>	Unit Cost 36,500 369 9,600 20,000 20,000 80,000 20,137 65,000 8,000 15,000 \$2266,700 \$320,000 Unit Cost 73,000 150,000 65,000 8,000 8,000 150,000 65,000 8,000 8,000 20,000 \$2,110,000 \$2,110,000		36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 266,700 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$8,762,000</b> <b>\$58,000</b> 72,000 280,000 280,000 2,110,000 2,110,000 <b>\$2,532,000</b> <b>\$3,159,000</b> <b>\$3,247,000</b> <b>6,500,000</b> <b>11,921,000</b>
TOTAL OM&M	Category         ANNUAL OPERAT         Subtotal Annual ON         Annual Monitoring C         TOTAL ANNUAL O         Present-Worth Ann         Category         NON-ROUTINE OI         Subtotal Non-Routin         Annual Monitoring C         TOTAL NON-ROUTINE OI         Subtotal Non-ROUTINE OI         Annual Monitoring C         TOTAL NON-ROUTINE OI         ALTERNATIVE C         TOTAL PRESENT-Y         TOTAL PRESENT-Y         TOTAL PRESENT-Y         TOTAL PRESENT-Y         TOTAL PRESENT-Y         TOTAL PRESENT-Y         TOTAL PRESENT-Y	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and           iost Conti           PERATIC           1           2           3           4           2           3           4           2           3           4           2           3           4           5           6           ne OM&:           iost Conti           TNE OM           WORTH I           WORTH I           WORTH O           WORTH O           WORTH O <td>Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&amp;M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           M and Reporting Cost           Presumed Discount Rate           Description           System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron/Pictreatment System O&amp;M           Quarterly groundwater elevation monitoring           Quarterly groundwater sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           &amp;&amp; MAND REPORTING COST           OM&amp;M           Quarterly groundwater sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           &amp;&amp; MAND REPORTING COST           OM&amp;M and Reporting Cost           n</td> <td>Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>Unit yr mo ea yr yr yr yrs yr pct Unit event event event event event event LS pct</td> <td>\$ <b>\$ \$ \$</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</td> <td>Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 \$,000 \$20,137 65,000 \$,000 \$320,000 Unit Cost 73,000 150,000 60,000 65,000 8,000 8,000 8,000 150,000 65,000 8,000 8,000 8,000 150,000 8,000 150,000 8,000 150,000 100,000</td> <td>80000000000000000000000000000000000000</td> <td>36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$7,000</b> 420,000 280,000 585,000 72,000 438,000 283,000 23,232,000 <b>\$3,247,000</b> <b>6,500,000</b> <b>11,921,000</b></td>	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting Cost           ngency and Unlisted Items (%)           VD REPORTING COST           M and Reporting Cost           Presumed Discount Rate           Description           System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron/Pictreatment System O&M           Quarterly groundwater elevation monitoring           Quarterly groundwater sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           && MAND REPORTING COST           OM&M           Quarterly groundwater sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           && MAND REPORTING COST           OM&M and Reporting Cost           n	Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yr pct Unit event event event event event event LS pct	\$ <b>\$ \$ \$</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 \$,000 \$20,137 65,000 \$,000 \$320,000 Unit Cost 73,000 150,000 60,000 65,000 8,000 8,000 8,000 150,000 65,000 8,000 8,000 8,000 150,000 8,000 150,000 8,000 150,000 100,000	80000000000000000000000000000000000000	36,500 4,428 9,600 20,000 80,000 20,137 65,000 8,000 8,000 8,000 53,300 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$7,000</b> 420,000 280,000 585,000 72,000 438,000 283,000 23,232,000 <b>\$3,247,000</b> <b>6,500,000</b> <b>11,921,000</b>
TOTAL OM&M	Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Present-Worth Non- Category NON-ROUTINE OI ALTERNATIVE CO TOTAL PRESENT-N TOTAL PRESENT-N TOTAL PRESENT-N TOTAL PRESENT-N	Item #           TON, MA           1           2           3           4           5           6           7           8           9           10           A&M and OM&           Item #           PERATION           PERATION           0x1 Conti           2           3           4           5           0x1 Conti           PERATION           0x2 Conti           1           2           3           4           5           0x3 Conti           PERATION           0x4 Conti           2           3           4           5           0x5 Conti           NORTH I           WORTH I           WORTH I           WORTH I	Description           INTENANCE, MONITORING, AND REPORTING           Electrical usage           Cell phone/GET system remote access charges           Carbon usage           System monitoring/NPDES reporting           O&M labor and cost           NPDES annual renewal fee           Groundwater sampling           Groundwater elevation monitoring           Surface water sampling           Reporting           1 Reporting Cost           ngency and Unlisted Items (%)           Years of Annual Monitoring           VD REPORTING COST           CM and Reporting Cost           Presumed Discount Rate           Description           DN, MAINTENANCE, MONITORING, AND REPORTIN           Baseline groundwater/surface water sampling           GET System Replacement Cost           Iron/Biofouling Maintenance/Equipment Replacement           Iron Pretreatment System 0&M           Quarterly groundwater sampling           Quarterly groundwater sampling           Quarterly groundwater sampling           1.5 years quarterly confirmation sampling           Cleanup completion report           M and Reporting Cost           ngency and Unlisted Items (%)           & M AND REPORTING COST           OM&M a	Quantity  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Unit yr mo ea yr yr yr yrs yrs yr pct Unit event eve	\$ <b>\$ \$ \$ \$ \$ \$ \$ \$ \$ \$</b>	Unit Cost 36,500 369 9,600 20,000 80,000 20,137 65,000 8,000 15,000 \$2266,700 \$320,000 Unit Cost 73,000 150,000 60,000 40,000 65,000 8,000 73,000 150,000 8,000 20,000 \$2,110,000	888 888 888 888 888 888 888 888 888 88	36,500 4,428 9,600 20,000 80,000 20,137 65,000 80,000 8,000 8,000 15,000 266,700 9,600,000 <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$9,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$0,600,000</b> <b>\$1,100,000</b> <b>\$3,159,000</b> <b>\$3,247,000</b> <b>6,500,000</b> <b>11,921,000</b>

## Table B-1d Comparison of Alternative Costs Exposure Pathway Model: EPM K Esperance Sand, North Complex, PMG SWMU

Appendix B	
November 21, 2018	
Rev 2	

ALTE	RNATIVE 4		FOCUSED EISB, CONTINUEI	OPERATION OF GET	SYSTEM,	AND INSTITUTIONAL CONTROLS
	Client Location Project Estimator Report Date Last Updated QA Reviewer	*/**	Boeing BCA Everett Plant Upland Area Feasibility Study Piper Roelen 10/30/15 8/17/18 Jerry Ninteman	EPM Group Site Name Building Media Plume Length Max Plume Width Saturated Thickness	K Esperance N/A Groundwat 2,800 700 10 to 60	Sand/Powder Mill Gulch ter FT FT FT
			* highlighted cells indicate inputs ** highlighted cells indicate input	modified from original 20 s modified from 2016 revi	15 FS estimates	ates S
	Site/Problem Description		Chlorinated solvents in groundwar solvents in surface water in Powde	ter within the Esperance S er Mill Creek at concentration	and Aquifer tions exceedi	beneath Powder Mill Gulch and chlorinated ing MTCA cleanup standards.
	Proposed Remedial	Action	Injection of electron donor for enh downgradient focus areas (TCE > operation of GET system for hydr chlorinated solvents in groundwat and ecological receptors.	anced bioremediation of g 250 µg/L or as needed to aulic control of chlorinate er to surface water, ground	groundwater reach cleanu d solvents in dwater flushi	in TCE source area (TCE >100 $\mu$ g/L) and p standards) in combination with continued groundwater, minimizing migration of ng and restoration, and protection of human
	Alternative	1	Costs presented have an accuracy	of +50% to -30% and are	suitable for c	comparing alternatives
	Specific	2	Washington State Sales Tax is app	lied to Direct Costs only		1 0
	Assumptions	3	30-year real discount rate of 0.6%	per Office of Managemer	nt and Budge	t, Circular A-94 Appendix C, Rev. Feb. 2018
		4	Installation of injection wells at 14	locations in detention ba	sin (3 depth i	interval wells each location)
		5	Installation of injection wells at 11	locations in South of Sea	away (2 depth	h interval wells each location)
		6	Installation of injection wells at 22	2 locations in North of Sea	away (2 depth	h interval wells each location)
		7	Assume wells installed to depths of	of 30, 50, and 70 ft bgs in (	detention bas	sin (20-ft screen each)
		8	Assume wells installed to depths of	of 40 and 60 ft bgs South of	of Seaway (20	0-ft screen each)
		9	Assume wells installed to depths of	of 45 and 60 ft bgs North of	of Seaway (13	5-ft screen each)
		10	Well spacing at 15 ft OC crossgra	dient and 100 ft downgrad	lient	
		11	Assume 3 injection events of elect	ron donor over 3-year per	riod	
		12	Assume construction of TOC and	metals pretreatment syster	m for extract	ed groundwater with TOC from EISB
		13	Operation of existing GET system	with 12 extraction wells		
		14	Assumes GET system operation for	or 30 years (including 3 ye	ears of injecti	ion events) to reach TCE CUL of $4 \mu g/L$
		15	Assume O&M of TOC pretreatme	nt facility and biofouling	maintenance	of wells for 13 years
		16	Assumes major equipment replace	ement at 20-year intervals		

- Annual groundwater and surface water monitoring
   Six quarters of confirmation groundwater and surface water sampling

	1		DETAILED COST ESTIMA	ГE					
Cost	Category	Item #	Description	Quantity	Unit		Unit Cost		Total
Туре									
	KENIEDIAL DESIG	JN, PLA	INIMING, AND GENERAL (Indirect Costs)		1	1		1	
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting	1	τc	¢	20,000	¢	20.000
		2	Dermits	1		ф Ф	30,000	с ¢	30,000
		4	Negotiate and implement institutional controls	1		\$	10,000	ф \$	10,000
		5	Contract documents and contractor bidding/procurement	1	LS	\$	20,000	\$	20.000
		6	Cleanup action construction report	1	LS	\$	20,000	\$	20,000
		7	Engineering/Remedial Design	6%	pct	\$	6,018,000	\$	361,080
		8	Construction management/oversight	6%	pct	\$	6,018,000	\$	361,080
		9	Project management	5%	pct	\$	19,973,160	\$	998,658
	-	10	Ecology oversight	5%	pct	\$	19,973,160	\$	998,658
	Subtotal Remedial I	Design, P	Planning, and General Costs		1	1		\$	2,829,500
	Indirect Contingency	and Unli	isted Engineering Services (%)	15%	pct		\$2,829,500	\$	424,400
-	TOTAL INDIRECT	r cosr		0	<b>X</b> X •/		U.V.O. /		\$3,254,000
	Category	Item #	Description	Quantity	Unit		Unit Cost		Total
Ĭ	REMEDIAL ACTI	ON CON	STRUCTION - ELECTRON DONOR INJECTIONS (Din	ect Costs)	IC	¢	150 000	¢	150,000
L		2	Lisb tracer study/pilot test	1	LS	\$	150,000	¢	150,000
LA		3	Utility locate	1	LS	\$	2 500	\$	2 500
Ż		4	Site prep/clearing/grubbing	1	LS	\$	150,000	\$	150,000
E		5	Driller mobilization/demobilization	1	LS	\$	20,000	\$	20.000
Z		6	Drilling - injection wells (Lot 9 TCE focus area)	44	wells	\$	3,500	\$	154,000
ΞĘ		7	Drilling - injection wells (Boeing Seaway TCE focus area	22	wells	\$	3,750	\$	82,500
Ы		8	Drilling - injection wells (detention basin TCE focus area)	42	wells	\$	4,000	\$	168,000
<b>N</b>		9	Well development	108	wells	\$	500	\$	54,000
		10	IDW disposal	240	Drums	\$	200	\$	48,000
		11	Injection of Electron Donor	150		¢	2 000	¢	150.000
		12	Injection crew/labor	150	days	\$	3,000	\$	450,000
		13	Purchase equipment/supplies for injection system setup	1	LS	\$	25,000	\$	25,000
		14	Water for injection events	5 #########	gal	¢ 2	20,000	ф 2	36.000
		15	Donor for injection events	330.000	lbs	\$	1.50	\$	495,000
		10		250,000	105	φ	1.50	Ψ	75,000
		17	Construct TOC and Metals Pre-treatment Facility	1	LS	\$	2,000,000	\$	2,000,000
	Subtotal Remedial A	Action C	onstruction Costs					\$	3,895,000
	Direct Cost Continge	ency and	Unlisted Engineering Services (%)	25%	pct		\$3,895,000	\$	973,800
	Contractor Bond Fee	, Overhea	ad, and Profit (%)	20%	pct		\$3,348,750	\$	669,800
	Washington State Sal	les Tax (9	%)	9.2%	pct	\$	4,018,550		\$369,700
	TOTAL DIRECT C	COST			-				\$5,908,000
	Category	Item #	Description	Quantity	Unit		Unit Cost		Total
	ANNUAL OPERAT	FION M	AINTENANCE MONITORING AND REPORTING						
		101, 11							
		1	Electrical usage	1	yr	\$	36,500	\$	36,500
		1 2	Electrical usage Cell phone/GET system remote access charges	1 12	yr mo	\$ <b>\$</b>	36,500 369	\$ \$	36,500 4,428
			Electrical usage Cell phone/GET system remote access charges	112	yr mo	\$ \$ \$	36,500 369	\$ \$	36,500 4,428
		1 2 3	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring (NPDES reporting	1 12 1	yr mo ea	\$ <mark>\$</mark> \$	36,500 369 9,600 20,000	\$ \$ \$	36,500 4,428 9,600 20,000
		1 2 3 4	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	1 12 1 1	yr mo ea yr	\$ \$ \$	36,500 369 9,600 20,000	\$ \$ \$	36,500 4,428 9,600 20,000
		1 2 3 4	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	1 12 1 1	yr mo ea yr	\$ \$ \$	36,500 369 9,600 20,000	\$ \$ \$	36,500 4,428 9,600 20,000
		1 2 3 4	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	1 12 1 1	yr mo ea yr yr	\$ \$ \$ \$	36,500 369 9,600 20,000	\$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000
		1 2 3 4 5 6	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee	1 12 1 1 1	yr mo ea yr yr yr	\$ <mark>\$ \$</mark> \$ \$	36,500 369 9,600 20,000 85,000 20,137	\$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137
		1 2 3 4 5 6 7	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling	1 12 1 1 1 1	yr mo ea yr yr yr yr yr yr	\$ <mark>\$ \$</mark> \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000	\$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000
		1 2 3 4 5 6 7 8	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring	1 12 1 1 1 1 1 1	yr mo ea yr yr yr yr yr yrs yrs yrs	s <mark>s s</mark> s <mark>s</mark> s s	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000
		1 2 3 4 5 6 7 8 9	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling	1 12 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 8,000
		1 2 3 4 5 6 6 7 7 8 9 9	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting	1 12 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yr	\$ <mark>\$ \$</mark> \$ <b>\$ \$</b> \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 8,000 15,000
	Subtotal Annual ON	1 2 3 4 5 6 6 7 7 8 9 9 10 <b>M&amp;M an</b>	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Groundwater sampling Reporting d Reporting d Reporting Cost	1 12 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 15,000 271,700
	Subtotal Annual ON Annual Monitoring C	1 2 3 4 5 6 6 7 8 9 9 10 <b>M&amp;M an</b> Cost Cont	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d <b>d Reporting Cost</b> ingency and Unlisted Items (%)	1 12 1 1 1 1 1 1 1 1 1 1 20%	yr mo ea yr yr yr yrs yrs yrs yr yr yr	\$ <mark>\$ \$</mark> \$ <b>\$ \$</b> \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 15,000 \$271,700	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 15,000 271,700 54,300
Μ	Subtotal Annual OM Annual Monitoring C	1 2 3 4 5 6 6 7 8 9 0 0 <b>M&amp;M an</b> Cost Cont	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) Years of Annual Monitoring	1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30	yr mo ea yr yr yr yrs yrs yrs yrs yr yr yr yr yr	\$ <mark>\$ \$</mark> \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 8,000 15,000 \$271,700 \$326,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 15,000 271,700 54,300 9,780,000
&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Depent March L	3 3 4 5 6 6 7 8 9 10 0 <b>M&amp;M an</b> Cost Cont	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST Parameter Content of the parameter of th	1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 15,000 \$271,700 \$326,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>\$9,780,000</b>
M&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category	101, 14 1 2 3 4 5 6 6 7 8 9 100 M&M an Cost Cont M&M A 100 100 100 100 100 100 100 10	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost Market State Stat	1 12 1 1 1 1 1 1 1 1 1 1 1 1 20% 30	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 8,000 15,000 \$271,700 \$326,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 15,000 271,700 54,300 9,780,000 <b>\$9,780,000</b> <b>\$9,780,000</b> <b>Total</b>
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O	1014,14 1 2 3 4 5 6 7 8 9 10 M&M an Cost Cont 0 0 0 M&M A 1 1 tem # PERATU	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost Main Cost ND REPORTING COST Years of Annual Monitoring ND REPORTING COST System Cost Description ON, MAINTENANCE, MONITORING, AND REPORTING	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 8,000 15,000 \$271,700 \$326,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 15,000 271,700 54,300 9,780,000 \$9,780,000 \$9,780,000 Total
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1           2         3           4         5           6         6           7         8           9         10           M&M an         Cost Cont           M&M An         a           Cost Cont         M&M An           M&M An         a           M&M An         a           M&M An         b           M&M An         b           Cost Cont         b           M&M An         b           Mathematical Antipological An	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling	1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 20,000 20,137 65,000 8,000 8,000 \$271,700 \$326,000 <b>Unit Cost</b> 73,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 15,000 9,780,000 9,780,000 <b>\$9,780,000</b> <b>\$9,780,000</b> <b>\$9,780,000</b> <b>\$9,780,000</b> <b>\$7,80,000</b> <b>Total</b>
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1         2           3         4           5         6           7         8           9         10           M&M an         Cost Cont           M&M An         10           M&M An         11           PERATI         2	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d d Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity NG 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$     \$ <td>36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 8,000 \$271,700 \$326,000 <b>Unit Cost</b> 73,000 150,000</td> <td>\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</td> <td>36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>\$8,926,000</b> <b>\$8,926,000</b> <b>Total</b></td>	36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 8,000 \$271,700 \$326,000 <b>Unit Cost</b> 73,000 150,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>\$8,926,000</b> <b>\$8,926,000</b> <b>Total</b>
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O	1         1         2           3         4         5           6         7         8           9         10         0           M&M an Cost Cont         0         0           M&M an Cost Cont         1         1           2         2         1         2	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST SM and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost	1 12 1 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity NG 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 8,000 \$271,700 \$326,000 Unit Cost 73,000 150,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 \$8,926,000 Total 73,000 150,000
OM&M	Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1           2         3           4         5           6         7           7         8           9         10           M&M An         Cost Cont           Cost Cont         Item #           PERATI         1           2         3	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST &M and Reporting Cost Presumed Discount Rate <u>Description</u> ON, MAINTENANCE, MONITORING, AND REPORTI Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement	1 12 1 1 1 1 1 1 1 1 1 20% 30 0.6% Ouantity NG 1 1 1 1 3	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	s s s s s s s s s s s s s s s s s s	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 15,000 \$326,000 <b>Unit Cost</b> 73,000 150,000 60,000	\$\$         \$\$<	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 15,000 9,780,000 <b>54</b> ,300 <b>9,780,000</b> <b>54</b> ,300 <b>9,780,000</b> <b>150,000</b> 780,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1           2         3           3         4           5         6           7         8           9         10           M&M an         Cost Cont           M&M An         1           Item #         PERATI           1         2           3         3	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST &M and Reporting Cost Description ON, MAINTENANCE, MONITORING, AND REPORTIT Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 15,000 \$2271,700 \$326,000 <b>Unit Cost</b> 73,000 150,000 60,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 15,000 271,700 54,300 9,780,000 <b>\$9,780,000</b> <b>\$9,780,000</b> <b>150,000</b> 780,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1           2         3           4         5           6         7           8         9           10         0           M&M an         Cost Cont           Item #         P           PERATI         1           2         3           4         4	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Description ON, MAINTENANCE, MONITORING, AND REPORTI Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M	1 12 1 1 1 1 1 1 1 1 1 1 20% 30 20% 30 0.6% VG 1 1 1 3 1 3	yr mo ea yr yr yr yrs yrs yrs yrs yrs yr yr <b>pct</b> <b>Unit</b> event event event yr	\$     \$ <td>36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 Unit Cost 73,000 150,000 60,000</td> <td>\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</td> <td>36,500 4,428 9,600 20,000 85,000 8,000 15,000 271,700 54,300 9,780,000 <b>\$9,780,000</b> <b>73,000</b> 150,000 73,000 150,000 1,300,000</td>	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 Unit Cost 73,000 150,000 60,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 15,000 271,700 54,300 9,780,000 <b>\$9,780,000</b> <b>73,000</b> 150,000 73,000 150,000 1,300,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1         2           3         4           5         6           7         8           9         10           M&M an         Cost Cont           M&M A         1           PERATI         2           3         3           4         4	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters)	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	S         S	36,500 369 9,600 20,000 85,000 8,000 15,000 \$271,700 \$326,000 Unit Cost 73,000 150,000 60,000 100,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 15,000 271,700 54,300 9,780,000 <b>59,780,000</b> <b>70tal</b> 730,000 150,000 1,300,000 1,235,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	1         1         2           3         4           5         6           7         8           9         10           M&M an         Cost Cont           Item #         PPERATI           1         2           3         4           5         6           77         8           9         10           0         M&M An           Cost Cont         1           1         2           3         4           5         6           6         6	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d <b>d Reporting Cost</b> <b>ingency and Unlisted Items (%)</b> <b>Years of Annual Monitoring</b> <b>ND REPORTING COST</b> <b>&amp;M and Reporting Cost</b> <b>Presumed Discount Rate</b> <b>Description</b> <b>ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement <b>TOC/Metals Pretreatment System O&amp;M</b> Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling</b>	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	S         S	36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 150,000 100,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 54,300 9,780,000 <b>54,300</b> 9,780,000 <b>54,300</b> <b>54,300</b> 9,780,000 <b>70,780</b> <b>73,000</b> <b>780,000</b> <b>1,300,000</b> <b>1,235,000</b> 585,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O	1         1         2           3         4         5           6         7         8           9         10         0           M&M An         2         2           0         M&M An         2           1         1         2           3         4         5           6         7         7           6         7         7	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST <u>Years of Annual Monitoring</u> ND REPORTING COST <u>SW and Reporting Cost</u> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater elevation monitoring	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yrs yrs yrs yrs	S         S	36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>59,780,000</b> <b>58,926,000</b> <b>730,000</b> 1,300,000 1,235,000 585,000 72,000
OM&M	Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O	1         1           2         3           4         5           6         7           7         8           9         10           M&M A         0           Wall OM#         1           1         2           3         4           5         6           7         7           8         6           7         8	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST <u>SM and Reporting Cost</u> Presumed Discount Rate <u>Description</u> ON, MAINTENANCE, MONITORING, AND REPORTING GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling Quarterly surface water sampling	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	S         S	36,500 369 9,600 20,000 20,137 65,000 8,000 8,000 \$271,700 \$326,000 Unit Cost 73,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 9,000 100,0000 100,00000000	\$\$ \$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>\$9,780,000</b> <b>\$9,780,000</b> <b>150,000</b> 730,000 1,235,000 1,235,000 72,000 72,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O	Active in the second se	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting <b>d Reporting Cost</b> <b>ingency and Unlisted Items (%)</b> <b>Years of Annual Monitoring</b> <b>ND REPORTING COST</b> <b>&amp;M and Reporting Cost</b> <b>Presumed Discount Rate</b> <b>Description</b> <b>ON, MAINTENANCE, MONITORING, AND REPORTI</b> Baseline groundwater/surface water sampling <b>GET System Replacement Cost</b> <b>Biofouling Maintenance/Equipment Replacement</b> <b>TOC/Metals Pretreatment System O&amp;M</b> <b>Quarterly groundwater sampling</b> <b>Quarterly groundwater sampling</b> Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling <b>Quarterly groundwater sampling</b> <b>Quarterly sourdwater sampling</b> <b>Quarterly confirmation sampling</b> <b>Cleapung completion sampling</b> <b>C</b>	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yrs yr yr <b>pct</b> <b>Unit</b> event event event event event event sert	S         S	36,500 369 9,600 20,000 20,137 65,000 8,000 \$,000 \$326,000 \$326,000 150,000 60,000 100,000 95,000 60,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 271,700 54,300 9,780,000 <b>54,300</b> <b>9,780,000</b> <b>54,300</b> <b>730,000</b> <b>150,000</b> <b>150,000</b> <b>150,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1,000</b> <b>1</b>
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI	1         1         2           3         4           5         6           7         8           9         10           M&M an         Cost Cont           M&M An         11           22         3           4         5           6         7           8         9           10         22           33         4           5         6           7         8           9         10           0         7           8         9           10         10	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling 1.5 years quarterly confirmation sampling Cleanup completion report	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yrs yrs yr	S         S	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$326,000 <b>Unit Cost</b> 73,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 73,000 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 15,000 271,700 54,300 9,780,000 <b>59,780,000</b> <b>780,000</b> 1,300,000 1,235,000 780,000 1,235,000 72,000 438,000 4,725,000
OM&M	Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI Subtotal Non-Routi Annual Monitoring C	1         1         2           3         4         5           6         7         8           9         10         0           M&M an         Cost Cont         1           1         2         3           4         3         3           M&M an         Cost Cont         1           1         2         3           4         5         6           7         8         9           10         2         3           4         5         6           7         8         9           10         0         0           ne OM& Cost Cont         0         0	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost Main Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIT Baseline groundwater, Surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yrs yrs yr yr event event event event event event event event event event	S         S	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$326,000 <b>\$271,700</b> \$326,000 <b>\$271,700</b> \$326,000 <b>\$271,700</b> \$326,000 <b>\$271,700</b> \$326,000 <b>\$271,700</b> \$326,000 <b>\$271,700</b> \$326,000 \$326,000 \$4,725,000 \$4,725,000	\$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 271,700 54,300 9,780,000 9,780,000 <b>59,780,000</b> <b>70,000</b> 1,300,000 1,235,000 585,000 72,000 438,000 20,000 4,725,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI Subtotal Non-Routi Annual Monitoring C TOTAL NON-ROUT	1         1           1         2           3         4           5         6           7         8           9         10           M&M An         2           0M&M An         2           0M&M An         3           0M An	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> <b>Wars of Annual Monitoring</b> <b>ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&amp;M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost</b> ingency and Unlisted Items (%) <i>Kem AND REPORTING COST</i>	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yr pct Unit event event event event event event Event Event	S         S	36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,00	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>389,780,000</b> <b>150,000</b> <b>70,000</b> 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,235,000 585,000 20,000 4,38,000 20,000 4,38,000 20,000 4,38,000 20,000 4,38,000 20,000
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O NON-ROUTINE O NON-ROUTINE O Subtotal Non-Routi Annual Monitoring C TOTAL NON-ROUT Present-Worth Non	1         1           2         3           4         5           6         7           7         8           9         10           M&M at an Cost Cont         11           2         33           4         5           6         7           7         8           9         10           1         2           33         4           5         6           6         7           8         9           10         2           31         4           5         6           6         7           8         9           10         0           ne OM&         Cost Cont           7INE OM         -Routine	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> <b>EXM and Reporting Cost</b> Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling I.5 years quarterly confirmation sampling Cleanup completion report <b>M and Reporting Cost</b> Presumed Discount Rate <b>TOC/Metals Pretreatment System O&amp;M</b> Quarterly groundwater sampling Quarterly groundwater sampling L.5 years quarterly confirmation sampling Cleanup completion report <b>M and Reporting Cost</b> <b>Presumed Discount Rate</b> <b>M and Reporting Cost</b> <b>Presumed Discount Rate</b> <b>Presumed Discount Rate</b> <b>P P P P P P P P P P P P P P P P P P P </b>	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yr event	S         S	36,500 369 9,600 20,000 85,000 8,000 8,000 8,000 \$271,700 \$326,000 \$2271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,0	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 <b>59,780,000</b> <b>59,780,000</b> <b>70,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,355,000</b> <b>585,000</b> <b>438,000</b> <b>20,000</b> <b>435,000</b> <b>55,670,000</b>
OM&M	Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O NON-ROUTINE O Subtotal Non-ROUTINE O TOTAL NON-ROUTI Present-Worth Non	1         1           2         3           4         5           6         7           7         8           9         10           M&M A         0           Wall OM#         1           1         2           3         4           5         6           7         8           9         10           1         2           3         4           5         6           6         7           8         9           10         0           12         3           4         5           6         7           8         9           10         0           10         0           10         0           10         0           11         2           33         4           5         6           7         8           9         10           10         0           10         0           10         0           10<	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST &M and Reporting Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling Quarterly surface water sampling Quarterly groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) <i>I&amp;M AND REPORTING COST</i> OM&M and Reporting Cost Presumed Discount Rate	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yrs yr yr event even	S         S	36,500 369 9,600 20,000 85,000 20,137 65,000 8,000 8,000 \$271,700 \$326,000 \$2271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 271,700 54,300 9,780,000 <b>54,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,000</b> <b>754,000</b> <b>754,000</b> <b>755,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>74,725,000</b> <b>945,000</b> <b>\$5,670,000</b> <b>\$5,670,000</b>
OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI Subtotal Non-ROUTI Annual Monitoring C TOTAL NON-ROUT Present-Worth Non	1         1           2         3           4         5           6         7           8         9           10         1           1         2           33         4           5         6           7         8           9         10           1         2           3         4           5         6           7         7           8         9           10         10           7         8           9         10           7         8           2         2           3         3	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling 1.5 years quarterly confirmation sampling 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost Fresumed Discount Rate Mand Reporting Cost Mand Reporting Cost Mand Reporting Cost Mand Reporting Cost Presumed Discount Rate Mand Reporting Cost Cost ingency and Unlisted Items (%) <i>Remoting Cost</i> Presumed Discount Rate	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yrs yr yr <b>pct</b> <b>Unit</b> event eve	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	36,500 369 9,600 20,000 85,000 8,000 \$,000 \$271,700 \$326,000 \$2271,700 \$326,000 \$271,700 \$326,000 \$2000 \$326,000 150,000 60,000 \$5,000 60,000 \$5,000 \$5,000 \$3,000 \$2,000 \$3,000\$\$3,000\$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 271,700 54,300 9,780,000 <b>39,780,000</b> <b>39,780,000</b> <b>150,000</b> <b>150,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>1300,000</b> <b>135,000</b> <b>55,000</b> <b>945,000</b> <b>\$5,670,000</b> <b>\$4,307,000</b>
T OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI Subtotal Non-Routi Annual Monitoring C TOTAL NON-ROUT Present-Worth Non	1         1           2         3           4         5           6         7           8         9           10         0           M&M an         Cost Cont           0         0           M&M A         0           0         0           M&M A         0           0         1           1         2           3         3           4         5           6         7           8         9           10         2           3         3           4         5           6         7           8         9           10         0           ne OM& Cost Contt         7           8         9           10         0           Cost Contt         7           No Sot Contt         7           OST SUI         7	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling 1.5 years quarterly confirmation sampling 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost Presumed Discount Rate MMARY	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yrs yrs yr pct Unit event event event event event event event event event event event	x x     x x     x x     x x       x x     x x     x x     x x	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$2271,700 \$326,000 \$271,700 \$326,000 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000 73,000 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 271,700 54,300 9,780,000 9,780,000 <b>59,780,000</b> <b>150,000</b> <b>150,000</b> <b>1300,000</b> <b>1,235,000</b> 585,000 72,000 438,000 20,000 <b>4,725,000</b> <b>\$5,670,000</b> <b>\$4,307,000</b>
AL OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI NON-ROUTINE OI TOTAL NON-ROUT Present-Worth Non ALTERNATIVE CO TOTAL PRESENT-1 TOTAL PRESENT-1	1         1           1         2           3         4           5         6           7         8           9         10           M&M A         0           Osst Cont         1           1         2           3         4           0         10           1         2           3         4           5         6           7         8           9         10           ne OM&         Cost Cont           TINE OM         -Routine           OST SUI         WORTH	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting d Reporting Cost Years of Annual Monitoring ND REPORTING COST Water System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling L5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) Carterly groundwater sampling Cleanup completion report M and Reporting Cost ON MAINTENANCE (%) Cleanup Cost Cleanup Cleanup Cost Cleanup	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yr pct Unit event event event event event event Event event Event event event Event	s     s <td>36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 8,000 \$4,725,000</td> <td>\$\$ \$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</td> <td>36,500 4,428 9,600 20,000 85,000 8,000 8,000 54,300 9,780,000 <b>54,300</b> 9,780,000 <b>54,300</b> <b>59,780,000</b> <b>70,780,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b></td>	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 8,000 \$4,725,000	\$\$ \$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 54,300 9,780,000 <b>54,300</b> 9,780,000 <b>54,300</b> <b>59,780,000</b> <b>70,780,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>1,300,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>72,000</b> <b>585,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b>
DTAL OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O NON-ROUTINE O NON-ROUTINE O TOTAL NON-ROUT Present-Worth Non ALTERNATIVE C TOTAL PRESENT-Y TOTAL PRESENT-Y TOTAL PRESENT-Y	Image: Content of the second	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> <b>Want Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling 0.5 years quarterly confirmation sampling Cleanup completion report <b>M and Reporting Cost</b> ingency and Unlisted Items (%) <b>I (M AND REPORTING COST</b> <b>OM&amp;M and Reporting Cost</b> Presumed Discount Rate <b>MMARY</b> REMEDIAL DESIGN, PLANNING, AND GENERAL COST REMEDIAL DESIGN, PLANNING, ND GENERAL COST	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yrs yr pct Unit event event event event event event event LS pct	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 8,000 \$4,725,000	\$\$ \$\$ \$\$\$\$\$\$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 8,000 8,000 8,000 271,700 54,300 9,780,000 780,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 585,070,000 \$5,677,000 \$5,677,000 \$5,677,000
TOTAL OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O NON-ROUTINE O NON-ROUTINE O TOTAL NON-ROUT Present-Worth Non ALTERNATIVE C TOTAL PRESENT-1 TOTAL PRESENT-1 TOTAL PRESENT-1	Image: Content of the second	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater elevation monitoring Surface water sampling Reporting Cost ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST SM and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling 1.5 years quarterly confirmation sampling Cleanup completion report EM and Reporting Cost ingency and Unlisted Items (%) I&M AND REPORTING COST OM&M and Reporting Cost Presumed Discount Rate MMARY REMEDIAL DESIGN, PLANNING, AND GENERAL COST REMEDIAL DESIGN, PLANNING, AND GENERAL COST	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yr yrs yrs yr yr <u>pct</u> <u>Unit</u> event	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 100,000	\$\$ \$\$ \$\$\$\$\$\$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 271,700 54,300 9,780,000 <b>54,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,300</b> <b>754,000</b> <b>754,000</b> <b>755,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>74,000</b> <b>72,000</b> <b>72,000</b> <b>74,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,000</b> <b>72,00</b>
TOTAL OM&M	Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE O NON-ROUTINE O ON-ROUTINE O TOTAL NON-ROUT Present-Worth Non ALTERNATIVE C TOTAL PRESENT- TOTAL PRESENT- TOTAL PRESENT- TOTAL PRESENT-	ACT SUL ACT	Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting GET system O&M labor and cost NPDES annual renewal fee Groundwater sampling Groundwater sampling Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling GET System Replacement Cost Biofouling Maintenance/Equipment Replacement TOC/Metals Pretreatment System O&M Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling 1.5 years quarterly confirmation sampling Cleanup completion report Mand Reporting Cost ingency and Unlisted Items (%) <i>Kem AND REPORTING COST</i> • OM&M and Reporting Cost Presumed Discount Rate MMARY REMEDIAL DESIGN, PLANNING, AND GENERAL COST REMEDIATION IMPLEMENTATION COST (DIRECT) OM&M COST (ANNUAL & NON-ROUTINE) <b>RTH COST</b>	1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr mo ea yr yr yr yrs yrs yrs yrs yr pct Unit event ev	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	36,500 369 9,600 20,000 85,000 8,000 8,000 \$271,700 \$326,000 150,000 60,000 100,000 95,000 60,000 100,000 95,000 60,000 \$4,725,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	36,500 4,428 9,600 20,000 85,000 20,137 65,000 8,000 271,700 54,300 9,780,000 9,780,000 9,780,000 150,000 1,300,000 1,300,000 1,300,000 1,300,000 1,300,000 1,235,000 945,000 945,000 945,000 945,000 33,254,000 55,670,000 33,254,000 55,908,000 13,233,000 22,400,000

#### Table B-1e Comparison of Alternative Costs Exposure Pathway Model: EPM K Esperance Sand, North Complex, PMG SWMU

ALTER	RNATIVE 5		DYNAMIC GROUNDWATER	RECIRUCLATION AN	D SOURC	E AREA E	EISB			
	Client Location Project		Boeing BCA Everett Plant Upland Area Feasibility Study	EPM Group Site Name Building	K Esperance N/A	Sand/Powe	ler Mi	ill Gulch		
	Estimator		Piper Roelen	Media	Groundwa	ter				
	Report Date		11/21/18	Plume Length	2,800	FT				
	Last Updated		10/5/18	Max Plume Width	700	FT				
	QA Reviewer		Jerry Ninteman	Saturated Thickness	10 to 60	FT				
	Site/Problem Descri	iption	Chlorinated solvents in groundwa chlorinated solvents in surface wa	ater within the Esperance S ater in Powder Mill Creek	Sand Aquife at concentra	r beneath P ations exce	owde eding	r Mill Gulo MTCA cle	ch ar anuj	id o standards.
	Proposed Remedial	Action	Conversion of existing GET syste and restoration of the downgradie and minimizing migration of chlo enhanced bioremediation of grou	em into dynamic groundwa ent plume, hydraulic captu rinated solvents in ground ndwater in detention basin	ater recircul re and contr lwater to sur source area	ation (DGF ol of chlori face water (TCE > 10	R) syst inated . Injec 00 μg/	tem for enh solvents ir tion of eleo (L).	ance gro ctror	ed flushing undwater, a donor for
	Alternative	1	Costs presented have an accuracy	of +50% to -30% and are	suitable for	comparing	g alter	natives		
	Specific	2	Washington State Sales Tax is an	plied to Direct Costs only						
	Assumptions	3	30-year real discount rate of 0.6%	b per Office of Manageme	nt and Budg	et. Circula	r A-94	4 Appendix	C. 1	Rev. Feb. 201
		4	Installation of groundwater inject	ion at 9 locations along pe	rimeter of d	lowngradie	nt plu	me (up to 6	65 ft	deep)
		5	Installation of 2 new extraction w	ells in the downgradient p	lume location	ons in Sout	h of S	eaway (up	to 6	5 ft deep)
		6	Installation of bio injection wells	at 14 locations in detentio	n basin (3 d	epth interv	al wel	ls each loc	atior	1)
		7	Assume EISB injection wells inst	talled to depths of 30, 50, a	and 70 ft bg	s in detenti	on bas	sin (20-ft s	creei	n each)
		8	Assume 4 new monitoring wells	to monitor DGR performa	nce					
		9	Assume 3 injection events of elect	ctron donor over 3-year pe	riod					
		10	Assume DGR pilot study costs in	cluded into final remedy c	osts, except	for additio	onal la	bor/reporti	ng/la	ab costs
		11	Assume drinking water standards	to be met at standard poir	t of complia	ance				
		12	Assume 3 injection events of elect	ctron donor over 3-year pe	riod					
		13	Assume construction of TOC and	l metals pretreatment syste	m for extrac	cted ground	lwater	with TOC	froi	n EISB
		14	Operation of DGR system with 1	4 extraction wells and 9 in	jection well	s, with pote	ential	addition of	5 ad	ditional well
		15	Assumes 23 years for EISB injec	tions and subsequent moni	toring to rea	ach TCE C	UL of	4 μg/L in	the s	ource area
		16	Assumes DGR system operation	for 15 years to reach TCE	CUL of 4 µ	g/L in dow	ngrad	ient plume		
		17	Assumes major equipment replace	ement at 20-year intervals						
		18	Annual groundwater and surface	water monitoring						
		19	Six quarters of confirmation grou	indwater and surface water	sampling					
			DETAILED	COST ESTIMA	ТЕ					
Cost	Category	Item #	Descripti	on	Quantity	Unit	U	nit Cost		Total
Type	REMEDIAL DESIG	GN, PL	ANNING, AND GENERAL (Ind	irect Costs)		1				
		1	Engineering/Proj Mgmt/Const M	gmt/Reporting						
		2	Cleanup action plan		1	LS	\$	30,000	\$	30,000
		3	Negatista and implement in the		1		\$	10,000	\$	30,000
		4	Contract documents and contra	ctor hidding/procurement	1		ф S	20,000	s s	20,000
		6	Cleanup action construction rer	ort/O&M manual	1	LS	\$	30,000	\$	30,000
		7	Engineering/Remedial Design		8%	pct	\$ 4	4,033,000	\$	322,640
		8	Construction management/over	sight	6%	pct	\$ 4	4,033,000	\$	241,980
		9	Project management		5%	pct	\$ 12	2,526,620	\$	626,331
		10	Ecology oversight		5%	pct	\$ 12	2,526,620	\$	626,331
	Subtotal Remedial	Design,	listed Engineering Services (9/)		159/	pot	ć	1 027 200	\$	1,927,300
	TOTAL INDIPECT	COST	instea Engineering Services (%)		15%	pci	1 3	1,927,500	\$	\$2 216 000
	Category	Item #	Descripti	on	Quantity	Unit	U	nit Cost		Total
	REMEDIAL ACTIO	ON CO	NSTRUCTION - DGR SYSTEN	I AND ELECTRON DO	NOR INIE	CTIONS (	Direc	t Costs)		1 Juli
		1	Contractor mobilization/demobili	ization	1	LS	\$	30,000	\$	30,000
		2	DGR Pilot Study		1	LS	\$	80,000	\$	80,000

		1	Engineering/Proj Mgmt/Const Mgmt/Reporting						
		2	Cleanup action plan	1	LS	\$	30,000	\$	30,000
		3	Permits	1	LS	\$	30,000	\$	30,000
		4	Negotiate and implement institutional controls	0	LS	\$	10,000	\$	-
		5	Contract documents and contractor bidding/procurement	1	LS	\$	20,000	\$	20,000
		6	Cleanup action construction report/O&M manual	1	LS	\$	30.000	\$	30.000
		7	Engineering/Remedial Design	8%	nct	ŝ	4 033 000	ŝ	322 640
		8	Construction management/oversight	6%	pet	¢	4 033 000	¢	241.980
		0	Desired management/oversight	50/	per	ዓ 6 1	4,035,000	ф с	241,980
		9	Project management	5%	pet	51	2,526,620	\$	626,551
		10	Ecology oversight	5%	pct	\$1	2,526,620	\$	626,331
	Subtotal Remedial	Design, I	Planning, and General Costs			-		\$	1,927,300
	Indirect Contingency	and Unl	isted Engineering Services (%)	15%	pct		\$1,927,300	\$	289,100
	TOTAL INDIREC	T COST							\$2,216,000
	Category	Item #	Description	Quantity	Unit	U	nit Cost		Total
	REMEDIAL ACTI	ON CON	STRUCTION - DCR SYSTEM AND FLECTRON DOM	JOR INIE(	TIONS (	Dire	rt Costs)		
	REMEDIAL ACT	1	Contractor mobilization/demobilization	1		¢	20,000	¢	20,000
		1	contractor mobilization/demobilization	1	LO	φ	50,000	φ	50,000
			DCD D'1 ( C) 1		1.0	¢	00.000	¢	00,000
		2	DGK Phot Study	1	LS	2	80,000	Э	80,000
			Install injection and extraction wells/distribution system						
		3	Utility locate	1	LS	\$	2,500	\$	2,500
		4	Site prep/clearing/grubbing	1	LS	\$	75,000	\$	75,000
		5	Driller mobilization/demobilization	1	LS	\$	3,000	\$	3,000
7		6	Drilling - DGR extraction well installation	4	well	\$	20,000	\$	80,000
		7	Drilling - DGR injection well installation (shallow)	4	well	\$	26.000	\$	104.000
Ĭ		8	Drilling - DGR injection well installation (deen)	8	well	ŝ	15,000	ŝ	120,000
E		0	Drilling Monitoring wells for DGP monitoring	4	well	¢	12,000	¢	48,000
		10	Diming - Monitoring wens for DOK monitoring	4	Damage	ф ¢	12,000	ф ¢	40,000
		10	iD w disposal	00	Drums	ې ب	200	\$	12,000
		11	Well vaults, pumps, air vac assemblies	1	LS	\$	210,000	\$	210,000
Ŧ		12	Transfer tank, valving, and pump with controls	1	LS	\$	18,000	\$	18,000
1 2		13	Directional drilling for pipe/conduit up to ridge	1	LS	\$	100,000	\$	100,000
E T		14	Water line, electrical, communications trenching	4200	LF	\$	16	\$	67,200
		15	Water nining	4200	LE	\$	60	s	252,000
P P		16	Floatrical conduit and cable	2400	LE	¢	45	¢	108,000
		10		2400		ф ф	45	ф ф	108,000
		17	Communications conduit and cable	4200	LF	\$	65	\$	273,000
		18	Trench repaying/restoration	20000	SF	\$	5	\$	100,000
		19	Electrical equipment upgrades/transformer/electrician	1	LS	\$	70,000	\$	70,000
		20	Instrumentation and controls; control panels	1	LS	\$	150,000	\$	150,000
		21	GAC polishing vessels	2	each	\$	12,500	\$	25,000
		22	DGR system startup and testing	1	IS	ŝ	20,000	ŝ	20,000
		22	FISP Injection Well Installation	1	25	Ψ	20,000	Ψ	20,000
			EISB Injection wen instanation			<i>•</i>	1 000	<i>•</i>	1 000
		23	Utility locate/clearing	1	LS	\$	1,000	\$	1,000
		24	Driller mobilization/demobilization	1	LS	\$	3,000	\$	3,000
		25	Drilling - injection wells (detention basin hotspot)	24	wells	\$	4,000	\$	96,000
		26	Well development	24	wells	\$	1,000	\$	24,000
		27	IDW disposal	70	Drums	\$	200	\$	14,000
			Injection of Electron Donor			Ŧ			,
		28	Injection crew/labor	75	days	\$	3 000	\$	225 000
		29	Purchase equipment/supplies for injection system setup	1	IS	ŝ	25,000	ŝ	25,000
		20	Materials and rentals for injection events	2	Lo	¢	20,000	¢	60,000
		30	Water for injection events	205.000	event	9	20,000	¢ ¢	00,000
		51	water for injection events	285,000	gai	\$	0.05	\$	8,550
		32	Donor for injection events	36000	IDS	\$	2	\$	54,000
		33	Site Restoration - slope/buffer plantings, general cleanup	1	LS	\$	25,000	\$	25,000
	Subtotal Remedial	Action C	onstruction Costs					\$	2,483,300
	Direct Cost Continge	ency and	Unlisted Engineering Services (%)	25%	pct		\$2,483,300	\$	620,800
	Contractor Bond Fee	e, Overhe	ad, and Profit (%)	20%	pct		\$2,638,375	\$	527,700
	Washington State Sa	les Tax (	%)	9.2%	pct	\$	3,166,075		\$291,300
	TOTAL DIRECT (	COST							\$3,923,000
	Category	Item #	Description	Quantity	Unit	T	nit Cost		Total
	ANNUAL OPERA'	TION M	AINTENANCE MONITOPING AND DEPODTING	Quantity	Cint				1000
	AINIOAL OI EKA	1	Electrical usage	1	VE	¢	44 500	¢	44 500
		2	Coll phone/GET sustem remote access charges	12	y1 mo	¢	360	¢	4 4 2 8
		2	Con phone OE1 system remote access enarges	12	110	Ŷ	509	φ	4,420
		l -		-		_	0.000		0.665
		3	Carbon usage	1	yr	\$	9,600	\$	9,600
	1	4	System monitoring/NPDES reporting	1	yr	\$	20,000	\$	20,000
					1	1			
1		5	DGR system O&M labor and cost	1	vr	\$	95 000	\$	95 000
		5	DGR system O&M labor and cost	1	yr	\$ \$	95,000 20 137	\$ \$	95,000 20 137
		5677	DGR system O&M labor and cost NPDES annual renewal fee	1	yr yr	\$ \$	95,000 20,137	\$ \$	95,000 20,137
		5 6 7	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR)	1 1 1	yr yr yr	\$ \$ \$	95,000 20,137 65,000	\$ \$ \$	95,000 20,137 65,000
		5 6 7 8	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR)	1 1 1	yr yr yr yr	\$ \$ \$ \$	95,000 20,137 65,000 8,000	\$ \$ \$ \$	95,000 20,137 65,000 8,000
		5 6 7 8 9	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR)	1 1 1 1	yr yr yr yr yr	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000	\$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000
		5 6 7 8 9 10	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting	1 1 1 1 1	yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000
	Subtotal Annual O	5 6 7 8 9 10 <b>M&amp;M ar</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting d Reporting Cost	1 1 1 1	yr yr yr yr yr yr	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 289,700
	Subtotal Annual O Annual Monitoring (	5 6 7 8 9 10 <b>M&amp;M ar</b> Cost Cont	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting d Reporting Cost ingency and Unlisted Items (%)	1 1 1 1 1 20%	yr yr yr yr yr yr	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 \$289,700	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 57,900

		10	Reporting	1	yı yı	\$ 15,000	ъ.	15,000
	Subtotal Annual ON	M&M an	d Reporting Cost				\$	289,700
-	Annual Monitoring C	Cost Cont	ingency and Unlisted Items (%)	20%	pct	\$289,700	) \$	57,900
			Years of Annual Monitoring	15	yrs	\$347,600	) \$	5,214,000
~	TOTAL ANNUAL O	OM&M A	ND REPORTING COST					\$5,214,000
$\mathbf{\Sigma}$	Present-Worth Ann	ual OM	&M and Reporting Cost Presumed Discount Rate	0.6%	pct			\$4,972,000
0	Category	Item #	Description	Quantity	Unit	Unit Cost		Total
	NON-ROUTINE O	PERATI	ON, MAINTENANCE, MONITORING, AND REPORT	ING				
		1	Baseline groundwater/surface water sampling	1	event	\$ 73,000	\$	73,000
		2	DGR system replacement cost	1	event	\$ 200,000	\$	200,000
		3	Quarterly groundwater sampling (EISB parameters)	3	yrs	\$ 95,000	\$	285,000
		4	Quarterly groundwater sampling	12	event	\$ 65,000	\$	780,000
		5	Quarterly groundwater elevation monitoring	12	event	\$ 8,000	\$	96,000
		6	Quarterly surface water sampling	12	event	\$ 8,000	\$	96,000
		7	Annual groundwater sampling (EISB parameters post DC	8	yrs	\$ 65,000	\$	520,000
		8	Annual groundwater elevation monitoring (post DGR)	8	yrs	\$ 8,000	\$	64,000
		9	Annual surface water sampling (post DGR)	8	yrs	\$ 8,000	\$	64,000
		10	1.5 years quarterly confirmation sampling	6	event	\$ 73,000	\$	438,000
		11	Cleanup completion report	1	LS	\$ 20,000	\$	20,000
	Subtotal Non-Routi	ne OM&	M and Reporting Cost				\$	2,636,000
	Annual Monitoring C	Cost Cont	ingency and Unlisted Items (%)	20%	pct	\$2,636,000	1\$	527,200
	TOTAL NON-ROUT	TINE OM	I&M AND REPORTING COST					\$3,163,000
	Present-Worth Non	-Routine	e OM&M and Reporting Cost Presumed Discount Rate	0.6%	pct			\$2,957,000
H	ALTERNATIVE C	OST SU	MMARY					
	TOTAL PRESENT-	WORTH	REMEDIAL DESIGN, PLANNING, AND GENERAL CO	ST (INDIR	ECT)		\$	\$2,216,000
	TOTAL PRESENT-	WORTH	REMEDIATION IMPLEMENTATION COST (DIRECT)					3,923,000
2	TOTAL PRESENT-	WORTH	OM&M COST (ANNUAL & NON-ROUTINE)					<u>37,929,000</u>
	TOTAL PRESE	NI-WC	DKTH CUST				-\$1	4,070,000
			American Cont Berny (200/ 1509()		TOTAL	¢ 0.950.000	¢	21 110 000
			Appropriate Cost Range (-30% - +50%)		TOTAL	\$ 9,850,000	\$	21,110,000

APPENDIX C

## **Point of Compliance Cost Estimates**

## ALTERNATIVE 5 DYNAMIC GROUNDWATER RECIRCULATION AND SOURCE AREA EISE

### POINT OF COMPLIANCE OPTION: OPTION 1 - GROUNDWATER AND SURFACE WATER STANDARD POCS

Explanation of POC Option: Drinking water standard (4 µg/L TCE) to be met in monitoring wells throughout the groundwater TCE plume and the SWQS (0.3 µg/L TCE) to be met in creek water sampling points immediately above the creek bed.

POC Option	1	Existing monitoring well network sufficient for monitoring groundwater POC
Specific	2	Existing surface water sampling locations will be used for monitoring surface water POC
Assumptions	3	DGR system will be operated for 15 years for downgradient plume cleanup

		DETAILED COST ESTIMATE	l
	4	EISB in source area will require 23 years for source area cleanup (including 3 injection events over 3-year period)	
umptions	3	DGR system will be operated for 15 years for downgradient plume cleanup	

			DETAILED COST ESTIMAT	E					
Cost	Category	Item #	Description	Quantity	Unit	ι	Unit Cost		Total
Туре	REMEDIAL DESIG	N. PLA	NNING, AND GENERAL (Indirect Costs)						
	KENIEDIAL DESIG	1	Engineering/Proj Mgmt/Const Mgmt/Reporting						
		2	Cleanup action plan	1	LS	\$	30,000	\$	30,000
		3	Permits	1	LS	\$	30,000	\$	30,000
		4	Contract documents and contractor bidding/procurement	1	LS	ծ Տ	20.000	Դ Տ	20,000
		6	Cleanup action construction report/O&M manual	1	LS	\$	30,000	\$	30,000
		7	Engineering/Remedial Design	8%	pct	\$	4,033,000	\$	322,640
		8	Construction management/oversight	6% 5%	pct	\$	4,033,000	\$	241,980
		10	Ecology oversight	5%	pet	э \$	12,513,620	э \$	625,681
	Subtotal Remedial D	esign, P	lanning, and General Costs		1		, ,	\$	1,926,000
	Indirect Contingency a	and Unli	sted Engineering Services (%)	15%	pct		\$1,926,000	\$	288,900
	TOTAL INDIRECT	COST	Decemintion	Quantity	Unit	Т	Init Cost		\$2,215,000
	REMEDIAL ACTIO	N CON	STRUCTION - DGR SYSTEM AND ELECTRON DONG	Quality R INJECT	TONS (Di	rect	Costs)		Total
		1	Contractor mobilization/demobilization	1	LS	\$	30,000	\$	30,000
						<u>_</u>		<i>•</i>	~~~~~
		2	DGR pilot study Install injection and extraction wells/distribution system	1	LS	\$	80,000	\$	80,000
		3	Utility locate	1	LS	\$	2,500	\$	2,500
		4	Site prep/clearing/grubbing	1	LS	\$	75,000	\$	75,000
		5	Driller mobilization/demobilization	1	LS	\$	3,000	\$	3,000
Z		6	Drilling - DGR extraction well installation Drilling - DGR injection well installation (shallow)	4	well	\$	20,000	\$	80,000
H		8	Drilling - DGR injection well installation (deep)	8	well	\$	15,000	\$	120,000
L		9	Drilling - monitoring wells for DGR monitoring	4	well	\$	12,000	\$	48,000
Ľ		10	IDW disposal	60	Drums	\$	200	\$	12,000
Z		11	Well vaults, pumps, air vac assemblies	1	LS	\$	210,000	\$	210,000
Į		12	Directional drilling for pipe/conduit up to ridge	1		\$	18,000	\$	18,000
E		13	Water line, electrical, communications trenching	4200	LS	\$	100,000	\$	67,200
L		15	Water piping	4200	LF	\$	60	\$	252,000
Į		16	Electrical conduit and cable	2400	LF	\$	45	\$	108,000
		17	Communications conduit and cable	4200	LF	\$	65	\$	273,000
		18	rench repaying/restoration	20000	SF	\$	5 70.000	\$	100,000
		20	Instrumentation and controls: control panels	1	LS	\$	150.000	\$	150.000
		21	GAC polishing vessels	2	each	\$	12,500	\$	25,000
		22	DGR system startup and testing	1	LS	\$	20,000	\$	20,000
			EISB injection well installation		T G	¢	1 000	¢	1 000
		23	Utility locate/clearing Driller mobilization/domobilization	1		\$	1,000	\$	1,000
		24	Drilling - injection wells (detention basin hotspot)	24	wells	Տ	4.000	 Տ	96.000
		26	Well development	24	wells	\$	1,000	\$	24,000
		27	IDW disposal	70	Drums	\$	200	\$	14,000
		20	Injection of Electron Donor	75	J	¢	2 000	¢	225 000
		28 29	Purchase equipment/supplies for injection system setup	1	LS	э \$	25,000	э \$	225,000
		30	Materials and rentals for injection events	3	event	\$	20,000	\$	60,000
		31	Water for injection events	285,000	gal	\$	0.03	\$	8,550
		32	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup	36000	lbs LS	\$	25 000	\$	54,000 25,000
	Subtotal Remedial A	ction C	onstruction Costs	1	LS	φ	23,000	\$	2.483.300
	Direct Cost Contingen	ncy and I	Unlisted Engineering Services (%)	25%	pct		\$2,483,300	\$	620,800
	Contractor Bond Fee,	Overhea	id, and Profit (%)	20%	pct	\$	\$2,638,375	\$	\$201.200
	TOTAL DIRECT CO	OST OST	0)	7.4 /0	per	Ψ	5,100,075		\$3,923,000
	Category	Item #	Description	Quantity	Unit	ι	Unit Cost		Total
	ANNUAL OPERATI	ION, M	AINTENANCE, MONITORING, AND REPORTING	1	-	¢	44.500	¢	14.500
		2	Cell phone/GET system remote access charges	12	yr mo	ծ Տ	44,500	Դ Տ	44,500
		-	cen phone, off i system remote access enarges			Ŷ	207	Ŷ	1,120
		3	Carbon usage	1	yr	\$	9,600	\$	9,600
		4	System monitoring/NPDES reporting	1	yr	\$	20,000	\$	20,000
						1			
					1	4			
		5	DGR system O&M labor and cost	1	vr	\$	95 000	.\$	95 000
		5 6	DGR system O&M labor and cost NPDES annual renewal fee	1 1	yr yr	\$ \$	95,000 20,137	\$ \$	95,000 20,137
		5 6 7	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR)	1 1 1	yr yr yr	\$ \$ \$	95,000 20,137 65,000	\$ \$ \$	95,000 20,137 65,000
		5 6 7 8	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water campling (during DGP)	1 1 1	yr yr yr yr yr	\$ \$ \$ \$	95,000 20,137 65,000 8,000	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000
		5 6 7 8 9 10	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting	1 1 1 1 1	yr yr yr yr yr yr	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15.000	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000
	Subtotal Annual OM	5 6 7 8 9 10 <u>1&amp;M</u> an	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting d Reporting Cost	1 1 1 1 1	yr yr yr yr yr yr	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700
V	Subtotal Annual OM Annual Monitoring Co	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)	1 1 1 1 1 20%	yr yr yr yr yr yr yr	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 57,900
&М	Subtotal Annual OM Annual Monitoring Co	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST	1 1 1 1 1 1 20% 15	yr yr yr yr yr yr pct yrs	\$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600	\$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 57,900 5,214,000
M&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>M&amp;M A</b> <b>m&amp;M A</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) Years of Annual Monitoring VD REPORTING COST EM and Reporting Cost Presumed Discount Rate	1 1 1 1 1 1 1 20% 15 0.6%	yr yr yr yr yr yr yr yrs	\$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 \$289,700 \$347,600	\$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 289,700 57,900 5,214,000 \$5,214,000 \$5,214,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category	5 6 7 8 9 10 <b>1&amp;M an</b> 0st Cont <b>1&amp;M A</b> <b>nal OM d</b> <b>Item #</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>VD REPORTING COST</i> <b>CM and Reporting Cost</b> Presumed Discount Rate Description	1 1 1 1 1 1 20% 15 0.6% Ouantity	yr yr yr yr yr yr pct Unit	\$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600	\$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 57,900 5,214,000 \$5,214,000 \$4,972,000 Total
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M A</b> <b>Ial OMd</b> <b>Item #</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> ND REPORTING COST &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sameling	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yrs pct Unit	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 \$289,700 \$347,600 Unit Cost	\$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$4,972,000 Total
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OM</b> <b><u>Item #</u> <b><u>'ERATI</u></b> 1 2 2</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost	1 1 1 1 1 1 1 1 1 20% 15 0.6% Ouantity NG	yr yr yr yr yr yr <u>pct</u> <u>yrs</u> <u>pct</u> <u>Unit</u> event event	\$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000	\$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$4,972,000 Total 73,000 200,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M A</b> aal OM& Item# 1 2 3	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST &M and Reporting Cost Presumed Discount Rate <u>Description</u> ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters)	1 1 1 1 1 1 1 1 1 1 1 5 0.6% 0uantity NG 1 1 3	yr yr yr yr yr yr <u>pct</u> <u>yrs</u> <u>event</u> event event	\$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$4,972,000 Total 73,000 200,000 285,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OM d</b> <b>Item #</b> <b>PRATI</b> 1 2 3 4	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <u>Years of Annual Monitoring</u> ND REPORTING COST Main Reporting Cost Presumed Discount Rate <u>Description</u> ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling Quarterly groundwater sampling	1 1 1 1 1 20% 15 0.6% Ouantity NG 1 1 3 12	yr yr yr yr yr yr <u>pct</u> <u>yrs</u> <u>pct</u> <u>Unit</u> event event yr event	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 200,000 285,000 780,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M A</b> <b>Ial OMA</b> <b>Item #</b> <b>FRATI</b> 1 2 3 4 5	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> ND REPORTING COST <b>XM and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater elevation monitoring Quarterly groundwater elevation monitoring On water liver cost	1 1 1 1 1 1 20% 15 0.6% 0uantity NG 1 1 3 12 12 12	yr yr yr yr yr pct yrs pct Unit event event event event event	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 200,000 285,000 780,000 96,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>M&amp;M A</b> 1al OMA 1al OMA 1al OMA 1al OMA 1al OMA 12 3 4 5 6 7 7	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> <b>XM and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling CHSB parameters poet DCI	1 1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 8	yr yr yr yr yr yr <u>pct</u> yrs <u>pct</u> Unit event event event event event event	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 200,000 285,000 780,000 96,000 96,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>M&amp;M A</b> 1al OMA 1al OMA 1al OMA 1al OMA 5 6 7 7 8	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> ND REPORTING COST <b>XM and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling (EISB parameters post DGR Annual groundwater levation monitoring (DGR)	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 8 8	yr yr yr yr yr pct yrs event event event event event yr syrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost Unit Cost Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$4,972,000 730,000 285,000 780,000 96,000 96,000 520,000 64,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 <u>10</u> <b>1&amp;M an</b> ost Cont <b>M&amp;M A</b> <b>1al OMA</b> <b>Item #</b> 2 3 4 5 6 7 7 8 9	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> ND REPORTING COST <b>XM and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling (EISB parameters post DGR Annual groundwater sampling (post DGR) Annual surface water sampling (post DGR)	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 12 8 8 8 8	yr yr yr yr yr yr yr <u>pct</u> <u>unit</u> event event event event event yr yrs yrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$2,0000 285,000 780,000 96,000 96,000 520,000 64,000 64,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>M&amp;M A</b> 1al OMA 1al OMA 1al OMA 1al OMA 5 5 6 7 7 8 9 9	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> ND REPORTING COST *M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly surface water sampling Annual groundwater sampling (EISB parameters post DGI Annual groundwater sampling (post DGR) Annual surface water sampling (post DGR) 1.5 years quarterly confirmation sampling Clearue completion user of	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 12 12 8 8 8 8 8 6	yr yr yr yr yr yr pct Unit event event yr event event event yrs yrs yrs yrs yrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 \$347,600 \$347,600 \$347,600 \$347,600 \$347,600 \$347,600 \$347,600 \$3,000 \$5,000 \$0,0000 \$0,000 \$0,000 \$0,000 \$0,000 \$0,000 \$0,0000 \$0,0000 \$0,0000 \$0,000 \$0,0000 \$0,0000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 289,700 57,900 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$4,972,000 780,000 96,000 96,000 96,000 96,000 64,000 64,000 64,000 28,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	5 6 7 8 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M A</b> <b>ial OM</b> <b>ERATI</b> 1 2 3 4 5 6 6 7 7 8 9 10 11 1 <b>ERATI</b> 1 2 3 3 4 5 5 6 6 7 7 8 9 9 10	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST <b>X and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly surface water sampling Annual groundwater elevation monitoring Quarterly surface water sampling Annual groundwater elevation monitoring (post DGR) Annual surface water sampling (post DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr yr pct Unit event event event event yr yrs yrs yrs yrs event LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 \$347,600 200,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$4,972,000 780,000 96,000 96,000 96,000 96,000 64,000 64,000 64,000 64,000 20,000 2,636,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M An</b> <b>1 al OM A</b> 5 6 7 8 9 10 11 <b>1 ac OM &amp;</b> ost Cont	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> <u>Years of Annual Monitoring</u> ND REPORTING COST <u>XM and Reporting Cost</u> Presumed Discount Rate <u>Description</u> ON, MAINTENANCE, MONITORING, AND REPORTI Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly surface water sampling Quarterly surface water sampling Annual groundwater elevation monitoring Quarterly surface water sampling Annual groundwater elevation monitoring (post DGR) Annual surface water sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%)	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr yr <u>pct</u> <u>Unit</u> event event event event yr yrs yrs yrs yrs yrs yrs event LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 \$347,600 200,000 95,000 65,000 8,0000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 289,700 57,900 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 \$4,972,000 780,000 285,000 780,000 96,000 520,000 64,000 64,000 64,000 64,000 20,000 20,000 22,326,000
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI	5 6 7 8 9 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OMA</b> <b>1al OMA</b> <b>1al OMA</b> 5 6 7 8 9 10 11 <b>1</b> 2 3 3 4 5 6 6 7 8 9 10 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) Years of Annual Monitoring ND REPORTING COST Main Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling Annual groundwater elevation monitoring Quarterly surface water sampling Annual groundwater elevation monitoring Quarterly surface water sampling Annual surface water sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) KM AND REPORTING COST	1 1 1 1 20% 15 0.6% Ouantity NG 1 1 1 1 3 12 12 12 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr pct Unit event event event event event event yrs yrs yrs yrs yrs yrs pct LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 5,214,000 5,214,000 5,214,000 <b>5</b> ,214,000 <b>5</b> ,214,000 <b>5</b> ,214,000 <b>7</b> ,3,000 200,000 285,000 780,000 96,000 96,000 96,000 96,000 96,000 96,000 20,000 64,000 64,000 64,000 64,000 64,000 64,000 527,200 <b>\$3,163,000</b>
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-	5 6 7 8 9 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OMd</b> <b>1tem #</b> <b>PERATI</b> 1 2 3 4 5 6 6 7 8 9 10 11 <b>2</b> 8 9 9 10 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> 4 <b>4</b> 5 5 6 6 7 7 8 9 10 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Surface water sampling (during DGR)         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)         Years of Annual Monitoring         ND REPORTING COST <b>M and Reporting Cost</b> Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR system replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly surface water sampling         Annual groundwater elevation monitoring         Quarterly surface water sampling         Annual groundwater elevation monitoring (post DGR)         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         '& MAND REPORTING COST         OM&M and Reporting Cost       Presumed Discount Rate	1 1 1 1 20% 15 0.6% Ouantity NG 1 1 1 3 12 12 12 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr pct Unit event event event event event event yrs yrs yrs yrs yrs yrs pct LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 5,214,000 5,214,000 <b>5</b> ,214,000 <b>5</b> ,214,000 <b>7</b> ,3,000 200,000 285,000 780,000 96,000 96,000 96,000 96,000 96,000 285,000 64,000 64,000 64,000 64,000 2,636,000 527,200 <b>\$3,163,000</b> <b>\$2,944,000</b>
OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUT Present-Worth Non-	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OMG</b> <b>1em #</b> <b>2</b> 7 8 9 10 11 8 9 10 11 1 <b>ae OM&amp;</b> ost Cont <b>Item #</b> 9 10 11 <b>ae OM&amp;</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>4</b> <b>4</b> <b>5</b> <b>5</b> <b>6</b> <b>6</b> <b>6</b> <b>7</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>4</b> <b>4</b> <b>5</b> <b>5</b> <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>4</b> <b>4</b> <b>5</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Surface water sampling (during DGR)         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)         Years of Annual Monitoring         ND REPORTING COST <b>M and Reporting Cost</b> Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTI         Baseline groundwater/surface water sampling         DGR system replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly surface water sampling         Annual groundwater elevation monitoring         Quarterly groundwater sampling (EISB parameters post DGI         Annual groundwater sampling (post DGR)         1.5 years quarterly confirmation sampling         Cleanup completion report         M and Reporting Cost         ingency and Unlisted Items (%)         "&M AND REPORTING COST         OM&M and Reporting Cost       Presumed Discount Rate	1 1 1 1 20% 15 0.6% Ouantity NG 1 1 1 3 12 12 12 12 12 12 12 12 12 20% 0.6%	yr yr yr yr yr pct Unit event event event event event event yrs yrs yrs yrs yrs yrs yrs yrs yrs yrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 5,214,000 5,214,000 <b>\$5,214,000</b> <b>\$5,214,000</b> <b>\$5,214,000</b> <b>\$4,972,000</b> 780,000 96,000 96,000 96,000 96,000 96,000 64,000 64,000 64,000 64,000 2,636,000 527,200 <b>\$3,163,000</b> <b>\$2,944,000</b>
L OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OMG</b> <b>1tem #</b> <b>PERATI</b> 1 2 <b>3</b> 3 <b>4</b> 5 6 6 7 7 8 9 10 11 <b>1</b> <b>2</b> <b>3</b> 3 <b>3</b> <b>5</b> 5 6 6 7 7 8 9 10 10 <b>1</b> <b>2</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>3</b> <b>5</b> <b>5</b> <b>6</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>2</b> <b>3</b> <b>3</b> <b>3</b> <b>5</b> <b>5</b> <b>6</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>2</b> <b>3</b> <b>3</b> <b>3</b> <b>5</b> <b>5</b> <b>6</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>5</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> <b>*M and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTI Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly surface water sampling Quarterly surface water sampling Annual groundwater elevation monitoring Quarterly surface water sampling Annual groundwater elevation monitoring Quarterly surface water sampling Annual groundwater elevation monitoring Quarterly confirmation sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) <b>*#M AND REPORTING COST</b> OM&M and Reporting Cost Presumed Discount Rate	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 1 3 12 12 12 12 12 12 12 12 12 20% 0.6%	yr yr yr yr yr yr yr <u>pct</u> Unit event event event event event yrs yrs yrs yrs yrs yrs yrs pct t LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$5,214,000 \$5,214,000 730,000 200,000 285,000 780,000 96,000 96,000 96,000 96,000 64,000 64,000 64,000 2,636,000 527,200 \$3,163,000 \$2,944,000
[AL]   OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-I ICTAL PRESENT-W	5 6 7 8 9 10 <b>1&amp;M an</b> ost Cont <b>1&amp;M A</b> <b>1al OMd</b> <b>1at OMd</b> <b>1at OMd</b> <b>1at OMd</b> <b>1</b> <b>2</b> <b>3</b> 3 4 4 5 6 7 7 8 9 10 11 <b>1</b> <b>2</b> <b>3</b> 3 <b>4</b> 5 5 6 7 7 8 9 10 11 <b>1</b> <b>2</b> <b>3</b> 3 <b>4</b> 5 5 6 7 7 8 9 10 11 <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>4</b> <b>5</b> 5 6 7 7 7 8 9 10 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Surface water sampling (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> Wand Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly surface water sampling Quarterly groundwater sampling (EISB parameters post DG Annual groundwater sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) <i>&amp;M AND REPORTING COST</i> OM&M and Reporting Cost Presumed Discount Rate MMARY REMEDIAL DESIGN, PLANNING, AND GENERAL COST DEMEDIAL DESIGN, PLANNING, AND GENERAL COST DEMENDAL DESIGN,	1 1 1 1 20% 15 0.6% Quantity NG 1 1 1 3 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr yr pct Unit event event event event event yrs yrs yrs yrs gys event LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$,214,000 \$,214,000 \$,214,000 200,000 285,000 730,000 96,000 96,000 96,000 96,000 96,000 96,000 96,000 22,000 (\$3,163,000 \$2,215,000 \$2,215,000
OTAL OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-I TOTAL PRESENT-W TOTAL PRESENT-W	5 6 7 8 9 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M A</b> <b>al OM&amp;</b> <b>Item #</b> <b>PERATI</b> 1 2 3 3 4 4 5 6 6 7 7 8 9 10 11 <b>N</b> <b>ERATI</b> 1 2 3 3 4 4 5 5 6 6 7 7 8 9 10 10 <b>I&amp;M an</b> ost Cont <b>Item #</b> <b>PERATI</b> 1 2 3 3 4 4 5 5 6 6 7 7 8 9 10 <b>ID</b> <b>ID</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b> <b>I</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> &M and Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling (DGR) Annual surface water sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) <i>&amp;M AND REPORTING COST</i> OM&M and Reporting Cost Mand Reporting Cost MAND REPORTING COST OM&M and Reporting Cost MARY REMEDIAL DESIGN, PLANNING, AND GENERAL COST COM&M COST (ANNUAL & NON-ROUTINE	1 1 1 1 20% 15 0.6% 0uantity NG 1 1 3 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr pct Unit event event event event event yrs yrs event LS pct LS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,214,000 \$,215,000 \$,214,000 \$,215,000 \$,214,000 \$,215,000 \$,214,000 \$,215,000 \$,214,000 \$,20,000 \$,20,000 \$,214,000 \$,20,000 \$,20,000 \$,214,000 \$,214,000 \$,20,000 \$,214,000\$,214,000\$,214,000\$,214,000\$,214,000\$,214,000\$,214,000\$,214,000\$,214,000\$,214,00
TOTAL OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-I Present-Worth Non-I TOTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W	5 6 7 8 9 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M An</b> <b>al OMA</b> <b>Item #</b> <b>FRATI</b> 1 2 3 3 4 5 6 6 7 7 8 9 10 11 <b>ae OM&amp;</b> 0 st Cont <b>Ime OM</b> <b>Routine</b> <b>OST SUI</b> VORTH VORTH VORTH VORTH	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> <b>XM and Reporting Cost</b> Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly surface water sampling Quarterly surface water sampling Annual groundwater sampling (DGR) Annual groundwater sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report <b>M and Reporting Cost</b> ingency and Unlisted Items (%) <b>&amp;M AND REPORTING COST</b> OM&M and Reporting Cost Presumed Discount Rate <b>MMARY</b> REMEDIAL DESIGN, PLANNING, AND GENERAL COST CM&M COST (ANNUAL & NON-ROUTINE <b>RTH COST</b>	1 1 1 1 1 20% 15 0.6% 0uantity NG 1 1 1 3 12 12 12 12 12 12 12 12 12 12 12 12 12	yr yr yr yr yr pct Unit event event event event event event tevent tevent tevent tevent ev	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000 73,000 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$ <b>5,214,000</b> <b>\$5,214,000</b> <b>\$4,972,000</b> <b>\$4,972,000</b> <b>\$4,972,000</b> <b>\$4,972,000</b> <b>\$4,972,000</b> <b>\$4,972,000</b> <b>\$4,972,000</b> <b>\$4,000</b> <b>\$4,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,27,200</b> <b>\$3,163,000</b> <b>\$2,215,000</b> <b>\$3,923,000</b> <b>\$7,916,000</b> <b>\$4,050,000</b> <b>\$4,050,000</b> <b>\$2,214,000</b> <b>\$2,215,000</b> <b>\$3,923,000</b> <b>\$7,916,000</b> <b>\$4,050,000</b> <b>\$4,050,000</b> <b>\$4,000</b> <b>\$2,215,000</b> <b>\$3,923,000</b> <b>\$7,916,000</b> <b>\$4,050,000</b> <b>\$4,050,000</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,010</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,00</b>
TOTAL OM&M	Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non- Present-Worth Non- TOTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W	5 6 7 8 9 10 <b>I&amp;M an</b> ost Cont <b>I&amp;M A</b> al OMA <b>Item #</b> <b>ERATI</b> 1 2 3 4 5 6 6 7 8 9 9 10 11 <b>e OM&amp;</b> 0 st Cont <b>II</b> <b>I</b> <b>ERATI</b> 1 2 3 4 4 5 6 6 7 7 8 8 9 10 10 <b>I</b> <b>ERATI</b> 1 2 3 4 4 5 6 6 9 10 10 <b>I</b> <b>ERATI</b> 1 2 3 4 4 5 6 6 7 7 8 8 9 10 10 <b>I</b> <b>ERATI</b> 1 2 3 4 4 5 6 6 7 7 8 8 9 10 <b>I</b> <b>ERATI</b> 1 2 3 4 4 5 6 6 7 7 7 8 8 9 10 10 <b>I</b> <b>ERATI</b> 10 2 3 4 4 5 6 6 7 7 7 8 8 9 10 10 <b>I</b> <b>ERATI</b> 10 2 3 4 4 5 5 6 6 7 7 7 8 8 8 9 10 10 <b>I</b> <b>I</b> <b>ERATI</b> 10 2 3 4 4 5 5 6 6 7 7 7 8 8 9 10 10 11 <b>I</b> <b>ERATI</b> 10 2 3 4 4 5 5 6 6 7 7 7 8 8 9 10 10 11 <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> 10 2 3 4 4 5 5 6 6 7 7 7 7 8 8 8 9 10 11 <b>I</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATII</b> <b>ERATII</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>ERATI</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>ERATI</b> <b>I</b> <b>ERATI</b> <b>ERATI</b> <b>I</b> <b>E</b> <b>ERATI</b> <b>I</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b> <b>E</b>	DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Cost ingency and Unlisted Items (%) <i>Years of Annual Monitoring</i> <i>ND REPORTING COST</i> Wand Reporting Cost Presumed Discount Rate Description ON, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly surface water sampling Quarterly surface water sampling Annual groundwater sampling (DSB parameters post DGR Annual groundwater sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ingency and Unlisted Items (%) <i>&amp;M AND REPORTING COST</i> OM&M and Reporting Cost Presumed Discount Rate MMARY REMEDIAL DESIGN, PLANNING, AND GENERAL COST CM&M COST (ANNUAL & NON-ROUTINE RTH COST	1 1 1 1 1 20% 15 0.6% Ouantity NG 1 1 1 3 12 12 12 12 12 12 8 8 8 6 1 20% 0.6% Γ Γ Γ Γ Γ Γ Γ Γ Γ Γ Γ Γ Γ	yr yr yr yr yr pct Unit event event event event event event event tevent tevent cr tort t		95,000 20,137 65,000 8,000 \$289,700 \$347,600 Unit Cost 73,000 200,000 95,000 65,000 8,000 8,000 8,000 8,000 8,000 20,000 95,000 8,0000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	95,000 20,137 65,000 8,000 15,000 289,700 5,214,000 \$5,214,000 \$4,972,000 Total 73,000 200,000 285,000 780,000 96,000 96,000 96,000 96,000 02,0000 52,215,000 \$3,163,000 \$2,215,000 33,923,000 57,916,000 4,050,000 21,050,000 20,00

#### ALTERNATIVE 5

#### DYNAMIC GROUNDWATER RECIRUCLATION AND SOURCE AREA EISB POINT OF COMPLIANCE OPTION: OPTION 2A - GROUNDWATER CPOC IN TRANSITION ZONE BENEATH THE CREEK

Explanation of POC Option: SWQS (0.3 µg/L TCE) to be met in transition zone water sampling points below the creek bed or immediately adjacent to the creek (off property) and "within the surface water as close as technically possible to the point or points where groundwater flows into the surface water" (on Boeing property).

Drinking water standard (4 µg/L TCE) to be met in monitoring wells throughout the groundwater TCE plume. 1 Pore water samplers or drive point wells will be installed at approximately 100-ft intervals in or adjacent to creek fo

groundwater CPOC (assume 28 locations). Existing monitoring well network sufficient for monitoring groundwater

POC Option

- Specific Assumptions
- throughout plume. 2 Existing surface water sampling locations will be used for monitoring surface water  $\ensuremath{\text{POC}}$
- 3 Pore water samplers or drive point wells must be replaced every 3 years due to damage from storms/creek meander
- 4 DGR system will be operated for 16 years for downgradient plume cleanup
- EISB in source area will require 23 years for source area cleanup (including 3 injection events over 3-year period) 5

			DETAILED COST ESTIMAT	'E					
Cost	Category Item	1 #	Description	Quantity	Unit	1	Unit Cost		Total
Туре	REMEDIAL DESIGN P	LAN	INING AND GENERAL (Indirect Costs)						
		1 2 3 4 5 6 7 8 9 10	Engineering/Proj Mgmt/Const Mgmt/Reporting Cleanup action plan Permits Negotiate and implement institutional controls Contract documents and contractor bidding/procurement Cleanup action construction report/O&M manua Engineering/Remedial Desigr Construction management/oversight Project management Ecology oversight	1 1 0 1 1 8% 6% 5% 5% 5%	LS LS LS LS LS pct pct pct	\$ \$ \$ \$ \$ \$ \$ \$ \$	30,000 30,000 10,000 20,000 30,000 4,033,000 4,033,000 12,983,620 12,983,620	\$ \$ \$ \$ \$ \$ \$ \$ \$	30,000 30,000 20,000 30,000 322,640 241,980 649,181 649,181
	Subtotal Remedial Design	ı, Pl	anning, and General Costs		I I		, ,	\$	1,973,000
	Indirect Contingency and U	Jnlis	ted Engineering Services (%)	15%	pct		\$1,973,000	\$	296,000
	TOTAL INDIRECT COS	ST \ #	Description	Quantity	Unit	<b>T</b>	Unit Cost		\$2,269,000 Total
	REMEDIAL ACTION C	ONS	STRUCTION - DGR SYSTEM AND ELECTRON DONC	R INJECT	IONS (Dir	rect	Costs)		1000
		1	Contractor mobilization/demobilization	1	LS	\$	30,000	\$	30,000
		2	DGR pilot study	1	15	\$	80.000	\$	80.000
IMPLEMENTATION		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Install injection and extraction wells/distribution systen Utility locate Site prep/clearing/grubbing Driller mobilization/demobilizatior Drilling - DGR extraction well installation (shallow Drilling - DGR injection well installation (deep) Drilling - monitoring wells for DGR monitoring IDW disposal Well vaults, pumps, air vac assemblies Transfer tank, valving, and pump with controls Directional drilling for pipe/conduit up to ridge Water line, electrical, communications trenching Water piping Electrical conduit and cable Communications conduit and cable Trench repaving/restoration Electrical equipment upgrades/transformer/electrician Instrumentation and controls; control panels GAC polishing vessels DGR system startup and testing EISB Injection Well Installation Utility locate/clearing Driller mobilization/demobilization Drilling - injection wells (detention basin hotspot) Well development IDW disposal Injection of Electron Donor Injection crew/labor Purchase equipment/supplies for injection system setur Materials and rentals for injection events Water for injection events	1 1 1 4 4 4 60 1 1 1 4200 4200 2400 4200 2400 20000 1 1 2 1 1 2 1 1 24 4 24 70 75 1 3 285,000	LS LS well well Drums LS LS LS LF LF LF LF LF LF LS LS each LS LS uells wells Drums days LS S event gal	~~~~~	$\begin{array}{c} 2,500\\ 75,000\\ 3,000\\ 20,000\\ 26,000\\ 15,000\\ 12,000\\ 200\\ 210,000\\ 18,000\\ 100,000\\ 100,000\\ 16\\ 60\\ 45\\ 65\\ 5\\ 70,000\\ 150,000\\ 12,500\\ 20,000\\ 1,000\\ 3,000\\ 4,000\\ 1,000\\ 200\\ 3,000\\ 25,000\\ 20,000\\ 0,03\\ \end{array}$	*****************	2,500 75,000 3,000 100,000 120,000 12,000 100,000 100,000 67,200 252,000 108,000 273,000 100,000 150,000 25,000 25,000 20,000 1,000 3,000 96,000 24,000 14,000 225,000 20,000 25,000 25,000 25,000 25,000 25,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,000 25,000 20,0000 20,0000 20,000 20,000 20,0000 20,0000 20,0000 20,0000 20,0000 20,
		31 32	Donor for injection events	285,000	gai lbs	ծ Տ	0.03	ծ Տ	8,550 54.000
		_	<b>j</b>						25,000
		33	Site Restoration - slope/buffer plantings, general cleanu	1	LS	\$	25,000	\$	25,000
	Subtotal Remedial Action	33 Co	Site Restoration - slope/buffer plantings, general cleanup nstruction Costs	1	LS	\$	25,000	\$ \$	2,483,300
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over	33 Co nd U head	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%)	1 25% 20%	LS pct pct	\$	25,000 \$2,483,300 \$2,638,375	\$ \$ \$	2,483,300 620,800 527,700
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta:	33 Co nd U head x (%	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) )	1 25% 20% 9.2%	LS pct pct pct	\$	25,000 \$2,483,300 \$2,638,375 3,166,075	\$ \$ \$	2,483,300 620,800 527,700 \$291,300
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST	33 <b>Co</b> nd U head x (%	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs nlisted Engineering Services (% d, and Profit (%) ) Description	1 25% 20% 9.2%	LS pct pct pct	\$	25,000 \$2,483,300 \$2,638,375 3,166,075	\$ \$ \$	2,483,300 620,800 527,700 \$291,300 \$3,923,000
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 1 Co nd U head x (% n # MA	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% d, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING	1 25% 20% 9.2% Quantity	LS pct pct Unit	\$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost	\$ \$ \$	2,483,300 620,800 527,700 \$291,300 \$3,923,000 Total
	Subtotal Remedial Action Direct Cost Contingency an Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 1 Co 1 d U 1 head x (% 1 # 1 2	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage 0, the formation of the state of the	1 25% 20% 9.2% Quantity	LS pct pct Unit	\$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500	\$ \$ \$	2,483,300 620,800 527,700 \$3,923,000 Total 44,500
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 1 Co 1 d U head x (% 1 # 1 2 3 4	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs (nlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting	1 25% 9.2% Quantity 1 12 1 1	LS pct pct Unit yr mo yr yr yr	\$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>5</b> 27,700 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial Action Direct Cost Contingency an Contractor Bond Fee, Over Washington State Sales Tar TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 1 Co nd U head x (% MA 1 2 3 4	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting	1 25% 9.2% 9.2% Quantity 1 12 1 1	LS pct pct Unit yr mo yr yr yr	\$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000	\$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 <b>Co</b> nd U head x (% <b>MA</b> 1 2 3 4 5	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NIDDES and usage for	1 25% 9.2% 9.2% Quantity 1 12 1 1 1	LS pct pct Unit yr mo yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial Action Direct Cost Contingency an Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 Coo nd U head x (%) MA 1 2 3 4 5 6 7	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well:	1 25% 9.2% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 8	LS pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr unit	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 4,500
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 Coo nd U head x (% MA 1 2 3 4 5 6 7 8	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR,	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$3,923,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 4,500 70,000
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 Coo d U heaa x (% MA 1 2 3 4 5 6 7 8 9	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater slevation monitoring (during DGR, Groundwater elevation monitoring CGP.	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$3,923,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 4,500 70,000 8,000 8,000
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 Cood U head x (% MA 1 2 3 4 5 6 7 8 9 10 11	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater sampling (during DGR, Surface water sampling (during DGR) Surface water sampling (during DGR) Reporting	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$3,923,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 4,500 70,000 8,000 15,000
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION,	33 <b>Co</b> d U head x (%) <b>MA</b> 1 2 3 4 5 6 7 8 9 10 11 <b>and</b> 0 0 0 0 0 0 0 0 0 0 0 0 0	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 4, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR; Groundwater sampling (during DGR; Surface water sampling (during DGR; Reporting IREporting Cost INTENANCE, MONITORING, AND REPORTING Cost	1 25% 20% 9.2% Quantity 1 1 12 1 1 1 1 1 1 1 1 1 1 1 20%	LS pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000
W	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co	33 Coo d U head x (% MA 1 2 3 4 5 6 7 8 9 10 11 and ontin	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR) Groundwater sampling (during DGR) Surface water sampling (during DGR) Reporting IReporting Cost ngency and Unlisted Items (% Years of Annual Monitoring	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 20% 16	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 15,000 \$299,200 \$359,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 4,500 70,000 8,000 8,000 15,000 29,200 5,9,800 5,744,000
1&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M	33 <b>Cond U</b> head (%) <b>MA</b> <b>MA</b> 1 2 3 4 5 6 7 8 9 10 11 <b>and</b> <b>O</b> <b>A</b> <b>O</b> <b>O</b> <b>O</b> <b>O</b> <b>O</b> <b>O</b> <b>O</b> <b>O</b>	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR, Groundwater sampling (during DGR, Groundwater sampling (during DGR, Surface water sampling (during DGR, Reporting IReporting Cost pency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 20% 16 0.5%	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 8,000 15,000 \$299,200 \$359,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 Total 44,500 4,428 9,600 20,000 95,000 20,137 4,500 20,000 95,000 20,137 4,500 20,000 8,000 8,000 8,000 5,744,000 \$5,744,000
M&MC	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OMEM Annual Monitoring Cost Co TOTAL ANNUAL OMEM Present-Worth Annual O Category Iten	33 <b>Co</b> nd U head x (%) <b>MA</b> <b>MA</b> 1 2 3 4 5 6 7 7 8 9 10 11 <b>and</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b>	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting IReporting Cost gency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Description	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Vr mo yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 15,000 \$299,200 \$359,000 Unit Cost	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000 5,744,000 \$5,744,000 \$5,744,000 <b>Total</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OPERATION, Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Co nd U head x (% MA 1 2 3 4 5 6 7 8 9 10 11 and ontii MA MA 5 6 7 8 9 10 11 1 1 2 3 4 5 6 7 8 9 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater elevation monitoring (during DGR, Surface water sampling (during DGR, Reporting IReporting Cost Igency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Presumed Discount Rate Description DN, MAINTENANCE, MONITORING, AND REPORTING	1 25% 9.2% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000 5,744,000 \$5,744,000 \$5,744,000 <b>Total</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Cood U head x (% 1 1 2 3 4 1 2 3 4 5 6 7 7 8 9 10 11 and ontin <b>I</b> 1 2 3 4 7 7 8 9 10 11 1 2 3 4 7 7 7 8 9 10 0 11 1 2 2 3 4 7 7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System Moke and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater elevation monitoring (during DGR, Groundwater elevation monitoring (during DGR, Reporting Ekeporting Cost Igency and Unlisted Items (% Years of Annual Monitoring M and Reporting Cost M and Reporting Cost DST Presumed Discount Rate DST MAINTENANCE, MONITORING, AND REPORTING DGR system replacement cost	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 20% 16 0.6% Ouantity NG	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 8,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 5,744,000 \$5,744,000 \$5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,744,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$5,740</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$6,000</b> <b>\$7,5000</b> <b>\$7,000</b> <b>\$6,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b> <b>\$7,000</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Cood U head x (% MA MA 1 2 3 4 5 6 6 7 8 9 10 11 and ontii (MA M& 1 2 3 3 4 10 11 2 3 10 11 2 3 3 4 10 10 10 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs [nlisted Engineering Services (% ], and Profit (%) ]) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR, Groundwater sampling (during DGR, Groundwater sampling (during DGR, Surface water sampling (during DGR] Reporting I Reporting I Reporting Cost Igency and Unlisted Items (% <i>Years of Annual Monitoring</i> <i>D REPORTING COST</i> M and Reporting Cost Presumed Discount Rate Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cosi Replace pore water samplers or drive point well:	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 16 0.6% Quantity 1 5	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 15,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$3,923,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 4,500 70,000 8,000 8,000 5,744,000 \$5,744,000 \$5,744,000 75,000 20,000 75,000 20,000 22,500
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Coold U head x (%) 4 1 2 3 4 5 6 6 7 8 9 10 11 and ontii 1 2 3 4 10 11 1 2 3 4 5 5 6 7 8 9 10 11 1 2 3 4 5 5 6 7 8 9 10 11 10 2 3 4 5 5 6 7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 4, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR) Groundwater sampling (during DGR) Surface water sampling (during DGR) Reporting IReporting Cost ngency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cosi Replace pore water samplers or drive point well: Quarterly groundwater sampling (EISB parameters) Ouvertedw arguing (EISB parameters)	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 15,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000	\$     \$       \$     \$	2,483,300 620,800 527,700 \$3,923,000 Total 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 5,744,000 5,744,000 5,744,000 5,744,000 5,744,000 200,000 22,500 200,000 22,500 285,000
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Category Iten NON-ROUTINE OPERA	33 Cool head x (%) MA 1 2 3 4 5 6 7 7 8 9 10 11 and ontin 1 2 3 4 5 6 0 11 1 2 3 4 5 5 6 7 7 8 9 10 11 1 2 3 4 5 5 6 5 6 5 6 5 6 5 6 5 6 6 7 7 8 9 10 11 10 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 4, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater slevation monitoring (during DGR Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting IReporting Cost ngency and Unlisted Items (% Years of Annual Monitoring D REPORTING COST M and Reporting Cost Presumed Discount Rate Description N, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Replace pore water samplers or drive point well: Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling D GR system replacement cost Replace pore water sampling (EISB parameters) Quarterly groundwater sampling	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 \$359,000 \$3359,000 Unit Cost Unit Cost 75,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 200,000 2	\$     \$       \$     \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 20,000 8,000 8,000 8,000 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,75,000</b> 200,000 <b>\$5,700</b> 200,000 <b>\$5,700</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$</b> ,000 <b>\$</b> ,000 <b>\$</b> ,000 <b>\$</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Category Iten NON-ROUTINE OPERA	33 Co d U head x (% 1 1 2 3 4 5 6 7 8 9 10 11 and 0 nti 1 2 3 4 5 6 7 7 8 9 10 11 1 2 3 4 5 6 7 7 8 9 10 11 1 2 3 4 5 6 7 7 8 9 10 11 1 2 3 4 5 6 7 7 8 9 10 11 1 2 3 4 7 7 8 9 10 10 11 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 4, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater slevation monitoring (during DGR) Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting IReporting Cost ngency and Unlisted Items (% Years of Annual Monitoring D REPORTING COST M and Reporting Cost N, MAINTENANCE, MONITORING, AND REPORTIF Baseline groundwater/surface water sampling DGR system replacement cost Replace pore water sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling CHEPOR DEST Mand Sector S	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct unit Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	s           s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 \$359,000 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 200,000 4,500 95,000 20,000 4,500 95,000 20,000 4,500 95,000 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 20,000 95,000 20,000 20,137 4,500 20,000 20,000 55,800 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,75,000</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Co d U head x (% 7 MA 1 2 3 4 5 6 6 7 7 8 9 10 11 and ontii 1 2 3 4 5 6 7 7 8 9 10 11 1 2 3 4 5 6 7 7 8 9 10 11 2 3 4 5 6 7 7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% , and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System Moke M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater slope of drive point well: Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting Reporting Cost Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system replacement cosi Replace pore water samplers or drive point well: Quarterly groundwater elevation monitoring Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater elevation monitoring Annual groundwater elevation monitoring Annual groundwater elevation monitoring Annual groundwater elevation monitoring (DGR System replacement cosi Replace pore water sampling Quarterly groundwater elevation monitoring Annual groundwater elevation monitoring (DGR System replacement cosi Replace pore water sampling Quarterly groundwater elevation monitoring Annual groundwater elevation monitoring (DGR System replacement cosi Replace pore water sampling Quarterly groundwater elevation monitoring Annual groundwater elevation monitoring Annual groundwater sampling CISB parameters post DGI Annual groundwater elevation monitoring (nost DGR	1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	s           s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 \$,000	s     s       s     s	2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> 200,000 <b>\$5,7600</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Co d U head x (% 1 4 5 6 7 8 9 10 11 and ontil (AAA M& 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% , and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater slevation monitoring (during DGR) Groundwater sampling (during DGR) Reporting Reporting Reporting Cost Description N MAINTENANCE, MONITORING, AND REPORTING Description N, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater elevation monitoring Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater elevation monitoring (Dost DGR Annual groundwater elevation monitoring (post DGR Annual surface water sampling (post DGR	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	s           s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 95,000 95,000 95,000 95,000 8,000	s     s       s     s	2,483,300 620,800 527,700 \$291,300 <b>\$291,300</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,7600</b> <b>20,000</b> <b>\$5,7600</b> <b>20,000</b> <b>\$5,7600</b> <b>20,000</b> <b>\$5,7600</b> <b>20,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 Co d U head x (% MA 1 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater sampling (during DGR, Groundwater sampling (during DGR, Reporting IReporting Cost gency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Description N, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cost Replace pore water sampling (EISB parameters) Quarterly groundwater sampling Quarterly contirmation sampling Clanama combetior areart	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	s         s           s         s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 90,000 8,000 95,000 90,000 90,000 8,000 9	s         s	2,483,300 620,800 527,700 \$291,300 <b>\$291,300</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 15,000 299,200 59,800 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740,000</b> <b>\$5,6000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Ct TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA	33 <b>Co</b> hd Uhead x (% <b>MA</b> <b>MA</b> 1 2 3 4 5 6 7 8 9 10 11 <b>and</b> <b>ontin</b> <b>Co</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b></b>	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater elevation monitoring (during DGR, Reporting IReporting Cost gency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Description DN, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling UREPORTING cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater elevation monitoring Quarterly groundwater sampling (EISB parameters) Quarterly groundwater elevation monitoring Annual groundwater elevation monitoring CISB parameters) Quarterly groundwater elevation monitoring Cost System replacement cosi Replace pore water sampling (EISB parameters) Quarterly groundwater elevation monitoring Quarterly groundwater elevation monitoring Cost Description Data development cosi Cost Description Annual groundwater elevation monitoring Cost Description post DGR Annual surface water sampling (DSB parameters post DGI Annual groundwater elevation monitoring (post DGR Annual surface water sampling (post DGR 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr y	s           s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 20,000 4,500 95,000 20,000 8	s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s           s         s         s	2,483,300 620,800 527,700 \$291,300 <b>5</b> 27,700 <b>\$3923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 <b>\$5,000</b> 59,800 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740,000</b> <b>\$5,7600</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,00</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA Subtotal Non-Routine OI Annual Monitoring Cost CI TOTAL NON-ROUTINE OPERA	33 Co d U head x (% MA MA 1 2 3 4 5 6 7 8 9 10 11 and ontii Co head MA MA 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 1 2 3 4 5 6 7 8 9 10 11 12 2 12 12 12 12 12 12 12	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater elevation monitoring (during DGR, Reporting Ekeporting Cost Igency and Unlisted Items (% Years of Annual Monitoring DGR system replacement cost Replace pore water sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling CISB parameters) Quarterly groundwater elevation monitoring Quarterly groundwater sampling CISB parameters) Quarterly groundwater elevation monitoring Quarterly groundwater elevation monitoring Quarterly groundwater sampling CISB parameters post DGR Annual groundwater elevation monitoring Quarterly confirmation sampling Cleanup completion report M and Reporting Cost report Quarterly Cost Part Cos	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	s         s           s         s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 \$299,200 \$359,000 0 \$299,200 \$359,000 0 \$299,200 \$359,000 0 \$299,200 \$359,000 0 \$299,200 \$359,000 0 \$20,000 \$299,200 \$359,000 0 \$359,000 20,000 \$299,200 \$359,000 0 \$20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 20,000 \$299,200 \$359,000 \$359,000 \$20,000 \$299,200 \$359,000 \$359,000 \$200,000 \$359,000 \$200,000 \$290,000 \$359,000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$000 \$0,000 \$000 \$000 \$000 \$0,	s     s       s <td>2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 59,800 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,6000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,</b></td>	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 59,800 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,6000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,</b>
МЗМО	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Category Iten NON-ROUTINE OPERA Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Non-Routine ON Annual Monitoring Cost Category Iten Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Non-Routine ON Category Iten Subtotal Non-Routine ON Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Subtotal Non-Routine ON Subtotal Non-Routine ON Annual Monitoring Cost Category Iten Annual	33 <b>Co</b> d U head x (% <b>MA</b> <b>MA</b> <b>MA</b> 5 6 7 8 9 10 11 <b>and</b> ontii <b>Co</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b>	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System Main and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater elevation monitoring (during DGR, Groundwater elevation monitoring (during DGR, Groundwater sampling (during DGR, Groundwater sampling (during DGR, Reporting Reporting Cost Ingency and Unlisted Items (% Years of Annual Monitoring DGR system replacement cost Replace pore water sampling (EISB parameters) Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly surface water sampling Annual groundwater sampling Quarterly surface water sampling Annual groundwater sampling Cleanup completion report M and Reporting Cost Annual groundwater sampling Quarterly surface water sampling Cost Annual groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost Annual surface water sampling Cleanup completion report M and Reporting Cost Tegency and Unlisted Items (% & AND REPORTING COST OM&M and Reporting Cost Presumed Discount Rate	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	s       s <t< th=""><th>25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 8,000 1,5,000 20,000 8,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 1,5,000 20,000 1,5,000</th><th>s     s       s     s</th><th>2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5</b></th></t<>	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 8,000 1,5,000 20,000 8,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 20,000 1,5,000 1,5,000 20,000 1,5,000	s     s       s     s	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 5,744,000 <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,744,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,740,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$6,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5,000</b> <b>\$5</b>
OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA Subtotal Non-Routine OM Annual Monitoring Cost Co TOTAL NON-ROUTINE of Cost Cost TOTAL NON-ROUTINE O	33 <b>Co</b> <b>d</b> U <b>h</b> ead <b>x</b> (% <b>f</b> <b>MA</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b></b>	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Groundwater elevation monitoring (during DGR) Reporting IReporting Cost ngency and Unlisted Items (% Years of Annual Monitoring DGR system replacement cost Replace pore water samplers or drive point well: Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly surface water sampling Quarterly surface water sampling Annual groundwater sampling (EISB parameters post DGI Annual groundwater sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ngency and Unlisted Items (% & ANDR REPORTING COST Mand Reporting Cost Annual groundwater sampling (EISB parameters post DGI Annual groundwater sampling (EISB parameters post DGI Annual groundwater sampling (DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost ngency and Unlisted Items (% & ANDR REPORTING COST OM&M and Reporting Cost Presumed Discount Rate	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct pct Unit Unit yr mo yr yr	s       s <t< th=""><th>25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 70,000 8,000 65,000 8,00</th><th>s     s       s     s</th><th>2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 5,744,000 <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,0</b></th></t<>	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 70,000 8,000 65,000 8,00	s     s       s     s	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 5,744,000 <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,740,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,0</b>
L OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA Subtotal Non-Routine OM Annual Monitoring Cost Co TOTAL NON-ROUTINE OF Annual Monitoring Cost Co	33 <b>Co</b> <b>d</b> U <b>h</b> ead <b>x</b> (% <b>MA</b> <b>1</b> 2 3 4 5 6 7 8 9 10 11 <b>and</b> <b>ontii</b> <b>I</b> 2 3 4 5 6 7 8 9 10 11 <b>and</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>MA</b> <b>M</b>	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs inlisted Engineering Services (% , and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater slevation monitoring (during DGR) Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting IReporting Cost bgency and Unlisted Items (% <i>Years of Annual Monitoring</i> <i>D REPORTING COST</i> M and Reporting Cost Replace pore water sampling cluster sampling DGR system replacement cost Replace pore water sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Annual surface water sampling Annual surface water sampling Cleanup completion report M and Reporting Cost Surface water sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost Surface water sampling (DGR 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost Presumed Discount Rate MANN REPORTING COST OM&M and Reporting Cost Presumed Discount Rate	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct pct Unit Unit yr mo yr yr	s s s s s s s s s s s s s s s s s s s	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,137 250 70,000 8,000 \$3359,000 Unit Cost 75,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 4,500 95,000 200,000 5,000 200,000 5,000 200,000 3,000 5,000 200,000 4,500 200,000 200,000 200,000 5,000 200,	s     s       s     s	2,483,300 620,800 \$27,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 5,744,000 <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,740,000</b> <b>20,000</b> <b>1,5,000</b> <b>20,000</b> <b>1,5,000</b> <b>20,000</b> <b>1,5,000</b> <b>20,000</b> <b>1,5,000</b> <b>2,5,000</b> <b>3,182,000</b> <b>3,182,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,000</b> <b>1,192,</b>
	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Co TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA Subtotal Non-Routine OM Annual Monitoring Cost Co TOTAL NON-ROUTINE OPERA	33 Co d U head x (% MA 1 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 7 8 9 10 11 2 3 4 5 6 7 7 8 9 10 11 2 3 4 5 6 7 7 8 9 10 11 2 3 4 5 6 6 7 7 8 9 10 11 2 3 4 5 6 7 7 8 9 10 11 2 3 4 5 6 6 7 7 8 9 10 11 2 7 7 8 9 10 11 2 10 11 2 10 10 11 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs Inlisted Engineering Services (% , and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System Moke Mabor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR, Groundwater sampling (during DGR, Groundwater sampling (during DGR, Reporting Reporting Reporting Cost paency and Unlisted Items (% Years of Annual Monitoring DESCRIPTING COST M and Reporting Cost Replace pore water samplers or drive point well: Quarterly groundwater/surface water sampling DGR system replacement cosi Replace pore water sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost Annual groundwater devation monitoring Quarterly surface water sampling Quarterly groundwater sampling (DISB parameters) pot DGR Annual groundwater sampling (post DGR 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost Presumed Discount Rate MAND REPORTING COST OM&M and Reporting Cost Presumed Discount Rate	1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit	s       s <t< th=""><th>25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 \$,0</th><th>s     s       s</th></t<> <th>2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000 5,744,000 <b>59,800</b> 5,744,000 <b>59,800</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b></th>	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 \$,0	s     s       s	2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 4,500 70,000 8,000 8,000 8,000 5,744,000 <b>59,800</b> 5,744,000 <b>59,800</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>57,744,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b> <b>50,000</b>
OTAL OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Category Iten NON-ROUTINE OPERA Subtotal Non-Routine OM Annual Monitoring Cost Category Iten NON-ROUTINE OPERA Subtotal Non-Routine OM Annual Monitoring Cost Category Iten NON-ROUTINE OPERA Annual Monitoring Cost Category Iten Annual Monitoring Cost	33 Co d U head x (%) MA MA 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 12 12 12 12 12 12 12 12	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs nlisted Engineering Services (% , and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting Reporting Reporting Cost years of Annual Monitoring DR and Reporting Cost M and Reporting Cost Replace pore water sampling or Presumed Discount Rate Description N, MAINTENANCE, MONITORING, AND REPORTIN Baseline groundwater/surface water sampling DGR system replacement cosi Replace pore water sampling (EISB parameters) Quarterly groundwater elevation monitoring Quarterly groundwater sampling Clanual groundwater sampling Clanual groundwater sampling Cleanup completion report M and Reporting Cost nual groundwater sampling (DSB parameters) Quarterly surface water sampling Clanual groundwater elevation monitoring Quarterly surface water sampling Cleanup completion report M and Reporting Cost ngency and Unlisted Items (% & ANNUAL SNON-ROUTINE; Description DAM&M and Reporting Cost Description DAMAM AND REPORTING COST DM&M COST (ANNUAL & NON-ROUTINE;	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	s       s <t< th=""><th>25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 70,000 8,000 95,000 20,000 8,000</th><th>s     s       s</th></t<> <th>2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 95,000 20,000 \$5,000 5,744,000 \$5,000 \$3,182,000 \$3,923,000 \$3,933,000 \$3,933,000 \$5,386,000 \$5,000 \$5,000 \$5,000 \$5,000 \$3,923,000 \$5,000 \$5,000 \$5,000 \$3,923,000 \$5,930 \$5,930 \$5,900 \$5,930 \$5,900 \$5,900 \$5,900 \$5,900 \$5,900 \$5,900 \$5,900 \$3,923,000 \$5,9300 \$5,9300 \$5,9300 \$5,900 \$5</th>	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 200,000 4,500 95,000 70,000 8,000 95,000 20,000 8,000	s     s       s	2,483,300 620,800 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 95,000 20,000 \$5,000 5,744,000 \$5,000 \$3,182,000 \$3,923,000 \$3,933,000 \$3,933,000 \$5,386,000 \$5,000 \$5,000 \$5,000 \$5,000 \$3,923,000 \$5,000 \$5,000 \$5,000 \$3,923,000 \$5,930 \$5,930 \$5,900 \$5,930 \$5,900 \$5,900 \$5,900 \$5,900 \$5,900 \$5,900 \$5,900 \$3,923,000 \$5,9300 \$5,9300 \$5,9300 \$5,900 \$5
TOTAL OM&M	Subtotal Remedial Action Direct Cost Contingency ar Contractor Bond Fee, Over Washington State Sales Ta: TOTAL DIRECT COST Category Iten ANNUAL OPERATION, Subtotal Annual OM&M Annual Monitoring Cost Ca TOTAL ANNUAL OM&M Present-Worth Annual O Category Iten NON-ROUTINE OPERA NON-ROUTINE OPERA Subtotal Non-Routine OM Annual Monitoring Cost Ca TOTAL NON-ROUTINE OF Present-Worth Non-Rout Annual Monitoring Cost Ca TOTAL PRESENT-WORT TOTAL PRESENT-WORT	33 Co d U head x (%) MA MA 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 3 4 5 6 6 7 8 9 10 11 2 5 6 6 7 8 9 10 11 2 5 6 6 7 8 9 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanu nstruction Costs nlisted Engineering Services (% , and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charge: Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Install pore water samplers or drive point well: Groundwater sampling (during DGR, Groundwater elevation monitoring (during DGR, Surface water sampling (during DGR, Reporting Reporting Cost gency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Replace pore water samplers or drive point well: Quarterly groundwater/surface water sampling DGR system replacement cosi Replace pore water sampling (EISB parameters) Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Cleanup condrater sampling (DGR Annual groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost neanual groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Cleanup completion report M and Reporting Cost ngency and Unlisted Items (% & ANND REPORTING COST M and Reporting Cost ngency and Unlisted Items (% & ANND REPORTING COST M and Reporting Cost ngency and Unlisted Items (% & ANND REPORTING COST M and Reporting Cost ngency and Unlisted Items (% & ANND REPORTING COST M&M AND REPORTING COST M&M AND REPORTING COST M&M AND REPORTING COST M&M COST (ANNUAL & NON-ROUTINE; RTH COST	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 16 0.6% 0.6% 1 1 1 1 20% 16 0.6% 1 1 1 1 20% 1 1 1 1 20% 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LS pct pct vr yr mo yr	s     s       s <th>25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 20,000 4,500 95,000 20,000 8,0</th> <th>s     s     s       s     s       s<th>2,483,300 620,800 527,700 \$291,300 <b>33923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,740</b> <b>5,000</b> <b>5,000</b> <b>5,303</b> <b>5,000</b> <b>5,303</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,33,282,000</b> <b>5,32,269,000</b> <b>5,34,36,000</b> <b>4,580,000</b> <b>4,580,000</b> <b>4,580,000</b> <b>5,50</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,36</b> <b>5,000</b> <b>5,36</b> <b>5,000</b> <b>5,39</b> <b>5,000</b> <b>5,36</b> <b>5,000</b></th></th>	25,000 \$2,483,300 \$2,638,375 3,166,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 250 70,000 8,000 8,000 \$299,200 \$359,000 Unit Cost 75,000 20,000 4,500 95,000 20,000 8,0	s     s     s       s     s       s <th>2,483,300 620,800 527,700 \$291,300 <b>33923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,740</b> <b>5,000</b> <b>5,000</b> <b>5,303</b> <b>5,000</b> <b>5,303</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,33,282,000</b> <b>5,32,269,000</b> <b>5,34,36,000</b> <b>4,580,000</b> <b>4,580,000</b> <b>4,580,000</b> <b>5,50</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,36</b> <b>5,000</b> <b>5,36</b> <b>5,000</b> <b>5,39</b> <b>5,000</b> <b>5,36</b> <b>5,000</b></th>	2,483,300 620,800 527,700 \$291,300 <b>33923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,744,000</b> <b>5,740</b> <b>5,000</b> <b>5,000</b> <b>5,303</b> <b>5,000</b> <b>5,303</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,300</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,32,269,000</b> <b>5,33,282,000</b> <b>5,32,269,000</b> <b>5,34,36,000</b> <b>4,580,000</b> <b>4,580,000</b> <b>4,580,000</b> <b>5,50</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,30</b> <b>5,000</b> <b>5,30</b> <b>5,000</b> <b>5,36</b> <b>5,000</b> <b>5,36</b> <b>5,000</b> <b>5,39</b> <b>5,000</b> <b>5,36</b> <b>5,000</b>

### ALTERNATIVE 5 DYNAMIC GROUNDWATER RECIRUCLATION AND SOURCE AREA EISB

#### POINT OF COMPLIANCE OPTION: OPTION 2B - GROUNDWATER CPOC IN MONITORING WELLS UPGRADIENT OF CREEK

Explanation of POC Option: SWQS (0.3 µg/L TCE) to be met in monitoring wells in "buffer zone" upgradient of the creek. Drinking water standard (4 µg/L TCE) to be met in monitoring wells throughout the groundwater TCE plume

POC Option Specific	1	Existing monitoring wells adjacent to creek sufficient for monitoring groundwater CPOC; monitoring well network sufficient for monitoring groundwater throughout plume.
Assumptions	2	Existing surface water sampling locations will be used for monitoring surface water POC
	3	DGR system will be operated for 20 years for downgradient plume cleanup
	4	EISB in source area will require 23 years for source area cleanup (including 3 injection events over 3-year period)

Major equipment replacement for DGR system will be required during 20-year operational time frame

The set of	Cost	Category	Item #		Ouantity	Unit	1	Unit Cost	1	Total
DEVELOP LOSSEN, FALLA Judier Cable.         Image: Construction of the second seco	Туре	Category	Item #	Description	Quantity	Cint		enn cost		Total
UPUTUDUTUDUTUDUTUDUTUDUUUUUUUUUUUUUUUUU		<u>REMEDIAL DESIG</u>	<u>N, PLAN</u> 1 2 3 4 5 6 7	NING, AND GENERAL (Indirect Costs) Engineering/Proj Mgmt/Const Mgmt/Reporting Cleanup action plan Permits Negotiate and implement institutional controls Contract documents and contractor bidding/procurement Cleanup action construction report/O&M manual	1 1 0 1 1	LS LS LS LS LS	\$ \$ \$ \$ \$ \$ \$	30,000 30,000 10,000 20,000 30,000	\$ \$ \$ \$ \$	30,000 30,000 - 20,000 30,000
TOTAL         Total Control         Total Contro         Total Control         Total Control <th></th> <td></td> <td>8</td> <td>Engineering/Remedial Design Construction management/oversigh</td> <td>8% 6%</td> <td>pct pct</td> <td>\$ \$</td> <td>4,148,000 4,148,000</td> <td>\$ \$</td> <td>248,880</td>			8	Engineering/Remedial Design Construction management/oversigh	8% 6%	pct pct	\$ \$	4,148,000 4,148,000	\$ \$	248,880
UPDOT         Description         Description <thdescription< th=""> <thdescription< th=""> <thde< th=""><th></th><td>Subtotal Damadial D</td><td>9 10 osign <b>P</b>l</td><td>Ecology oversight</td><td>5% 5%</td><td>pct pct</td><td>ֆ \$</td><td>13,870,720</td><td>\$</td><td>693,536</td></thde<></thdescription<></thdescription<>		Subtotal Damadial D	9 10 osign <b>P</b> l	Ecology oversight	5% 5%	pct pct	ֆ \$	13,870,720	\$	693,536
OPCAL INDUCED CON         Description         Description         Description         Description         Description           REVENDEAL ACTT: COORS J. 2014.00000000000000000000000000000000000		Indirect Contingency a	and Unlis	ted Engineering Services (%	15%	pct		\$2,077,800	φ \$	311,700
SUPER PART LACTION CONSTICUTION DEVELOPS Development of LS \$ 30000 \$ 30000 \$ 3000 \$ 3000 \$ 30000 \$ 30000 \$ 30000 \$ 30000 \$ 30000		TOTAL INDIRECT Category	Item #	Description	Quantity	Unit		Unit Cost		\$2,390,000 Total
OPTION         Operation Number Reservation of the State S		REMEDIAL ACTIO	N CONS	STRUCTION - DGR SYSTEM AND ELECTRON DONOR	INJECTIO	NS (Direct	t Cos	sts) 30.000	\$	30,000
OPDICION         Including column and controls well situation yours         Including columns         Incl			2	DCP pilot study	1	LS	¢	80,000	¢	80,000
NOTUTION         is the prediction graphing         is to predict and prediction and installation         is to predict and prediction and predinant and prediction and prediction and prediction an			3	Install injection and extraction wells/distribution system	1	LS	¢	2 500	¢	2 500
OPUTATION         Image: a constraint of the standard of the s	7		4	Site prep/clearing/grubbing Driller mobilization/demobilization	1		\$ \$	75,000 3,000	\$ \$	75,000
UTTUINING         1         0.0000 (10)         0.00000 (10)         0.00000 (10)         0.00000 (10)         0.00000 (10)         0.000000 (10)         0.00000000000000000000000000			6	Drilling - DGR extraction well installation	4	well	\$	20,000	\$	80,000
UTTO         0         Ditling - Monitoring wells for CPC monitoring well set 10000         4         well set 10000         5         100000         100000         100000         1100000         1100000         1000000         1000000         10000000000000         1000000000000000000000000000000000000	IO I		8	Drilling - DGR injection well installation (shallow Drilling - DGR injection well installation (deep)	4	well	\$ \$	26,000 15,000	\$ \$	104,000 120,000
EVEN TOTAL TOTAL         11 10 W diposal problem         10 W diposal problem         60 11 S S 10000         50 120000         52 12000         52 12000           10 10 Transfer table, viving, and yamp with controls         11 S S 10000         11 S S 10000         1000000         10000000         10000000	AT		9 10	Drilling - Monitoring wells for DGR monitoring Drilling - Monitoring wells for CPOC monitoring	4	well well	\$ \$	12,000 10,000	\$ \$	48,000 70,000
DYDY         1	L		11	IDW disposal	60	Drums	\$	200	\$	12,000
GTUD         14         Directional drilling for per-conduit up to ridge 16         1         LS         5         16         5         66         7.200           16         Water Inc., electrical, communications trenching 16         4.200         LT         5         66         5         223,000           16         Water Inc., electrical, communications trenching 10         2.200         LT         5         67         223,000         5         7         223,000         5         7         223,000         5         7         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         10,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000         5         20,000 <t< th=""><th><b>AIE</b></th><td></td><td>12 13</td><td>Well vaults, pumps, air vac assemblies Transfer tank, valving, and pump with controls</td><td>1</td><td>LS LS</td><td>\$ \$</td><td>210,000 18,000</td><td>\$ \$</td><td>210,000 18,000</td></t<>	<b>AIE</b>		12 13	Well vaults, pumps, air vac assemblies Transfer tank, valving, and pump with controls	1	LS LS	\$ \$	210,000 18,000	\$ \$	210,000 18,000
ETC         10         Water priping 170         4200 18         LF         5         65         5         222,000 18           18         Communications couldul and cable 190         Tirche reparting stream of cable 191         10         LF         5         65         5         100,000           201         LF         5         65         5         100,000         31         100,000         31         100,000         31         100,000         31         100,000         31         100,000         31         100,000         31         100,000         31         100,000         31         100,000         31         100,000         30         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         20,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000         32         30,000 <th>E</th> <td></td> <td>14 15</td> <td>Directional drilling for pipe/conduit up to ridge Water line, electrical, communications trenching</td> <td>1 4200</td> <td>LS LF</td> <td>\$ \$</td> <td>100,000 16</td> <td>\$ \$</td> <td>100,000 67,200</td>	E		14 15	Directional drilling for pipe/conduit up to ridge Water line, electrical, communications trenching	1 4200	LS LF	\$ \$	100,000 16	\$ \$	100,000 67,200
1         1         Communicational management operates transformer (lectricin)         1         1         5         5         1         10000           20         First-first	III		16	Water piping	4200	LF	\$	60 45	\$	252,000
19         Trench reporting/restoration         2000         SF         S         5         10,000           21         Instrumentation and controls: control panels         1         L.S         S         10,000         S         20,000			17	Communications conduit and cable	4200	LF	ծ \$	45 65	ծ \$	273,000
21         Instrumention and corrects control panels         21         LS         S         12,500         S         22,50,000           25         DGR system startap and testing         1         LS         S         20,000         S         20,000           24         Utility locate/clearing         1         LS         S         20,000         S         20,000           24         Utility locate/clearing         1         LS         S         30,000         30,000           24         Utility locate/clearing         1         LS         S         30,000         5         0,000           25         Defiler anbitistande-combinitistande compression         23,000         S         22,5000         S         25,5000         S         25,50000         S         25,50000         <			19 20	Trench repaving/restoration Electrical equipment upgrades/transformer/electrician	20000	SF LS	\$ \$	5 70.000	\$ \$	100,000 70,000
21         CAR, pointing vestels.         2         citcle         5         2,2000         5         2,2000           21         Utility becarcicataring.         1         LS         S         2,2000         5         2,000           24         Utility becarcicataring.         1         LS         S         2,000         5         3,000         1         1         LS         S         2,000         1         1         LS         S         3,000         S         2,000         1         1         LS         S         3,000         S         2,000         1         1         LS         S         1,000         S         2,000         1         1         LS         S         2,000         S         2,000         S         2,200         S         2,000         S         2,200         S         2,000         S         2,200         S         2,000         S         2,200         S         2,000         S			21	Instrumentation and controls; control panels	1	LS	\$	150,000	\$	150,000
First Generalization         Image: Second Seco			22 23	GAC polishing vessels DGR system startup and testing	2	each LS	\$ \$	12,500 20,000	\$ \$	25,000 20,000
21         Differ mobilization: mobilization         1         LS         3         3000         \$         3000           21         Differ mobilization: Method electron basin hotyon         24         wells         \$         1000         \$         24000           17         Well development         24         wells         \$         1000         \$         24000           18         DIW disposal         70         Drums         \$         2000         \$         21000           31         Durchase equipment: Application events         3         0.000         \$         0.000         \$         6.000         \$         6.000         \$         5         25.000         \$         25.000         \$         2.55.307           2000 Contractecy and Unitised Engineering Services (%         20%         pet         3.2725.878         \$         5         55.2000         \$         5.275.000         \$         2.55.307         \$         50.000         \$         3.000         \$         5.275.307         \$         5.275.307         \$         5.52.3000         \$         5.275.307         \$         5.52.3000         \$         5.52.3000         \$         5.275.375         \$         5.52.307         \$         \$			24	EISB Injection Well Installation Utility locate/clearing	1	LS	\$	1.000	\$	1.000
240         Uniting - injection were submeriod to sub notegory         241         weils is 4,000 is 2,000 is 2,250,00 is 2,250,000 is			25	Driller mobilization/demobilization	1	LS	\$	3,000	\$	3,000
28         DW disposal         70         Dums         \$         200         \$         14,000           30         Injection crew/labor         71         days         \$         30,000         \$         25,000         \$         225,000         \$         225,000         \$         225,000         \$         6,000         \$         6,000         \$         6,000         \$         6,000         \$         6,000         \$         6,000         \$         6,000         \$         5         5,000         \$         5,5,000         \$         6,000         \$         5,5,000         \$         5,5,000         \$         5,5,000         \$         5,5,000         \$         5,5,000         \$         5,5,000         \$         5,5,5,000         \$         5,5,5,000         \$         5,5,200         \$         3,5,271,075         \$         5,45,200         \$         3,5,271,075         \$         5,45,200         \$         3,221,075         \$         5,45,200         \$         3,221,075         \$         5,45,200         \$         3,221,075         \$         5,45,200         \$         3,221,075         \$         5,45,200         \$         3,221,075         \$         5,45,200         \$         3,221,075 </th <th></th> <td></td> <td>26 17</td> <td>Well development</td> <td>24 24</td> <td>wells</td> <td>\$ \$</td> <td>4,000</td> <td>\$ \$</td> <td>96,000 24,000</td>			26 17	Well development	24 24	wells	\$ \$	4,000	\$ \$	96,000 24,000
30 jaccion crew/abor 31         Purchase equipment/spits for injection system setur 32         Naterials and reals for injection events          33         event             5         20,000          5         25,000          32           21         Water for injection events          33         Donor for injection events          33         0000          15         \$         2,0000          \$         2,5000            Diricet Contoringenesa valuation          Aligita Restoration: slope/buffer plantings, general cleany          1         15         \$         2,553,300          \$         2,553,300          \$         2,553,300          \$         2,553,300          \$         3,500,90            Cotacgry         Item #         Description          9,254          pet          \$         2,403,800            Cotacgry         Item #         Description          9,254          pet          \$         3,403,90          \$         4,4500          \$         4,4500            Call point CiGE rystem code         accgry         Item #         Description          1         pr          \$			28	IDW disposal Injection of Electron Donor	70	Drums	\$	200	\$	14,000
32         Materials and levels for injection events         3         overt \$\$ 20,000         \$\$ 44,500         \$\$ 44,500         \$\$ 44,500         \$\$ 44,500         \$\$ 44,500         \$\$ 44,500         \$\$ 44,500         \$\$ 20,000         \$\$			30 31	Injection crew/labor Purchase equipment/supplies for injection system setur	75	days	\$ \$	3,000	\$ \$	225,000
31         21         Waler for injection events 34 [Site Restoration - stopebuffer plantings, general cleaning         28,000         Bit         5         50,000         5         5,5000         5         5,6000         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600         5         5,600 <th< th=""><th></th><td></td><td>32</td><td>Materials and rentals for injection events</td><td>3</td><td>event</td><td>\$</td><td>20,000</td><td>\$</td><td>60,000</td></th<>			32	Materials and rentals for injection events	3	event	\$	20,000	\$	60,000
Subtotal Remedial Action Construction Costs         Solutional Remedial Action Costs         Solutional Remedial Action Costs         Solutional Remedial Actional Remedial Remediation Remediatin Remediation Remediation Remediation Remediation Remedia			32 33	Water for injection events Donor for injection events	285,000 36000	gal lbs	\$ \$	0.03	\$ \$	8,550 54,000
Direct Cost Contingency and Unitsed Engineering Services (%         28%         pct         \$2533.00         \$633.00           Contractor Road Res. Overhead, and Profit (%)         9.2%         pct         \$3271.075         \$353.00           Washington States Sales Tax (%)         9.2%         pct         \$3271.075         \$3300.900           IOTAL DIFFECT COST         9.2%         pct         \$3271.075         \$44.038,000           Category         Item #         Description         Quantity         Unit         Unit         Cost           ANNUAL OPERATION, MAINTENCE, MONTTORING, AND REPORTING         1         Electricial usage         1         yr         \$44.500         \$44.450           2         Cell phone/GET system remote access charges         1         yr         \$9,600         \$9,460           4         System O&M labor and cost         1         yr         \$9,600         \$9,			34	Site Restoration - slope/buffer plantings, general cleanur	1	IC	\$	25,000	\$	25,000
Washington Stub Select Text (%)         Description         Quantity         Unit         Substance         Substance           Corrad. During Stub Select T COST         Item #         Description         Quantity         Unit         Unit         Substance         Total         Substance         Substan		Subtotal Remedial A	ction Co	nstruction Costs	1	LS	Ψ		\$	<b>_</b> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
IDIAL DIRECT COST         Description         Quantity         Unit         Cost         Total           ANNUAL OPERATION, MANTENANCE, MONTORING, AND REPORTING         1         Electrical usage         1         1         Electrical usage         12         10         S         3/69         \$         4/4,500         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000         \$         2/0,000 <th></th> <th>Subtotal Remedial A Direct Cost Contingen</th> <th>ction Co cy and U Overhead</th> <th>Instruction Costs</th> <th>25%</th> <th>pct pct</th> <th>•</th> <th>\$2,553,300 \$2,725,875</th> <th>\$ \$ \$</th> <th>638,300 545,200</th>		Subtotal Remedial A Direct Cost Contingen	ction Co cy and U Overhead	Instruction Costs	25%	pct pct	•	\$2,553,300 \$2,725,875	\$ \$ \$	638,300 545,200
ANNUAL OPERATION, MAINTENANCE, MONTORING, AND REPORTING         I           1         Electrical usage         1         Image: State of the		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale	ction Co acy and U Overhead es Tax (%	nstruction Costs Inlisted Engineering Services (% 1, and Profit (%)	25% 20% 9.2%	pct pct pct	\$	\$2,553,300 \$2,725,875 3,271,075	\$ \$ \$	638,300 545,200 \$300,900
Weild and a stage         1 pr         2 Cell phone/GET system remote access charges         1 pr         5 44.200         3 69 5         4.428           3 Carbon usage         1 yr         5 9,600         5 9,600         5 9,600         5 9,600           4 System monitoring/NPDES reporting         1 yr         5 20,000         5 20,000         5 20,000           5 DGR system O&M labor and cost         1 yr         5 20,137         5 20,137         5 20,137           6 NPDES annual renewal fee         1 yr         5 67,000         5 67,000         5 67,000           9 Surface water sampling (during DGR)         1 yr         5 8,000         5 8,000         5 8,000           9 Surface water sampling (during DGR)         1 yr         5 8,000         5 8,000         5 8,000           9 Surface water sampling (during DGR)         1 yr         5 1,5000         5 15,000         5 201,700           7 CTAL ANNUAL OM&M AND REPORTING Cost         20%         pct         5201,7001         5 85,300           7 CTAL ANNUAL OM&M AND REPORTING Cost         Presumed Discont Rate         0.0mit/v         Vinit         Vinit Cost         5 75,000           7 Urat Janual Monitoring Cost         Presumed Discont Rate         0.0mit/v         Vinit         Vinit Cost         7 5,000           10 B		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category	ction Co acy and U Overhead es Tax (% OST Item #	nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) Description	25% 20% 9.2%	pct pct pct Unit	\$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost	\$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> Total
WT         3         Carbon usage         1         yr         \$ 9,600         \$ 9,600           4         System monitoring/NPDES reporting         1         yr         \$ 9,600         \$ 20,000           5         DGR system O&M labor and cost         1         yr         \$ 95,000         \$ 95,000           6         NPDES annual renewal fee         1         yr         \$ 67,000         \$ 67,000           8         Groundwater sampling (during DGR)         1         yr         \$ 8,000         \$ 8,000           9         Surface water sampling (during DGR)         1         yr         \$ 8,000         \$ 8,000           10         Reporting         20         yrs         \$ 15,000         \$ 5291,700           Annual Monitoring Cost Contingency and Unlisted Items (%         20%         pet         \$ 291,700         \$ 58,300           TOTAL ANNUAL OM&M AND REPORTING COST         Years of Annual Monitoring         20         yrs         \$ 5350,000 \$ 7,000,000         \$ 7,000,000           TOTAL ANNUAL OM&M AND REPORTING COST         Years of Annual Monitoring         12         yrt         \$ 75,000         \$ 75,000         \$ 75,000         \$ 75,000         \$ 75,000         \$ 200,000         \$ 200,000         \$ 200,000         \$ 200,000         \$ 200,000		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI	ction Co ley and U Overhead es Tax (% OST Item # ION, MA	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical mages	25% 20% 9.2% Quantity	pct pct pct Unit	\$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost	\$ \$	638,300 545,200 \$300,900 \$4,038,000 Total
Weight of the system monitoring/NPDES reporting         I yr         S         20,000         S         20,000           5         DGR system O&M labor and cost         1 yr         S         95,000         S         95,000           6         NPDES annual renewal fee         1 yr         S         20,137         S         20,000         S		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERATI	ction Co cy and U Overhead es Tax (% OST Item # ION, MA 1 2	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges	25% 20% 9.2% Quantity	pct pct pct Unit	\$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369	\$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428
VEY         S         DCR system O&M labor and cost NPDES annual renewal fee         I yr         S         95,000 <t< th=""><th></th><td>Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERATI</td><td>ction Co icy and U Overhead es Tax (% OST Item # ION, MA 1 2 3</td><td>Instruction Costs Inlisted Engineering Services (% 1, and Profit (%) Inlisted Engineering Services (% 1, and Profit (%) Inlisted Engineering Services (% Inlisted Eng</td><td>25% 20% 9.2% Quantity 1 12</td><td>pct pct pct Unit</td><td>\$ \$ \$ \$</td><td>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600</td><td>\$ \$ \$ \$ \$ \$</td><td>638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600</td></t<>		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERATI	ction Co icy and U Overhead es Tax (% OST Item # ION, MA 1 2 3	Instruction Costs Inlisted Engineering Services (% 1, and Profit (%) Inlisted Engineering Services (% 1, and Profit (%) Inlisted Engineering Services (% Inlisted Eng	25% 20% 9.2% Quantity 1 12	pct pct pct Unit	\$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600	\$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600
Image: constraint of the second sec		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI	ction Co ccy and U Overheaces ss Tax (% OST Item # ICON, MA 1 2 3 4	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Inlisted Engineering Services (% I, and Profit (%) Intrenance, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	25% 20% 9.2% Quantity 1 12 1 1	pct pct pct Unit yr mo yr yr yr	\$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000	\$ \$ \$ \$ \$ \$ \$ \$	638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000
Non-Routine angling (during DGR)         1 pr         5         8,000         5         8,000           9         Surface water sampling (during DGR)         1 yr         \$         8,000         \$         \$         8,000         \$		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERATI	ction Co ccy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost	25% 20% 9.2% Quantity 1 12 1 1 1	pct pct pct Unit yr mo yr yr yr yr	\$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000
Image: Second		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI	ction Co ccy and U Overhead ss Tax (% DST Item # I CON, MA 1 2 3 4 5 6 6 7 7	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR)	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1	pct pct pct Unit yr mo yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 67,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000
Subtotal Annual OM&M and Reporting Cost       5       291,700       5       58,300         Annual Monitoring Cost Contingency and Unlisted Items (%       20%       pct       \$\$291,700       \$58,300         TOTAL ANNUAL OM&M AND REPORTING COST       ************************************		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee., Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERAT	ction Co cy and U Overhead s Tax (% DST Item # ION, MA 1 2 3 4 5 6 6 7 8 8 9 9	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Inlisted Engineering Services (% I, and Profit (%) Intrenance, MONITORING, AND REPORTING INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater levation monitoring (during DGR) Surface Usage Market Service Complexed (during DGR)	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 67,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000
Years of Annual Monitoring       20       yrs       \$350,000       \$7,000,000         TOTAL ANNUAL OM&M AND REPORTING COST       \$7,000,000       \$7,000,000       \$7,000,000         Present-Worth Annual OM&M and Reporting Cost       Presumed Discount Rate       0.6%       pct       \$56,578,000         Category       Item #       Description       Ouantity       Unit       Unit       Unit Cost       Total         NON-ROUTINE OPERATION, MAINTENANCE, MONITORING, AND REPORTING       1       Baseline groundwater sampling       1       event       \$7,000       \$7,500       \$7,500         1       Baseline groundwater sampling       1       event       \$7,000       \$200,000       \$200,000         2       DGR system equipment replacement cost       1       event       \$7,000       \$200,000       \$200,000         3       Quarterly groundwater sampling       12       event       \$67,000       \$285,000       \$40,000       \$96,000		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI	ction Co cy and U Overheac s Tax (% OST Item # ICN, MA ON, MA 1 2 3 4 5 6 6 7 8 8 9 0 10	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pet pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 8,000 15,000
Present-Worth Annual OM&M and Reporting Cost       Presumed Discount Rate       0.6%       pct       \$6,578,000         Categorv       Item #       Description       Ouantity       Unit       Unit       Unit Cost       Total         NON-ROUTINE OPERATION, MAINTENANCE, MONTORING, AND REPORTING       1       Baseline groundwater/surface water sampling       1       event       \$ 75,000       \$ 75,000       \$ 75,000       \$ 200,000       3       Quarterly groundwater sampling       1       event       \$ 200,000       \$ 200,000       \$ 285,000       \$ 420,000       \$ 285,000       \$ 426,000       \$ 285,000       \$ 4804,000       \$ 96,000       \$ 60,000       \$ 60,000       \$ 804,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 804,000       \$ 80,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 96,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 96,000       \$ 96,000       \$ 90,000       \$ 80,000       \$ 96,000       \$ 96,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000       \$ 90,000		Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI	ction Co rey and U Overheac S Tax (%) OST Item # (ON, MA 1 2 3 4 5 6 6 7 7 8 9 9 100 &&M and sst Contin	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) I, and Profit (%) INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Surface water sampling (during DGR) Reporting IReporting Reporting IReporting IReporting IReporting Imagency and Unlisted Items (%	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 20%	pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 67,000 8,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 8,000 15,000 15,000 291,700 58,300
Category       Filestry       Filestry       Formula (Control of Control o	&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI	ction Co cy and U Overhead s Tax (% OST Item # ION, MA 1 2 3 4 5 5 6 7 8 9 0 0 & M and ost Contin	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting Reporting Reporting Reporting Reporting Cost agency and Unlisted Items (% Years of Annual Monitoring DR REPORTING COST	25% 20% 9.2% Quantity 1 12 1 12 1 1 1 1 1 1 1 1 1 20% 20	pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 67,000 8,000 8,000 8,000 15,000 \$291,700 \$350,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 15,000 291,700 58,300 7,000,000
Image: 1 Baseline groundwater/surface water sampling         1 event         \$ 75,000         \$ 200,000           2         DGR system equipment replacement cost         1 event         \$ 200,000         \$ 200,000           3         yr         \$ 95,000         \$ 285,000         \$ 285,000           4         Quarterly groundwater sampling         12 event         \$ 67,000         \$ 285,000           6         Quarterly groundwater sampling         12 event         \$ 8,000         \$ 96,000           6         Quarterly groundwater elevation monitoring         12 event         \$ 8,000         \$ 96,000           7         Annual groundwater sampling (EISB parameters post DGR)         3 yrs         \$ 65,000         \$ 96,000           8         Annual groundwater sampling (Dost DGR)         3 yrs         \$ 8,000         \$ 24,000           8         Annual groundwater sampling (post DGR)         3 yrs         \$ 8,000         \$ 24,000           9         Annual surface water sampling (post DGR)         3 yrs         \$ 8,000         \$ 22,269,000           10         L/2 event         \$ 75,000         \$ 450,000         \$ 22,269,000         \$ 22,269,000           11         Cleanup completion report         1 L/S         \$ 22,269,000         \$ 22,269,000         \$ 22,269,000     <	M&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu	ction Co rey and U Overheac s Tax (% OST Item # (ON, MA 1 2 3 4 5 6 6 7 8 8 9 10 & M and ost Contin M&M AN al OM&	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Reporting IReporting Cost Reporting Cost IREPORTING COST Mand Reporting Cost Presumed Discount Rate	25% 20% 9.2% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 20 0.6%	pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 15,000 \$291,700 \$350,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 15,000 291,700 058,300 7,000,000 <b>\$7,000,000</b> <b>Total</b>
Market State       3       Quarterly groundwater sampling (EISB parameters)       3       yr       \$       95,000       \$       285,000         4       Quarterly groundwater sampling       12       event       \$       67,000       \$       804,000         5       Quarterly groundwater sampling       12       event       \$       8,000       \$       96,000         6       Quarterly surface water sampling       12       event       \$       8,000       \$       96,000         7       Annual groundwater sampling (EISB parameters post DGR)       3       yrs       \$       65,000       \$       195,000         8       Annual groundwater elevation monitoring (post DGR)       3       yrs       \$       8,000       \$       24,000         9       Annual surface water sampling (post DGR)       3       yrs       \$       8,000       \$       24,000         10       1.5       yearterly confirmation sampling       6       6       event       \$       75,000       \$       450,000         Annual Monitoring Cost Contingency and Unlisted Items (%       20%       pct       \$2,269,000       \$       453,800         7077AL NON-ROUTINE OM&M AND REPORTING COST       \$2,723,000       \$       \$	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATT Subtotal Annual OPERATT TOTAL ANNUAL OM Annual Monitoring CC TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP	ction Co cy and U Overhead s Tax (% OST Item # ION, MA 1 2 3 4 5 5 6 7 8 9 10 & M and ost Contin M&M AN al OM& Item # ERATIC	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting Reporting Reporting Cost ngency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST Main Reporting Cost DS, MAINTENANCE, MONITORING, AND REPORTING	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% Quantity	pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr		\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 67,000 8,000 15,000 \$291,700 \$350,000 Unit Cost	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 15,000 291,700 58,300 7,000,000 <b>\$6,578,000</b> <b>Total</b>
Solution of the second seco	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	ction Co cy and U Overheac s Tax (% OST Item # CON, MA CON, MA 1 2 3 4 5 6 6 7 8 9 10 & M and ost Contin M&M AN al OM& Item # ERATIC 2	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System Moken labor and cost NPDES annual renewal fee Groundwater elevation monitoring (during DGR) Groundwater elevation monitoring (during DGR) Reporting IReporting IReporting Cost Ingency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST M and Reporting Cost Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system equipment replacement cost	25% 20% 9.2% Quantity 1 12 1 12 1 1 1 1 1 1 1 1 20% 20 0.6% Ouantity	pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,137 67,000 8,000 \$350,000 \$291,700 \$350,000 Unit Cost 75,000 200,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000           95,000           20,137           67,000           8,000           15,000           291,700           58,300           7,000,000           \$7,000,000           \$7,000,000           75,000           200,000
Annual groundwater sampling (ELSB parameters post DGR)       3 yrs       \$ 65,000       \$ 195,000         7       Annual groundwater elevation monitoring (post DGR)       3 yrs       \$ 65,000       \$ 195,000         9       Annual groundwater elevation monitoring (post DGR)       3 yrs       \$ 8,000       \$ 24,000         9       Annual surface water sampling (post DGR)       3 yrs       \$ 8,000       \$ 24,000         10       1.5 years quarterly confirmation sampling       6 event       \$ 75,000       \$ 450,000         Subtotal Non-Routine OM&M and Reporting Cost       \$ 2,269,000       \$ 22,000       \$ 20,000         Annual Monitoring Cost Contingency and Unlisted Items (%       20%       pct       \$ 2,269,000       \$ 453,800         TOTAL NON-ROUTINE OM&M AND REPORTING COST       \$ 2,269,000       \$ 453,800       \$ 2,723,000         Present-Worth Non-Routine OM&M and Reporting Cost       \$ \$ 2,269,000       \$ 453,800         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$ \$ 2,390,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$ \$ 9,142,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$ \$ 9,142,000         TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)       \$ \$ 9,142,000         TOTAL PRESENT-WORTH COST	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	ction Co rey and U Overheac S Tax (%) OST Item # 1 2 3 4 5 6 6 7 7 8 9 10 & M and ost Contin M&M AN al OM& Item # ERATIC 1 2 3 4 4 7 7 8 8 9 10 8 8 9 10 8 8 8 9 10 8 8 8 9 10 8 8 8 8 9 10 8 8 8 10 8 10	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) I manual profit (%) Instruction Costs Indicate Engineering Services (% I, and Profit (%) Instruction International profit (%) I	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% Ouantity	pct pct pct yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 \$350,000 \$291,700 \$350,000 \$350,000 \$291,700 \$350,000 \$350,000 95,000 200,000 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 8,000 8,000 <b>\$5,000</b> 291,700 <b>\$5,000</b> 291,700 <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>200,000</b> <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> 200,000 <b>\$6,578,000</b> <b>\$6,570</b> <b>\$0,000</b> <b>\$6,570</b> <b>\$0,000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$1,5000</b> <b>\$</b>
Annual groundwater elevation monitoring (post DGR)       3 yrs       \$ 8,000       \$ 24,000         9       Annual surface water sampling (post DGR)       3 yrs       \$ 8,000       \$ 24,000         10       1.5 years quarterly confirmation sampling       6 event       \$ 75,000       \$ 450,000         11       Cleanup completion report       1 LS       \$ 20,000       \$ 20,000       \$ 20,000         Subtotal Non-Routine OM&M and Reporting Cost       \$ 22,269,000       \$ 453,800       \$ 22,269,000       \$ 453,800         TOTAL NON-ROUTINE OM&M AND REPORTING COST       \$ 22,269,000       \$ 453,800       \$ 22,723,000       \$ 453,800         Present-Worth Non-Routine OM&M and Reporting Cost       \$ 2,269,000       \$ 453,800       \$ 22,723,000       \$ 453,800         TOTAL NON-ROUTINE OM&M AND REPORTING COST       \$ 2,269,000       \$ 453,800       \$ 22,723,000         Present-Worth Non-Routine OM&M and Reporting Cost       \$ 2,269,000       \$ 453,800       \$ 22,723,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$ 22,239,000       \$ 32,723,000         TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)       \$ 42,338,000       \$ 9,142,000         TOTAL PRESENT-WORTH REMEDIATION (ANNUAL & NON-ROUTINE)       \$ 9,142,000       \$ 99,142,000         TOTAL PRESENT-WORTH COST	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Cc TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	ction Co cy and U Overheac s Tax (% OST Item # I (ON, MA I CON, MA I CON	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater elevation monitoring (during DGR) Groundwater elevation monitoring (during DGR) Reporting Reporting Reporting Reporting Cost Ingency and Unlisted Items (% Years of Annual Monitoring ID REPORTING COST Mand Reporting Cost DN, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groun	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% Quantity	pct pct pct yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,0000\$300,000\$300,0000\$300,000\$300,000\$300,0000\$300,000\$300,0000\$300,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 20,137 67,000 8,000 15,000 291,700 58,300 <b>\$3,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>Total</b> 75,000 200,000 <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b> <b>\$0,000</b>
10       1.5 years quarterly confirmation sampling       6       event       \$       75,000       \$       450,000         Subtotal Non-Routine OM&M and Reporting Cost       1       1.5       \$       20,000       \$       20,000         Annual Monitoring Cost Contingency and Unlisted Items (%       20%       pct       \$2,269,000       \$       453,800         TOTAL NON-ROUTINE OM&M AND REPORTING COST       \$2,723,000       \$       \$2,723,000       \$       \$2,723,000         Present-Worth Non-Routine OM&M and Reporting Cost       Presumed Discount Rate       0.6%       pct       \$2,564,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,390,000       \$2,390,000       \$2,390,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,390,000       \$2,390,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,390,000       \$9,142,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$9,142,000       \$9,142,000         TOTAL PRESENT-WORTH COST       \$9,142,000       \$9,142,000       \$9,142,000	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Cc TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	ction Co cy and U Overheac s Tax (% OST Item # CON, MA 1 2 3 4 5 6 6 7 8 8 9 10 & M and ost Contin <b>M&amp;M AN</b> al OM& <b>Item #</b> <b>ERATIC</b> 1 2 3 4 4 5 5 6 7 7	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting IReporting Cost IREPORTING COST Mand Reporting Cost Description DGR system equipment replacement cost Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling CISB parameters post DGR; Annual groundwater sampling	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% 0uantity 1 1 1 3 12 20% 20 20 3	pct pct pct yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$       \$ <t< td=""><td>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$350,000 \$350,000 <b>Unit Cost</b> 75,000 200,000 95,000 65,000</td><td>\$     \$       \$     \$</td><td>638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 20,137 67,000 8,000 15,000 291,700 <b>\$0,000</b> <b>\$5,000</b> <b>\$0,000</b> <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>Total</b> <b>75,000</b> 20,000 <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$</b></td></t<>	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$350,000 \$350,000 <b>Unit Cost</b> 75,000 200,000 95,000 65,000	\$     \$       \$     \$	638,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 20,137 67,000 8,000 15,000 291,700 <b>\$0,000</b> <b>\$5,000</b> <b>\$0,000</b> <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>Total</b> <b>75,000</b> 20,000 <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$</b>
Subtotal Non-Routine OM&M and Reporting Cost         Annual Monitoring Cost Contingency and Unlisted Items (%       20%       pct       \$ 2,269,000         Annual Monitoring Cost Contingency and Unlisted Items (%       20%       pct       \$ 2,269,000         Present-Worth Non-Routine OM&M and Reporting Cost       \$\$ 2,269,000       \$ 453,800         Present-Worth Non-Routine OM&M and Reporting Cost       \$\$ 2,269,000       \$\$ 453,800         Present-Worth Non-Routine OM&M and Reporting Cost       Presumed Discount Rate       0.6%       pct       \$\$ 2,723,000         Present-Worth Non-Routine OM&M and Reporting Cost       Presumed Discount Rate       0.6%       pct       \$\$ 2,564,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$\$ 2,390,000       \$\$ 2,390,000         TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)       \$\$ 4,038,000       \$\$ 9,142,000         TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)       \$\$ 9,142,000       \$\$ 15,570,000	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATT Subtotal Annual OPERATT Subtotal Annual OM Annual Monitoring CC TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	<b>ction Co</b> ley and U Overhead s Tax (% <b>DST</b> <b>Item #</b> <b>ION, MA</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b> <b>5</b> <b>6</b> <b>7</b> <b>8</b> <b>9</b> <b>10</b> <b>8</b> <b>9</b> <b>10</b> <b>8</b> <b>9</b> <b>10</b> <b>8</b> <b>10</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) I, and Profit (%) IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% Ouantity 1 1 3 3 12 12 12 12 3 3 3 3	pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	3         5           5         5	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 8,000 8,000 8,000 \$350,000 Unit Cost 75,000 20,000 95,000 67,000 8,000 8,000 8,000 8,000 8,000 8,000	\$     \$       \$ <td>638,300 545,200 \$300,900 \$4,038,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 291,700 58,300 7,000,000 \$7,000,000 \$6,578,000 Total 75,000 200,000 285,000 804,000 96,000 96,000 96,000 96,000 96,000 24,000 24,000 24,000</td>	638,300 545,200 \$300,900 \$4,038,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 291,700 58,300 7,000,000 \$7,000,000 \$6,578,000 Total 75,000 200,000 285,000 804,000 96,000 96,000 96,000 96,000 96,000 24,000 24,000 24,000
ALTERNATIVE COST SUMMARY       \$2,3000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,3000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,300,000         TOTAL PRESENT-WORTH COST (ANNUAL & NON-ROUTINE)       \$9,142,000         TOTAL PRESENT-WORTH COST       \$15,570,000	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP	<b>ction Co</b> cey and U Overheac s Tax (% <b>DST</b> <b>Item #</b> <b>Item #</b> <b>GN, MA</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b> <b>6</b> <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>8</b> <b>9</b> <b>10</b> <b>6</b> <b>6</b> <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>8</b> <b>9</b> <b>10</b> <b>6</b> <b>6</b> <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>8</b> <b>9</b> <b>10</b> <b>6</b> <b>6</b> <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>8</b> <b>9</b> <b>10</b> <b>6</b> <b>6</b> <b>6</b> <b>10</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>2</b> <b>3</b> <b>3</b> <b>4</b> <b>4</b> <b>4</b> <b>5</b> <b>5</b> <b>6</b> <b>6</b> <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>8</b> <b>8</b> <b>9</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b>	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Image: Services (% I, and Profit (%) Image: Services (% Image: Service (%	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct yr Unit yr yr yr yr yr yr yr yr yr yr yr yr yr	s           s	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$350,000 \$291,000 \$350,000 \$350,000 \$3,000 \$,0	s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s           s         s	
ALTERNATIVE COST SUMMARY       Presumed Discount Rate       0.6%       pct       \$2,364,000         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,390,000         TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)       \$4,038,000         TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)       \$9,142,000         TOTAL PRESENT-WORTH COST       \$15,570,000	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OM Annual Monitoring CC TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP	cition Coo     city and U     Overheac     city and U     Overheac     s Tax (%     OST     Item #     If (ON, MA         1         2         3         4         5         66         77         8         99         10         &&M and         bst Conti          1         2         3         4         5         66         77         8         9         10         4         5         66         77         8         9         10         2         3         4         5         66         77         8         9         10         2         3         4         5         66         77         8         9         10         1         22         3         4         5         66         77         8         9         10         11         22         3         3	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Image: Services (% I, and Profit (%) Image: Services (% Im	25% 20% 9.2% Quantity 1 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct vr vr yr yr yr yr yr yr yr yr yr yr yr yr yr	s           s	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$350,000 67,000 8,000 65,000 8,00	s         s           s         s	638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000           95,000           20,000           95,000           20,137           67,000           8,000           15,000           291,700           58,300           7,000,000           \$7,000,000           \$7,000,000           \$6,578,000           75,000           200,000           \$8,000           195,000           24,000           24,000           24,000           24,000           24,000           24,000           20,000           24,000           20,000           24,000           20,000           24,000           20,000           24,000           20,000           20,000
ALTERNATIVE COST SUMMARY         TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,390,000         TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)       \$4,038,000         TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)       \$9,142,000         TOTAL PRESENT-WORTH COST       \$15,570,000	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATT Subtotal Annual OM Annual Monitoring CC TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring CC TOTAL NON-ROUTI	ction Coo     cy and U     Overhead     sr Tax (%     OST     Item #     CON, MA     I     1     2     3     4     5     6     6     7     8     9     10     ckM and     ost Contin     Contin     CRATIC     1     1     2     3     4     5     6     6     7     8     9     10     ckM and     st Contin     contin     conta     cont	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) IDESCRIPTION INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater slevation monitoring (during DGR) Groundwater elevation monitoring (during DGR) Reporting Reporting Reporting Reporting Cost Mand Reporting Cost Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR system equipment replacement cost Quarterly groundwater sampling CISB parameters) Quarterly groundwater sampling CISB parameters) Quarterly groundwater sampling CISB parameters) Quarterly groundwater sampling CISB parameters post DGR; Annual groundwater elevation monitoring CISB parameters post DGR; Annual groundwater sampling CISB parameters post DGR; Annual groundwater sampling CISB parameters post DGR; Annual surface water sampling (LISB parameters post DGR; Annual groundwater sampling CISB parameters post DGR; Annual ground	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	3       3       5 <t< td=""><td>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$2,5000 8,000</td><td>\$     \$       \$</td></t<> <td>−1,54,000           638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000           95,000           20,000           95,000           20,137           67,000           8,000           15,000           291,700           58,300           7,000,000           \$7,000,000           \$6,578,000           70,000,000           285,000           804,000           96,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           27,23,000</td>	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$2,5000 8,000	\$     \$       \$	−1,54,000           638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000           95,000           20,000           95,000           20,137           67,000           8,000           15,000           291,700           58,300           7,000,000           \$7,000,000           \$6,578,000           70,000,000           285,000           804,000           96,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           27,23,000
TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)       \$2,390,000         TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)       \$4,038,000         TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)       \$9,142,000         TOTAL PRESENT-WORTH COST       \$15,570,000	OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATT Subtotal Annual OPERATT NUAL OPERATT Annual Monitoring CC TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring CC TOTAL NON-ROUTI Present-Worth Non-	ction Co cy and U Overheaces Tax (% OST Item # ICN, MA 1 2 3 4 5 6 6 7 8 8 9 10 <b>&amp;M and</b> 0 set Contin <b>&amp;M AN</b> al OM& <b>ERATIO</b> 2 3 4 5 5 6 6 7 7 8 9 10 <b>&amp;M and</b> 0 set Contin <b>Item #</b> <b>ERATIO</b> 1 2 8 9 10 0 8 8 9 10 0 8 8 9 10 0 8 8 9 10 0 8 8 9 10 10 8 8 9 10 10 8 8 9 10 10 8 8 10 10 8 8 9 10 10 8 8 10 10 10 8 10 10 10 10 10 10 10 10 10 10 10 10 10	Instruction Costs         Inlisted Engineering Services (%         I, and Profit (%)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater elevation monitoring (during DGR)         Groundwater elevation monitoring (during DGR)         Reporting         IReporting Cost         Presumed Discount Rate         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (EISB parameters post DGR)         Annual groundwater sampling (Dost DGR)         Annual groundwater sampling (EISB parameters post DGR)         Annual groundwater sampling (EISB parameters post DGR)         Annual groundwater sampling (Dost DGR)         Annual surface water sampling (Dost DGR)         Annual surface water samplin	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% 0uantity 20 0.6% 0.6%	pct pct pct yr wr yr yr yr yr yr yr yr yr yr yr yr yr yr	3       3 <t< th=""><th>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$20,000 \$5,000 65,000 8,000 9,000 9,000 9,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 8,000 9,000 8,000 8,000 8,000 8,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000</th><th>s       s    <t< th=""><th>□</th></t<></th></t<>	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$20,000 \$5,000 65,000 8,000 9,000 9,000 9,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 8,000 9,000 8,000 8,000 8,000 8,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000	s       s <t< th=""><th>□</th></t<>	□
P       TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)       \$9,142,000         TOTAL PRESENT-WORTH COST       \$15,570,000	L OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATT Subtotal Annual OM Annual Monitoring CC TOTAL ANNUAL OM Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring CC TOTAL NON-ROUTINE OP	ction Co ey and U Overhead s Tax (% OST Item # ION, MA I 2 3 4 5 5 6 6 7 8 9 0 0 & M and ost Contin <b>M&amp;M AN</b> al OM& <b>M AN</b> <b>A</b> <b>A</b> <b>B</b> <b>A</b> <b>A</b> <b>B</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>B</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b>	Instruction Costs       Image: Content of Conten	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 20% 20 0.6% Ouantity 1 1 3 3 20 0.6% Ouantity 20% 0.6%	pct pct pct yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	3       5 <t< td=""><td>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 \$291,700 \$350,000 5,000 0,000 5,000 67,000 8,000 9,000 9,000 9,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 8,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 9,000 9,000 8,000 9,0000 9,000 9,0000 9,0000 9,00</td><td>\$     \$       \$</td></t<> <td>545,200 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 15,000 291,700 58,300 7,000,000 <b>\$6,578,000</b> <b>Total</b> 75,000 200,000 <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$</b></td>	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 \$291,700 \$350,000 5,000 0,000 5,000 67,000 8,000 9,000 9,000 9,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 8,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 8,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 9,000 8,000 9,000 9,000 9,000 8,000 9,0000 9,000 9,0000 9,0000 9,00	\$     \$       \$	545,200 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 67,000 8,000 15,000 291,700 58,300 7,000,000 <b>\$6,578,000</b> <b>Total</b> 75,000 200,000 <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$7,000,000</b> <b>\$6,578,000</b> <b>\$1,000</b> <b>\$2,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$6,000</b> <b>\$</b>
	TAL OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Annual Monitoring Cc TOTAL ANNUAL ON Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-ROUTINE OP Subtotal Non-ROUTINE OP Subtotal Non-ROUTINE OP TOTAL NON-ROUTINE CO TOTAL PRESENT-W	ction Co cy and U Overheac s Tax (% OST Item # ICN, MA I CON, MA I CON, MA I CON, MA I CON, MA I S S S S S S S S S S S S S S S S S S	Instruction Costs Inlisted Engineering Services (% I, and Profit (%) Image: Services (% I, and Profit (%) Image: Services (% Im	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	3       3 <t< td=""><td>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$20,000 \$5,000 \$0,000 \$2,000 \$0,000 \$0,000 \$0,000 \$2,000 \$0</td><td>s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s</td><td>1.54,000           638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000           95,000           20,137           67,000           20,137           67,000           8,000           15,000           291,700           58,300           7,000,000           \$6,578,000           75,000           200,000           285,000           804,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           27,23,000           \$2,390,000           \$2,390,000           \$2,390,000</td></t<>	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$20,000 \$5,000 \$0,000 \$2,000 \$0,000 \$0,000 \$0,000 \$2,000 \$0	s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s       s     s	1.54,000           638,300           545,200           \$300,900           \$4,038,000           Total           44,500           4,428           9,600           20,000           95,000           20,137           67,000           20,137           67,000           8,000           15,000           291,700           58,300           7,000,000           \$6,578,000           75,000           200,000           285,000           804,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           24,000           27,23,000           \$2,390,000           \$2,390,000           \$2,390,000
Annronriate Cost Dange (-30% - ±50%) Trivest 1 © 10.000 000 © 32.220 000	TOTAL OM&M	Subtotal Remedial A Direct Cost Contingen Contractor Bond Fee, Washington State Sale TOTAL DIRECT CC Category ANNUAL OPERATT Subtotal Annual OPERATT OPERATOR OF TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Cc TOTAL NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring Cc TOTAL NON-ROUTINE OP CTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W	ction Co cy and U Overheac S Tax (% OST Item # 1 2 3 4 5 6 6 7 7 8 9 10 & M and 5 5 6 6 7 7 8 9 10 & M al OM& ERATIC 1 1 2 3 3 4 4 5 6 6 7 7 8 9 10 & M and 5 5 6 6 7 7 8 8 9 10 & M al OM& 1 2 3 4 4 5 5 6 6 7 7 8 8 9 10 & M AN al OM& 10 8 8 9 10 & M AN al OM& 1 2 2 3 3 4 4 4 5 5 6 6 7 7 8 8 9 10 & M AN A 10 8 8 9 10 & M AN A 12 2 3 3 4 4 4 8 9 10 & M AN A 12 2 3 3 4 4 4 4 5 5 6 6 7 7 7 8 8 9 10 & M AN A 12 2 3 3 4 4 4 4 5 5 6 6 7 7 7 8 8 9 10 & M AN A 12 2 3 3 4 4 4 5 5 6 6 7 7 7 8 8 9 10 & M AN A 12 2 3 3 4 4 4 5 5 6 6 7 7 7 8 8 9 10 & M AN A 12 2 3 3 4 4 8 9 10 & M AN A 12 2 3 3 4 4 4 5 6 6 6 7 7 7 8 8 9 10 & M AN A 8 9 10 & M AN A 8 9 10 & M AN A 8 9 10 & M AN A 8 8 9 10 & M AN 8 8 9 10 & M AN 8 8 9 10 0 & M AN 8 8 9 10 0 & M AN 8 8 9 10 0 & M AN 8 8 9 10 0 ( M AN 8 8 9 10 0 ( M AN 8 8 9 10 11 11 8 8 9 10 10 11 11 7 7 7 7 7 7 7 7 8 8 9 10 10 7 7 7 8 7 7 7 8 7 8 7 7 7 7 8 7 7 7 7	Instruction Costs       Image: Content of the second	25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct yr wr yr yr yr yr yr yr yr yr yr yr yr yr yr	s       s <t< th=""><th>\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,000 95,000 20,000 8,000 8,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$2,000 67,000 8,000 65,000 8</th><th>s     s       s     s</th><th>545,200 533,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 15,000 291,700 058,300 7,000,000 <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$6,000</b> 96,000 96,000 195,000 24,000 804,000 96,000 96,000 96,000 <b>\$2,564,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,0000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b></th></t<>	\$2,553,300 \$2,725,875 3,271,075 Unit Cost 44,500 20,000 95,000 20,000 95,000 20,000 95,000 20,000 8,000 8,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$291,700 \$350,000 \$2,000 67,000 8,000 65,000 8	s     s       s     s	545,200 533,300 545,200 \$300,900 <b>\$4,038,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 67,000 8,000 8,000 15,000 291,700 058,300 7,000,000 <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$7,000,000</b> <b>\$6,000</b> 96,000 96,000 195,000 24,000 804,000 96,000 96,000 96,000 <b>\$2,564,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,564,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,390,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,0000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b> <b>\$2,000</b>

ALTERNATIVE 5

#### DYNAMIC GROUNDWATER RECIRUCLATION AND SOURCE AREA EISB

#### POINT OF COMPLIANCE OPTION: OPTION 3 - GROUNDWATER CPOC AT PROPERTY LINE/UPGRADIENT OF CREEK ON BOEING PROPH

 $\textbf{Explanation of POC Option: SWQS (0.3 \ \mu g/L \ TCE) to be met in monitoring wells along Boeing Property Line (and all points downgradient) and in SWQS (0.3 \ \mu g/L \ TCE) to be met in monitoring wells along Boeing Property Line (and all points downgradient) and in the second se$ 

"buffer zone" upgradient (or in transition zone as allowable by MTCA for properties abutting surface water) of the creek on Boeing property. Drinking water standard (4  $\mu\text{g/L}$  TCE) to be met in monitoring wells throughout the groundwater TCE plume on Boeing property.

POC Option

- Existing monitoring wells along property line and adjacent to creek sufficient for monitoring groundwater CPOC; however, monitoring well network sufficient for monitoring groundwater throughout plume. 1
- Specific Assumptions

2

3

- Existing surface water sampling locations will be used for monitoring surface water POC
- DGR system will be operated for 24 years for downgradient plume cleanup
- EISB in source area will require 23 years for source area cleanup (including 3 injection events over 3-year period) Major and minor equipment replacements for DGR system will be required during 24-year operational time frame 4
- 5

			DETAILED COST ESTIMAT	£					
Cost	Category	Item #	Description	Quantity	Unit	Unit	t Cost		Total
Туре	DEMEDIAL DESICO	N DI AN	INING AND CENEDAL (Indinect Costs)						
	KEMEDIAL DESIG	1 2 3	Engineering/Proj Mgmt/Const Mgmt/Reporting Cleanup action plan Permits	1	LS LS	\$ \$	30,000 30,000	\$ \$	30,000 30,000
		4	Contract documents and contractor bidding/procurement	1	LS	э \$	20.000	ծ Տ	20.000
		6	Cleanup action construction report/O&M manual	1	LS	\$	30,000	\$	30,000
		7	Engineering/Remedial Design	8%	pct	\$ 4,	033,000	\$	322,640
		8 9	Project management	6% 5%	pct	\$ 4,0 \$ 14.9	922,620	\$ \$	241,980 746 131
		10	Ecology oversight	5%	pet	\$ 14,	922,620	\$	746,131
	Subtotal Remedial De	esign, Pl	anning, and General Costs					\$	2,166,900
	Indirect Contingency a	nd Unlis	ted Engineering Services (%	15%	pct	\$2	,166,900	\$	325,000
	Category	Item #	Description	Quantity	Unit	Unit	Cost		\$2,492,000 Total
	REMEDIAL ACTIO	N CONS	STRUCTION - DGR SYSTEM AND ELECTRON DONOR	INJECTIO	NS (Direct	t Costs)	cost		Total
		1	Contractor mobilization/demobilizatior	1	LS	\$	30,000	\$	30,000
						¢	00.000	¢	00.000
		2	Install injection and extraction wells/distribution system	1	LS	Э	80,000	Э	80,000
		3	Utility locate	1	LS	\$	2,500	\$	2,500
		4	Site prep/clearing/grubbing	1	LS	\$	75,000	\$	75,000
7		5	Drilling - DGR extraction well installation	4	well	э \$	20.000	э \$	5,000 80.000
6		7	Drilling - DGR injection well installation (shallow)	4	well	\$	26,000	\$	104,000
Ĕ		8	Drilling - DGR injection well installation (deep)	8	well	\$	15,000	\$	120,000
Ā		9	Drilling - monitoring wells for DGR monitoring	4	well	\$ ¢	12,000	\$ ¢	48,000
F		10	Well yaults, pumps, air yac assemblies	1	LS	э \$	200	э \$	210.000
ΕI		12	Transfer tank, valving, and pump with controls	1	LS	\$	18,000	\$	18,000
Ň		13	Directional drilling for pipe/conduit up to ridge	1	LS	\$	100,000	\$	100,000
LE		14	Water line, electrical, communications trenching	4200	LF	\$ ¢	16	\$ ¢	67,200
E E		15 16	water piping Electrical conduit and cable	4200 2400	LF	э \$	60 45	\$ \$	252,000
$\mathbf{E}$		10	Communications conduit and cable	4200	LF	\$	65	\$	273,000
1		18	Trench repaying/restoration	20000	SF	\$	5	\$	100,000
1		19	Electrical equipment upgrades/transformer/electrician	1	LS	\$	70,000	\$	70,000
1		20	Instrumentation and controls; control panels GAC polishing vessels	1	LS	\$ \$	12 500	\$	150,000
		21	DGR system startup and testing	1	LS	\$	20,000	\$	20,000
			EISB Injection Well Installation				,		·
		23	Utility locate/clearing	1	LS	\$	1,000	\$	1,000
		24	Driller mobilization/demobilization	1	LS	\$ ¢	3,000	\$ ¢	3,000
		23 26	Well development	24	wells	\$	1.000	\$	24.000
		27	IDW disposal	70	Drums	\$	200	\$	14,000
		•	Injection of Electron Donor						
		28	Injection crew/labor Purchase equipment/supplies for injection system setur	75	days	\$	3,000	\$	225,000
		30	Materials and rentals for injection events	3	event	\$	20,000	\$	60,000
		21	Water for injection events				· · · ·		8,550
		51	water for injection events	285,000	gal	\$	0.03	\$	
		31	Donor for injection events	285,000 36000	gal lbs	\$ \$	0.03	\$ \$	54,000
	Subtotal Remedial Ac	31 32 33 ction Co	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs	285,000 36000 1	gal lbs LS	\$ \$ \$	0.03 2 25,000	\$ \$ \$	54,000 25,000 2.483.300
	Subtotal Remedial Act	32 33 ction Co cy and U	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs inlisted Engineering Services (%	285,000 36000 1 25%	gal lbs LS pct	\$ \$ \$	0.03 2 25,000 ,483,300	\$ \$ \$ \$	54,000 25,000 2,483,300 620,800
	Subtotal Remedial Ac Direct Cost Contingent Contractor Bond Fee, C	31 32 33 ction Co cy and U Overhead	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur <b>nstruction Costs</b> nlisted Engineering Services (% 1, and Profit (%)	285,000 36000 1 25% 20%	gal lbs LS pct pct	\$ \$ \$ \$2 \$2 \$2	0.03 2 25,000 ,483,300 ,638,375	\$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700
	Subtotal Remedial Act Direct Cost Contingent Contractor Bond Fee, ( Washington State Sale: TOTAL DIRECT CO	32 33 ction Co cy and U Overhead s Tax (%	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur instruction Costs nlisted Engineering Services (% I, and Profit (%)	285,000 36000 1 25% 20% 9.2%	gal lbs LS pct pct pct	\$ \$ \$ \$2 \$2 \$3,	0.03 2 25,000 ,483,300 ,638,375 166,075	\$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 \$3,923,000
	Subtotal Remedial Act Direct Cost Contingent Contractor Bond Fee, C Washington State Sale: TOTAL DIRECT CO Category	31 32 33 ction Co cy and U Overhead s Tax (% DST Item #	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur instruction Costs nlisted Engineering Services (% 1, and Profit (%) ) Description	285,000 36000 1 25% 20% 9.2%	gal lbs LS pct pct pct Unit	\$ \$ \$ 2 \$ 2 \$ 3, Unit	0.03 2 25,000 ,483,300 ,638,375 166,075	\$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 \$3,923,000 Total
	Subtotal Remedial Act Direct Cost Contingent Contractor Bond Fee, ( Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # ON, MA	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur Instruction Costs Ilisted Engineering Services (% I, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING	285,000 36000 1 25% 20% 9.2% Quantity	gal lbs LS pct pct pct Unit	\$ \$ \$ \$2 \$ 3, Unit	0.03 2 25,000 ,483,300 ,638,375 166,075 t Cost	\$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 \$3,923,000 Total
	Subtotal Remedial Act Direct Cost Contingen Contractor Bond Fee, C Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATIO	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # ON, MA	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs nlisted Engineering Services (% 1, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage	285,000 36000 1 25% 20% 9.2% Quantity	gal lbs LS pct pct pct Unit	\$ \$ \$ \$2 \$2 \$2 \$3, Unit	0.03 2 25,000 ,483,300 ,638,375 166,075 t Cost 44,500	\$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 \$3,923,000 Total 44,500
	Subtotal Remedial Act Direct Cost Contingenc Contractor Bond Fee, C Washington State Sales <b>TOTAL DIRECT CO</b> Category ANNUAL OPERATION	31 32 33 ction Co cy and U Overhead s Tax (% OST Item # 1 2	Donor for injection events Site Restoration - slope/buffer plantings, general cleanu Instruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges	285,000 36000 1 25% 20% 9.2% Quantity 1 12	gal lbs LS pct pct pct Unit	\$ \$ \$ \$2 \$2 \$2 \$3, Unit	0.03 2 25,000 .483,300 .638,375 166,075 t Cost 44,500 369	\$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428
	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales <b>TOTAL DIRECT CC</b> Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # ON, MA 1 2 3	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs nlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage	285,000 36000 1 25% 20% 9.2% Quantity 1 12	gal lbs LS pct pct pct yr mo yr	\$ \$ \$ 2 2 2 3 3, Unit	0.03 2 25,000 .483,300 .638,375 166,075 t Cost 44,500 369 9,600	\$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (% Overhead s Tax (%) Overhead s Tax (% Overhead s Tax (%) Overhead s Tax (%) Ove	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs nlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1	gal lbs LS pct pct pct yr wo yr yr yr	\$ \$ \$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 (Cost 44,500 369 9,600 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CO Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # 1 2 3 4	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs nlisted Engineering Services (% 1, and Profit (%) )  Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1	gal lbs LS pct pct yr t mo yr yr yr	\$ \$ \$ <u>\$</u> \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 (Cost (44,500 369 9,600 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CO Category ANNUAL OPERATION	31 32 33 ction Co cy and U Overhead s Tax (% ON, MA 1 2 3 4	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1	gal lbs LS pct pct Unit yr mo yr yr yr	\$ \$ \$ 22 \$22 \$3, Unit	0.03 2 25,000 (483,300 (638,375 166,075 (Cost 44,500 369 9,600 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. ( Washington State Sales TOTAL DIRECT CO Category ANNUAL OPERATION	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # ON, MA 1 2 3 4 5 6	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1	gal lbs 	\$ \$ \$ 2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2	0.03 2 25,000 (483,300 (638,375 166,075 (Cost 44,500 369 9,600 20,000 95,000 20,137	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. ( Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (%) DST Item # 0N, MA 1 2 3 4 5 5 6 6 7	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)	285,000 36000 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1	gal lbs LS pct pct Unit yr mo yr yr yr yr yr yr yr	\$ \$ \$ 2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2	0.03 2 25,000 (483,300 (638,375 166,075 (443,500 369 9,600 20,000 95,000 20,137 65,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. ( Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (%) DST Item # 0N, MA 1 2 3 4 5 5 6 6 7 7 8	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater elevation monitoring (during DGR)	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ 2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2	0.03 2 25,000 (483,300 (638,375 166,075 (44,500 369 9,600 20,000 95,000 20,137 (65,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 620,800 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. ( Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # 0N, MA 1 2 3 4 5 6 6 7 7 8 9 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Surface water sampling (during DGR)         Surface water sampling (during DGR)	285,000 36000 1 25% 9.2% 9.2% 0 uantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ <u>\$</u> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 (443,500 369 9,600 20,000 95,000 20,137 (65,000 8,000 8,000 8,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000
	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. ( Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # ON, MA 1 2 3 4 4 5 6 6 7 7 8 9 10 & M and & M and	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting	285,000 36000 1 25% 9.2% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b>	0.03 2 25,000 (483,300 (638,375 166,075 (443,500 369 9,600 20,000 95,000 20,137 65,000 8,000 8,000 15,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>\$3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000 8,000 8,000
	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee. ( Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI Subtotal Annual OM Annual Monitoring Co	31 32 33 ction Co cy and U Overhead s Tax (% DST Item # 0N, MA 1 2 3 4 4 5 6 6 7 7 8 9 10 <b>&amp;M and</b> sst Contin	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         IReporting         IReporting Cost         ngency and Unlisted Items (%	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs pct pct unit yr mo yr yr yr yr yr yr yrs yrs yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>S</b> <b>S</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,137 65,000 8,000 15,000 15,000		54,000 25,000 2,483,300 527,700 \$291,300 <b>33,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000 8,000 015,000 289,700
\$W	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI Subtotal Annual OMA Annual Monitoring Co	31 32 33 stion Co cy and U Overheac s Tax (%) DST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 &M and sst Contin (%) (%) (%) (%) (%) (%) (%) (%)	Data for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         i, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting Cost         regency and Unlisted Items (%         Years of Annual Monitoring	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs pct pct unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 483,300 638,375 166,075 166,075 166,075 44,500 369 9,600 20,000 95,000 20,137 65,000 8,000 8,000 8,000 8,000 3289,700 3347,600	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>33,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400
M&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annual	31 32 33 stion Co cy and U Overheac s Tax (%) DST Item # ON, MA 1 2 3 4 5 6 6 7 8 9 10 &M and ost Contin (%) (%) (%) (%) (%) (%) (%) (%)	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         i, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting Cost         Years of Annual Monitoring         DREPORTING COST         M and Reporting Cost	285,000 36000 1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs pct pct unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 165,000 15	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>33,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>8,342,000</b> <b>\$7,748,000</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OMA Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category	31 32 33 ction Co cy and U Overheac s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 6 7 8 9 10 &M and ost Contin <b>I</b> &M AN al OM& Item #	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting Cost         regency and Unlisted Items (%         Years of Annual Monitoring         Mand Reporting Cost         Presumed Discount Rate	285,000 36000 1 25% 20% 9.2% 9.2% 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs pct pct unit yr mo yr yr yr yr yr yr yr yr yrs yr yr yr yr sy yr yr gr yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 1 Cost 44,500 369 9,600 20,000 95,000 20,137 65,000 8,000 15,000 3347,600 15,000 15,	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 8,000 15,000 \$8,342,400 \$8,342,000 <b>\$7,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial Action Direct Cost Contingenc Contractor Bond Fee, C Washington State Sale: TOTAL DIRECT CO Category ANNUAL OPERATION Subtotal Annual OPERATION Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI	31 32 33 ction Co cy and U Overheac s Tax (%) DST Item # ON, MA 1 2 3 4 5 6 6 7 8 9 10 &M and ost Contin <b>Item #</b> <b>Item #</b>	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting Cost         ngency and Unlisted Items (%         Years of Annual Monitoring         DR BepORTING COST         M and Reporting Cost         Presumed Discount Rate         Description         N, MAINTENANCE, MORTOR UNITOR UNITOR AND REPORTING	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 20% 24 0.6% Ouantity	gal lbs pct pct unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 1 Cost 44,500 369 9,600 20,000 95,000 20,137 65,000 8,000 15,000 3289,700 3347,600 15,000 1	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 <b>\$,342,000</b> <b>\$,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial Action Direct Cost Contingence Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CO Category ANNUAL OPERATION Subtotal Annual OPERATION Subtotal Annual OPERATION Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI	31 32 33 stion Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 6 7 8 9 10 &M and ist Contin <b>Item #</b> <b>Item #</b>	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Reporting Cost         gency and Unlisted Items (%         Years of Annual Monitoring         DR aspeling Cost         Presumed Discount Rate         Description         N. MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR system equipment replacement cost	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 20% 24 0.6% Quantity 1.5	gal lbs pct pct unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ \$ \$ Unit \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 1 Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 20,137 65,000 8,000 15,000 3347,600 15,000 15,	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 <b>\$,342,000</b> <b>\$,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CO Category ANNUAL OPERATION Subtotal Annual OPERATION Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI	31 32 33 stion Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 &M and ost Contin <b>item #</b> <b>item #</b> <b>i</b>	Date for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater elevation monitoring (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Vears of Annual Monitoring         TO REPORTING COST         M and Reporting Cost         Presumed Discount Rate         Description         N, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs pct pct unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2 483,300 638,375 166,075 1 44,500 369 9,600 20,000 95,000 20,000 95,000 8,000 15,000 3347,600 2289,700 3347,600 15,000 15,	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 <b>\$,8,342,000</b> <b>\$,748,000</b> <b>Total</b> 73,000 300,000 285,000
OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OPERATI Contract Contract Contract Subtotal Annual OPERATI Contract Contract Contract Contract Non-Route Contract Contract Contract Contract Contract Non-ROUTINE OPERATION CONTRACT CON	31 32 33 stion Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 &M and ist Contin M&M AN al OM& Item # ERATIC 1 2 3 4 4 5 6 7 8 9 10 10 10 10 10 10 10 10 10 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System Monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater stampling (during DGR)         Reporting         Reporting         Vears of Annual Monitoring         DR and Reporting Cost         Presumed Discount Rate         Description         NMAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replac	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs LS pct pct unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 1 Cost 44,500 369 9,600 20,000 95,000 20,000 95,000 8,000 15,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000 5289,700 50,000		54,000 2,5,000 2,483,300 527,700 \$291,300 <b>33,923,000</b> Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 57,900 8,342,400 <b>\$3,42,000</b> <b>\$3,42,400</b> <b>\$3,42,000</b> <b>\$3,42,000</b> <b>\$3,42,000</b> <b>\$3,42,000</b> <b>\$3,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OPERATI Contract Contract Contract Subtotal Annual OPERATI Contract Contract Contract Contract Non-Route Contract Contrac	31 32 33 stion Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 &M and ist Contin M&M AN al OM& Item # ERATIO 1 2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10 2 10 10 10 10 10 10 10 10 10 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater stampling (during DGR)         Reporting         Reporting         Vears of Annual Monitoring         DR and Reporting Cost         Presumed Discount Rate         Description         NMAINTENANCE, MONTTORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 10	\$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$       \$     \$     \$	54,000 2,5,000 2,483,300 527,700 \$291,300 <b>33,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>3342,400</b> <b>\$3,42,000</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OPERATI Contract Contract Contract Contract Subtotal Annual OPERATIC Contract Contract	31 32 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 &M and ist Contin M&M AN al OM& Item # ERATIO 1 2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10 2 10 10 10 10 10 10 10 10 10 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System Monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater elevation monitoring (during DGR)         Surface water sampling (during DGR)         Reporting         IReporting Cost         rears of Annual Monitoring         DR and Reporting Cost         Presumed Discount Rate         DR         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Annual groundwater sampling         Anuarterly surface water sampling	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 95,000 8,000 5289,700 3347,600 2289,700 3347,600 20,000 95,000 5289,700 3347,600 20,000 95,000 65,000 8,000 65,000 8,000 65,000	\$     \$       \$ <td>54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>3,923,000</b> <b>3,923,000</b> <b>3,923,000</b> <b>3,923,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,</b></td>	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>3,923,000</b> <b>3,923,000</b> <b>3,923,000</b> <b>3,923,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OPERATI Contract Contract Contract Subtotal Annual OPERATI Contract Contract Contract Contract Annual Monitoring Co TOTAL ANNUAL OPERATION Present-Worth Annua Category NON-ROUTINE OPI	31 32 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 &M and sst Contin Item # Item # Item # CRATIC 3 4 5 6 7 8 8 10 10 10 10 10 10 10 10 10 10	Date for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System Monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater stampling (during DGR)         Reporting         Reporting         Vears of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         Annual groundwater s	285,000 36000 1 25% 20% 9.2% 9	gal lbs 	\$ \$ \$ \$ Unit \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2 25,000 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 95,000 8,000 5289,700 3347,600 20,000 95,000 5289,700 3347,600 20,000 95,000 65,000 8,000 65,000 8,000 65,000 8,000 65,000 8,000 6,000 8,000 6,000 8,000 1,000	\$\$         \$\$<	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>3,923,000</b> <b>3,923,000</b> <b>4,428</b> <b>9,600</b> 20,000 <b>95,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>3,923,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OPERATI Contract Contract Contract Subtotal Annual OPERATI Contract Contract Contract Contract Annual Monitoring Co TOTAL ANNUAL OPERATION Present-Worth Annua Category NON-ROUTINE OPI	31 32 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 7 8 9 10 &M and st Contin Item # Item # Item # CRATIC 3 4 5 6 7 7 8 9 10 10 10 10 10 10 10 10 10 10	Date for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater elevation monitoring (during DGR)         Reporting         Reporting Cost         vgency and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         NMAINTENANCE, MONTIORING AND REPORTING <td>285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>gal lbs </td> <td>\$ \$ \$ \$ Unit \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</td> <td>0.03 2 25,000 2 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 95,000 8,000 5289,700 3347,600 20,000 95,000 5289,700 3347,600 20,000 95,000 65,000 8,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 13,000 13,000 13,000 13,000 14,000 15,000 16,000 15,000</td> <td>\$\$         \$\$&lt;</td> <td>54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,000 <b>3,923,000</b> <b>3,000</b> <b>3,000</b> <b>5,000</b> <b>3,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,00</b></td>	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ Unit \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 95,000 8,000 5289,700 3347,600 20,000 95,000 5289,700 3347,600 20,000 95,000 65,000 8,000 65,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 8,000 13,000 13,000 13,000 13,000 14,000 15,000 16,000 15,000	\$\$         \$\$<	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,000 <b>3,923,000</b> <b>3,000</b> <b>3,000</b> <b>5,000</b> <b>3,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,000</b> <b>5,00</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OPERATI Contract Contract Contract Contract Contract Contract Contra	31 322 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 6 7 7 8 9 10 &M and st Contin M&M AN al OM& Item # CRATIC 3 4 5 6 7 7 8 9 10 2 3 4 5 6 7 7 8 9 10 2 3 4 5 6 7 7 8 9 10 8 8 7 7 8 9 10 8 8 10 10 10 10 10 10 10 10 10 10	Data for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System Monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Reporting Cost         years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         Annual groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 20% 24 0.6% Ouantity 1 1.5 3 12 12 12 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ Unit \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 95,000 8,000 5289,700 3347,600 20,000 95,000 65,000 8,000 65,000 8,000 65,000 8,000 73,000 20,000	\$\$\$\$\$\$         \$\$\$         \$	54,000 25,000 2,483,300 527,700 \$291,300 <b>33,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 8,000 15,000 289,700 57,900 <b>342,400</b> <b>8,342,000</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,3</b> ,000 300,000 285,000 780,000 96,000 10,
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OMA Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI NON-ROUTINE OPI	31 322 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 6 7 7 8 9 10 &M and ist Contin Item # Item # Item # CRATIC 3 4 5 6 7 7 8 9 10 2 3 4 5 6 7 7 8 9 10 2 3 4 5 6 7 7 8 9 10 2 10 10 10 10 10 10 10 10 10 10	Data for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System Monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Reporting Cost         years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Cartery surface water sampling         Annual groundwater sampling         Annual groundwater sampling         DGR system equipment replacement cost         Quarterly groundwat	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 20% 24 0.6% Ouantity 1 1.5 3 12 12 12 0 0 0 0 0 0 0 0 0 0 0 0 0	gal lbs 	\$ \$ \$ <b>Unit</b> \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 10	s     s       s     s	54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 289,700 57,900 289,700 57,900 8,342,400 <b>8,342,000</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,3</b> ,000 300,000 285,000 780,000 96,000 90,000 <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>10</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b> <b>100</b>
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Contract Contract Contract Subtotal Annual OPERATIC Contract Contract Contract NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routing Annual Monitoring Co	31 32 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 6 7 7 8 9 10 &M and st Contin M&M AN al OM& Item # CRATC 1 2 3 4 5 6 7 7 8 9 10 &M Co CO CO CO CO CO CO CO CO CO CO	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Reporting Cost         Presumed Discount Rate         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters post DGR)         Annual groundwater sampling (DSB DGR)	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2 483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 20,000 95,000 15,000 2289,700 3347,600 2289,700 3347,600 20,000 95,000 65,000 8,000 05,000 8,000 65,000 8,000 05,000 20,000 20,000 15,000 20,000 15,000	s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s       s     s     s	54,000 2,5,000 2,483,300 527,700 \$291,300 \$3,923,000 Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 8,000 15,000 289,700 8,342,400 \$3,342,000 \$3,342,400 \$3,342,000 7,748,000 96,000 97,748,000 96,000 96,000 96,000 97,748,000 96,000 96,000 96,000 96,000 96,000 96,000 97,748,000 96,000 96,000 96,000 96,000 97,748,000 96,000 96,000 96,000 96,000 97,748,000 96,000 96,000 96,000 97,748,000 96,000 97,0
OM&M	Subtotal Remedial Ac Direct Cost Contingen Contractor Bond Fee, C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Present-Worth Annua Category NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routing Annual Monitoring Co TOTAL NON-ROUTI	31 322 333 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         gency and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (Dost DGR)         <	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 166,075 144,500 369 9,600 20,000 95,000 20,000 95,000 15	\$ \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$ \$     \$ \$     \$ \$       \$ \$     \$ \$	54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 57,900 8,000 15,000 289,700 <b>5,900</b> <b>5,900</b> <b>289,700</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b></b>
OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routine Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-F	31           32           33           ction Co           cy and U           Overhead           s Tax (%)           ST           Item #           ON, MA           1           2           33           4           5           6           7           8           9           10           & M and           sst Contin           Item #           Item #           ERATIC           1           2           33           4           5           6           7           8           9           10           & St Contin           11           2           33           4           5           6           7           8           9           10           11           2           33           4           5	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         gency and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (Dost DGR)         Annual groundwater sampling (post DGR)         Annual surface water sampling (po	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2,483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 5,000 8,000 15,000 2289,700 3347,600 2289,700 3347,600 2289,700 3347,600 20,000 95,000 8,000 65,000 8,000 8,000 65,000 8,000 20,000 1,000	\$     \$       \$ <td>54,000 2,5,000 2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 8,000 15,000 289,700 57,900 57</td>	54,000 2,5,000 2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 8,000 15,000 289,700 57,900 57
OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routine Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-F	31 322 33 ction Co cy and U Overhead s Tax (%) ST Item # ON, MA 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         gency and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (EISB parameters post DGR)         Annual surface water sampling (po	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 2,483,300 638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 5,000 8,000 15,000 2347,600 2347,600 2347,600 20,000 95,000 65,000 8,000 65,000 8,000 65,000 8,000 65,000 8,000 13,000 20,000 13,000 20,000 13,000 20,000 13,000 20,000 13,000 20,000 13,000 14,000 14,000 14,000 15,000 14,000 15,0	\$\$     \$\$     \$\$       \$\$     <	54,000 2,5,000 2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 8,000 8,000 15,000 289,700 <b>5,900</b> <b>5,900</b> <b>289,700</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,900</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,7,900</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,400</b> <b>5,342,000</b> <b>5,342,400</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,342,000</b> <b>5,356,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,357,000</b> <b>5,3</b>
TE OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OMM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annua Category NON-ROUTINE OPI Subtotal Non-Routine Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-F ALTERNATIVE CO TOTAL PRESENT-W	31         32         33         ction Co         cy and U         Overhead         s Tax (%)         ST         Item #         ON, MA         1         2         33         4         5         6         7         8         9         10         & M and         st Contin         Item #         Item #         Item #         12         33         4         5         6         7         8         9         10         & A         \$         0         & A         \$         0         & A         0         12         33         4         5         6         7         8         9         10         11         e OM&N         Ne OM	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         Instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Image: Cost Services (%         1, and Profit (%)         )         Image: Cost Services (%         1, and Profit (%)         )         Image: Cost Services (%         Carbon usage         System Monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Reporting         Reporting Cost         gency and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (BISB parameters)         Quarterly groundwater sampling (post DGR)         Annual groundwater samplin	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 44,500 369 9,600 20,000 95,000 20,000 95,000 5289,700 3347,600 200,000 95,000 5289,700 3347,600 200,000 95,000 5,000 8,000 8,000 8,000 8,000 8,000 0,000 1,000 20,000 1,00		54,000 2,5,000 2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 8,000 15,000 289,700 57,900 57,900 <b>3,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,000</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,400</b> <b>\$,342,000</b> <b>\$,342,400</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,50,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,342,000</b> <b>\$,35,000</b> <b>\$,342,000</b> <b>\$,35,000</b> <b>\$,36,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,50,000</b> <b>\$,2,577,000</b> <b>\$,2,492,000</b>
DTAL OM&M	Subtotal Remedial AC Direct Cost Contingenc Contractor Bond Fee. C Washington State Salea TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annual NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routing Co TOTAL NON-ROUTI Present-Worth Non-F TOTAL PRESENT-W TOTAL PRESENT-W	31         32         33         ction Co         cy and U         Overhead         s Tax (%)         ST         Item #         ON, MA         1         2         33         4         5         6         7         8         9         10         & M and Ma         Item #         Ide MAN         al OM&         Item #         Contin         Item #         6         7         8         9         10         & St Contin         NE OM&         Net Contin         NE OM         St Contin         NE OM         St St SUM         ORTH F         ORTH F	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         Image: Control (%)         Carbon usage         System Momentary (%)         Carbon usage         System Mo&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting         Reporting         Image: Cost         Igency and Unlisted Items (%         Years of Annual Monitoring         ID REPORTING COST         M and Reporting Cost         Presumed Discount Rate         Description         N, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater sampling (EISB parameters)         Quarterly groundwater sampling         Quarterly groundwa	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal Ibs 	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 166,075 166,075 10		54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>101</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 8,000 <b>8,000</b> <b>8,000</b> <b>8,000</b> <b>8,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>1,5,000</b> <b>2,500,000</b> <b>2,500,000</b> <b>2,577,000</b> <b>32,506,000</b> <b>32,577,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>32,492,000</b> <b>33,42,000</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>32,500</b> <b>33,500</b> <b>33,500</b> <b>33,500</b> <b>33,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35,500</b> <b>35</b>
FOTAL OM&M	Subtotal Remedial AC Direct Cost Contingenc Contractor Bond Fee. C Washington State Salea TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annual NON-ROUTINE OPI NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routing Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-F TOTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W	31 32 33 ction Co cy and U Overheads s Tax (%) ST Item # ON, MA 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         instruction Costs         nlisted Engineering Services (%         1, and Profit (%)         )         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         EReporting Cost         Tgency and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Annual groundwater sampling (post DGR)         Annual surface water sampling (post DGR)         Annual su	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal Ibs pct pct Unit Unit yr yr yr yr yr yr yr yrs yrs yrs yrs yr	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 166,075 166,075 10		54,000 25,000 2,483,300 620,800 527,700 \$291,300 <b>3,923,000</b> <b>10</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 8,000 8,000 <b>57,900</b> <b>8,342,400</b> <b>\$7,748,000</b> <b>73,000</b> <b>30,000</b> <b>73,000</b> <b>30,000</b> <b>57,700</b> <b>8,342,400</b> <b>\$7,748,000</b> <b>285,000</b> <b>73,000</b> <b>30,000</b> <b>285,000</b> <b>743,000</b> <b>285,000</b> <b>743,000</b> <b>285,000</b> <b>743,000</b> <b>285,000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>57,7000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>50,000</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,5000</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>53,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>52,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,500</b> <b>53,50</b>
TOTAL OM&M	Subtotal Remedial Ac Direct Cost Contingenc Contractor Bond Fee. C Washington State Sales TOTAL DIRECT CC Category ANNUAL OPERATI Subtotal Annual OPERATI Subtotal Annual OM Annual Monitoring Co TOTAL ANNUAL OM Present-Worth Annual NON-ROUTINE OPI NON-ROUTINE OPI Subtotal Non-Routing Annual Monitoring Co TOTAL NON-ROUTI Present-Worth Non-F TOTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W	31 32 33 ction Co cy and U Overheads s Tax (%) ST Item # ON, MA 1 2 3 4 5 6 7 8 9 10 & M and st Contin Item # Item # 0 X M and st Contin Item # ERATIC 1 2 3 4 5 6 7 8 9 10 & M and st Contin Item # ERATIC 1 2 3 4 5 6 7 7 8 9 10 & M and St Contin Item # ERATIC CONTH F ORTH F ORTH F	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         instruction Costs         nilisted Engineering Services (%         1, and Profit (%)         )         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Cast         Years of Annual Monitoring         DR Reporting Cost         Typenzy and Unlisted Items (%         Years of Annual Monitoring         DGR system equipment replacement cost         Quarterly groundwater sampling         DGR system equipment replacement cost         Quarterly groundwater sampling         Annual groundwater sampling (post DGR)         Annual groundwater sampling (post DGR)         Annual surface water sampling (post DGR)         Annu	285,000 36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	gal lbs pct pct pct vr yr yr yr yr yr yr yr yr yr yr yrs yrs	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.03 2 25,000 (483,300 (638,375 166,075 166,075 166,075 10		54,000 25,000 2,483,300 527,700 \$291,300 <b>3,923,000</b> <b>101</b> 44,500 44,500 44,500 20,000 95,000 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 8,000 <b>8,000</b> <b>8,000</b> <b>8,000</b> <b>8,000</b> <b>8,342,400</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>8,342,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b>10,325,000</b> <b></b>

#### ALTERNATIVE 5 DYNAMIC GROUNDWATER RECIRUCLATION AND SOURCE AREA EISB

#### POINT OF COMPLIANCE OPTION: OPTION 4 - GROUNDWATER CPOC IMMEDIATELY DOWNGRADIENT OF SOURCE AREA

Explanation of POC Option: SWQS (0.3 µg/L TCE) to be met in monitoring wells downgradient of source area/detention basin (and all points downgradient). Drinking water standard (4 µg/L TCE) to be met in monitoring wells throughout the groundwater TCE plume on Boeing property.

POC Option

- 1 New monitoring wells (assume 3) will be necessary downgradient of detention basin to monitor groundwater CPOC; monitoring well network sufficient for monitoring groundwater throughout plume.
- Specific Assumptions

2

- Existing surface water sampling locations will be used for monitoring surface water  $\ensuremath{\text{POC}}$
- 3 DGR system will be operated for 24 years for downgradient plume cleanup
- 4 EISB in source area will require 30 years for source area cleanup (including 3 injection events over 3-year period)
- GET system extraction wells will continue to be operated until compliance at groundwater CPOC (6 years after DGR) 5
- Major and minor equipment replacements for DGR/GET system will be required during 24-year operational time frame 6

			DETAILED COST ESTIMAT	Έ			
Cost	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
Туре	DEMEDIAL DESIG	IN DIA	NNING AND CENEDAL (Indinest Costs)				
		1 2 3 4 5	Engineering/Proj Mgmt/Const Mgmt/Reporting Cleanup action plan Permits Negotiate and implement institutional controls Contract documents and contractor bidding/procurement	1 1 0 1	LS LS LS LS	\$ 30,000 \$ 30,000 \$ 10,000 \$ 20,000	\$ 30,000 \$ 30,000 \$ - \$ 20,000
		6 7 8	Cleanup action construction report/O&M manual Engineering/Remedial Desigr Construction management/oversight	1 8% 6%	LS pct	\$ 30,000 \$ 4,095,000 \$ 4,095,000	\$ 30,000 \$ 327,600 \$ 245,700
		9 10	Project management Ecology oversight	5% 5%	pct pct	\$ 17,287,300 \$ 17,287,300	\$ 864,365 \$ 864,365
	Indirect Contingency	and Unli	tanning, and General Costs sted Engineering Services (%)	15%	pct	\$2,412,000	\$ 2,412,000 \$ 361,800 \$2,774,000
	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
	REMEDIAL ACTIO	JN CON	STRUCTION - DGR SYSTEM AND ELECTRON DONC Contractor mobilization/demobilization	DR INJECT	LS	s 30.000	\$ 30.000
		2	DGR pilot study	1	LS	\$ 80,000	\$ 80,000
		3 4 5	Install injection and extraction wells/distribution systen Utility locate Site prep/clearing/grubbing Driller mobilization/demobilizatior	1 1 1	LS LS LS	\$ 2,500 \$ 75,000 \$ 3,000	\$ 2,500 \$ 75,000 \$ 3,000
NO		6 7	Drilling - DGR extraction well installation Drilling - DGR injection well installation (shallow	4 4	well well	\$ 20,000 \$ 26,000	\$ 80,000 \$ 104,000
III		8	Drilling - DGR injection well installation (deep) Drilling - monitoring wells for DGR monitoring	8 7	well well	\$ 15,000 \$ 12,000	\$ 120,000 \$ 84,000
ЧТА		10	IDW disposal Well yaults, pumps, air yac assemblies	70	Drums LS	\$ 200 \$ 210,000	\$ 14,000 \$ 210,000
IE		12	Transfer tank, valving, and pump with controls	1	LS	\$ 18,000	\$ 18,000
EN		13 14	Directional drilling for pipe/conduit up to ridge Water line, electrical, communications trenching	1 4200	LS LF	\$ 100,000 \$ 16	\$ 100,000 \$ 67,200
ΡL		15	Water piping	4200	LF	\$ 60 \$ 45	\$ 252,000 \$ 108,000
II		10	Communications conduit and cable	4200	LF LF	\$ 45 \$ 65	\$ 108,000 \$ 273,000
		18	Trench repaying/restoration Electrical equipment upgrades/transformer/electrician	20000	SF	\$ 5 \$ 70,000	\$ 100,000 \$ 70,000
		20	Instrumentation and controls; control panels	1	LS	\$ 150,000	\$ 150,000
		21	GAC polishing vessels DGR system startup and testing	1	each LS	\$ 12,500 \$ 20,000	\$ 25,000 \$ 20,000
		23	Utility locate/clearing	1	LS	\$ 1,000	\$ 1,000
		24 25	Driller mobilization/demobilization Drilling - injection wells (detention basin hotspot)	1 24	LS wells	\$ 3,000 \$ 4,000	\$ 3,000 \$ 96,000
		26 27	Well development IDW disposal	24 70	wells Drums	\$ 1,000 \$ 200	\$ 24,000 \$ 14,000
		27	Injection of Electron Donor	70	Juins	¢ 200	¢ 225.000
		28 29	Purchase equipment/supplies for injection system setu	1	LS	\$ 3,000 \$ 25,000	\$ 225,000 \$ 25,000
		30	Water for injection events	285,000	gal	\$ 20,000 \$ 0.03	\$ 60,000 \$ 8,550
		32	Donor for injection events	20000	11-0	¢ )	d
		33	Site Restoration - slope/buffer plantings, general cleanur	36000	LS	\$ 25.000	\$ 54,000 \$ 25,000
	Subtotal Remedial A	33 Action C	Site Restoration - slope/buffer plantings, general cleanur pnstruction Costs	36000	LS	\$ 25,000	\$ 54,000 \$ 25,000 \$ 2,521,300
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee.	33 Action Concy and Concy and Coverhea	Site Restoration - slope/buffer plantings, general cleanur ponstruction Costs Julisted Engineering Services (%) d. and Profit (%)	25% 20%	pct	\$ 25,000 \$2,521,300 \$2,685,875	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal	33 Action Concy and Concy and Concy and Concerned and Conc	Site Restoration - slope/buffer plantings, general cleanup <b>onstruction Costs</b> Unlisted Engineering Services (%) d, and Profit (%) %)	25% 20% 9.2%	pct pct	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075	\$         54,000           \$         25,000           \$         2,521,300           \$         630,300           \$         537,200           \$         2296,500
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C	33 Action Concy and 1 , Overhea les Tax (9 OST	Site Restoration - slope/buffer plantings, general cleanup <b>onstruction Costs</b> Unlisted Engineering Services (%) d, and Profit (%) %)	25% 20% 9.2%	pct pct pct	\$ 25,000 \$ 25,000 \$ 2,521,300 \$ 2,685,875 \$ 3,223,075 Unit Cost	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$296,500 <b>\$3,985,000</b>
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action Concy and U , Overhea les Tax (9 OST Item # TION, M	Distriction - slope/buffer plantings, general cleanup pastruction Costs Julisted Engineering Services (%) id, and Profit (%) 6) Description AINTENANCE, MONITORING, AND REPORTING	25% 20% 9.2%	pct pct Unit	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$296,500 <b>Total</b>
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action Conception of the second se	Site Restoration - slope/buffer plantings, general cleanup onstruction Costs Julisted Engineering Services (% d, and Profit (%) %) Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges	25% 20% 9.2% Quantity	pct pct pct Unit	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 44,500 \$ 4,428
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action CC ncy and U Overhea es Tax (9 OST Item # TON, M 1 2 3 4	Site Restoration - slope/buffer plantings, general cleanup onstruction Costs Julisted Engineering Services (% d, and Profit (%) %) Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	1 25% 20% 9.2% Quantity	pct pct pct unit yr mo yr yr yr	\$ 25,000 \$ 25,000 \$ 25,000 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action CC ncy and L Overhea es Tax (6 OST Item # TON, M 1 2 3 4	Site Restoration - slope/buffer plantings, general cleanup onstruction Costs Julisted Engineering Services (% d, and Profit (%) 6)  Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDDES annual recovariation	1 25% 20% 9.2% Quantity 1 1 1 1 1 1	DS LS pct pct pct Unit yr mo yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 95,000 \$ 20,127	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 2396,500 <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 95,000 \$ 95,000
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action C ncy and 1 Overhea es Tax (9 OST Item # TON, M 1 2 3 4 5 5 6 7	Site Restoration - slope/buffer plantings, general cleanup         onstruction Costs         Julisted Engineering Services (%)         d, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1	pct pct pct unit yr mo yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action Concy and I Overhee es Tax (9 OST Item # 10N, M 1 2 3 4 5 6 6 7 8 8 9	Distruction in slope/buffer plantings, general cleanup         pastruction Costs         Julisted Engineering Services (%)         id, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Surface water sampling (during DGR)	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct Unit Urit yr mo yr yr yr yr yr yr yr yr yr yr yrs yrs	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 95,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000
	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action C Overhea ies Tax (5 OST Item # TON, M 1 2 3 4 5 5 6 6 7 7 8 9 9 10 0 <b>1</b> &M an	Site Restoration - slope/buffer plantings, general cleanup         onstruction Costs         Julisted Engineering Services (%)         .d. and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         d Reporting Cost	1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 1 1	bs LS pct pct vr Unit Unit yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 3,0000 \$ 3,000 \$ 3,0000 \$ 3,000 \$ 3,0000 \$ 3,000 \$ 3,000 \$ 3,000 \$	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 537,200 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000 \$ 15,000 \$ 289,700
M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT	33 Action Conception of the second se	Distruction or slope/buffer plantings, general cleanup         pastruction Costs         Julisted Engineering Services (%)         id, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Surface water sampling (during DGR)         Reporting         d Reporting Cost         ingency and Unlisted Items (%)	1 25% 20% 9.2% Quantity 1 1 12 1 1 1 1 1 1 1 1 1 1 1 20% 24	DS LS pct pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 95,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 3,000 \$ 289,700 \$ 347,600	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 2396,500 <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 57,900 \$ 8,342,400
(&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OP Annual Monitoring C TOTAL ANNUAL O Present Worth 1	33 Action Concy and U Overhease ies Tax (9 OST Item # ION, M 1 2 3 4 4 5 5 6 6 7 7 8 9 10 <b>1</b> <b>1</b> 2 3 3 4 4 0 5 5 6 6 7 7 8 9 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>2</b> <b>3</b> <b>3</b> <b>3</b> <b>3</b> <b>4</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>3</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	Site Restoration - slope/buffer plantings, general cleanup         pastruction Costs         Julisted Engineering Services (%)         .d, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         d Reporting Cost         Years of Annual Monitoring         ND REPORTING COST         M and Reporting Cost	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	pct pct pct Unit yr mo yr yr yr yr yr yr yrs yrs yrs yrs yrs y	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 3,0000 \$ 3,0000 \$ 3,000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 33,985,000 <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 57,900 \$ 8,342,400 <b>\$ 8,342,000</b> <b>\$ 77,900</b> <b>\$ 7</b>
M&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category	33 Action C ncy and I Overhea ies Tax (5 OST Item # TON, M 1 2 3 4 4 5 5 6 6 7 7 8 9 10 10 <b>1</b> &M an cost Cont M&M A ual OMA Item #	Site Restoration - slope/buffer plantings, general cleanup         onstruction Costs         Julisted Engineering Services (%)         .d. and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fec         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         d Reporting Cost         Years of Annual Monitoring         ND REPORTING COST         & M and Reporting Cost         Yeas of Annual Discount Rate         Description	1 25% 20% 9.2% 9.2% 1 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DS LS pct pct vr unit Vr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 3,0000 \$ 3,000 \$ 3,000 \$ 3,000 \$	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000 \$ 57,900 \$ 8,342,400 <b>\$ 57,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT ANNUAL OPERAT Subtotal Annual OPERAT Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C ncy and I Overhez es Tax (C OST Item # TON, M 1 2 3 4 3 4 5 5 6 6 7 8 9 10 A&M an Ost Cont M&M A ual OMA Item # PERATI	Site Restoration - slope/buffer plantings, general cleanup         onstruction Costs         Julisted Engineering Services (%)         d, and Profit (%)         %)         Description         AINTEENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fec         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)         Years of Annual Monitoring         ND REPORTING COST         *M and Reporting Cost       Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING	1 25% 20% 9.2% 9.2% 0.2% 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DS LS pct pct pct Unit Vr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 25,000 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 3,000 \$ 3,000 \$ 2,000 \$ 3,000 \$ 3,0000 \$ 3,0000 \$ 3,000 \$ 3,0000 \$ 3,	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 2396,500 <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 4,428 \$ 9,600 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 3,95,000 \$ 20,000 \$ 3,95,000 \$ 3,900 \$ 3,900 \$ 3,900 \$ 3,900 \$ 3,92,000 \$ 3,900 \$ 3,900 \$ 3,900 \$ 3,42,400 <b>\$ 3,342,400</b> <b>\$ 3,342,400</b> <b>\$ 3,342,400</b> <b>\$ 7,748,000</b> <b>\$ 7,300</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT NUAL OPERAT TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C Overhea es Tax (9 OST Item # ION, M 1 2 3 4 4 5 5 6 6 7 7 8 9 10 4 & M an cost Cont M&M A ual OMA Item # PERATI	Site Restoration - slope/buffer plantings, general cleanup         pastruction Costs         Julisted Engineering Services (%         id, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> Years of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost         @M and Reporting Cost         Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         OBAR System equipment replacement cos         Owntorking cosu	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DS LS pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 2,685,875 \$ 3,223,075 \$ 44,500 \$ 20,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,200,000 \$ 3,000 \$ 0,000 \$ 0,000	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 33,985,000 <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 289,700 \$ 8,000 \$ 289,700 \$ 8,342,400 <b>\$ 3,342,000</b> <b>\$ 3,748,000</b> <b>\$ 7,748,000</b> <b>\$ 73,000</b> <b>\$ 73,</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT OPERATION Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C ncy and I Overhea ies Tax (5 OST Item # TON, M 1 2 3 4 5 5 6 6 7 7 8 9 9 10 <b>1</b> &M an Cost Cont <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>1</b> <b>1</b> <b>2</b> <b>5</b> <b>6</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>3</b> <b>3</b> <b>4</b> <b>4</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>5</b> <b>6</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	Site Restoration - slope/buffer plantings, general cleanup         onstruction Costs         Julisted Engineering Services (%)         .d. and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fec         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> Years of Annual Monitoring         ND REPORTING COST         & Mand Reporting Cost         Year of Annual Monitoring         ON, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         Quarterly groundwater sampling	1 25% 20% 9.2% 9.2% 9.2% 9.2% 9.2% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DS LS pct pct vr unit vr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 2,521,300 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 347,600 <b>Unit Cost</b> \$ 73,000 \$ 95,000 \$ 200,000 \$ 25,000 \$ 65,000	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,660 \$ 4,428 \$ 9,660 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 8,000 \$ 57,900 <b>\$ 3,342,400</b> <b>\$ 57,900</b> <b>\$ 3,342,400</b> <b>\$ 57,900</b> <b>\$ 3,342,400</b> <b>\$ 57,900</b> <b>\$ 3,342,400</b> <b>\$ 57,900</b> <b>\$ 3,342,400</b> <b>\$ 57,900</b> <b>\$ 3,342,400</b> <b>\$ 73,000</b> <b>\$ 73,000</b> <b>\$ 73,000</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT OPERAT TOTAL ANNUAL OPERAT TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C ncy and I Overhea es Tax (5 OST Item # TON, M 1 2 3 4 4 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> Ost Cont <b>M&amp;M A</b> ual OMA Item # PERATI 1 2 3 4 5 5 6 6 6 7 7 8 9 9 10 <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b>	Site Restoration - slope/buffer plantings, general cleanup         onstruction Costs         Julisted Engineering Services (%)         d, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR;         Groundwater sampling (during DGR;         Surface water sampling (during DGR;         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)         Years of Annual Monitoring         ND REPORTING COST <b>KM and Reporting Cost</b> Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         Quarterly groundwater elevation monitoring         Quarterly groundwater elevation monitoring         Quarterly groundwater sampling         Quarterly groundwater sampling	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	IDS LSS Pct pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 Unit Cost Unit Cost \$ 73,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 347,600 \$ 3,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 2,0000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 2,0000 \$ 3,000 \$ 3,0000 \$ 3,00000 \$ 3,0000 \$ 3,00000 \$ 3,000000 \$ 3,000000000000000000000000000000000000	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 33,985,000</b> <b>Total</b> \$ 44,500 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 95,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 289,700 \$ 8,000 \$ 3,942,400 <b>\$ 7,748,000</b> <b>\$ 73,000</b> \$ 400,000 \$ 285,000 \$ 96,000 \$ 96,000 \$ 96,000
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C ncy and I Overhea es Tax (9 OST Item # ION, M 1 2 3 4 4 5 5 6 6 7 8 9 10 M&M An cost Cont Item # PERATI 1 2 3 4 4 5 5 6 6 7 8 9 10 M&M An 1 2 3 4 4 5 5 6 6 7 7 8 9 10 10 10 10 10 10 10 10 10 10	Site Restoration - slope/buffer plantings, general cleanup <b>Distruction Costs</b> Julisted Engineering Services (%)         .d, and Profit (%)         %) <b>Description AINTENANCE, MONITORING, AND REPORTING</b> Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost Xeas of Annual Monitoring</b> ND REPORTING COST         XM and Reporting Cost         Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         Davale elevation monitoring         Quarterly surface water sampling         Annual groundwater sampling (EISB parameters post DGI	1 25% 20% 9.2% 9.2% 9.2% 9.2% 9.2% 9.2% 9.2% 9.2	DS LS pct pct pct vr yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 347,600 \$ 200,000 \$ 347,600 \$ 3,000 \$ 73,000 \$ 73,000 \$ 200,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 200,000 \$ 3,000 \$ 200,000 \$ 3,000 \$ 2,000 \$ 3,000 \$ 2,000 \$ 3,000 \$ 2,000 \$ 3,000 \$ 0,000 \$ 0,00	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 2396,500 <b>\$ 33,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,600 \$ 20,000 \$ 289,700 \$ 8,000 \$ 38,342,000 <b>\$ 7,748,000</b> <b>\$ 73,000</b> \$ 73,000 \$ 400,000 \$ 96,000 \$
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT OPERATION Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C ncy and I Overhea ies Tax (5 OST Item # ION, M 1 2 3 4 5 5 6 6 7 7 8 9 9 10 <b>1</b> &M an Cost Cont <b>1</b> <b>1</b> <b>1</b> 2 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 3 4 4 5 5 6 6 7 7 8 9 10 <b>1</b> <b>1</b> <b>1</b> 2 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> 2 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> 2 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	Distriction in slope/buffer plantings, general cleanup         pastruction Costs         Julisted Engineering Services (%)         .d. and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fec         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> Years of Annual Monitoring         ND REPORTING COST         & Mand Reporting Cost         Years of Annual Monitoring         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Annual groundwater sampling (EISB parameters)         Quarterly groundwater sampling         Annual groundwater sampling (post DGR)         Annual surface water sampling (post DGR)	1 25% 20% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	IDS LS Pct pct pct Unit Vr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 2,521,300 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 8,000 \$ 347,600 <b>Unit Cost</b> \$ 73,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Co</b>	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 537,200 \$ 296,500 <b>\$ 44,28</b> \$ 9,600 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,985,000 \$ 8,000 \$ 57,900 \$ 8,342,400 <b>\$ 73,000</b> <b>\$ 73,00</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	333 Action C ncy and I Overhea es Tax (C OST Item # TON, M 1 2 3 4 4 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> Ost Cont <b>A&amp;M an</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b> <b>A</b>	Disortion injection construction         Site Restoration - slope/buffer plantings, general cleanup <b>instruction Costs</b> Julisted Engineering Services (%)         d, and Profit (%)         %) <b>Description AINTENANCE, MONITORING, AND REPORTING</b> Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Surface water sampling (during DGR)         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) <b>Vears of Annual Monitoring ND REPORTING COST M and Reporting Cost M and Reporting Cost</b> Presumed Discount Rate <b>Description ON, MAINTENANCE, MONITORING, AND REPORTINE</b> Baseline groundwater sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater elevation monitoring         Quarterl	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	IDS LSS Pct pct pct Unit Vr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 2,521,300 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 200,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 200,000 \$ 3,000 \$ 3,0	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 296,500</b> <b>\$ 3,985,000</b> <b>\$ 44,28</b> \$ 9,600 \$ 20,000 \$ 289,700 \$ 8,342,400 <b>\$ 3,92,000</b> <b>\$ 3,92,000</b> <b>\$ 7,748,000</b> <b>\$ 73,000</b> <b>\$ 400,000</b> <b>\$ 7,748,000</b> <b>\$ 73,000</b> <b>\$ 400,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 80,000</b> <b>\$ 390,000</b> <b>\$ 80,000</b> <b>\$ 390,000</b> <b>\$ 1,850,000</b> <b>\$ 438,000</b> <b>\$ 1,850,000</b> <b>\$ 1,850,000</b> <b>\$ 438,000</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI	33 Action C ncy and I Overhea ies Tax (5 OST Item # ION, M 1 2 3 4 4 5 5 6 6 7 7 8 9 9 0 1 <b>A&amp;M an</b> 5 5 5 6 6 7 7 8 9 9 0 1 <b>A&amp;M an</b> 5 5 5 6 6 7 7 8 9 9 10 11 2 2 3 3 4 4 5 5 5 6 6 7 7 8 9 9 10 11 2 2 3 3 4 4 4 5 5 5 6 6 7 7 8 8 9 9 10 11 12 2 3 3 4 4 4 5 5 5 6 6 7 7 8 8 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	Disorior in slopedon bedias         Site Restoration - slope/buffer plantings, general cleanup <b>onstruction Costs</b> Julisted Engineering Services (%         .d. and Profit (%)         %)         Description <b>AINTENANCE, MONITORING, AND REPORTING</b> Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> Years of Annual Monitoring         ND REPORTING COST         & M and Reporting Cost         Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling         Quarterly groundwater sampling (EISB parameters)         Quarterly surface water sampling         Annual groundwater sampling (post DGR)         Annual operation of GET system (post DGR)	1 25% 20% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	IDS LS Pct pct pct Unit Vr mo yr yr yr yr yrs yrs yrs yrs yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 44,500 \$ 369 \$ 0,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 347,600 Unit Cost <b>Unit Cost</b> <b>Unit Cost</b> <b>Un</b>	\$ 54,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 33,985,000 <b>\$ 33,985,000</b> <b>\$ 44,28</b> \$ 9,600 \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 8,000 <b>\$ 7,748,000</b> <b>\$ 73,000</b> <b>\$ 748,000</b> <b>\$ 748,</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT OPERATION Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routi Annual Monitoring C TOTAL NON-ROUTINE OI	333 Action C Incy and I Overhea ees Tax (5 OST Item # TON, M I I 2 3 3 4 5 5 6 7 7 8 9 10 1 1 2 3 4 5 6 6 7 7 8 9 10 1 1 2 3 3 4 5 6 6 7 8 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Disorior in slope/buffer plantings, general cleanup         Distruction Costs         Julisted Engineering Services (%)         .d, and Profit (%)         %)         Description         AINTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)         Years of Annual Monitoring         ND REPORTING COST <b>Wa and Reporting Cost</b> Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling         Quarterly groundwater sampling (DISB parameters post DGI Annual groundwater sampling (DOST DGR)         Annual gurdace water sam	1 25% 20% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	IDS LS pct pct vr unit Vr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$ 25,000 \$ 2,521,300 \$ 2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 95,000 \$ 8,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 65,000 \$ 8,000 \$ 65,000 \$ 8,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 185,000 \$ 73,000 \$ 185,000 \$ 73,000 \$ 20,000 <b>Unit Cost</b> <b>Unit Cost</b> <b>Unit</b>	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 3,9000 \$ 3,9000 <b>\$ 57,900</b> <b>\$ 3,942,400</b> <b>\$ 57,900</b> <b>\$ 3,942,400</b> <b>\$ 57,900</b> <b>\$ 3,942,400</b> <b>\$ 57,900</b> <b>\$ 3,942,400</b> <b>\$ 57,900</b> <b>\$ 3,9000</b> <b>\$ 3,9000</b> <b>\$ 3,90,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 4,588,000</b> <b>\$ 4,588,000</b> <b>\$ 1,850,000</b> <b>\$ 4,588,000</b> <b>\$ 1,850,000</b> <b>\$ 1,850,000</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	33 Action C ncy and I Overhea es Tax (C OST Item # TON, M 1 2 3 4 5 6 6 7 8 9 10 A&M an Ost Cont M&M A Item # PERATI 1 2 3 4 5 6 6 7 8 9 10 A&M an Ost Cont 1 1 2 3 4 5 6 7 8 9 10 A&M an Ost Cont 1 1 2 3 4 5 6 6 7 7 8 9 10 10 1 2 10 1 1 2 10 1 1 2 10 1 1 2 10 1 1 2 10 1 1 2 10 1 1 2 10 1 1 1 2 10 1 1 1 2 10 1 1 1 1 2 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	Site Restoration - slope/buffer plantings, general cleanup onstruction Costs Julisted Engineering Services (% d, and Profit (%) 6) Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fec Groundwater sampling (during DGR) Groundwater sampling (during DGR) Groundwater sampling (during DGR) Surface water sampling (during DGR) Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%) DGR/GET system equipment replacement cos Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling (DGR) Annual groundwater sampling (DGR) Annual groundwater sampling (DGR) Annual groundwater sampling (DGR) Annual groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling Quarterly groundwater sampling (DGR) Annual apperting COST M and Reporting COST OM&M and Reporting COST OM&M and Reporting COST OM&M and Reporting COST	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	DS LS Pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,5000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 20,000 \$ 95,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 05,000 \$ 200,000 \$ 8,000 \$ 05,000 \$ 05,000 \$ 05,000 \$ 05,000 \$ 05,000 \$ 05,000 \$ 05,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 200,000 \$ 15,000 \$ 15,000 \$ 347,600 \$ 15,000 \$ 20,000 \$ 15,000 \$ 20,000 \$ 347,600 \$ 20,000 \$ 34,588,000 \$ 34	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 33,985,000</b> <b>\$ 444,500</b> \$ 4,428 \$ 9,600 \$ 20,000 \$ 30,000 \$ 8,342,400 <b>\$ 342,400</b> <b>\$ 373,000</b> <b>\$ 400,000</b> <b>\$ 77,748,000</b> <b>\$ 73,000</b> \$ 400,000 <b>\$ 396,000</b> \$ 390,000 <b>\$ 396,000</b> \$ 390,000 <b>\$ 396,000</b> \$ 390,000 <b>\$ 396,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 44,588,000</b> <b>\$ 44,5871,000</b> <b>\$ 44,571,000</b> <b>\$ 5,5566,000</b> <b>\$ 44,871,000</b> <b>\$ 44,871,000</b> <b>\$ 5,5566,000</b> <b>\$ 44,871,000</b> <b>\$ 44,871,000</b> <b>\$ 44,871,000</b> <b>\$ 5,5566,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5566,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,000</b> <b>\$ 5,5576,0</b>
OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Annual Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	33 Action C ncy and I Overhea es Tax (5 OST Item # TON, M 1 2 3 4 5 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> 2 3 4 4 <b>1</b> 2 5 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 2 3 4 4 <b>1</b> 2 5 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 2 3 3 4 4 <b>1</b> 2 5 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 2 3 3 4 4 <b>1</b> 2 5 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> 2 5 5 6 6 7 7 7 8 9 9 10 <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>5</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	Disorior in slopedon feedback         Site Restoration - slope/buffer plantings, general cleanup <b>onstruction Costs</b> Julisted Engineering Services (%)         .d. and Profit (%)         %)         Description <b>AINTENANCE, MONITORING, AND REPORTING</b> Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> Years of Annual Monitoring         ND REPORTING COST         &M and Reporting Cost         Presumed Discount Rate         Description         ON, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (post DGR)         Annual groundwater sampling (post DGR)         Annual groundwater sampling (post DGR)         Annual operation of GET system (post	1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	IDS LS pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 20,000 \$ 95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 4,588,000 \$ 185,000 \$ 8,000 \$ 0,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 \$ 3,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 3,0000 \$ 3,000 \$ 3,0000 \$ 3,00000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,00000 \$ 3,000000 \$ 3,0	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 33,985,000 <b>\$ 144,500</b> <b>\$ 44,500</b> <b>\$ 44,28</b> <b>\$ 9,600</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 20,000</b> <b>\$ 30,000</b> <b>\$ 3,342,400</b> <b>\$ 77,748,000</b> <b>\$ 77,748,000</b> <b>\$ 73,000</b> <b>\$ 73,000</b>
AL OM&M OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- C TOTAL NON-ROUT Present-Worth Non-	33 Action C ncy and I Overhea es Tax (C OST Item # TON, M 1 2 3 4 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 0st Cont <b>A&amp;M an</b> 0st Cont <b>A&amp;M an</b> 0st Cont 1 2 3 4 <b>A</b> 7 8 9 10 <b>A&amp;M an</b> 0st Cont 1 1 2 3 4 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 0st Cont 1 1 2 2 3 4 4 5 5 6 6 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 8 9 9 10 <b>A&amp;M an</b> 0 5 7 7 8 8 9 9 10 <b>A&amp;M an</b> 7 7 7 8 8 9 9 10 <b>A&amp;M an</b> 7 7 8 8 9 9 10 <b>A</b> 7 7 7 8 8 9 9 10 7 7 8 8 9 9 10 7 7 8 8 9 9 10 7 7 8 8 9 9 10 7 7 7 8 8 9 9 10 7 7 7 8 8 9 9 10 7 7 8 8 9 9 10 7 7 7 8 8 9 9 10 7 7 7 8 8 9 9 10 7 7 7 8 8 9 9 10 7 7 7 8 8 9 9 10 7 7 7 7 7 7 7 7 8 8 9 9 10 7 7 7 7 7 7 7 7 8 8 9 9 10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Site Restoration - slope/buffer plantings, general cleanup onstruction Costs Julisted Engineering Services (% d, and Profit (%) %) Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Surface water sampling (during DGR) Reporting A Reporting Man Reporting Cost ND REPORTING COST *M and Reporting Cost DGR/GET system equipment replacement cos Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling (DGR) Annual groundwater sampling Quarterly groundwater sampling (post DGR) Annual groundwater sampling (post DGR) Annual groundwater sampling (post DGR) Annual operation of GET system (post DGR) Annual operation of GET system (post DGR) 1.5 years quarterly confirmation sampling Cleanup completion report M and Reporting Cost OM&M and Reporting Cost Presumed Discount Rate MANP REPORTING COST OM&M and Reporting Cost Presumed Discount Rate MANP REPORTING COST OM&M and Reporting Cost Presumed Discount Rate	38000         1         25%         20%         9.2%         Quantity         1         12         1         1         1         1         1         1         1         1         1         20%         24         0.6%         Ouantity         NG         1         21         12         12         12         12         12         12         12         12         12         12         12         12         12         12         12         12         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10	IDS LS Pct pct pct Vmit Vr mo yr yr yr yr yr yr yr yr yr pct Vmit event er er T	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 4,588,000 \$ 0,000 \$ 0,000 \$ 0,000 \$ 289,700 \$ 347,600 \$ 0,000 \$ 0,00	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 2396,500 <b>\$ 33,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,600 \$ 4,428 \$ 9,600 \$ 20,000 \$ 3,000 \$ 4,342,000 <b>\$ 7,748,000</b> <b>\$ 73,000</b> \$ 400,000 <b>\$ 7,748,000</b> <b>\$ 73,000</b> \$ 400,000 \$ 396,000 \$ 96,000 \$ 96,000 \$ 96,000 \$ 390,000 \$ 44,588,000 \$ 438,000 \$ 44,588,000 \$ 44,588,000 \$ 44,588,000 \$ 44,588,000 \$ 3917,600 \$ 44,588,000 \$ 44,588,000 \$ 3917,600 \$ 44,588,000 \$ 44,588,000 \$ 438,000 \$ 44,588,000 \$ 44,588,000 \$ 44,588,000 \$ 44,588,000 \$ 44,588,000 <b>\$ 1,850,000</b> <b>\$ 44,588,000</b> <b>\$ 44,588,000</b> <b>\$ 3917,600</b> <b>\$ 44,5871,000</b> <b>\$ 5,506,000</b> <b>\$ 5,506,000</b> <b>\$ 5,576,000</b> <b>\$ 5,576,000</b> <b></b>
OTAL OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Ann Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Category OTAL PRESENT-Y TOTAL PRESENT-Y	33 Action C ncy and I Overhea ies Tax (5 OST Item # ION, M 1 2 3 3 4 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 5 5 6 6 7 7 8 9 10 <b>A&amp;M an</b> 5 5 6 6 7 7 8 9 10 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 8 8 9 10 7 7 8 8 9 10 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 7 8 8 9 10 7 8 8 9 10 7 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 8 9 9 10 7 8 8 8 9 9 10 7 8 8 8 9 9 10 10 8 8 8 8 8 8 9 9 10 10 8 8 8 8 8 8 8 8 9 9 10 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Site Restoration - slope/buffer plantings, general cleanup onstruction Costs Julisted Engineering Services (% d, and Profit (%) 6) Description AINTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR Groundwater sampling (during DGR Groundwater sampling (during DGR Surface water sampling (during DGR Reporting <b>d Reporting Cost</b> Man Reporting Cost Presumed Discount Rate DGR/GET system equipment replacement cos Quarterly groundwater sampling Quarterly groundwater sampling DGR/GET system equipment replacement cos Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling Annual groundwater sampling Annual groundwater sampling Annual surface water sampling (post DGR Annual surface water sampling (post DGR Annual surface of the system (post DGR) Annual of the system (post DG	38000         1         25%         20%         9.2%         Quantity         1         12         1         20%         0.6%         0.6%         0.6%	IDS LSS Pct pct pct Unit Yr mo yr yr yr yr yrs yrs yrs yrs yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 4,589,700 \$ 347,600 Unit Cost \$ 73,000 \$ 200,000 \$ 4,588,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 20,000 \$ 3,000 \$ 4,588,000 \$ 5,000 \$ 4,588,000 \$ 5,000 \$ 1,000 \$	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 33,985,000</b> <b>\$ 44,500</b> <b>\$ 44,28</b> <b>\$ 9,600</b> <b>\$ 20,000</b> <b>\$ 3,000</b> <b>\$ 3,000</b> <b>\$ 7,748,000</b> <b>\$ 73,000</b> <b>\$ 7,748,000</b> <b>\$ 73,0000</b> <b>\$ 396,000</b> <b>\$ 96,000</b> <b>\$ 96,000</b> <b>\$ 96,000</b> <b>\$ 96,000</b> <b>\$ 96,000</b> <b>\$ 96,000</b> <b>\$ 390,000</b> <b>\$ 390,000</b> <b>\$ 30,000</b> <b>\$ 30,000</b> <b>\$ 438,000</b> <b>\$ 438,000</b> <b>\$ 438,000</b> <b>\$ 4,588,000</b> <b>\$ 1,850,000</b> <b>\$ 4,588,000</b> <b>\$ 1,850,000</b> <b>\$ 4,588,000</b> <b>\$ 1,850,000</b> <b>\$ 1,</b>
TOTAL OM&M	Subtotal Remedial A Direct Cost Continge Contractor Bond Fee, Washington State Sal TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual ON Annual Monitoring C TOTAL ANNUAL O Present-Worth Annu Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Present-Worth Non- Present-Worth Non- Category NON-ROUTINE OI Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Category NON-ROUTINE OI COTAL PRESENT-Y TOTAL PRESENT-Y TOTAL PRESENT-Y	33 Action C ncy and I Overhea es Tax (5 OST Item # TON, M 1 2 3 4 5 6 7 8 9 10 14 M&M A 1 2 3 4 4 5 6 7 8 9 10 14 M&M A 1 2 3 4 4 5 6 6 7 7 8 9 10 14 1 2 3 4 4 5 6 6 7 7 8 9 10 14 1 2 5 6 6 7 7 8 9 10 14 1 2 5 6 6 7 7 8 9 10 14 1 2 5 6 6 7 7 8 9 10 14 1 2 5 6 6 7 7 8 9 10 14 12 12 12 12 12 12 12 12 12 12	Disorior inspection evolution         Site Restoration - slope/buffer plantings, general cleanup <b>Distruction Costs</b> Julisted Engineering Services (%)         .d. and Profit (%)         %) <b>Description AINTENANCE, MONITORING, AND REPORTING</b> Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting <b>d Reporting Cost</b> ingency and Unlisted Items (%)         Years of Annual Monitoring <b>ND REPORTING COST M and Reporting Cost</b> Presumed Discount Rate         Description <b>ON, MAINTENANCE, MONITORING, AND REPORTIN</b> Baseline groundwater/surface water sampling         DGR/GET system equipment replacement cos         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (DSB DGR)         Annual groundwater sampling (DSB DGR)         Annual aufface water sampling (DSB DGR)         Annual arface water sampling (DSB DGR)     <	38000         1         25%         20%         9.2%         Quantity         1         12         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         20%         24         0.6%         Ouantity         NG         1         2         12         12         12         12         12         12         12         12         12         12         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10 </td <td>IDS LS pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr</td> <td>\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 20,000 \$ 95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 347,600 Unit Cost \$ 73,000 \$ 200,000 \$ 4,588,000 \$ 8,000 \$ 8,000 \$ 347,600 \$ 200,000 \$ 289,700 \$ 347,600 \$ 30,000 \$ 347,600 \$ 36,000 \$ 36,000</td> <td>\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,660 \$ 20,000 \$ 3,9000 \$ 4,542,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 396,000 \$ 73,000 \$ 96,000 \$ 390,000 \$ 390,000 \$ 390,000 \$ 390,000 \$ 4,588,000 \$ 1,850,000 \$ 1,850,000</td>	IDS LS pct pct pct Unit yr mo yr yr yr yr yr yr yr yr yr yr yr yr yr	\$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 20,000 \$ 95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 347,600 Unit Cost \$ 73,000 \$ 200,000 \$ 4,588,000 \$ 8,000 \$ 8,000 \$ 347,600 \$ 200,000 \$ 289,700 \$ 347,600 \$ 30,000 \$ 347,600 \$ 36,000 \$ 36,000	\$ 34,000 \$ 25,000 \$ 2,521,300 \$ 630,300 \$ 537,200 \$ 296,500 <b>\$ 3,985,000</b> <b>\$ 44,500</b> \$ 4,428 \$ 9,660 \$ 20,000 \$ 3,9000 \$ 4,542,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 396,000 \$ 73,000 \$ 96,000 \$ 390,000 \$ 390,000 \$ 390,000 \$ 390,000 \$ 4,588,000 \$ 1,850,000 \$ 1,850,000

No

#### ALTERNATIVE 5 DYNAMIC GROUNDWATER RECIRUCLATION AND SOURCE AREA EISB

#### POINT OF COMPLIANCE OPTION: OPTION 5 - GROUNDWATER STANDARD POC USING SWQS

Explanation of POC Option: SWQS (0.3 µg/L TCE) to be met in monitoring wells throughout the groundwater TCE plume (and surface water).

POC Option	1	Existing monitoring well network sufficient for monitoring groundwater POC; however, new monitoring wells (assume 3)
Specific		will be necessary to monitor EISB performance downgradient of detention basin.
Assumptions	2	Existing surface water sampling locations will be used for monitoring surface water POC
	3	DGR system will be operated for 24 years for downgradient plume cleanup

- 4 EISB in source area will require 38 years for source area cleanup (including 3 injection events over 3-year period)
- 5 GET system extraction wells will continue to be operated until compliance at groundwater CPOC (4 years after DGR)
- 6 Major and minor equipment replacements for DGR/GET system will be required during 24-year operational time frame

~	C ·	<b>T</b> 4 "			¥7.4	TI to construct to	1	m · •
Cost	Category	Item #	Description	Quantity	Unit	Unit Cost		Total
Type	REMEDIAL DESIG	N PLAN	INING AND CENERAL (Indirect Costs)					
1	ALL DESIG	1	Engineering/Proj Memt/Const Memt/Reporting					
		2	Cleanup action plan	1	LS	\$ 30,000	\$	30,000
		3	Permits	1	LS	\$ 30,000	\$	30,000
		4	Negotiate and implement institutional controls	0	LS	\$ 10,000	\$	-
1		5	Contract documents and contractor bidding/procurement	1	LS	\$ 20,000	\$	20,000
		6	Cleanup action construction report/O&M manual	1	LS	\$ 30,000	\$	30,000
		7	Engineering/Remedial Design	8%	pct	\$ 4,095,000	\$	327,600
		8	Construction management/oversight	6%	pct	\$ 4,095,000	\$	245,700
		10	Froject management Ecology oversight	5%	pct	\$ 19,855,500	¢ ¢	992,005
	Subtotal Remedial D	lesign Pl	anning and Coneral Costs	570	per	\$ 19,855,500	ф \$	2 668 600
	Indirect Contingency	and Unlis	ted Engineering Services (%	15%	net	\$2 668 600	\$	400 300
	TOTAL INDIRECT		and Engineering Services (70	15 /0	ρει	\$2,000,000	Ψ	\$3.069.000
	Category	Item #	Description	Ouantity	Unit	Unit Cost		Total
	REMEDIAL ACTIC	DN CONS	STRUCTION - DGR SYSTEM AND ELECTRON DONOR	INJECTIO	NS (Direct	Costs)		
		1	Contractor mobilization/demobilization	1	LS	\$ 30,000	\$	30,000
		2	DGR pilot study	1	LS	\$ 80,000	\$	80,000
			Install injection and extraction wells/distribution system			* * ***		
		3	Utility locate	1		\$ 2,500	\$	2,500
		4	Site prep/clearing/grubbing	1		\$ 75,000	¢ ¢	75,000
7		6	Drilling - DGR extraction well installation	4	well	\$ 20,000	ŝ	80,000
		7	Drilling - DGR injection well installation (shallow	4	well	\$ 26,000	\$	104.000
Ĕ		8	Drilling - DGR injection well installation (deep)	8	well	\$ 15,000	\$	120,000
		9	Drilling - monitoring wells for DGR monitoring	7	well	\$ 12,000	\$	84,000
$\mathbf{\Gamma}^{\mathbf{V}}$		10	IDW disposal	70	Drums	\$ 200	\$	14,000
Ż		11	Well vaults, pumps, air vac assemblies	1	LS	\$ 210,000	\$	210,000
E		12	Transfer tank, valving, and pump with controls	1	LS	\$ 18,000	\$	18,000
Ň		13	Directional drilling for pipe/conduit up to ridge	. 1	LS	\$ 100,000	\$	100,000
E		14	Water line, electrical, communications trenching	4200	LF	\$ 16	\$	67,200
Ы		15	water piping	4200	LF	\$ 60	\$	252,000
Z		16	Electrical conduit and cable	2400		\$ 45 \$ 77	\$	108,000
		17	Trench repaying/restoration	4200	LF CF	э 65 с -	¢ ¢	275,000
1		18	Flectrical equipment ungrades/transformer/alastrisian	20000	55	\$ 70.000	¢	70,000
1		20	Instrumentation and controls: control panels	1	LS	\$ 150,000	\$	150,000
		20	GAC polishing vessels	2	each	\$ 12,500	ŝ	25,000
		22	DGR system startup and testing	1	LS	\$ 20,000	\$	20,000
			EISB Injection Well Installation			,		- ,
		23	Utility locate/clearing	1	LS	\$ 1,000	\$	1,000
		24	Driller mobilization/demobilization	1	LS	\$ 3,000	\$	3,000
		25	Drilling - injection wells (detention basin hotspot)	24	wells	\$ 4,000	\$	96,000
		26	Well development	24	wells	\$ 1,000	\$	24,000
		27	IDW disposal	70	Drums	\$ 200	\$	14,000
			Injection of Electron Donor					
		28	Injection crew/labor	75	days	\$ 3,000	\$	225,000
		29	Purchase equipment/supplies for injection system setur	1	LS	\$ 25,000	\$	25,000
		30	Materials and rentals for injection events	285.000	event	\$ 20,000	\$	60,000
		51	water for injection events	285,000	0.41	.0 (1.0.)	ு	8,550
		32	Donor for injection events	36000	lbe	\$ 2	\$	54 000
		32 33	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur	36000 1	lbs LS	\$ 2 \$ 25.000	\$ \$	54,000 25,000
	Subtotal Remedial A	32 33 Action Co	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs	36000 1	lbs LS	\$ 2 \$ 25,000	\$ \$	54,000 25,000 2,521,300
	Subtotal Remedial A Direct Cost Continger	32 33 Action Concy and U	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (%	36000 1 <b>25%</b>	lbs LS	\$ 2 \$ 25,000 \$2,521,300	\$ \$ \$	54,000 25,000 2,521,300 630,300
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee,	32 33 Action Co ncy and U Overhead	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (%	36000 1 25% 20%	lbs LS pct pct	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875	\$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale	32 33 Action Co ncy and U Overhead es Tax (%	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs Inlisted Engineering Services (% d, and Profit (%) b)	36000 1 25% 20% 9.2%	lbs LS pct pct pct	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075	\$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co	32 33 Action Concy and U Overhead es Tax (% OST	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) )	36000 1 25% 20% 9.2%	lbs LS pct pct pct	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075	\$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b>
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category	32 33 Action Co ney and U Overhead es Tax (% OST Item #	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) Description Description	36000 1 25% 20% 9.2% Quantity	lbs LS pct pct pct Unit	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost	\$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 \$3,985,000 Total
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category ANNUAL OPERAT	32 33 Action Co ncy and U Overhead es Tax (% OST Item # ION, MA	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs Inlisted Engineering Services (% 4, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING	36000 1 25% 20% 9.2% Quantity	lbs LS pct pct pct Unit	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost	\$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 \$3,985,000 Total
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category ANNUAL OPERAT	32 33 action Co hey and U Overhead es Tax (% OST Item # ION, MA	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs (nlisted Engineering Services (%) 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Coll phone/GET austom ramete agages abarrage	36000 1 25% 20% 9.2% Quantity	pct pct pct Unit	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 260	\$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category ANNUAL OPERAT	32 33 Action Co may and U Overhead es Tax (% OST Item # ION, MA	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs (nlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges	36000 1 25% 20% 9.2% Quantity 1 12	pct pct pct Unit	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369	\$ \$ \$ \$ \$	54,000 25,000 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 action Co hey and U Overhead es Tax (% OST Item # ION, MA 1 2 3	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs (nlisted Engineering Services (% 1, and Profit (%) )  Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage	36000 1 25% 9.2% Quantity 1 12	pct pct pct Unit	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600	\$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 action Co ney and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs (nlisted Engineering Services (% 1, and Profit (%) )  Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	36000 1 25% 9.2% Quantity 1 12 1	bs LS pct pct Unit yr mo yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 Action Co ney and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs (nlisted Engineering Services (% 1, and Profit (%) )  Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	36000 1 25% 9.2% Quantity 1 12 1 1	yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 Action Co werhea(% OST Item # ION, MA 1 2 3 4	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting	36000 1 25% 9.2% Quantity 1 12 1 1	yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 3,223,075 \$ 3,69 \$ 3,69 \$ 3,000 \$ 20,000 \$ 20,000\$ \$ 20,000\$ \$ 20,000\$ \$ 20,000\$ \$ 20,000\$ \$ 20,000\$ \$ 30,000\$ \$ 20,000\$ \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 Action Co acy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) 1,	36000 1 25% 20% 9.2% Quantity 1 12 1 1 1	yr yr yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5 5 6	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) 1,	36000 1 25% 20% 9.2% Quantity 1 12 1 1 1 1 1	yr yr yr yr yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5 5 6 6 7	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)	36000 1 25% 9.2% 9.2% 0 0 1 1 1 2 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5 6 6 7 7 8	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         d, and Profit (%)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Constructionered         Constructionered         Construction of the provide the p	36000 1 25% 9.2% 9.2% 1 1 12 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 8,000 \$ 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 2,500 (3,521,300 (537,200 (3,985,000 (3,985,000 (4,428 (9,600 (20,000) (20,000) (20,137 (65,000 (8,000) (20,000)
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category ANNUAL OPERAT	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5 6 6 7 7 8 9 9	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         I, and Profit (%)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Gurface water sampling (during DGR)         Surface water sampling (during DGR)	36000 1 25% 20% 9.2% 9.2% 1 1 12 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,0000 \$ 20,000 \$ 20,0000 \$ 20,0000 \$ 20,0000 \$ 20,0000 \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>44,500</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category ANNUAL OPERAT	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 4 5 5 6 6 7 7 8 9 100	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup <b>nstruction Costs</b> Inlisted Engineering Services (% 1, and Profit (%) 	36000 1 25% 20% 9.2% 9.2% 1 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yrs yrs	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 8,000 \$ 3,000 \$ 3,0000 \$ 3,00000 \$ 3,00000 \$ 3,00000 \$ 3,00000 \$ 3,0000000 \$ 3,000000000000000000000000000000000000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 \$37,200 \$296,500 <b>3,985,000</b> <b>101</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000 8,000 15,000
	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT Co Category ANNUAL OPERAT	32 33 Cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 4 5 6 6 7 7 8 9 10 It&M and ost Conti-	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup <b>nstruction Costs</b> Inlisted Engineering Services (% 1, and Profit (%) )	36000 1 25% 9.2% 9.2% 9.2% 1 1 12 1 1 1 1 1 1 1 1 1 1 20%	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 20,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 <b>\$296,500</b> <b>3,985,000</b> <b>101</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000 15,000 289,700 57,900
И	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C	32 33 Cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 4 5 6 6 7 7 8 9 10 I&M and ost Contin	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%)         1, and Profit (%)         )         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         IReporting Cost         ngency and Unlisted Items (%)	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 20,137 \$ 5,000 \$ 20,137 \$ 5,000 \$ 3,000 \$ 20,137 \$ 5,000 \$ 3,000 \$ 20,137 \$ 5,000 \$ 3,000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 8,000 8,000 8,000 15,000 289,700 8,342,400
\$M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT	32 33 33 33 33 33 34 30 34 33 44 55 66 77 88 9 10 16 M and ost Contin M&M AA	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)         0         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         IReporting Cost         ngency and Unlisted Items (%         Years of Annual Monitoring         VD REPORTING COST	36000 1 25% 9.2% 9.2% Quantity 1 12 1 1 1 1 1 1 1 1 1 20% 24	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 <b>Unit Cost</b> \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 3,000 \$ 3,000\$ \$ 0,000\$ \$ 0,000\$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 9,000 8,000 8,000 8,000 9,000 8,000 9,000 8,342,400 8,000 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 8,000 8,342,400 9,342,400 8,400,
M&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP	32 33 33 33 33 33 34 30 35 40 55 66 77 8 9 10 14 84 4 55 66 77 8 910 10 14 84 910 10 14 84 910 10 14 84 910 10 10 10 10 10 10 10 10 10 10 10 10 1	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yrs yrs	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000\$ \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 8,000 15,000 289,700 57,900 \$3,342,400 \$3,342,400 \$3,342,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category	32 33 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA I 1 2 2 3 4 4 5 5 6 6 7 8 9 10 I&M and ost Contin M&M AN nal OM& Item #	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 9.2% 9.2% 1 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 3,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000 \$ 3,0000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,3985,000</b> Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 \$3,342,400 \$3,342,400 \$3,748,000 Total
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA I 1 2 2 3 4 4 5 5 6 6 7 8 9 9 10 I&M and ost Contii I&M and ost Contii I&M AN I IOM& I	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 347,600 \$ 20,000 \$ 347,600 \$ 20,000 \$ 20,0000 \$ 20,0000 \$ 20,0000 \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 \$8,342,400 <b>\$7,748,000</b> Total
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Munual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 cetion Co necy and U Overhead es Tax (% OST Item # 10N, MA 1 2 3 4 4 5 5 6 6 7 7 8 9 10 10N, MA 2 5 6 6 7 7 8 9 9 10 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 3 4 4 10N, MA 1 1 2 2 3 10N, MA 1 1 2 1 10N, MA 1 1 2 1 10N, MA 1 1 2 1 10N, MA 1 1 2 1 10N, MA 1 1 2 1 10N, MA 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> \$ 73,000 \$ 73,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 <b>\$296,500</b> <b>7otal</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>\$342,400</b> <b>\$7,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Munual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA 1 2 3 4 5 6 6 7 8 9 10 10 10 10 10 10 10 10 10 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 365,000 \$ 365,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 347,600 \$ 73,000 \$ 73,000 \$ 200,000 \$ 95,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>10tal</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 20,137 65,000 8,000 5,000 289,700 57,900 <b>8,342,000</b> <b>\$7,748,000</b> <b>\$7,748,000</b> <b>Total</b>
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Annual Monitoring C TOTAL ANNUAL OF Present-Worth Annu CATEGORY	32 33 cetion Co necy and U Overhead es Tax (% OST Item # 10, MA 1 2 3 4 5 6 6 7 8 9 10 10, MA 1 2 3 4 4 5 6 6 7 8 9 10 10, MA 12 2 3 4 4 5 6 6 7 7 8 9 10 10, MA 12 2 3 4 4 5 6 6 7 7 8 9 10 10, MA 12 2 10, MA 12 10, MA 12 10, MA 10, MA 12 10, MA 10, MA 1	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 20% 24 0.6% Ouantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yrs yrs	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 289,700 \$ 3,47,600 <b>Unit Cost</b> \$ 73,000 \$ 95,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 5,000 \$ 20,000 \$ 5,000 \$ 73,000 \$ 5,000 \$ 5,00	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 8,000 57,900 8,342,400 \$8,342,000 \$7,7900 8,342,400 \$7,7900 8,342,400 \$7,7900 8,342,400 \$7,7900 8,342,000 77,748,000 73,000 500,000 285,000 780,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 ction Co necy and U Overhead es Tax (% OST Item # 10, MA 1 2 3 4 5 6 6 7 8 9 100 I&M and ost Contin M&MAN al OM& Item # FRATIC 1 2 3 4 5 6 6 7 7 8 9 100 100 100 100 100 100 100	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         I, and Profit (%)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         IReporting Cost         ngency and Unlisted Items (%         Years of Annual Monitoring         ID REPORTING COST         M and Reporting Cost         Presumed Discount Rate         Description         N, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater/surface water sampling         DR/GET system equipment replacement cost         Quarterly groundwater sampling	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 05,000 \$ 05,000 \$ 3,000 \$ 05,000 \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 2,500 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 8,000 8,000 57,900 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> <b>8,342,400</b> <b>57,900</b> <b>8,342,400</b> <b>57,900</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,3</b> ,000 500,000 <b>7,80,000</b> <b>7,80,000</b> <b>7,80,000</b>
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERAT Subtotal Annual OPERAT Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 and the set of	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% 9.2% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 65,000 \$ 3,000 \$ 73,000 \$ 74,000 \$ 74,000 \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 8,000 8,000 8,000 <b>\$7,748,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 780,000 96,000 96,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT OPERAT Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 33 33 33 33 34 00 55 66 77 88 9 10 12 55 66 77 88 9 10 16 84 4 55 66 77 88 9 10 16 84 4 55 66 77 88 9 10 16 84 80 10 16 84 10 10 10 10 10 10 10 10 10 10 10 10 10	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur <b>nstruction Costs</b> Inlisted Engineering Services (% 1, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting Reporting IReporting Cost ngency and Unlisted Items (% Years of Annual Monitoring DGR Annual Monitoring DGR System QCST M and Reporting Cost Description DGR System equipment replacement cost Quarterly groundwater sampling (EISB parameters post DGR) Quarterly surface water sampling Annual groundwater sampling (EISB parameters post DGR) Annual groundwater sampling (EISB parameters post DGR) Carbon Laboratoring DGR/GET System equipment replacement cost Quarterly groundwater sampling Annual groundwater sampling Carbon States Carbon Laboratoring Carbon L	36000 1 25% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 73,000 \$ 73,000 \$ 95,000 \$ 3,000 \$ 65,000 \$ 3,000 \$ 65,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 5,000 \$ 3,000 \$ 5,000 \$ 3,000 \$ 5,000 \$ 3,000 \$ 3,000 \$ 5,000 \$ 3,000 \$ 5,000 \$ 3,000 \$ 5,000 \$ 5,000 \$ 3,000 \$ 5,000 \$ 3,000 \$ 5,000 \$ 5	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 8,000 15,000 289,700 <b>S342,400</b> <b>\$3,942,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 76,000 96,000 96,000 910,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT OPERAT TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 33 33 33 33 34 00 55 66 77 8 9 10 12 33 4 4 55 66 77 8 9 10 18 M and 0st Contin 12 2 3 4 4 5 5 6 6 7 7 8 9 10 10 8 4 9 10 10 8 4 10 10 10 10 10 10 10 10 10 10 10 10 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)         0)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System Temote access charges         Carbon usage         Groundwater sampling (during DGR)         Groundwater elevation monitoring (during DGR)         Surface water sampling (during DGR)         Reporting Cost         Presumed Discount Rate <td>36000 1 25% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>state series of the series of</td> <td>\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 0,000 \$ 0,000</td> <td>\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</td> <td>54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 8,000 8,000 <b>5,000</b> 289,700 <b>57,900</b> <b>289,700</b> <b>57,900</b> <b>289,700</b> <b>57,900</b> <b>283,42,000</b> <b>8,342,400</b> <b>8,342,400</b> <b>57,48,000</b> <b>7,748,000</b> <b>7,3</b>,000 500,000 285,000 780,000 96,000 96,000 910,000 160,000</td>	36000 1 25% 9.2% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	state series of the series of	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 3,000 \$ 0,000 \$ 0,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 8,000 8,000 <b>5,000</b> 289,700 <b>57,900</b> <b>289,700</b> <b>57,900</b> <b>289,700</b> <b>57,900</b> <b>283,42,000</b> <b>8,342,400</b> <b>8,342,400</b> <b>57,48,000</b> <b>7,748,000</b> <b>7,3</b> ,000 500,000 285,000 780,000 96,000 96,000 910,000 160,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 33 33 33 33 40 0 0 1 1 2 2 2 1 1 1 2 2 3 4 4 5 5 6 6 7 8 9 10 1 1 2 2 3 4 4 5 5 6 6 7 8 9 10 10 1 1 2 2 3 4 4 5 5 6 6 7 7 8 9 10 10 1 1 2 2 3 4 4 5 5 6 6 7 7 8 9 10 10 10 10 10 10 10 10 10 10	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 347,600 Unit Cost Unit Cost \$ 73,000 \$ 200,000 \$ 200,000 \$ 347,600 \$ 36,000 \$ 200,000 \$ 200,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 \$ 36,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 \$ 36,000 \$ 20,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 20,000 \$ 36,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 36,000 \$ 20,000 \$ 30,000 \$ 20,000 \$ 20,00	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 <b>57,900</b> <b>8,342,400</b> <b>83,342,400</b> <b>83,342,000</b> <b>77,48,000</b> <b>73,000</b> 500,000 285,000 <b>748,000</b> <b>73,000</b> 500,000 285,000 <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b> <b>70,000</b>
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA I 2 2 3 4 4 5 5 6 6 7 7 8 9 10 I&M and ost Contin I & M and ost Contin I & M AN al OM& I I tem # I S 5 6 6 7 7 8 9 10 I & M AN I I S 5 6 6 6 7 7 8 8 9 10 I & M AN I I S 5 6 6 6 7 7 8 8 9 10 I & M AN I I S 5 6 6 6 7 7 8 8 9 10 I & M AN I I I I I I I I I I I I I I I I I I I	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)               Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         Reporting Cost         ngency and Unlisted Items (%         Years of Annual Monitoring         DGR/GET system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (DGR)         Annual groundwater sampling (DSB parameters post DGR)         Annual groundwater sampling (DSB parameters post DGR)         Annual operation of GT system (post DGR)         Annual operation of GT system (post DGR)         Annual operation of GT system (post DGR)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 347,600 Unit Cost \$ 73,000 \$ 200,000 \$ 95,000 \$ 36,000 \$ 65,000 \$ 65,000 \$ 8,000 \$ 185,000 \$ 185,	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 <b>88,342,000</b> <b>7,748,000</b> <b>7,748,000</b> <b>7,748,000</b> 73,000 500,000 285,000 780,000 96,000 96,000 910,000 160,000 160,000 160,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA I 1 2 2 3 4 4 5 5 6 6 7 7 8 9 9 10 10 K&M AN al OM& Item # I ERATIC I 2 3 4 4 5 5 6 6 7 7 8 9 9 10 11 12 2 3 3 4 4 5 5 6 6 7 7 8 9 9 10 10 11 11 12 12 12 12 12 12 12 12 12 12 12	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 8,000 \$ 65,000 \$ 200,000 \$ 200,000 \$ 347,600 <b>Unit Cost</b> \$ 73,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 185,000 \$ 8,000 \$ 185,000 \$ 20,000 \$ 3,000 \$ 3,000	\$     \$       \$ <td>54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 20,137 65,000 8,000 57,900 8,342,400 <b>\$7,748,000</b> <b>73,000</b> 500,000 285,000 780,000 96,000 96,000 910,000 160,000 160,000 160,000 3,700,000</td>	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>\$3,985,000</b> Total 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 20,137 65,000 8,000 57,900 8,342,400 <b>\$7,748,000</b> <b>73,000</b> 500,000 285,000 780,000 96,000 96,000 910,000 160,000 160,000 160,000 3,700,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 cetion Co necy and U Overhead es Tax (% OST Item # 10N, MA 1 2 3 4 5 66 7 7 8 90 10 14M and ost Contin M&M AN al OM& Item # 1 2 3 4 5 6 6 7 7 8 9 1 1 2 3 4 4 5 6 6 7 7 8 9 1 1 2 2 6 6 7 7 8 9 1 1 2 2 6 6 7 7 8 9 1 1 2 2 6 6 7 7 8 9 1 1 2 2 6 6 7 7 8 9 1 1 2 2 6 6 7 7 8 9 1 1 2 2 6 6 7 7 8 9 1 1 2 2 7 8 9 1 1 1 2 2 7 7 8 9 1 1 1 2 2 3 3 4 1 1 2 2 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 1 1 2 2 3 3 4 5 6 6 7 7 8 9 9 10 11 12 2 2 3 3 4 4 5 5 6 6 7 7 8 9 9 10 11 1 12 2 2 3 3 4 4 5 5 6 6 7 7 8 9 9 10 11 1 2 2 8 9 9 10 11 1 2 2 8 9 9 10 11 1 2 2 8 9 9 10 11 1 2 2 8 9 9 10 11 1 2 2 8 8 9 9 10 10 2 8 10 1 1 1 2 2 8 8 9 9 10 11 1 2 2 8 9 9 10 11 1 2 8 8 8 9 9 10 11 1 2 2 8 8 9 10 11 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 1 2 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 8,000 \$ 20,000 \$ 44,500 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 65,000 \$ 65,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 8,000 \$ 185,000 \$ 185,000 \$ 73,000 \$ 20,000	\$       \$ <t< td=""><td>54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>8,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,300</b> <b>50,000</b> <b>285,000</b> <b>73,000</b> <b>500,000</b> <b>285,000</b> <b>73,000</b> <b>500,000</b> <b>285,000</b> <b>73,000</b> <b>500,000</b> <b>3,700,000</b> <b>438,000</b> <b>910,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>16</b></td></t<>	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>8,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,342,400</b> <b>\$3,300</b> <b>50,000</b> <b>285,000</b> <b>73,000</b> <b>500,000</b> <b>285,000</b> <b>73,000</b> <b>500,000</b> <b>285,000</b> <b>73,000</b> <b>500,000</b> <b>3,700,000</b> <b>438,000</b> <b>910,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>160,000</b> <b>16</b>
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP	32 33 cetion Co necy and U Overhead es Tax (% OST Item # 10N, MA 1 2 3 4 5 6 6 7 7 8 9 10 14 Mand ost Contin M&M AN nal OM& Item # 1 2 3 4 5 6 6 7 7 8 9 10 10 12 12 12 12 12 12 12 12 12 12	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 200,000 \$ 73,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 73,000 \$ 3,000 \$ 3,000	\$       \$ <t< td=""><td>54,000 25,000 2,521,300 630,300 537,200 <b>\$296,500</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>\$342,400</b> <b>\$342,400</b> <b>\$7,748,000</b> <b>73,000</b> 500,000 285,000 780,000 96,000 96,000 910,000 160,000</td></t<>	54,000 25,000 2,521,300 630,300 537,200 <b>\$296,500</b> <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>\$342,400</b> <b>\$342,400</b> <b>\$7,748,000</b> <b>73,000</b> 500,000 285,000 780,000 96,000 96,000 910,000 160,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT CO Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OF Present-Worth Annu Category NON-ROUTINE OF NON-ROUTINE OF Subtotal Non-Routin Annual Monitoring C	32 33 33 cetion Co necy and U Overhead es Tax (% OST Item # 10, MA 1 2 3 4 5 6 6 7 7 8 9 10 10 14 12 2 3 4 12 12 12 12 12 12 12 12 12 12	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup <b>nstruction Costs</b> <b>inlisted Engineering Services (%</b> <b>1, and Profit (%)</b> <b>1)</b> <b>Description</b> <b>INTENANCE, MONITORING, AND REPORTING</b> Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting <b>IReporting Cost</b> negency and Unlisted Items (% Years of Annual Monitoring DGR Tystem equipment replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling Quarterly groundwater sampling Annual groundwater sampling (EISB parameters) Quarterly groundwater sampling Annual groundwater sampling Annual groundwater sampling Annual groundwater sampling Annual surface water sampling Annual surface water sampling Annual surface water sampling Annual surface mater sampling Cleanup completion report <b>M and Reporting Cost</b> Annual surface water sampling Annual surface water sampling (EISB parameters post DGR) Annual groundwater sampling (EISB parameters post DGR) Annual groundwater sampling (EISB parameters post DGR) Annual surface water sampling (DGR) Annual surface	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	yr yr yr yr yr yr yr yr yr yr yr yr yr y	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 <b>Unit Cost</b> \$ 44,500 \$ 9,600 \$ 20,000 \$ 95,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 73,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 73,000 \$ 3,000 \$ 3,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>101</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 8,000 15,000 289,700 57,900 <b>8,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,342,400</b> <b>\$,7,48,000</b> <b>7,3,000</b> 50,000 96,000 90,
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OW Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	32 33 33 33 33 33 34 30 34 34 34 34 55 66 77 8 9 100 12 12 33 4 4 55 66 77 8 9 100 12 12 12 12 12 12 12 12 12 12	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Reporting Cost Reporting Cost Reporting Cost Reporting Description N.MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater/surface water sampling DGR/GET system equipment replacement cost Quarterly groundwater sampling DGR/GET system equipment replacement cost Quarterly groundwater sampling Carterly surface water sampling Carterly surface water sampling Carterly surface water sampling Carterly groundwater sampling Carterly surface water sampling Carterly groundwater sampling Carterly surface water sampling Carterly groundwater sampling Carterly surface water sampling Carterly confirmation sampling Carterly confirmation sampling Canterly con	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	standardspace	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 <b>Unit Cost</b> \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 3,000 \$ 73,000 \$ 8,000 \$ 65,000 \$ 73,000 \$ 8,000 \$ 8,000 \$ 73,000 \$ 3,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 73,000 \$ 3,000 \$ 3,000	\$       \$ <t< td=""><td>54,000 2,500 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 8,000 8,000 8,000 <b>S7,900</b> <b>8,342,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 70,000 96,000</td></t<>	54,000 2,500 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,000 8,000 8,000 8,000 8,000 8,000 8,000 <b>S7,900</b> <b>8,342,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 70,000 96,000
OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OF Present-Worth Annu Category NON-ROUTINE OF Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non-	32 33 33 33 33 33 34 34 34 34 34	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)         0)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Reporting         Reporting         Bagency and Unlisted Items (%         Years of Annual Monitoring         ID R REPORTING COST         M and Reporting Cost         Presumed Discount Rate         DGR/GET system equipment replacement cost         Quarterly groundwater sampling (EISB parameters)         Quarterly groundwater sampling (Dost DGR)         Annual groundwater sampling (Dost DGR)         Annual surface water sampling (DSB DGR)         Annual groundwater sampling (DSB DGR)         Annual groundwater sampling (EISB parameters)         Quarterly groundwater sampling (DSB DGR)         Annual groundwater sampling (DSB DGR)         Annual groundwater	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	sits lbs lbs LS Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 3,47,600 <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 65,000 \$ 8,000 \$ 65,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 8,000 \$ 73,000 \$ 185,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 73,000 \$ 20,000 \$ 73,000 \$	\$       \$ <t< td=""><td>54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 8,000 8,000 <b>8,000</b> <b>57,900</b> <b>57,900</b> <b>57,900</b> <b>53,22,400</b> <b>\$3,342,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 70,000 96,000 96,000 96,000 96,000 96,000 96,000 96,000 96,000 160,000 160,000 160,000 1,443,600 <b>\$8,662,000</b> <b>\$7,437,000</b></td></t<>	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 8,000 8,000 <b>8,000</b> <b>57,900</b> <b>57,900</b> <b>57,900</b> <b>53,22,400</b> <b>\$3,342,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 70,000 96,000 96,000 96,000 96,000 96,000 96,000 96,000 96,000 160,000 160,000 160,000 1,443,600 <b>\$8,662,000</b> <b>\$7,437,000</b>
, OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OF Present-Worth Annu Category NON-ROUTINE OF Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUTINE OF	32 33 33 33 33 33 34 34 34 34 34	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	sits LS pct pct Unit Unit yr mo yr yr yr yr yr yr yr yr yr yr	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 9,600 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 20,000 \$ 347,600 Unit Cost \$ 73,000 \$ 8,000 \$ 8,000 \$ 65,000 \$ 8,000 \$ 65,000 \$ 8,000 \$ 8,000 \$ 73,000 \$ 8,000 \$ 73,000 \$ 73,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 20,137 65,000 289,700 57,900 8,342,400 <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,748,000</b> <b>Total</b> 73,000 500,000 96,000 <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,44,400</b> <b>\$3,44,400</b> <b>\$3,44,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,42,400</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,600</b> <b>\$3,700</b> ,000 <b>\$3,700</b> ,000 <b>\$3,743,000</b> <b>\$7,437,000</b>
AL OM&M OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Present-Worth Non-	32           33           33           33           cetion Co           coy and U           Overhead           Item #           ION, MA           1           2           33           4           5           6           77           8           9           10           I& Mando           ost Contin           Tem #           PERATIC           1           2           33           4           55           6           77           8           9           10           12           23           44           55           66           77           8           9           100           11           12           28           90           100           11           12           11           12	Donor for injection events         Site Restoration - slope/buffer plantings, general cleanup         nstruction Costs         Inlisted Engineering Services (%         1, and Profit (%)         .)         Description         INTENANCE, MONITORING, AND REPORTING         Electrical usage         Cell phone/GET system remote access charges         Carbon usage         System monitoring/NPDES reporting         DGR system O&M labor and cost         NPDES annual renewal fee         Groundwater sampling (during DGR)         Groundwater sampling (during DGR)         Reporting         IReporting Cost         Trenewater of Annual Monitoring         ID REPORTING COST         Mand Reporting Cost         Presumed Discount Rate         Description         N, MAINTENANCE, MONITORING, AND REPORTING         Baseline groundwater sampling (EISB parameters)         Quarterly groundwater sampling (BISB parameters)         Quarterly groundwater sampling (post DGR)         Annual groundwater sampling (pos	36000 1 25% 20% 9.2% 9.2% 1 1 1 1 1 1 1 1 1 1 1 1 1	standardspace	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 347,600 Unit Cost Unit Cost \$ 73,000 \$ 95,000 \$ 95,000 \$ 347,600 \$ 36,000 \$ 3	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 20,137 65,000 20,137 65,000 289,700 57,900 57,900 8,342,400 <b>\$8,342,000</b> <b>\$7,748,000</b> <b>Total</b> 73,000 500,000 285,000 780,000 96,000 96,000 96,000 910,000 160,000 160,000 3,700,000 438,000 20,000 7,218,000 1,443,600 <b>\$7,437,000</b>
TAL OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Present-Worth Non- Present-Worth Non- Category NON-ROUTINE OF Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Resent-Worth Non- Category TOTAL PRESENT-W	32 33 33 ction Co cy and U Overhead es Tax (% OST Item # ION, MA I 1 2 2 3 4 5 6 6 7 8 9 10 I&M and ost Contin I&M AN al OM& Item # FRATIC I 2 3 4 5 6 6 7 8 9 10 I Contin Contin Contin I Contin Cont	Donor for injection events Site Restoration - slope/buffer plantings, general cleanup nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) ) Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System Mean and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater sampling (during DGR) Reporting Reporting Reporting Reporting Cost Maintee Annual Monitoring DR Annual Monitoring PGR/GET system equipment replacement cost Quarterly groundwater sampling (EISB parameters) Quarterly groundwater sampling (BISB parameters) Quarterly groundwater sampling (BISB parameters) Quarterly groundwater sampling (DSR) Annual groundwater sampling (EISB parameters) Quarterly groundwater sampling (DSR) Annual groundwater sampling (EISB parameters) Quarterly groundwater sampling (DSR) Annual ground	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	standard sectors with a sector sector sector sectors with a sector secto	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 9,600 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 347,600 Unit Cost \$ 73,000 \$ 200,000 \$ 95,000 \$ 200,000 \$ 200,000 \$ 20,000 \$ 73,000 \$ 65,000 \$ 8,000 \$ 65,000 \$ 8,000 \$ 20,000 \$ 73,000 \$ 3,000 \$ 3,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,000 \$ 3,000 \$ 3,000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>Total</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 289,700 57,900 50,000
OTAL OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Present-Worth Non- TOTAL PRESENT-W TOTAL PRESENT-W	32 33 cetion Co necy and U Overhead es Tax (% OST Item # ION, MA I 1 2 2 3 4 5 6 6 7 8 9 10 I&M and ost Contin I I 2 3 4 5 6 6 7 8 9 10 I & Mand S 5 6 6 7 8 9 10 I & Mand S 5 6 6 7 8 9 10 I & 8 9 9 10 I & 8 9 9 10 I & 8 8 9 9 10 I & 8 9 9 10 I & 8 8 9 9 10 I & 8 8 9 9 10 I & 8 8 9 9 10 I & 8 8 9 9 10 I & 8 8 9 9 10 I I I I I I I I I I I I I	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) )  Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater elevation monitoring (during DGR) Surface water sampling (during DGR) Reporting Reporting Reporting NAINTENANCE, MONITORING, AND REPORTING IREPORTING COST M and Reporting Cost Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater sampling Uarterly groundwater sampling Uarterly groundwater sampling Uarterly groundwater sampling Canterly surface water sampling Annual groundwater sampling Cleanup completion report Annual surface water sampling Cleanup cost Annual surface of GET System (post DGR) Annual operation of GET system (post DGR) Annual groundwater sampling Cleanup completion report M and Reporting Cost Presumed Discount Rate Cleanup completion report M and Reporting Cost M	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	state of the second sec	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 <b>Unit Cost</b> \$ 44,500 \$ 9,600 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 4,000 \$ 0,000 \$ 347,600 <b>Unit Cost</b> <b>Unit </b>	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>33,985,000</b> <b>101</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 8,000 15,000 289,700 57,900 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,400 <b>57,900</b> 8,342,000 50,000 96,000 97,218,000 1,443,600 <b>53,985,000</b> 1,443,600 <b>53,985,000</b>
TOTAL OM&M	Subtotal Remedial A Direct Cost Continger Contractor Bond Fee, Washington State Sale TOTAL DIRECT C Category ANNUAL OPERAT Subtotal Annual OM Annual Monitoring C TOTAL ANNUAL OP Present-Worth Annu Category NON-ROUTINE OP NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL NON-ROUT Present-Worth Non- Category NON-ROUTINE OP Subtotal Non-Routin Annual Monitoring C TOTAL PRESENT-W TOTAL PRESENT-W TOTAL PRESENT-W	32 33 ction Co ney and U Overhead es Tax (% OST Item # ION, MA 1 1 2 3 4 5 6 7 8 9 10 I&M and ost Contin Item # FRATIC 1 2 3 4 5 6 6 7 8 9 10 I&M and ost Contin I 2 3 4 5 6 6 7 8 9 10 I Contin 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2	Donor for injection events Site Restoration - slope/buffer plantings, general cleanur nstruction Costs Inlisted Engineering Services (% 1, and Profit (%) )  Description INTENANCE, MONITORING, AND REPORTING Electrical usage Cell phone/GET system remote access charges Carbon usage System monitoring/NPDES reporting DGR system O&M labor and cost NPDES annual renewal fee Groundwater sampling (during DGR) Groundwater slevation monitoring (during DGR) Reporting Reporting Cost Main Reporting Cost Presumed Discount Rate Description N, MAINTENANCE, MONITORING, AND REPORTING Baseline groundwater sampling DGR/GET system equipment replacement cost Quarterly groundwater sampling Quarterly groundwater sampling Carterly surface water sampling Annual groundwater sampling Clauterly groundwater sampling Clauterly surface water sampling Clauterly surface water sampling Clauterly groundwater sampling Clauterly groundwater sampling Clauterly surface water sampling Clauterly surface water sampling Clauterly surface water sampling Clauterly groundwater sampling Clauterly confirmation sampling Clauterly confirmation sampling Cleanup completion report M and Reporting Cost Manual surface water sampling Cleanup completion report M and Reporting Cost Manual surface water sampling Cleanup completion report M and Reporting Cost Manual surface water sampling Cleanup completion report M and Reporting Cost Manual surface water sampling Cleanup Cost Manual surface water sampling Cleanup Cost Manual surface Mater Surface Manual surface Mater Surface Manual surface Mater Sumpling Cleanup Cost Manual Surface Mater Sumpling Cle	36000 1 25% 20% 9.2% Quantity 1 1 1 1 1 1 1 1 1 1 1 1 1	standard second	\$ 2 \$ 25,000 \$2,521,300 \$2,685,875 \$ 3,223,075 Unit Cost \$ 44,500 \$ 369 \$ 9,600 \$ 20,000 \$ 20,000 \$ 20,000 \$ 20,137 \$ 65,000 \$ 20,137 \$ 65,000 \$ 20,000 \$ 347,600 <b>Unit Cost</b> <b>Unit Cost</b> \$ 73,000 \$ 200,000 \$ 65,000 \$ 8,000 \$ 65,000 \$ 8,000 \$ 0,000 \$ 7,218,000 <b>Unit Cost</b> <b>Unit Cost</b> <b>Uni</b>	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	54,000 25,000 2,521,300 630,300 537,200 \$296,500 <b>3,985,000</b> <b>101</b> 44,500 4,428 9,600 20,000 95,000 20,137 65,000 20,137 65,000 20,137 65,000 20,137 65,000 289,700 57,900 8,342,400 <b>53,342,400</b> <b>53,342,400</b> <b>73,000</b> 500,000 285,000 780,000 96,000 96,000 96,000 96,000 96,000 96,000 910,000 160,000 160,000 160,000 3,700,000 95,000 95,000 95,000 <b>53,342,000</b> <b>53,342,000</b> <b>53,342,000</b> <b>53,342,000</b> <b>53,342,000</b> <b>53,342,000</b> <b>53,342,000</b> <b>53,069,000</b> <b>33,069,000</b> <b>33,069,000</b> <b>33,069,000</b> <b>33,069,000</b> <b>33,069,000</b>