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**LOST CREEK ISR, LLC**

February 9, 2016

John Saxton, Project Manager  
U.S. Nuclear Regulatory Commission  
Mail Stop T-8F5  
11545 Rockville Pike,  
Rockville, MD 20852

**RE: Copy of Non-Significant Revision #12 to Permit to Mine  
Lost Creek Project PT788**

Dear Mr. Saxton,

Enclosed with this cover letter is Non-Significant Revision (NSR) #12 to the Permit to Mine for the Lost Creek ISR Project (LCI) PT788 as detailed on the enclosed copy of the submittal to WDEQ-LQD. The primary purpose of the revision is to replace the old bond estimate with the LQD-approved bond estimate for the 2015-2016 Permit year. Additional minor revisions to the Reclamation Plan have been made as detailed on the index sheet.

If you have any questions regarding this submittal please feel free to contact me at the Casper Office.

Sincerely,

Michael D. Gaither  
Manager EHS and Regulatory Affairs  
Ur-Energy USA, Inc.

Attachments: **Copy of NSR #12 Submittal to WDEQ-LQD**

*Lost Creek ISR, LLC is a wholly-owned subsidiary of Ur-Energy Inc.*

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# INDEX SHEET FOR MINE PERMIT AMENDMENTS OR REVISIONS

Page 1 of 1

Date: Feb. 9, 2016

MINE COMPANY NAME: Lost Creek ISR, LLC MINE NAME: Lost Creek PERMIT NO.: PT0788

Statement: I, Michael Gaither, an authorized representative of Lost Creek ISR, LLC declare that only the items listed on this and all consecutively numbered Index Sheets are intended as revisions to the current permit document. In the event that other changes inadvertently occurred due to this revision, those unintentional alterations will not be considered approved. Please initial and date. msc 2/9/2016

NOTES: 1) Include all revision or change elements and a brief description of or reason for each revision element.  
2) List all revision or change elements in sequence by volume number; number index sheets sequentially as needed.

| VOLUME<br>NUMBER  | PAGE, MAP OR OTHER<br>PERMIT ENTRY TO BE<br>REMOVED        |  | PAGE, MAP OR OTHER<br>PERMIT ENTRY TO BE<br>ADDED   |  | DESCRIPTION OF CHANGE |
|---|--|--|---|--|-----------------------|
|   |  |  |   |  |                       |
| Permit to Mine – Table of Contents                            | Table of Contents – Detailed, Page xxii (Rev Nov11)        | Table of Contents – Detailed, Page xxii (Rev2 Feb16)                               | Changed “Figure RP-3” and “Figure RP-4” to “DELETED”  |  |                       |
| Permit to Mine – Table of Contents                            | Table of Contents – Detailed, Page xxx (Rev Nov11)         | Table of Contents – Detailed, Page xxx ( Rev2 Feb16)                               | Deleted “Table RP-5”  |  |                       |
| Permit to Mine Volume 5: Operations Plan and Reclamation Plan | Reclamation Plan - Table of Contents, Page i (Rev10 Nov10) | Reclamation Plan - Table of Contents, Page i (Rev11 Feb16)                         | Changed “Figure RP-3” and “Figure RP-4” to “DELETED”  |  |                       |
| Permit to Mine Volume 5: Operations Plan and Reclamation Plan | Reclamation Plan - Table of Contents, Page ii (Rev8 Jun10) | Reclamation Plan - Table of Contents, Page ii (Rev9 Feb16)                         | Deleted “Table RP-5”  |  |                       |
| Permit to Mine Volume 5: Operations Plan and Reclamation Plan | Reclamation Plan - Text, Pages 24 – 27 (Rev10 Nov10)       | Reclamation Plan - Text, Pages 24 (Rev11 Feb16)                                    | Removed outdated extended discussion on original surety. Edited text to reference bond estimate submittal in Annual Report. |  |                       |
| Permit to Mine Volume 5: Operations Plan and Reclamation Plan | Reclamation Plan – Table RP-4 and Table RP-5 (Mar14)       | Reclamation Plan – Table RP-4 <i>Reclamation/Restoration Bond Estimate</i> (Dec15) | Revised bond estimate for 2015-2016 in LQD format   |  |                       |

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Figure RP-3 [DELETED]

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Figure RP-5a Drawdown Observation Points Mine Unit 1 Simulation Production-  
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Table RP-1a Summary of Criteria for Successful Groundwater Restoration and Surface Reclamation

Table RP-1b Restoration Groundwater Quality Parameters

Table RP-2 Typical Specification Data for Removal of Ion Constituents

Table RP-3 Permanent Seed Mixture

Table RP-4 Reclamation/Restoration Bond Estimate

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Although the model simulation only represents production and restoration from a single mine unit, the production rates and RO rates are maximized. During various stages of the Lost Creek ISR operations, multiple mine units are projected to be simultaneously in production and/or restoration. This may result in greater drawdown than simulated in the single mine unit model. However, the magnitude of drawdown and the duration of recovery are anticipated to be similar. Even if the drawdown is increased by twofold during ISR operations, recovery of HJ Horizon aquifer water levels to pre-mining conditions should occur within a few years after the end of the Lost Creek ISR Project.

## **RP 5.0 FINANCIAL ASSURANCE**

LC ISR, LLC will establish and maintain appropriate surety arrangements with NRC and WDEQ to cover the costs of groundwater restoration, radiological decontamination, facility decommissioning, and surface reclamation. The surety will be reviewed annually and adjusted to reflect changes in cost and in the Project.

The surety estimate for the Project for the first year after the permit receipt, including surface reclamation of all the facilities, including the Plant, and groundwater restoration and reclamation of Mine Unit 1's first six header houses, is \$6,151,685. A revised Reclamation Performance Bond Estimate will be provided with each Annual Report. This estimate will include restoration costs for additional mine units and header houses as they are brought online. The estimate will include reclamation costs for those facilities that are anticipated to be brought online during the next report period.

A detailed description of the surety estimate for reclamation of the plant site and reclamation and restoration of Mine Units is provided in **Table RP-4**.



**Table RP-4: Reclamation/Restoration Bond Estimate  
(Dec15)**

| Abbreviations/Acronyms |                               |
|------------------------|-------------------------------|
| \$                     | Dollars                       |
| \$/Kgal                | Dollars per 1000 gallons      |
| avg                    | average                       |
| ft                     | feet                          |
| ft2                    | square feet                   |
| ft3                    | cubic feet                    |
| gal                    | gallon                        |
| gpm                    | gallons per minute            |
| H&S                    | Health and Safety             |
| H2S                    | Hydrogen Sulfide              |
| H2SO4                  | Sulfuric Acid                 |
| HCl                    | Hydrochloric Acid             |
| Hp                     | Horsepower                    |
| Kgal                   | 1000 gallons                  |
| Kwh                    | Kilowatt-hours                |
| NaOH                   | Caustic Soda                  |
| OD                     | Outside Diameter              |
| PPE                    | personal protective equipment |
| PV                     | Pore Volume Estimate          |
| reqm't                 | requirement                   |
| RO                     | Reverse Osmosis               |
| WDW                    | Waste Disposal Well           |
| yd3                    | cubic yards                   |
| yr                     | year                          |

TABLE 1: SUMMARY

| Total Restoration and Reclamation Cost Estimate |   |  |              |
|---|---|--|--------------|
| I.  | GROUNDWATER RESTORATION COST                            |  | \$7,108,620  |
| II.   | EQUIPMENT REMOVAL & DISPOSAL COST                       |  | \$103,404    |
| III.  | BUILDING DEMOLITION AND DISPOSAL COST                   |  | \$1,680,718  |
| IV.   | WELLFIELD BUILDINGS & EQUIPMENT REMOVAL & DISPOSAL COST |  | \$430,025    |
| V.  | WELL ABANDONMENT COST                                   |  | \$1,394,082  |
| VI.   | WELLFIELD AND SATELLITE SURFACE RECLAMATION COST        |  | \$42,787     |
| VII.  | TOTAL MISCELLANEOUS RECLAMATION COST                    |  | \$865,905    |
|   | SUBTOTAL RECLAMATION AND RESTORATION COST ESTIMATE      |  | \$11,625,541 |
|   |   |  |              |
|   |   |  |              |
|   | CPI ESCALATOR- 0 to 0 (%)                               |  | \$0          |
|   |   |  |              |
|   | SUBTOTAL  |  | \$11,625,541 |
|   | ADMINISTRATIVE, OVERHEAD, AND CONTINGENCY ITEMS (29%)   |  | \$3,371,407  |
|   |   |  |              |
|   | TOTAL   |  | \$14,996,948 |
|   |   |  |              |
|   | TOTAL CALCULATED SURETY (IN 2015 DOLLARS)               |  | \$14,996,900 |

All dollars in the supporting spreadsheets were escalated to 2015 dollars using the on-line inflation calculator provided by the Bureau of Labor Statistics. Therefore, the inflation, at least for this year's calculation, is set at "0%" on this page. See link below to source of inflation rates

<http://data.bls.gov/cgi-bin/cpi/calc.pl>

All dollars in the supporting spreadsheets were escalated to 2015 dollars using the on-line inflation calculator provided by the Bureau of Labor Statistics. Therefore, the inflation, at least for this year's calculation, is set at "0" on this page. See link below to source of inflation rates

<http://data.bls.gov/cgi-bin/cpicalc.pl>

TABLE 2: GROUNDWATER RESTORATION

| Ground Water Restoration                                   |  |  |  | Wellfield 1 | Wellfield 2 |
|--|--|--|--|-------------|-------------|
| PV Assumptions   |  |  |  |             |             |
| Wellfield Area (ft2)                                       |  |  |  | 3,069,319   | 0           |
| Wellfield Area (acres)                                     |  |  |  | 70.46       | 0.00        |
| Affected Ore Zone Area (ft2)                               |  |  |  | 3,069,319   | 0           |
| Avg. Completed Thickness                                   |  |  |  | 18.2        | 18.0        |
| Porosity   |  |  |  | 0.26        | 0.26        |
| Flare Factor (line drive flare applied separately)         |  |  |  | 1.44        | 1.44        |
| Affected Volume (ft3)                                      |  |  |  | 80,440,712  | 0           |
| Kgallons per Pore Volume (including line drives)           |  |  |  | 156,488     | 0           |
| Number of Patterns in Unit(s)                              |  |  |  |             |             |
| Current  |  |  |  | 261         | 0           |
| Estimated next report period                               |  |  |  | 56          | 54          |
| Total Estimated  |  |  |  | 317         | 54          |
| Number of Wells in Unit(s)                                 |  |  |  |             |             |
| Production Wells   |  |  |  |             |             |
| Current  |  |  |  | 261         | 0           |
| Estimated next report period                               |  |  |  | 56          | 54          |
| Total Estimated  |  |  |  | 317         | 54          |
| Injection Wells  |  |  |  |             |             |
| Current  |  |  |  | 499         | 0           |
| Estimated next report period                               |  |  |  | 98          | 106         |
| Total Estimated  |  |  |  | 597         | 106         |
| Monitor Wells  |  |  |  |             |             |
| Current  |  |  |  | 57          | 99          |
| Estimated next report period                               |  |  |  | 0           | 0           |
| Total Estimated  |  |  |  | 57          | 99          |
| Restoration Wells  |  |  |  |             |             |
| Current  |  |  |  | 0           | 0           |
| Estimated next report period                               |  |  |  | 0           | 0           |
| Total Estimated  |  |  |  | 0           | 0           |
| Number of Wells per Wellfield                              |  |  |  | 971         | 259         |
| Total Number of Wells                                      |  |  |  | 1230        |             |
| Average Well Depth (ft)                                    |  |  |  | 454         | 450         |
| I. Restoration Well Installation Costs                     |  |  |  |             |             |
| Number of Restoration Wells                                |  |  |  | 0           | 0           |
| Well Installation Unit Cost (\$/Well)                      |  |  |  | \$9,613     | \$10,341    |
| Subtotal Restoration Well Installation Costs per Wellfield |  |  |  | \$0         | \$0         |
| Total Restoration Well Installation Costs                  |  |  |  | \$0         |             |
| II. Ground Water Sweep Costs                               |  |  |  |             |             |
| PV's Required  |  |  |  | 0.3         | 0.3         |
| Total Kgals for Treatment                                  |  |  |  | 46,946      | 0           |



**TABLE 2: GROUNDWATER RESTORATION**

| <b>Ground Water Restoration</b>                    |   | <b>Wellfield 1</b> | <b>Wellfield 2</b> |
|--|---|--------------------|--------------------|
|  | Ground Water Sweep Unit Cost (\$/Kgal)          | \$2.13             | \$2.13             |
|  | Subtotal Ground Water Sweep Costs per Wellfield | \$99,895           | \$0                |
|  | <b>Total Ground Water Sweep Costs</b>           | <b>\$99,895</b>    |                    |
|  |   |                    |                    |
| <b>III. Reverse Osmosis Costs</b>                  |   |                    |                    |
|  | PVs Required                                    | 6                  | 6                  |
|  | Total Kgals for Treatment                       | 938,928            | 0                  |
|  | Reverse Osmosis Unit Cost (\$/Kgal)             | \$0.75             | \$0.75             |
|  | Subtotal Reverse Osmosis Costs per Wellfield    | \$703,633          | \$0                |
|  | <b>Total Reverse Osmosis Costs</b>              | <b>\$703,633</b>   |                    |
|  |   |                    |                    |
| <b>IV. Chemical Reductant Costs</b>                |   |                    |                    |
|  | Number of Patterns                              | 0                  | 54                 |
|  | Chemical Reductant Unit Cost (\$/pattern)       | \$0                | \$0                |
|  | Subtotal Chemical Reductant Costs per Wellfield | \$0                | \$0                |
|  | <b>Total Chemical Reductant Costs</b>           | <b>\$0</b>         |                    |
|  |   |                    |                    |
| <b>V. Elution Costs</b>                            |   |                    |                    |
| <b>A. Elution Processing Costs</b>                 |   |                    |                    |
|  | Kgals/Elution Required                          | 13.5               | 13.5               |
|  | Number of Elutions                              | 21                 | 0                  |
|  | Processing Unit Cost (\$/Elution)               | \$590              | \$590              |
|  | Subtotal Processing Costs                       | \$12,109           | \$0                |
| <b>B. Deep Well Injection Costs</b>                |   |                    |                    |
|  | Deep Well Injection Costs                       |                    |                    |
|  | Deep Well Injection Volume (Kgals/Elution)      | 98,865             | 0                  |
|  | Total Kgals for Injection                       | 98,865             | 0                  |
|  | Deep Well Injection Unit Cost (\$/Kgals)        | \$2.48             | \$2.48             |
|  | Subtotal Deep Well Injection Costs              | \$244,780          | \$0                |
|  | Subtotal Elution Costs per Wellfield            | \$256,889          | \$0                |
|  | <b>Total Elution Costs</b>                      | <b>\$256,889</b>   |                    |
|  |   |                    |                    |
| <b>VI. Monitoring and Sampling Costs</b>           |   |                    |                    |
| <b>A. Restoration Well Sampling</b>                |   |                    |                    |
|  | Estimated Restoration Period (Years)            | 2.8                | 0                  |
| <b>1. Well Sampling prior to restoration start</b> |   |                    |                    |
|  | # of Wells                                      | 14                 | 0                  |
|  | \$/sample                                       | \$372              | \$372              |
|  |   |                    |                    |
| <b>2. Restoration Progress Sampling</b>            |   |                    |                    |
|  | # of Prod Wells                                 | 317                | 54                 |
|  | \$/sample                                       | \$30               | \$30               |
|  | Samples/Year                                    | 3                  | 0                  |
|  | # of MP Wells                                   | 13                 | 0                  |
|  | \$/Sample                                       | \$372              | \$372              |
|  | Samples/Year                                    | 2                  | 0                  |
| <b>3. UCL Sampling</b>                             |   |                    |                    |

TABLE 2: GROUNDWATER RESTORATION

| Ground Water Restoration                        |   |  |                  | Wellfield 1        | Wellfield 2 |
|---|---|--|------------------|--------------------|-------------|
|   | # of Wells  |  |                  | 63                 | 0           |
|   | \$/sample   |  |                  | \$20               | \$20        |
|   | Samples/Year  |  |                  | 24                 | 0           |
|   | Sub-total Restoration Analyses                            |  |                  | \$206,220          | \$0         |
| B. Short-term Stability                         |   |  |                  |                    |             |
|   | Estimated Stabilization Period (Months)                   |  |                  | 13                 | 0           |
|   | # of MP Wells   |  |                  | 18                 | 12          |
|   | Samples/Year  |  |                  | 6                  | 6           |
|   | \$/sample   |  |                  | \$374              | \$374       |
|   | # of UCL Wells  |  |                  | 57                 | 36          |
|   | Samples/Year  |  |                  | 6                  | 6           |
|   | \$/sample   |  |                  | \$20               | \$20        |
|   | Sub-total Short-term Stability Analyses                   |  |                  | \$51,168           | \$0         |
|   | Subtotal Monitoring and Sampling Costs per Wellfield      |  |                  | \$257,388          | \$0         |
|   | <b>Total Monitoring and Sampling Costs</b>                |  |                  | <b>\$257,388</b>   |             |
| VII. Mechanical Integrity Test (MIT) Costs      |   |  |                  |                    |             |
|   | Five Year MIT Unit Cost (\$/well)                         |  |                  | \$210              | \$210       |
|   | Number of Wells (0% since rest complete before 5-year)    |  |                  | 746                | 0           |
|   | Subtotal Mechanical Integrity Testing Costs per Wellfield |  |                  | \$156,660          | \$0         |
|   | <b>Total Mechanical Integrity Testing Cost</b>            |  |                  | <b>\$156,660</b>   |             |
| TOTAL RESTORATION COSTS PER WELLFIELD           |   |  |                  |                    |             |
|   |   |  |                  | \$1,474,465        | \$0         |
|   | <b>TOTAL WELLFIELD RESTORATION COST</b>                   |  |                  | <b>\$1,474,465</b> |             |
| VIII. Building Utility Costs                    |   |  |                  |                    |             |
|   | Electricity (\$/Month)                                    |  | Central Plant    | Shop               |             |
|   | Propane (\$/Month)  |  | \$3,812          | \$500              |             |
|   | Natural Gas (\$/Month)                                    |  | \$2,525          | \$404              |             |
|   | Number of Months  |  | \$0              | \$0                |             |
|   | Subtotal Utility Costs per Building                       |  | \$367,549        | \$49,720           |             |
|   | <b>Total Building Utility Costs</b>                       |  | <b>\$484,844</b> |                    |             |
| Ground Water Restoration                        |   |  |                  |                    |             |
| IX. Irrigation Maintenance and Monitoring Costs |   |  |                  |                    |             |
| A. Irrigation Maintenance and Repair            |   |  |                  |                    |             |
|   | Irrigation Operation Months/Year                          |  | 0                | 0                  | 0           |
|   | Cost per Month  |  | \$0              | \$0                | \$0         |
|   | Total Number of Years                                     |  | 0                | 0                  | 0           |
|   | Subtotal Maintenance and Repair Costs                     |  | \$0              | \$0                | \$0         |
| B. Irrigation Monitoring and Sampling           |   |  |                  |                    |             |
|   | # of Irrigation Fluid Samples/Year                        |  | 0                | 0                  | 0           |
|   | Cost/sample   |  | \$0              | \$0                | \$0         |
|   | # of Vegetation Samples/Year                              |  | 0                | 0                  | 0           |
|   | Cost/sample   |  | \$0              | \$0                | \$0         |

**TABLE 2: GROUNDWATER RESTORATION**

| Ground Water Restoration |  | Wellfield 1 | Wellfield 2 |
|--------------------------|--|-------------|-------------|
|                          | # of Soil Samples/Year                                   | 0           | 0           |
|                          | Cost/sample  | \$0         | \$0         |
|                          | # of Soil Water Samples/Year                             | 0           | 0           |
|                          | Cost/sample  | \$0         | \$0         |
|                          | Total Number of Years                                    | 0           | 0           |
|                          | Subtotal Sampling Costs                                  | \$0         | \$0         |
|                          | Subtotal Maintenance and Monitoring Costs per Irrigator  | \$0         | \$0         |
|                          | <b>Total Irrigation Maintenance and Monitoring Costs</b> | \$0         | \$0         |
| <b>X.</b>                | <b>Capital Costs (Class V Purchase)</b>                  |             |             |
|                          | Purchase/Installation Costs for tankage/pipeline/sensors | \$120,000   |             |
|                          | <b>Total Capital Costs</b>                               | \$120,000   |             |
| <b>XI.</b>               | <b>Vehicle Operation Costs</b>                           |             |             |
|                          | Number of Pickup Trucks/Pulling Units (Gas)              | 10          |             |
|                          | Unit Cost in \$/hr (WDEQ Guideline No.12, Table D-1)     | \$30.65     |             |
|                          | Average Operating Time (Hrs/Year)                        | 286         |             |
|                          | Total Number of Years (Average)                          | 5.4         |             |
|                          | <b>Total Vehicle Operation Costs</b>                     | \$473,413   |             |
| <b>XII.</b>              | <b>Labor Costs</b>                                       |             | Avg. Years  |
|                          | Number of Mine Managers                                  | 1           | 5.4         |
|                          | \$/Year  | 160,879     |             |
|                          | subtotal   | 868,746     |             |
|                          | Number of Environmental Managers/RSOs                    | 1           | 5.4         |
|                          | \$/Year  | \$128,695   |             |
|                          | subtotal   | \$694,954   |             |
|                          | Number of Restoration Managers                           | 1           | 5.4         |
|                          | \$/Year  | \$75,082    |             |
|                          | subtotal   | \$405,445   |             |
|                          | Number of Environmental Technicians                      | 1           | 5.4         |
|                          | \$/Year  | \$64,347    |             |
|                          | subtotal   | \$347,474   |             |
|                          | Number of Operators/Laborers/Secretary                   | 9           | 2.7         |
|                          | \$/Year  | \$64,347    |             |
|                          | subtotal   | \$1,563,635 |             |
|                          | Number of Maintenance Technicians                        | 2           | 5.25        |
|                          | \$/Year  | \$64,347    |             |
|                          | subtotal   | \$675,645   |             |
|                          | <b>Total Labor Costs</b>                                 | \$4,555,898 |             |
|                          | <b>TOTAL GROUND WATER RESTORATION COSTS</b>              | \$7,108,620 |             |





**TABLE 3: EQUIPMENT**

| <b>Equipment Removal and Loading</b>                                 |  |  |  | <b>Central Plant</b> |
|--|--|--|--|----------------------|
|  | <b>1. Labor</b>  |  |  |                      |
|  | Number of Persons  |  |  | 3                    |
|  | Pumps/Day  |  |  | 12                   |
|  | Number of Days   |  |  | 4                    |
|  | \$/Day/Person  |  |  | \$248                |
|  | Subtotal Labor Costs   |  |  | \$2,976              |
|  | Subtotal Pump Removal and Loading Costs                        |  |  | \$2,976              |
| <b>D. Dryer</b>  |  |  |  |                      |
|  | Dryer Volume (ft <sup>3</sup> )                                |  |  | 2,066                |
|  | <b>1. Labor</b>  |  |  |                      |
|  | Number of Persons  |  |  | 3                    |
|  | Ft <sup>3</sup> /Day   |  |  | 340                  |
|  | Number of Days   |  |  | 6                    |
|  | \$/Day/Person  |  |  | \$248                |
|  | Total Labor Cost   |  |  | \$4,464              |
|  | Total Dryer Dismantling and Loading Cost                       |  |  | \$4,464              |
| <b>E. RO Units</b>   |  |  |  |                      |
|  | Number of RO Units   |  |  |                      |
|  | Current  |  |  | 34                   |
|  | Planned  |  |  | 0                    |
|  | Average Volume (ft <sup>3</sup> /RO Unit)                      |  |  | 16.2                 |
|  | <b>1. Labor</b>  |  |  |                      |
|  | Number of Persons  |  |  | 3                    |
|  | Number of Days   |  |  | 2                    |
|  | \$/Day/Person  |  |  | \$248                |
|  | Subtotal Labor Costs   |  |  | \$1,488              |
|  | Subtotal RO Unit Removal and Loading Costs                     |  |  | \$1,488              |
|  | Subtotal Equipment Removal and Loading Costs per Facility      |  |  | \$34,126             |
|  | <b>Total Equipment Removal and Loading Costs</b>               |  |  | <b>\$34,126</b>      |
| <b>II. Transportation and Disposal Costs (NRC-Licensed Facility)</b> |  |  |  |                      |
| <b>A. Tankage</b>  |  |  |  |                      |
|  | Volume of Tank Construction Material (ft <sup>3</sup> )        |  |  | 1,928                |
|  | Volume for Disposal Assuming 10% Void Space (ft <sup>3</sup> ) |  |  | 2,121                |
|  | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )    |  |  | \$9.68               |
|  | Subtotal Tankage Transportation and Disposal Costs             |  |  | \$20,531             |





TABLE 4: BUILDINGS

| Building Demolition and Disposal  |  |  |  | Plan/Office | Shop     | Pole Barn | Various<br>Concrete<br>Pads |
|---|--|--|--|-------------|----------|-----------|-----------------------------|
| I. Decontamination Costs  |  |  |  | 1           | 2        | 3         |                             |
| A. Wall Decontamination   |  |  |  |             |          |           |                             |
| Area to be Decontaminated (ft <sup>2</sup> )  |  |  |  | 12,449      | 0        | 0         | 0                           |
| Wash rate (ft <sup>2</sup> /hr)   |  |  |  | 480         | 480      | 480       | 480                         |
| Hours of work   |  |  |  | 26          | 0        | 0         | 0                           |
| Labor rate (\$/hr)  |  |  |  | \$30.94     | \$30.94  | \$30.94   | \$30.94                     |
| Manlift rental rate (\$/hr)   |  |  |  | 20.20       | 20.20    | 20.20     | 20.20                       |
| Cost of labor and equipment   |  |  |  | 1,326.34    | 0.00     | 0.00      | 0.00                        |
| Application Rate of Acid (Gallons/ft <sup>2</sup> of wall)  |  |  |  | 0.003       | 0.003    | 0.003     | 0.003                       |
| Total quantity of acid  |  |  |  | 37.3        | 0.0      | 0.0       | 0.0                         |
| Cost of acid (\$/gal)   |  |  |  | \$2.11      | \$2.11   | \$2.11    | \$2.11                      |
| Subtotal cost of acid   |  |  |  | \$78.80     | \$0.00   | \$0.00    | \$0.00                      |
| Subtotal Wall Decontamination Costs   |  |  |  | \$1,405     | \$0      | \$0       | \$0                         |
| B. Concrete Floor Decontamination   |  |  |  |             |          |           |                             |
| Area to be Decontaminated (ft <sup>2</sup> )  |  |  |  | 32,322      | -        | -         | -                           |
| Application Rate (Gallons/ft <sup>2</sup> )   |  |  |  | 0.003       | 0.003    | 0.003     | 0.003                       |
| HCl Acid Wash, including labor (\$/Gallon)  |  |  |  | \$33.96     | \$33.96  | \$33.96   | \$33.96                     |
| Subtotal Concrete Floor Decontamination Costs   |  |  |  | \$3,293     | \$0      | \$0       | \$0                         |
| C. Deep Well Injection Costs  |  |  |  |             |          |           |                             |
| Total K.gals for Injection  |  |  |  | 44.9        | 0        | 0         | 0                           |
| Deep Well Injection Unit Cost (\$/Kgals)  |  |  |  | \$2.48      | \$2.48   | \$2.48    | \$2.48                      |
| Subtotal Deep Well Injection Costs  |  |  |  | \$111       | \$0      | \$0       | \$0                         |
| Subtotal Decontamination Costs per Building   |  |  |  | \$4,809     | \$0      | \$0       | \$0                         |
| Total Decontamination Costs   |  |  |  | \$4,809     |          |           |                             |
| II. Demolition Costs  |  |  |  |             |          |           |                             |
| A. Building   |  |  |  |             |          |           |                             |
| Assumptions:  |  |  |  |             |          |           |                             |
| Volume of Building (ft <sup>3</sup> )   |  |  |  | 1,248,000   | 111,375  | 22,400    | 0                           |
| Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft <sup>3</sup> )                            |  |  |  | \$0.290     | \$0.290  | \$0.290   | \$0.290                     |
| Subtotal Building Demolition Costs  |  |  |  | \$361,920   | \$32,299 | \$6,496   | \$0                         |
| B. Concrete Floor   |  |  |  |             |          |           |                             |
| Area of Concrete Floor (ft <sup>2</sup> )   |  |  |  | 41,600      | 4,725    | -         | 12,373                      |
| Demolition Unit Cost per WDEQ Guideline No.12, App.K (\$/ft <sup>2</sup> ),<br>adjusted for thickness |  |  |  | \$11.22     | \$5.61   | \$5.61    | \$8.64                      |
| Subtotal Concrete Floor Demolition Costs  |  |  |  | \$466,752   | \$26,507 | \$0       | \$106,897                   |
| C. Concrete Footing   |  |  |  |             |          |           |                             |
| Length of Concrete Footing (ft)   |  |  |  | 1,870       | 380      | -         | 371                         |
| Demolition Unit Cost per WDEQ Guide, No.12, App.K (\$/lin. ft),<br>adjusted for increased volume      |  |  |  | \$20.46     | \$20.46  | \$20.46   | \$9.05                      |
| Subtotal Concrete Footing Demolition Costs  |  |  |  | \$38,260    | \$7,775  | \$0       | \$32,993                    |
| Subtotal Demolition Costs per Building  |  |  |  | \$866,932   | \$66,581 | \$6,496   | \$139,890                   |
| Total Demolition Costs  |  |  |  | \$1,079,899 |          |           |                             |
| III. Disposal Costs   |  |  |  |             |          |           |                             |
| A. Building   |  |  |  |             |          |           |                             |
| Volume of Demolished Building (cy) Based on FEMA Estimates  |  |  |  | 15,253      | 1,361    | 274       | -                           |
| I. Off-Site   |  |  |  |             |          |           |                             |
| Assumptions:  |  |  |  |             |          |           |                             |
| Off-site disposal cost of \$13.80/cy  |  |  |  |             |          |           |                             |
| Percentage (%)  |  |  |  | 100         | 100      | 100       | 100                         |
| Volume for Disposal (cubic yards)   |  |  |  | 15,253      | 1,361    | 274       | -                           |
| Transport and Disposal Unit Cost (\$/cy)  |  |  |  | \$17.57     | \$17.57  | \$17.57   | \$17.57                     |
| Subtotal Off-Site Disposal Costs  |  |  |  | \$268,062   | \$23,923 | \$4,811   | \$0                         |



TABLE 5: WELLFIELD BUILDINGS

| Wellfield Buildings and Equipment Removal and Disposal |   |  |  | Wellfield 1      | Wellfield 2<br>(Contaminated) | Wellfield 2<br>(Noncontaminated) |
|--|---|--|--|------------------|-------------------------------|----------------------------------|
| <b>I. Wellfield Piping</b>                             |   |  |  |                  |                               |                                  |
| Assumptions:   |   |  |  |                  |                               |                                  |
|  | Number of Header Houses per Wellfield   |  |  | 13               | 0                             | 1.5                              |
|  | Length of Piping per Header House (ft)  |  |  | 21,887           | 0                             | 24,231                           |
|  | Total Length of Piping (ft)   |  |  | 284,531          | 0                             | 36,346.5                         |
| A. Removal and Loading                                 |   |  |  |                  |                               |                                  |
|  | Wellfield Piping Removal Unit Cost (\$/ft of pipe)                                |  |  | \$0.37           | \$0.37                        | \$0.37                           |
|  | Subtotal Wellfield Piping Removal and Loading Costs                               |  |  | \$105,276        | \$0                           | \$13,448                         |
| B. Transport & Disposal Costs (NRC or Public Landfill) |   |  |  |                  |                               |                                  |
|  | Average Diameter of Piping (inches)   |  |  | 1.6              | 1.6                           | 1.6                              |
|  | Chipped Volume Reduction (ft <sup>3</sup> /ft)                                    |  |  | 0.008            | 0.008                         | 0.008                            |
|  | Chipped Volume per Wellfield (ft <sup>3</sup> )                                   |  |  | 2276.248         | 0                             | 290.772                          |
|  | Volume for Disposal Assuming 10% Void Space (ft <sup>3</sup> )                    |  |  | 2504             | 0                             | 320                              |
|  | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )                       |  |  | \$9.68           | \$9.68                        | \$0.79                           |
|  | Subtotal Wellfield Piping Transport and Disposal Costs                            |  |  | \$24,239         | \$0                           | \$252                            |
| C. Chipping Cost                                       |   |  |  |                  |                               |                                  |
|  | Chip rate ft/hr   |  |  | 500              | 500                           | 500                              |
|  | Rental rate of chipper \$/hr  |  |  | 17.68            | 17.68                         | 17.68                            |
|  | Subtotal cost of chipping   |  |  | \$10,058.17      | \$0.00                        | \$1,284.85                       |
|  | Wellfield Piping Costs per Wellfield  |  |  | \$139,574        | \$0                           | \$14,985                         |
|  | <b>Total Wellfield Piping Costs</b>   |  |  | <b>\$154,559</b> |                               |                                  |
| <b>II. Well Pumps and Tubing</b>                       |   |  |  |                  |                               |                                  |
| Assumptions:   |   |  |  |                  |                               |                                  |
|  | Pump and tubing removal costs included under ground water restoration labor costs |  |  |                  |                               |                                  |
|  | 100% of contaminated prod/in wells contain pumps and/or tubing                    |  |  |                  |                               |                                  |
| A. Pump and Tubing Transportation and Disposal         |   |  |  |                  |                               |                                  |
|  | Number of Production Wells + Monitor  |  |  | 374              | 0                             | 153                              |
|  | Number of Injection Wells   |  |  | 597              | 0                             | 106                              |
| 1. Pump Volume   |   |  |  |                  |                               |                                  |
|  | Number of Production Wells with Pumps   |  |  | 355              | 0                             | 153                              |
|  | Average Pump Volume (ft <sup>3</sup> )  |  |  | 0.42             | 0.42                          | 0.42                             |
|  | Pump Volume per Wellfield (ft <sup>3</sup> )                                      |  |  | 149.1            | 0                             | 64.26                            |
| 2. Tubing Volume                                       |   |  |  |                  |                               |                                  |
|  | Assumptions:  |  |  |                  |                               |                                  |
|  | Average tubing length/wellfield based on average well depth minus 25 ft           |  |  |                  |                               |                                  |
|  | Manpower Hourly Rate  |  |  | 30.94            | 30.94                         | 30.94                            |
|  | Number of Production Wells with Tubing  |  |  | 355              | 0                             | 153                              |
|  | Number of Injection Wells with Tubing   |  |  | 358              | 0                             | 106                              |
|  | Average Tubing Length per Well (ft)   |  |  | 420              | 416                           | 416                              |
|  | Tubing Length per Wellfield (ft)  |  |  | 299,460          | 0                             | 107,744                          |
|  | Man Hours Required to pull injection string                                       |  |  | 0.5              | 0.5                           | 0.5                              |
|  | Man Hours Required to pull production string/pump                                 |  |  | 1.5              | 1.5                           | 1.5                              |
|  | Diameter of Production Well HDPE Tubing (inches)                                  |  |  | 2.375            | 2.375                         | 2.375                            |
|  | Diameter of Injection Well HDPE Tubing (inches)                                   |  |  | 1.315            | 1.315                         | 1.315                            |



TABLE 5: WELLFIELD BUILDINGS

| Wellfield Buildings and Equipment Removal and Disposal         |  | Wellfield 1     | Wellfield 2<br>(Contaminated) | Wellfield 2<br>(Noncontaminated) |
|--|--|-----------------|-------------------------------|----------------------------------|
|  | Chipped Volume Reduction for 2.375" OD (ft <sup>3</sup> /ft)             | 0.01            | 0.01                          | 0.01                             |
|  | Chipped Volume Reduction for 1.315" OD (ft <sup>3</sup> /ft)             | 0.003           | 0.003                         | 0.003                            |
|  | Chipped Volume per Wellfield (ft <sup>3</sup> )                          | 1,942           | 0                             | 769                              |
|  | Cost for Rental of Chipper   | \$17.68         | \$17.68                       | \$17.68                          |
|  | Cost of Pulling Injection Stingers                                       | \$5,538.26      | \$0.00                        | \$1,639.82                       |
|  | Cost of Pulling Production Pumps   | \$16,475.55     | \$0.00                        | \$7,100.73                       |
|  | Cost for Chipping Pipe (rental of chipper and manpower)                  | \$29,116        | \$0                           | \$10,476                         |
|  | Volume of Pump and Tubing (ft <sup>3</sup> )                             | 2,091           | 0                             | 833                              |
|  | Volume for Disposal Assuming 20% Void Space (ft <sup>3</sup> )           | 2,509           | 0                             | 1,000                            |
|  | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )              | \$9.68          | \$9.68                        | \$0.79                           |
|  | Subtotal Pump and Tubing Removal, Chipping, Transport and Disposal Costs | \$75,417        | \$0                           | \$20,004                         |
|  | Pump and Tubing Costs per Wellfield                                      | \$75,417        | \$0                           | \$20,004                         |
|  | <b>Total Pump and Tubing Costs</b>                                       | <b>\$95,422</b> |                               |                                  |
| <b>III. Buried Trunkline</b>                                   |  |                 |                               |                                  |
|  | Length of Trunkline Trench (ft)  | 9,840           | -                             | 3,521                            |
| <b>A. Removal and Loading</b>                                  |  |                 |                               |                                  |
|  | Main Pipeline Removal Unit Cost (\$/ft of trench)                        | \$3.15          | \$3.15                        | \$3.15                           |
|  | Subtotal Trunkline Removal and Loading Costs                             | \$30,996        | \$0                           | \$11,091                         |
| <b>B. Transport and Disposal Costs (NRC-Licensed Facility)</b> |  |                 |                               |                                  |
| <b>1. 6" HDPE Trunkline</b>                                    |  |                 |                               |                                  |
|  | Piping Length (ft)   | 1,374           | -                             | 2,240                            |
|  | Chipped Volume Reduction (ft <sup>3</sup> /ft)                           | 0.066           | 0.066                         | 0.066                            |
|  | Chipped Volume (ft <sup>3</sup> )  | 91              | -                             | 148                              |
| <b>2. 8" HDPE Trunkline</b>                                    |  |                 |                               |                                  |
|  | Piping Length (ft)   | 92              | -                             | 4,060                            |
|  | Chipped Volume Reduction (ft <sup>3</sup> /ft)                           | 0.111           | 0.111                         | 0.111                            |
|  | Chipped Volume (ft <sup>3</sup> )  | 10              | -                             | 451                              |
| <b>3. 10" HDPE Trunkline</b>                                   |  |                 |                               |                                  |
|  | Piping Length (ft)   | -               | -                             | 742                              |
|  | Chipped Volume Reduction (ft <sup>3</sup> /ft)                           | 0.173           | 0.173                         | 0.173                            |
|  | Chipped Volume (ft <sup>3</sup> )  | -               | -                             | 128                              |
| <b>4. 12" HDPE Trunkline</b>                                   |  |                 |                               |                                  |
|  | Piping Length (ft)   | 2,145           | -                             | -                                |
|  | Chipped Volume Reduction (ft <sup>3</sup> /ft)                           | 0.243           | 0.243                         | 0.243                            |
|  | Chipped Volume (ft <sup>3</sup> )  | 521             | -                             | -                                |
| <b>5. 20" HDPE Trunkline</b>                                   |  |                 |                               |                                  |
|  | Piping Length (ft)   | 16,068          | -                             | 4,060                            |
|  | Chipped Volume Reduction (ft <sup>3</sup> /ft)                           | 0.598           | 0.598                         | 0.598                            |
|  | Chipped Volume (ft <sup>3</sup> )  | 9,609           | -                             | 2,428                            |
|  | Total Trunkline Chipped Volume (ft <sup>3</sup> )                        | 10,231          | -                             | 3,155                            |
|  | Volume for Disposal Assuming 10% Void Space (ft <sup>3</sup> )           | 11,254          | 0                             | 3,470                            |
|  | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )              | \$9.68          | \$9.68                        | \$0.65                           |
|  | Subtotal Trunkline Transport and Disposal Costs                          | \$108,939       | \$0                           | \$2,243                          |
|  | Trunkline Decommissioning Costs  | \$139,935       | \$0                           | \$13,334                         |



TABLE 5: WELLFIELD BUILDINGS

| Wellfield Buildings and Equipment Removal and Disposal                       |  |  |  | Wellfield 1      | Wellfield 2<br>(Contaminated) | Wellfield 2<br>(Noncontaminated) |
|--|--|--|--|------------------|-------------------------------|----------------------------------|
| Total Trunkline Decommissioning Costs  |  |  |  | \$153,269        |                               |                                  |
| <b>IV. Wellhead Covers</b>   |  |  |  |                  |                               |                                  |
| Total Quantity   |  |  |  | 914              | 0                             | 160                              |
| Average Well Cover Volume (ft <sup>3</sup> )                                 |  |  |  | 12.7             | 12.7                          | 12.7                             |
| <b>A. Removal</b>  |  |  |  |                  |                               |                                  |
| Total Volume (ft <sup>3</sup> )  |  |  |  | 11,607.8         | 0                             | 2,032                            |
| Demolition Unit Cost per WDEQ Guideline No. 12, App. K (\$/ft <sup>3</sup> ) |  |  |  | \$0.290          | \$0.290                       | \$0.290                          |
| Subtotal Well House Demolition Costs   |  |  |  | \$3,365          | \$0                           | \$589                            |
| <b>B. Survey and Decontamination</b>   |  |  |  |                  |                               |                                  |
| Assumptions:   |  |  |  |                  |                               |                                  |
| Cost per Well House  |  |  |  | \$0              | \$0                           | \$0                              |
| Subtotal Survey and Decontamination Costs                                    |  |  |  | \$0              | \$0                           | \$0                              |
| <b>C. Disposal</b>   |  |  |  |                  |                               |                                  |
| Total Volume (cy)  |  |  |  | 430              | 0                             | 75                               |
| Volume for Disposal Assuming 10% Void Space (cy)                             |  |  |  | 43               | 0                             | 8                                |
| Disposal Unit Cost per 11e2 or Guideline No. 12, App. K (\$/cy)              |  |  |  | \$261.25         | \$261.25                      | \$21.48                          |
| Subtotal 11e2 Disposal Costs   |  |  |  | \$11,234         | \$0                           | \$172                            |
| Well House Removal and Disposal Costs per Wellfield                          |  |  |  | \$14,599         | \$0                           | \$761                            |
| <b>Total Well House Removal and Disposal Costs</b>                           |  |  |  | <b>\$15,360</b>  |                               |                                  |
| <b>VI. Header Houses</b>   |  |  |  |                  |                               |                                  |
| Total Quantity   |  |  |  | 13               | 0                             | 1                                |
| Average Header House Volume (ft <sup>3</sup> )                               |  |  |  | 1,332            | 1,332                         | 1,332                            |
| <b>A. Removal</b>  |  |  |  |                  |                               |                                  |
| Total Volume (ft <sup>3</sup> )  |  |  |  | 17,316           | 0                             | 1,332                            |
| Demolition Unit Cost per WDEQ Guideline No. 12, App. K (\$/ft <sup>3</sup> ) |  |  |  | \$0.290          | \$0.290                       | \$0.290                          |
| Subtotal Building Demolition Costs   |  |  |  | \$5,019          | \$0                           | \$386                            |
| <b>B. Survey and Decontamination</b>   |  |  |  |                  |                               |                                  |
| Assumptions:   |  |  |  |                  |                               |                                  |
| Cost per Header House  |  |  |  | \$0              | \$0                           | \$0                              |
| Subtotal Survey and Decontamination Costs                                    |  |  |  | \$0              | \$0                           | \$0                              |
| <b>C. Disposal</b>   |  |  |  |                  |                               |                                  |
| Total Volume (cy)  |  |  |  | 641              | 0                             | 49                               |
| Volume for Disposal Assuming 10% Void Space (cy)                             |  |  |  | 577              | 0                             | 44                               |
| Transp & Dispos. Cost per 11e2 contract & Rawlins Landfill (\$/cy)           |  |  |  | \$9.68           | \$9.68                        | \$9.68                           |
| Subtotal Off-Site Transport and Disposal Costs                               |  |  |  | \$5,585          | \$0                           | \$426                            |
| Header House Removal and Disposal Costs per Wellfield                        |  |  |  | \$10,604         | \$0                           | \$812                            |
| <b>Total Header House Removal and Disposal Costs</b>                         |  |  |  | <b>\$11,416</b>  |                               |                                  |
| <b>TOTAL REMOVAL AND DISPOSAL COSTS PER WELLFIELD</b>                        |  |  |  | <b>\$380,129</b> | <b>\$0</b>                    | <b>\$49,897</b>                  |
| <b>TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL AND DISPOSAL COSTS</b>    |  |  |  | <b>\$430,025</b> |                               |                                  |

TABLE 6: WELL ABANDONMENT

| Well Abandonment   |   |  |  |  | Wellfield 1      | Wellfield 2  | Regional Monitor, Supply & Class V |              |
|--|---|--|--|--|------------------|--------------|------------------------------------|--------------|
| <b>I. Well Abandonment (Wellfields)</b>                  |   |  |  |  |                  |              |                                    |              |
|  | # of Production Wells                                       |  |  |  | 317              | 54           |                                    |              |
|  | # of Injection Wells  |  |  |  | 597              | 286          |                                    |              |
|  | # of Monitoring Wells                                       |  |  |  | 57               | 99           |                                    |              |
|  | # of Restoration Wells                                      |  |  |  | 0                | 0            |                                    |              |
|  | Total Number of Wells                                       |  |  |  | 971              | 439          | 49                                 |              |
|  | Average Diameter of Casing (inches)                         |  |  |  | 4.33             | 4.33         | 4.33                               |              |
|  | Average Depth (ft)  |  |  |  | 454              | 450          | 599.4                              |              |
|  | Well Abandonment Unit Cost (\$/well)                        |  |  |  | \$622            | \$618        | \$742                              |              |
|  | Subtotal Abandonment Cost per Wellfield                     |  |  |  | \$603,486        | \$271,393    | \$36,334                           |              |
|  | <b>Total Wellfield Abandonment Costs</b>                    |  |  |  | <b>\$911,213</b> |              |                                    |              |
| <b>II. Waste Disposal Well Abandonment</b>               |   |  |  |  | <b>DDW 1</b>     | <b>DDW 2</b> | <b>DDW 3</b>                       | <b>DDW 4</b> |
| <b>A. Well Plugging</b>                                  |   |  |  |  |                  |              |                                    |              |
|  | Grout Unit (\$/hr)  |  |  |  |                  |              |                                    |              |
|  | Number of Hours   |  |  |  | \$0              | \$0          | \$0                                | \$0          |
|  | Drill Rig Operating Costs                                   |  |  |  |                  |              |                                    |              |
|  | Cementing Costs   |  |  |  |                  |              |                                    |              |
|  | Equipment Transport Costs                                   |  |  |  |                  |              |                                    |              |
|  | Well Cap Welding Costs                                      |  |  |  |                  |              |                                    |              |
|  | Brine Makeup and Injection Costs                            |  |  |  |                  |              |                                    |              |
|  | Subtotal Well Plugging Costs per Well                       |  |  |  | \$117,718        | \$117,718    | \$117,718                          | \$117,718    |
| <b>B. Pump Dismantling and Decontamination</b>           |   |  |  |  |                  |              |                                    |              |
|  | Number of Persons   |  |  |  | 2                | 2            | 2                                  | 2            |
|  | Number of Pumps   |  |  |  | 1                | 1            | 1                                  | 1            |
|  | Pumps/Day   |  |  |  | 1                | 1            | 1                                  | 1            |
|  | Number of Days  |  |  |  | 1                | 1            | 1                                  | 1            |
|  | \$/Day/Person   |  |  |  | \$248            | \$248        | \$248                              | \$248        |
|  | Subtotal Dismantling and Decon Costs per Well               |  |  |  | \$496            | \$496        | \$496                              | \$0          |
| <b>C. Tubing String Disposal (NRC-Licensed Facility)</b> |   |  |  |  |                  |              |                                    |              |
|  | Length of Tubing String (ft)                                |  |  |  | 5,946            | 5,973        | 6,201                              | 5973         |
|  | Diameter of Tubing String (inches)                          |  |  |  | 2.875            | 2.875        | 2.875                              | 2.875        |
|  | Volume of Tubing String (ft <sup>3</sup> )                  |  |  |  | 268              | 269          | 279                                | 269          |
|  | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> ) |  |  |  | \$9.68           | \$9.68       | \$9.68                             | \$9.68       |





**TABLE 7: WELLFIELD RECLAMATION**

| Wellfield and Satellite Surface Reclamation |  |  |  | Wellfield 1        | Wellfield 2        | Wellfield 3        |
|---|--|--|--|--------------------|--------------------|--------------------|
| <b>I.</b>                                   | <b>Wellfield Pattern Area Reclamation</b>                      |  |  |                    |                    |                    |
|   | Pattern Area (acres)   |  |  | 48.1               | 12.6               | 0                  |
|   | Disking/Seeding Unit Cost (\$/acre)                            |  |  | \$244              | \$244              | \$244              |
|   | Subtotal Pattern Area Reclamation Costs per Wellfield          |  |  | \$11,750           | \$3,078            | \$0                |
|   | <b>Total Wellfield Pattern Area Reclamation Costs</b>          |  |  | <b>\$14,828</b>    |                    |                    |
| <b>II.</b>                                  | <b>Wellfield Road Reclamation</b>                              |  |  |                    |                    |                    |
|   | A. Road Construction   |  |  |                    |                    |                    |
|   | Length of Wellfield Roads (1000 ft)                            |  |  | 7.95               | 11.20              | 0                  |
|   | Wellfield Road Reclamation Unit Cost (\$/1000 ft)              |  |  | \$1,460            | \$1,460            | \$1,460            |
|   | Subtotal Road Reclamation Costs per Wellfield                  |  |  | \$11,607           | \$16,352           | \$0                |
|   | <b>Total Wellfield Road Reclamation Costs</b>                  |  |  | <b>\$27,959</b>    |                    |                    |
|   |  |  |  |                    |                    |                    |
|   | SUBTOTAL SURFACE RECLAMATION COSTS PER WELLFIELD               |  |  | \$23,357           | \$19,430           | \$0                |
|   | <b>TOTAL WELLFIELD SURFACE RECLAMATION COSTS</b>               |  |  | <b>\$42,787</b>    |                    |                    |
| <b>III.</b>                                 | <b>Satellite Area Reclamation</b>                              |  |  | <b>Satellite 1</b> | <b>Satellite 2</b> | <b>Satellite 3</b> |
|   | Assumptions:   |  |  |                    |                    |                    |
|   | Area of Disturbance (acres)                                    |  |  | 0                  | 0                  | 0                  |
|   | Average Depth of Stripped Topsoil (ft)                         |  |  | 0                  | 0                  | 0                  |
|   | Surface Grade: Level Ground                                    |  |  |                    |                    |                    |
|   | Average Length of Topsoil Haul (ft)                            |  |  | 0                  | 0                  | 0                  |
|   | A. Ripping Overburden with Dozer                               |  |  |                    |                    |                    |
|   | Ripping Unit Cost per WDEQ Guideline No.12, App.II (\$/acre)   |  |  | \$0.00             | \$0.00             | \$0.00             |
|   | Subtotal Ripping Costs   |  |  | \$0                | \$0                | \$0                |
|   | B. Topsoil Application with Scraper                            |  |  |                    |                    |                    |
|   | Volume of Topsoil Removed (cy)                                 |  |  | 0                  | 0                  | 0                  |
|   | Application Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)  |  |  | \$0.00             | \$0.00             | \$0.00             |
|   | Subtotal Topsoil Application Costs                             |  |  | \$0                | \$0                | \$0                |
|   | C. Discing and Seeding   |  |  |                    |                    |                    |
|   | Discing/Seeding Unit Cost (\$/acre)                            |  |  | \$244              | \$244              | \$244              |
|   | Subtotal Discing/Seeding Costs                                 |  |  | \$0                | \$0                | \$0                |
|   | Subtotal Surface Reclamation Costs per Satellite               |  |  | \$0                | \$0                | \$0                |
|   | <b>Total Satellite Building Area Reclamation Costs</b>         |  |  | <b>\$0</b>         |                    |                    |
|   |  |  |  |                    |                    |                    |
|   | <b>TOTAL WELLFIELD AND SATELLITE SURFACE RECLAMATION COSTS</b> |  |  | <b>\$42,787</b>    |                    |                    |



TABLE 8: MISC RECLAMATION

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Miscellaneous Reclamation</b>                                    |  |  |  |  |  |  |  |  |  |
| <b>I. Central Plant/Office Area + Deep Well Pad Reclamation</b>     |  |  |  |  |  |  |  |  |  |
| Assumptions   |  |  |  |  |  |  |  |  |  |
| Concrete, asphalt, and building material used to backfill low areas |  |  |  |  |  |  |  |  |  |
| <b>A. Ripping and Hauling Asphalt</b>                               |  |  |  |  |  |  |  |  |  |
| Assumptions   |  |  |  |  |  |  |  |  |  |
| Average haul distance (ft)  |  |  |  |  |  |  |  |  |  |
| Surface grade (%)   |  |  |  |  |  |  |  |  |  |
| Average Thickness of Asphalt (ft)                                   |  |  |  |  |  |  |  |  |  |
| Surface Area (acres)  |  |  |  |  |  |  |  |  |  |
| Ripping Unit Cost per WDEQ Guideline No.12, App.I (\$/acre)         |  |  |  |  |  |  |  |  |  |
| Volume of Asphalt (cy)  |  |  |  |  |  |  |  |  |  |
| Hauling Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)           |  |  |  |  |  |  |  |  |  |
| Total Asphalt Ripping and Hauling Cost                              |  |  |  |  |  |  |  |  |  |
| <b>B. Borrow Cover</b>  |  |  |  |  |  |  |  |  |  |
| <b>1. Topsoil Removal/Replacement</b>                               |  |  |  |  |  |  |  |  |  |
| Assumptions   |  |  |  |  |  |  |  |  |  |
| Surface area of borrow area (acres)                                 |  |  |  |  |  |  |  |  |  |
| 18 inches of topsoil removed and replaced at borrow area            |  |  |  |  |  |  |  |  |  |
| Volume of topsoil (cy)  |  |  |  |  |  |  |  |  |  |
| Topsoil Removal/Replacement Unit Cost (\$/cy)                       |  |  |  |  |  |  |  |  |  |
| Total Topsoil Removal/Replacement Cost                              |  |  |  |  |  |  |  |  |  |
| <b>2. Borrow Application</b>  |  |  |  |  |  |  |  |  |  |
| Assumptions   |  |  |  |  |  |  |  |  |  |
| Final borrow cover depth will range from 0 to 4 ft, average = 1 ft  |  |  |  |  |  |  |  |  |  |
| Average haul distance = 1000 ft                                     |  |  |  |  |  |  |  |  |  |
| Surface grade (%)   |  |  |  |  |  |  |  |  |  |
| Borrow Volume (cy)  |  |  |  |  |  |  |  |  |  |
| Borrow Cover Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)      |  |  |  |  |  |  |  |  |  |
| Total Borrow Application Cost                                       |  |  |  |  |  |  |  |  |  |
| <b>C. Disching/Seeding</b>  |  |  |  |  |  |  |  |  |  |
| Assumptions   |  |  |  |  |  |  |  |  |  |
| Includes disching/seeding of borrow area (3 acres)                  |  |  |  |  |  |  |  |  |  |
| Surface Area (acres)  |  |  |  |  |  |  |  |  |  |
| Disching/Seeding Unit Cost (\$/acre)                                |  |  |  |  |  |  |  |  |  |
| Subtotal Disching/Seeding   |  |  |  |  |  |  |  |  |  |
| <b>D. Ripping for Soil Prep</b>                                     |  |  |  |  |  |  |  |  |  |
| Surface Area (acres)  |  |  |  |  |  |  |  |  |  |
| Ripping Unit Cost (\$/Acre)   |  |  |  |  |  |  |  |  |  |
| Ripping Subtotal  |  |  |  |  |  |  |  |  |  |
| <b>Total CPF/Office Area Reclamation</b>                            |  |  |  |  |  |  |  |  |  |



TABLE 8: MISC RECLAMATION

| Miscellaneous Reclamation                                       |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>III. Wastewater Pipeline Reclamation</b>                     |  |  |  |  |  |  |  |  |  |
| A. Pipeline Removal and Loading                                 |  |  |  |  |  |  |  |  |  |
|   | Length of HDPE Pipe Trench (ft)  |  |  |  |  |  |  |  |  |
|   | Main Pipeline Removal Unit Cost (\$/ft of trench)  |  |  |  |  |  |  |  |  |
|   | Subtotal Pipeline Removal Costs  |  |  |  |  |  |  |  |  |
| B. Pipeline Transportation and Disposal (NRC-Licensed Facility) |  |  |  |  |  |  |  |  |  |
|   | Pipe Diameter (inches)   |  |  |  |  |  |  |  |  |
|   | Chipped Volume Reduction (ft <sup>3</sup> /ft)   |  |  |  |  |  |  |  |  |
|   | Subtotal Volume of Shredded PVC Pipe (ft <sup>3</sup> )                                      |  |  |  |  |  |  |  |  |
|   | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )                                  |  |  |  |  |  |  |  |  |
|   | Subtotal Pipeline Disposal Costs   |  |  |  |  |  |  |  |  |
| C. Discing/Seeding  |  |  |  |  |  |  |  |  |  |
|   | Assumptions:   |  |  |  |  |  |  |  |  |
|   | Width of Pipeline Trench (ft)  |  |  |  |  |  |  |  |  |
|   | Area of Pipeline Trench (acres)  |  |  |  |  |  |  |  |  |
|   | Discing/Seeding Unit Cost (\$/acre)  |  |  |  |  |  |  |  |  |
|   | Subtotal Discing/Seeding Costs   |  |  |  |  |  |  |  |  |
|   | Subtotal Reclamation Costs per Pipeline  |  |  |  |  |  |  |  |  |
|   | <b>Total Wastewater Pipeline Reclamation Costs</b>   |  |  |  |  |  |  |  |  |
| <b>IV. Holding Pond Reclamation</b>                             |  |  |  |  |  |  |  |  |  |
| A. Soil Sampling and Monitoring                                 |  |  |  |  |  |  |  |  |  |
|   | Number of Soil Samples   |  |  |  |  |  |  |  |  |
|   | \$/Sample  |  |  |  |  |  |  |  |  |
|   | Subtotal Soil Sampling and Monitoring Costs  |  |  |  |  |  |  |  |  |
| B. Liner/Subsoil Removal and Disposal                           |  |  |  |  |  |  |  |  |  |
|   | Assumptions:   |  |  |  |  |  |  |  |  |
|   | Sand liner and subsoil constitute by-product material  |  |  |  |  |  |  |  |  |
|   | Thickness of sand liner (ft)   |  |  |  |  |  |  |  |  |
|   | Thickness of contaminated subsoil (ft)   |  |  |  |  |  |  |  |  |
|   | Removal and Loading Unit Cost based on engineer's design report and Cat Performance Handbook |  |  |  |  |  |  |  |  |
|   | Width of Pond (ft)   |  |  |  |  |  |  |  |  |
|   | Length of Pond (ft)  |  |  |  |  |  |  |  |  |
|   | Surface area of pond (ft <sup>2</sup> )  |  |  |  |  |  |  |  |  |
| 1. Removal and Loading  |  |  |  |  |  |  |  |  |  |
|   | Volume of Sand Liner (cy)  |  |  |  |  |  |  |  |  |
|   | Sand Liner Removal and Loading Unit Cost (\$/cy)   |  |  |  |  |  |  |  |  |
|   | Subtotal Liner Removal and Loading Costs   |  |  |  |  |  |  |  |  |
| 2. Transportation and Disposal                                  |  |  |  |  |  |  |  |  |  |
|   | Volume of Sand Liner (ft <sup>3</sup> )  |  |  |  |  |  |  |  |  |
|   | Transportation and Disposal Unit Cost (\$/ft <sup>3</sup> )                                  |  |  |  |  |  |  |  |  |
|   | Subtotal Liner Transportation and Disposal Costs   |  |  |  |  |  |  |  |  |
| C. Topsoil Application (see plant calc above)                   |  |  |  |  |  |  |  |  |  |
|   | Assumptions:   |  |  |  |  |  |  |  |  |
|   | Area of surface disturbance (ft <sup>2</sup> )   |  |  |  |  |  |  |  |  |
|   | Average thickness of topsoil (ft)  |  |  |  |  |  |  |  |  |
|   | Average haul distance (ft)   |  |  |  |  |  |  |  |  |
|   | Surface grade (%)  |  |  |  |  |  |  |  |  |
|   | Volume of Topsoil (cy)   |  |  |  |  |  |  |  |  |
|   | Topsoil Unit Cost per WDEQ Guideline No. 12, App. C (\$/cy)                                  |  |  |  |  |  |  |  |  |
|   | Subtotal Topsoil Application Costs   |  |  |  |  |  |  |  |  |







TABLE 9: RADIUM TREATMENT

| RADIUM TREATMENT                                     |                  |  |
|--|------------------|--|
|  |                  |  |
| <b>Assumptions:</b>                                  |                  |  |
| 1. Based on actual operating costs                   |                  |  |
|  |                  |  |
| <b>Radium Treatment Costs per 1000 Gallons</b>       |                  |  |
| Resin Replacement                                    | = \$ 0.33        |  |
| Chemical (Caustic)                                   | = \$ 0.009       |  |
| Filtration   | = \$ 0           |  |
| Electricity  | = \$ 0           |  |
| By Product Disposal of Sludge                        | = \$ 0           |  |
|  |                  |  |
| <b>TOTAL RADIUM TREATMENT COSTS PER 1000 GALLONS</b> | <b>= \$ 0.34</b> |  |

TABLE 10: GWS SWEEP

| GROUNDWATER SWEEP (GWS)                                     |   |   |        |   |        |   |           |   |             |
|---|---|---|--------|---|--------|---|-----------|---|-------------|
| <b>Assumptions:</b>   |   |   |        |   |        |   |           |   |             |
| 1.  | All pumps are 5 hp pumping at 20 gpm  |   |        |   |        |   |           |   |             |
| 2.  | Cost of electricity = \$0.07/kwh  |   |        |   |        |   |           |   |             |
| 3.  | All water pumped is treated for radium removal at actual cost of \$0/1000 gallons |   |        |   |        |   |           |   |             |
| 4.  | All water pumped is disposed at irrigation facility with a 0 hp pump              |   |        |   |        |   |           |   |             |
| 5.  | Repair and maintenance costs estimated at \$ 0.12/1000 gallons                    |   |        |   |        |   |           |   |             |
| 6.  | Process sampling and analysis costs estimated at \$0.69/1000 gallons              |   |        |   |        |   |           |   |             |
| 7.  | Labor costs are not included  |   |        |   |        |   |           |   |             |
| <b>Wellfield Pumping Costs per 1000 Gallons</b>             |   |   |        |   |        |   |           |   |             |
|   | 1000 gal  | X | 5 hp   | X | 1 hr   | X | 0.746 kwh | X | \$ 0.07     |
|   |   |   | 20 gpm |   | 60 min |   | hp        |   | kwh         |
|   |   |   |        |   |        |   |           |   | = \$ 0.2238 |
| <b>Radium Treatment Costs per 1000 Gallons</b>              |   |   |        |   |        |   |           |   |             |
|   |   |   |        |   |        |   |           |   | = \$ 0.34   |
| <b>Pumping to Irrigator Costs per 1000 Gallons</b>          |   |   |        |   |        |   |           |   |             |
|   | 1000 gal  | X | 0 hp   | X | 1 hr   | X | 0.746 kwh | X | \$ 0.07     |
|   |   |   | 0 gpm  |   | 60 min |   | hp        |   | kwh         |
|   |   |   |        |   |        |   |           |   | = \$ 0.000  |
| <b>Repair and Maintenance Costs per 1000 Gallons</b>        |   |   |        |   |        |   |           |   |             |
|   |   |   |        |   |        |   |           |   | = \$ 0.1212 |
| <b>Process Sampling and Analysis Costs per 1000 Gallons</b> |   |   |        |   |        |   |           |   |             |
|   |   |   |        |   |        |   |           |   | = \$ 0.69   |
| <b>RO of water for Class V inj</b>                          |   |   |        |   |        |   |           |   |             |
|   |   |   |        |   |        |   |           |   | = \$ 0.75   |
| <b>TOTAL GWS COSTS PER 1000 GALLONS</b>                     |   |   |        |   |        |   |           |   |             |
|   |   |   |        |   |        |   |           |   | = \$ 2.13   |

**TABLE 11: REVERSE OSMOSIS**

| REVERSE OSMOSIS (RO)                   |   |   |      |  |  |  |  |  |  |
|--|---|---|------|--|--|--|--|--|--|
| Assumptions:                           |   |   |      |  |  |  |  |  |  |
| 1                                      | Cost of electricity = \$0.07/kwh  |   |      |  |  |  |  |  |  |
| 2                                      | 90% permeate/10% reject split   |   |      |  |  |  |  |  |  |
| 3                                      | Membrane life of 4 years with a cost of \$   x   per membrane element                                 |   |      |  |  |  |  |  |  |
| 4                                      | Includes cost of pumping from wellfield to RO Unit  |   |      |  |  |  |  |  |  |
| 5                                      | The water is pumped through the RO and returned to the wellfield with a 150 hp pump at actual cost of |   |      |  |  |  |  |  |  |
|  | \$0.17 /1000 gallons  |   |      |  |  |  |  |  |  |
| 6                                      | Process sampling and analysis costs estimated at \$0.174/1000 gallons                                 |   |      |  |  |  |  |  |  |
| 7                                      | Labor costs are not included  |   |      |  |  |  |  |  |  |
| Reverse Osmosis Costs per 1000 Gallons |   |   |      |  |  |  |  |  |  |
|  | Electricity   |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Chemicals   |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Membrane Replacement  |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Repair and Maintenance  |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Pumping from Wellfield  |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Pumping to Wellfield  |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Radium Treatment  |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | \$0.34  | X | 0.10 |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Pumping to Irrigator  |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | \$ 0  | X | 0.2  |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  | Process Sampling and Analysis   |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
| TOTAL RO COSTS PER 1000 GALLONS        |   |   |      |  |  |  |  |  |  |
|  |   |   |      |  |  |  |  |  |  |
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TABLE 12: CHEMICAL REDUCTANT

| CHEMICAL REDUCTANT   |   |        |   |     |   |     |   |    |        |
|--|---|--------|---|-----|---|-----|---|----|--------|
| <b>Assumptions:</b>  |   |        |   |     |   |     |   |    |        |
| 1. Based on actual operating costs during restoration activities   |   |        |   |     |   |     |   |    |        |
| 2. Reductant introduced to RO permeate at concentration of __ mg/L   |   |        |   |     |   |     |   |    |        |
| 3. Volume distribution varies with each pattern, average = ____ gals/pattern (i.e., approximately<br>__ pore volume at __% of pattern areas) |   |        |   |     |   |     |   |    |        |
| 4. Chemical cost = \$ ____/lb, includes tank rental and safety equipment   |   |        |   |     |   |     |   |    |        |
| 5. Labor costs are not included  |   |        |   |     |   |     |   |    |        |
| <b>Chemical Reductant Costs per Pattern</b>  |   |        |   |     |   |     |   |    |        |
| kgal   | X | 3785 L | X | mg  | X | lbs | X | \$ | = \$ 0 |
| pattern  |   | 1 kgal |   | 1 L |   | mg  |   | lb |        |
| <b>TOTAL CHEMICAL REDUCTANT COSTS PER PATTERN</b>  |   |        |   |     |   |     |   |    |        |
|  |   |        |   |     |   |     |   |    | = \$ 0 |



TABLE 13: ELUTION PROCESSING

| ELUTION PROCESSING                 |  |  |  |  |  |  |  |  |             |
|------------------------------------|--|--|--|--|--|--|--|--|-------------|
| Assumptions:                       |  |  |  |  |  |  |  |  |             |
| 1. Based on actual operating costs |  |  |  |  |  |  |  |  |             |
|                                    |  |  |  |  |  |  |  |  |             |
|                                    |  |  |  |  |  |  |  |  |             |
| TOTAL PROCESSING COSTS PER ELUTION |  |  |  |  |  |  |  |  | = \$ 589.56 |



TABLE 15: WELL ABANDONMENT

[illegible]

TABLE 16: MIT

| FIVE YEAR MECHANICAL INTEGRITY TESTS (MIT)                                  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| Assumptions:  |  |  |  |  |  |  |  |  |  |
| 1. Based on actual operating costs  |  |  |  |  |  |  |  |  |  |
| 2. Use Pulling Unit for 1 hr/well at cost of \$28.50/hr * 1.01 Inf.         |  |  |  |  |  |  |  |  |  |
| 3. Use MIT Unit for 2 hr/well at cost of \$28.50/hr *1.01 Inf.              |  |  |  |  |  |  |  |  |  |
| 4. Labor for operation of pulling unit will require 2 workers at \$30.94/hr |  |  |  |  |  |  |  |  |  |
| 5. Labor for operation of MIT Unit will require 1 worker at \$30.94/hr      |  |  |  |  |  |  |  |  |  |
| MIT Costs per Well  |  |  |  |  |  |  |  |  |  |
| Equipment:  |  |  |  |  |  |  |  |  |  |
| Pulling Unit  |  |  |  |  |  |  |  |  |  |
| 1 hours X \$ 28.79 per hour =\$ 28.79                                       |  |  |  |  |  |  |  |  |  |
| MIT Unit  |  |  |  |  |  |  |  |  |  |
| 2 hours X \$ 28.79 per hour =\$ 57.58                                       |  |  |  |  |  |  |  |  |  |
| Labor:  |  |  |  |  |  |  |  |  |  |
| Pulling Unit  |  |  |  |  |  |  |  |  |  |
| 1 hours X \$ 30.94 per hour X 2 workers =\$ 61.88                           |  |  |  |  |  |  |  |  |  |
| MIT Unit  |  |  |  |  |  |  |  |  |  |
| 2 hours X \$ 30.94 per hour =\$ 61.88                                       |  |  |  |  |  |  |  |  |  |
| MIT COST PER WELL = \$ 210  |  |  |  |  |  |  |  |  |  |



TABLE 17: MAIN PIPELINE REMOVAL

| MAIN PIPELINE REMOVAL                                |   |   |           |   |        |  |  |  |  |  |  |
|--|---|---|-----------|---|--------|--|--|--|--|--|--|
| Assumptions:   |   |   |           |   |        |  |  |  |  |  |  |
| 1.   | Trenching with trackhoe at 500 ft/day   |   |           |   |        |  |  |  |  |  |  |
| 2.   | Pipeline extraction and backfilling with trackhoe at 300 ft/day                           |   |           |   |        |  |  |  |  |  |  |
| 3.   | Trackhoe rental: \$1,413/week   |   |           |   |        |  |  |  |  |  |  |
| 4.   | Fuel cost: \$17.25/operating hour   |   |           |   |        |  |  |  |  |  |  |
| 5.   | Trackhoe operation requires 1 worker at \$30.94/hour                                      |   |           |   |        |  |  |  |  |  |  |
| 6.   | Pipeline extraction requires 1 workers at \$30.94/hour (in addition to trackhoe operator) |   |           |   |        |  |  |  |  |  |  |
| 7.   | Pipelines removed simultaneously  |   |           |   |        |  |  |  |  |  |  |
| 8.   | Includes removal of manholes  |   |           |   |        |  |  |  |  |  |  |
| 9.   | Operating schedule: 8 hrs/day, 5 days/week  |   |           |   |        |  |  |  |  |  |  |
| Main Pipeline Removal Costs per ft of Trench         |   |   |           |   |        |  |  |  |  |  |  |
| Equipment  |   |   |           |   |        |  |  |  |  |  |  |
| Trackhoe   |   |   |           |   |        |  |  |  |  |  |  |
|  | \$ 1,550  | X | 1 week    | X | 1 days |  |  |  |  |  |  |
|  | week  |   | 5 days    |   | 300 ft |  |  |  |  |  |  |
|  |   |   |           |   |        |  |  |  |  |  |  |
| Fuel   |   |   |           |   |        |  |  |  |  |  |  |
|  | \$ 17.3   | X | 8 hrs     | X | 1 days |  |  |  |  |  |  |
|  | hour  |   | 1 day     |   | 300 ft |  |  |  |  |  |  |
|  |   |   |           |   |        |  |  |  |  |  |  |
| Labor  |   |   |           |   |        |  |  |  |  |  |  |
| Trackhoe Operation                                   |   |   |           |   |        |  |  |  |  |  |  |
|  | \$ 30.9   | X | 8 man hrs | X | 1 days |  |  |  |  |  |  |
|  | man hr  |   | 1 day     |   | 300 ft |  |  |  |  |  |  |
| Pipeline Extraction                                  |   |   |           |   |        |  |  |  |  |  |  |
|  | \$ 30.9   | X | 8 man hrs | X | 1 day  |  |  |  |  |  |  |
|  | man hr  |   | 1 day     |   | 300 ft |  |  |  |  |  |  |
| MAIN PIPELINE REMOVAL COST PER FT OF TRENCH =\$ 3.15 |   |   |           |   |        |  |  |  |  |  |  |

TABLE 18: WELLFIELD PIPING REMOVAL

| WELLFIELD PIPING REMOVAL   |          |   |           |  |         |        |  |  |           |
|--|----------|---|-----------|--|---------|--------|--|--|-----------|
| <b>Assumptions:</b>  |          |   |           |  |         |        |  |  |           |
| 1. Trenching with 428E Cat Backhoe at 2000 ft/day  |          |   |           |  |         |        |  |  |           |
| 2. Pipeline extraction and backfilling with backhoe at 2000 ft/day                           |          |   |           |  |         |        |  |  |           |
| 3. Backhoe rental: \$788/week  |          |   |           |  |         |        |  |  |           |
| 4. Fuel cost: \$12.40/operating hour   |          |   |           |  |         |        |  |  |           |
| 5. Backhoe operation requires 1 worker at \$30.91/hour                                       |          |   |           |  |         |        |  |  |           |
| 6. Pipeline extraction requires 1 workers at \$30.91/hour (in addition to trackhoe operator) |          |   |           |  |         |        |  |  |           |
| 7. Operating schedule: 8 hrs/day, 5 days/week  |          |   |           |  |         |        |  |  |           |
| <b>Main Pipeline Removal Costs per ft of Pipe</b>  |          |   |           |  |         |        |  |  |           |
| <b>Equipment</b>   |          |   |           |  |         |        |  |  |           |
| <b>Backhoe</b>   |          |   |           |  |         |        |  |  |           |
|  | \$ 788   | X | 1 week    |  | X       | 1 days |  |  |           |
|  | week     |   | 5 days    |  | 2000 ft |        |  |  | = \$ 0.08 |
| <b>Fuel</b>  |          |   |           |  |         |        |  |  |           |
|  | \$ 12.4  | X | 8 hrs     |  | X       | 1 days |  |  |           |
|  | hour     |   | 1 day     |  | 2000 ft |        |  |  | = \$ 0.05 |
| <b>Labor</b>   |          |   |           |  |         |        |  |  |           |
| <b>Backhoe Operation</b>   |          |   |           |  |         |        |  |  |           |
|  | \$ 30.94 | X | 8 man hrs |  | X       | 1 days |  |  |           |
|  | man hr   |   | 1 day     |  | 2000 ft |        |  |  | = \$ 0.12 |
| <b>Pipeline Extraction</b>   |          |   |           |  |         |        |  |  |           |
|  | \$ 30.94 | X | 8 man hrs |  | X       | 1 day  |  |  |           |
|  | man hr   |   | 1 day     |  | 2000 ft |        |  |  | = \$ 0.12 |
| <b>WELLFIELD PIPELINE REMOVAL \$ PER FT OF PIPE = \$ 0.37</b>                                |          |   |           |  |         |        |  |  |           |

**TABLE 19: WELLFIELD ROAD RECLAMATION**

| WELLFIELD ROAD RECLAMATION   |   |         |   |           |               |        |   |         |      |       |  |
|--|---|---------|---|-----------|---------------|--------|---|---------|------|-------|--|
| Assumptions  |   |         |   |           |               |        |   |         |      |       |  |
| 1. Gravel road base removed at cost of \$1.01/cy (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul * 1.01 Inf)           |   |         |   |           |               |        |   |         |      |       |  |
| 2. Gravel road base: average depth = 0.3 ft, average width = 14 ft   |   |         |   |           |               |        |   |         |      |       |  |
| 3. Roads scarified prior to topsoil application at cost of \$71.86/acre (WDEQ Guideline No. 12, Appendix P *1.01 Inflation)      |   |         |   |           |               |        |   |         |      |       |  |
| 4. Grading of scarified roads prior to topsoil application at cost of \$78.35/acre (WDEQ Guideline No. 12, Appendix G*1.01 Inf)) |   |         |   |           |               |        |   |         |      |       |  |
| 5. Topsoil applied at cost of \$1.00/cy/1000 ft (WDEQ Guideline No. 12, App. C, Level Ground, 500 ft haul*1.01 Inf)              |   |         |   |           |               |        |   |         |      |       |  |
| 6. Stripped topsoil: average depth = 1.5 ft, average width = 20 ft   |   |         |   |           |               |        |   |         |      |       |  |
| 7. Discing/seeding cost of \$167/acre is based on estimation in UC-Disk tab  |   |         |   |           |               |        |   |         |      |       |  |
| Gravel Road Base Removal Costs per 1000 ft of Road   |   |         |   |           |               |        |   |         |      |       |  |
| 1000 ft  | X | 0.30 ft | X | 14 ft     | X             | 1 cy   | X | \$1.01  | = \$ | 157   |  |
|  |   |         |   |           |               | 27 ft³ |   | cy      |      |       |  |
| Scarification Costs per 1000 ft of Road  |   |         |   |           |               |        |   |         |      |       |  |
| 1000 ft  | X | 20 ft   | X | 4.356E+04 | 1 acre        |        | X | \$71.86 | = \$ | 33    |  |
|  |   |         |   |           |               | ft²    |   | acre    |      |       |  |
| Grading Costs per 1000 ft of Road  |   |         |   |           |               |        |   |         |      |       |  |
| 1000 ft  | X | 20 ft   | X |           | 1 acre        |        | X | \$78.35 | = \$ | 36    |  |
|  |   |         |   |           | 4.356E+04 ft² |        |   | acre    |      |       |  |
| Topsoil Application Costs per 1000 ft of Road  |   |         |   |           |               |        |   |         |      |       |  |
| 1000 ft  | X | 1.50 ft | X | 20 ft     | X             | 1 cy   | X | \$1.01  | = \$ | 1,122 |  |
|  |   |         |   |           |               | 27 ft³ |   | cy      |      |       |  |
| Discing/Seeding Costs per 1000 ft of Road  |   |         |   |           |               |        |   |         |      |       |  |
| 1000 ft  | X | 20 ft   | X |           | 1 acre        |        | X | \$244   | = \$ | 112   |  |
|  |   |         |   |           | 4.356E+04 ft² |        |   | acre    |      |       |  |
| TOTAL WELLFIELD ROAD RECLAMATION COSTS PER   |   |         |   |           |               |        |   |         |      |       |  |
| 1000 FT OF ROAD  |   |         |   |           |               |        |   |         | = \$ | 1,460 |  |





TABLE 21: DISKING/SEEDING

| DISKING/SEEDING                      |  |  |  |  |  |  |  |      |        |
|--------------------------------------|--|--|--|--|--|--|--|------|--------|
| Assumptions:                         |  |  |  |  |  |  |  |      |        |
| 1. Based on cost estimate            |  |  |  |  |  |  |  |      |        |
|                                      |  |  |  |  |  |  |  |      |        |
|                                      |  |  |  |  |  |  |  |      |        |
| TOTAL DISKING/SEEDING COSTS PER ACRE |  |  |  |  |  |  |  | = \$ | 244.28 |
|                                      |  |  |  |  |  |  |  |      |        |
|                                      |  |  |  |  |  |  |  |      |        |