

## **Appendix B**

**Table B-2. Cost Estimate - Alternative 2 - Operation & Maintenance of Existing Mitigation Systems & Dredge and Backfill FWWT**  
 Feasibility Study  
 Church Road TCE Site, Mountain Top, Pennsylvania

| DESCRIPTION   | QUANTITY | UNIT        | UNIT COST | CAPITAL COSTS <sup>(1)</sup> | NPV O&M COSTS <sup>(1,2)</sup> |
|---|----------|-------------|-----------|------------------------------|--------------------------------|
| <b>Institutional Controls / Engineering Controls (ICs / ECs)</b>              |          |             |           |                              |                                |
| <b>ICs</b>  |          |             |           |                              |                                |
| Evaluate existing deed restrictions/eed for amendments or ordinances          | 1        | year        | \$3,000   |                              | \$37,200                       |
| Conduct Five-Year Reviews, Reporting  | 1        | each        | \$20,000  |                              | \$248,200                      |
|   |          |             | subtotal  | \$0                          | \$285,000                      |
| <b>ECs</b>  |          |             |           |                              |                                |
| Install Fencing & Warning Signage - Impacted Soil/Sediment Areas              | 1,000    | linear feet | \$15      | \$15,000                     |                                |
| Maintain Fencing & Warning Signage - Impacted Soil/Sediment Areas             | 1        | year        | \$1,500   |                              | \$18,600                       |
|   |          |             | subtotal  | \$15,000                     | \$19,000                       |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$3,000                      | \$304,000                      |
|   |          |             |           |                              | \$61,000                       |
| <b>Total Cost - ICs / ECs</b>   |          |             |           | <b>\$18,000</b>              | <b>\$365,000</b>               |
| <b>Groundwater Extraction &amp; Treatment System O&amp;M</b>                  |          |             |           |                              |                                |
| Replacement of system components after 20 years of operation                  | 1        | lump sum    | \$80,000  | \$80,000                     |                                |
| Routine O&M, preventive maintenance, system & well sampling, reporting        | 1        | lump sum    | \$80,000  |                              | \$993,000                      |
|   |          |             | subtotal  | \$80,000                     | \$993,000                      |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$16,000                     | \$199,000                      |
| <b>Total Cost - Groundwater Extraction Treatment System O&amp;M</b>           |          |             |           | <b>\$96,000</b>              | <b>\$1,192,000</b>             |
| <b>Groundwater Monitoring</b>   |          |             |           |                              |                                |
| Workplan preparation (Years 1-5)  | 1        | annual      | \$17,000  |                              | \$70,000                       |
| Groundwater Sampling (Years 1-5)  | 1        | annual      | \$200,000 |                              | \$820,000                      |
| Data Validation, Reporting (Years 1-5)  | 1        | annual      | \$43,000  |                              | \$176,000                      |
| Workplan preparation (Years 6-30)   | 1        | annual      | \$5,000   |                              | \$58,000                       |
| Groundwater Sampling (Years 6-30)   | 1        | annual      | \$60,000  |                              | \$689,000                      |
| Data Validation, Reporting (Years 6-30)                                       | 1        | annual      | \$15,000  |                              | \$175,000                      |
|   |          |             | subtotal  | \$0                          | \$1,998,000                    |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$0                          | \$400,000                      |
| <b>Total Cost - Groundwater Monitoring</b>                                    |          |             |           | <b>\$0</b>                   | <b>\$2,398,000</b>             |
| <b>FWWTP - Dredging and Backfilling</b>                                       |          |             |           |                              |                                |
| <b>Pre-Design and Design Activities</b>                                       |          |             |           |                              |                                |
| Engineering design, specifications, and bidding support                       | 1        | lump sum    | \$30,000  | \$30,000                     |                                |
| Permitting  | 1        | lump sum    | \$25,000  | \$25,000                     |                                |
|   |          |             | subtotal  | \$55,000                     | \$0                            |
| <b>Dredge and Backfill</b>  |          |             |           |                              |                                |
| Mobilization/Demobilization   | 1        | lump sum    | \$20,200  | \$20,000                     |                                |
| Site Prep (Workplans and submittals, grubbing and clearing, erosion controls) | 1        | lump sum    | \$22,900  | \$23,000                     |                                |
| Surveys (Pre-dredge, post-dredge, post cap)                                   | 1        | lump sum    | \$10,000  | \$10,000                     |                                |
| Dredging and Processing   | 617      | cubic yard  | \$37      | \$23,000                     |                                |
| Transportation and Disposal   | 771      | ton         | \$100     | \$77,200                     |                                |
| Backfill  | 617      | cubic yard  | \$40.67   | \$25,000                     |                                |
| Restoration   | 1        | lump sum    | \$5,200   | \$5,000                      |                                |
| Engineering oversight and implementation reporting                            | 1        | lump sum    | \$20,000  | \$20,000                     |                                |
|   |          |             | subtotal  | \$203,000                    | \$0                            |
| <b>Long Term Monitoring</b>   |          |             |           |                              |                                |
| Semi-annual inspection and annual report.                                     | 5        | annual      | \$10,000  |                              | \$41,000                       |
|   |          |             | subtotal  | \$258,000                    | \$41,000                       |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$52,000                     | \$8,000                        |
| <b>Total Cost - Dredging and Backfilling</b>                                  |          |             |           | <b>\$310,000</b>             | <b>\$49,000</b>                |
| <b>Vapor Intrusion Monitoring &amp; Mitigation</b>                            |          |             |           |                              |                                |
| System Installation (Years 1-5)   | 1        | annual      | \$10,000  |                              | \$41,000                       |
| Workplan preparation (Years 1-5)  | 1        | annual      | \$5,000   |                              | \$21,000                       |
| Monitoring (Years 1-5)  | 1        | annual      | \$10,000  |                              | \$41,000                       |
| Data Validation, Reporting (Years 1-5)  | 1        | annual      | \$5,000   |                              | \$21,000                       |
| System Installation (Years 6-30)  | 1        | annual      | \$5,000   |                              | \$58,000                       |
| Workplan preparation (Years 6-30)   | 1        | annual      | \$2,500   |                              | \$29,000                       |
| Monitoring (Years 6-30)   | 1        | annual      | \$5,000   |                              | \$58,000                       |
| Data Validation, Reporting (Years 6-30)                                       | 1        | annual      | \$1,250   |                              | \$15,000                       |
|   |          |             | subtotal  | \$0                          | \$284,000                      |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$0                          | \$57,000                       |
| <b>Total Cost - Vapor Intrusion Monitoring &amp; Mitigation</b>               |          |             |           | <b>\$0</b>                   | <b>\$341,000</b>               |
| <b>Total Capital &amp; NPV O&amp;M Costs</b>                                  |          |             |           | <b>\$424,000</b>             | <b>\$4,345,000</b>             |
| <b>TOTAL NET PRESENT VALUE FOR THIS ALTERNATIVE</b>                           |          |             |           |                              | <b>\$4,769,000</b>             |

**Assumptions**

|   |    |
|---|----|
| Number of years of remediation (groundwater monitoring, vapor mitigation) | 30 |
| Number of years of remediation (Dredge and Backfill O&M)                  | 5  |
| Real discount rate  | 7% |

**Footnotes**

(1) Costs were estimated based on a conceptual design of remedial components that could address impacted media at the Site containing concentrations of constituents that exceed Remediation Goals (RGs) identified in this Feasibility Study (FS) Report, the results of the Remedial Investigation (RI) presented in the Draft Final RI Report (TI 2016), and readily available cost information on labor and material typical for similar projects. Cost estimates for this project will be further refined and may vary depending on the final design and contract bids at the time of final design implementation. For costing purposes, it is assumed that up to 2 vapor intrusion (VI) mitigation systems would need to be installed each year in Years 1-5, and 1 VI system would need to be installed each year in Years 6-30, and these and existing VI systems would be monitored and maintained. The total net present value presented has been rounded to the nearest \$10,000.

(2) Total estimated present worth costs of alternatives are expressed in terms of constant purchasing power in 2046 dollars (30 years of long term costs). Total estimated present worth costs assume a real discount rate and lifecycle listed under the assumptions above. These are generally based on guidance from EPA OSWER document 540-R-00-002, with additional input based on existing estimated site-specific costs.

Table B-3. Cost Estimate - Alternative 3 - Capping, Dredge and Backfill FWWTP, & GETS Optimization

| Church Road TCE Site, Mountain Top, Pennsylvania                              |          |             |           |                              |                                |
|---|----------|-------------|-----------|------------------------------|--------------------------------|
| DESCRIPTION   | QUANTITY | UNIT        | UNIT COST | CAPITAL COSTS <sup>(1)</sup> | NPV O&M COSTS <sup>(1,2)</sup> |
| <b>Institutional Controls / Engineering Controls (ICs / ECs)</b>              |          |             |           |                              |                                |
| ICs   |          |             |           |                              |                                |
| Evaluate existing deed restrictions/need for amendments or ordinances         | 1        | year        | \$3,000   |                              | \$37,000                       |
| Conduct Five-Year Reviews, Reporting  | 1        | each        | \$20,000  |                              | \$248,000                      |
|   |          |             | subtotal  | \$0                          | \$285,000                      |
| ECs   |          |             |           |                              |                                |
| Install Fencing & Warning Signage - Impacted Soil/Sediment Areas              | 1,000    | linear feet | \$15      | \$15,000                     |                                |
| Maintain Fencing & Warning Signage - Impacted Soil/Sediment Areas             | 1        | year        | \$1,500   |                              | \$18,800                       |
|   |          |             | subtotal  | \$15,000                     | \$19,000                       |
|   |          |             |           | \$15,000                     | \$304,000                      |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$3,000                      | \$61,000                       |
| <b>Total Cost - ICs / ECs</b>   |          |             |           | <b>\$18,000</b>              | <b>\$366,000</b>               |
| <b>Capping</b>  |          |             |           |                              |                                |
| Pre-Design and Design Activities  |          |             |           |                              |                                |
| Biological survey and/or wetland delineation, reporting, agency interaction   | 1        | lump sum    | \$10,000  | \$10,000                     |                                |
| Engineering design, specifications, and bidding support                       | 1        | lump sum    | \$10,000  | \$10,000                     |                                |
| Permitting  | 1        | lump sum    | \$15,000  | \$15,000                     |                                |
|   |          |             | subtotal  | \$35,000                     | \$0                            |
| Cap Installation  |          |             |           |                              |                                |
| Surveying   | 1        | lump sum    | \$5,000   | \$5,000                      |                                |
| Contractor mobilization/demobilization  | 1        | lump sum    | \$5,000   | \$5,000                      |                                |
| Contractor project management (submittals, reporting, etc)                    | 1        | lump sum    | \$10,000  | \$10,000                     |                                |
| Site controls (erosion, utilities, etc)                                       | 1        | lump sum    | \$5,000   | \$5,000                      |                                |
| Excavate onsite borrow source - 6-inch soil cover                             | 300      | cubic yard  | \$7       | \$2,100                      |                                |
| Grade cap area, install 60 mil liner, place sand, 6-inch soil cover           | 17,000   | square foot | \$1.50    | \$26,000                     |                                |
| Engineering oversight and implementation reporting                            | 1        | lump sum    | \$20,000  | \$20,000                     |                                |
|   |          |             | subtotal  | \$73,000                     | \$0                            |
| Cap O&M   |          |             |           |                              |                                |
| Annual inspection, repairs, reporting   | 1        | annual      | \$1,500   |                              | \$19,000                       |
|   |          |             | subtotal  | \$108,000                    | \$19,000                       |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$22,000                     | \$4,000                        |
| <b>Total Cost - Capping</b>   |          |             |           | <b>\$130,000</b>             | <b>\$23,000</b>                |
| <b>FWWTP - Dredging and Backfilling</b>                                       |          |             |           |                              |                                |
| Pre-Design and Design Activities  |          |             |           |                              |                                |
| Engineering design, specifications, and bidding support                       | 1        | lump sum    | \$30,000  | \$30,000                     |                                |
| Permitting  | 1        | lump sum    | \$25,000  | \$25,000                     |                                |
|   |          |             | subtotal  | \$55,000                     | \$0                            |
| Dredge and Backfill   |          |             |           |                              |                                |
| Mobilization/Demobilization   | 1        | lump sum    | \$20,200  | \$20,200                     |                                |
| Site Prep (Workplans and submittals, grubbing and clearing, erosion controls) | 1        | lump sum    | \$22,800  | \$23,000                     |                                |
| Surveys (Pre-dredge, post-dredge, post cap)                                   | 1        | lump sum    | \$10,000  | \$10,000                     |                                |
| Dredging and Processing   | 617      | cubic yard  | \$37      | \$23,000                     |                                |
| Transportation and Disposal   | 771      | ton         | \$100     | \$77,200                     |                                |
| Backfill  | 617      | cubic yard  | \$40.67   | \$25,000                     |                                |
| Restoration   | 1        | lump sum    | \$5,200   | \$5,000                      |                                |
| Engineering oversight and implementation reporting                            | 1        | lump sum    | \$20,000  | \$20,000                     |                                |
|   |          |             | subtotal  | \$203,000                    | \$0                            |
| Long Term Monitoring  |          |             |           |                              |                                |
| Semi-annual inspection and annual report.                                     | 5        | annual      | \$10,000  |                              | \$41,000                       |
|   |          |             | subtotal  | \$258,000                    | \$41,000                       |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$52,000                     | \$8,000                        |
| <b>Total Cost - Dredging and Backfilling</b>                                  |          |             |           | <b>\$310,000</b>             | <b>\$49,000</b>                |
| <b>Groundwater Extraction &amp; Treatment System Optimization</b>             |          |             |           |                              |                                |
| System optimization design, testing, startup                                  |          |             |           |                              |                                |
| System optimization construction, new recovery well installation              | 1        | lump sum    | \$40,000  | \$40,000                     |                                |
| Replacement of system components after 20 years of operation                  | 1        | lump sum    | \$200,000 | \$200,000                    |                                |
| Routine O&M, preventive maintenance, system & well sampling, reporting        | 1        | lump sum    | \$80,000  | \$80,000                     |                                |
|   |          |             | subtotal  | \$320,000                    | \$993,000                      |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$64,000                     | \$199,000                      |
| <b>Total Cost - Groundwater Extraction Treatment System Optimization</b>      |          |             |           | <b>\$384,000</b>             | <b>\$1,192,000</b>             |
| <b>Groundwater Monitoring</b>   |          |             |           |                              |                                |
| Workplan preparation (Years 1-5)  |          |             |           |                              |                                |
| Groundwater Sampling (Years 1-5)  | 1        | annual      | \$17,000  |                              | \$70,000                       |
| Data Validation, Reporting (Years 1-5)  | 1        | annual      | \$100,000 |                              | \$410,000                      |
| Workplan preparation (Years 6-30)   | 1        | annual      | \$43,000  |                              | \$176,000                      |
| Groundwater Sampling (Years 6-30)   | 1        | annual      | \$5,000   |                              | \$58,000                       |
| Data Validation, Reporting (Years 6-30)                                       | 1        | annual      | \$60,000  |                              | \$699,000                      |
|   |          |             | subtotal  | \$0                          | \$1,568,000                    |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$0                          | \$317,600                      |
| <b>Total Cost - Groundwater Monitoring</b>                                    |          |             |           | <b>\$0</b>                   | <b>\$1,906,000</b>             |
| <b>Vapor Intrusion Monitoring &amp; Mitigation</b>                            |          |             |           |                              |                                |
| System Installation (Years 1-5)   |          |             |           |                              |                                |
| Workplan preparation (Years 1-5)  | 1        | annual      | \$10,000  |                              | \$41,000                       |
| Monitoring (Years 1-5)  | 1        | annual      | \$5,000   |                              | \$21,000                       |
| Data Validation, Reporting (Years 1-5)  | 1        | annual      | \$10,000  |                              | \$41,000                       |
| System Installation (Years 6-30)  | 1        | annual      | \$5,000   |                              | \$21,000                       |
| Workplan preparation (Years 6-30)   | 1        | annual      | \$2,500   |                              | \$29,000                       |
| Monitoring (Years 6-30)   | 1        | annual      | \$5,000   |                              | \$58,000                       |
| Data Validation, Reporting (Years 6-30)                                       | 1        | annual      | \$1,250   |                              | \$15,000                       |
|   |          |             | subtotal  | \$0                          | \$264,000                      |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$0                          | \$57,000                       |
| <b>Total Cost - Vapor Intrusion Monitoring &amp; Mitigation</b>               |          |             |           | <b>\$0</b>                   | <b>\$341,000</b>               |
| <b>Total Capital &amp; NPV O&amp;M Costs</b>                                  |          |             |           | <b>\$842,000</b>             | <b>\$3,876,000</b>             |
| <b>TOTAL NET PRESENT VALUE FOR THIS ALTERNATIVE</b>                           |          |             |           |                              | <b>\$4,718,000</b>             |

**Assumptions**

Number of years of remediation (capping O&M, groundwater monitoring, vapor mitigation) 30  
 Number of years of remediation (Dredge and Backfill O&M) 5  
 Real discount rate 7%

**Footnotes**

(1) Costs were estimated based on a conceptual design of remedial components that could address impacted media at the Site containing concentrations of constituents that exceed Remediation Goals (RIGs) identified in this Feasibility Study (FS) Report, the results of the Remedial Investigation (RI) presented in the Draft Final RI Report (11/2016), and readily available cost information on labor and material typical for similar projects. Cost estimates for this project will be further refined and may vary depending on the final design and contract bids at the time of final design implementation. For costing purposes, it is assumed that up to 2 vapor intrusion (VI) mitigation systems would need to be installed each year in Years 1-5, and 1 VI system would need to be installed each year in Years 6-30, and these existing VI systems would be monitored and maintained. The total net present value presented has been rounded to the nearest \$10,000.  
 (2) Total estimated present worth costs of alternatives are expressed in terms of constant purchasing power in 2046 dollars (30 years of long term costs). Total estimated present worth costs assume a real discount rate and lifecycle listed under the assumptions above. These are generally based on guidance from EPA OSWER document 540-R-00-002, with additional input based on existing estimated site-specific costs.

**Table B-4. Cost Estimate - Alternative 4 - Excavation, Dredge and Backfill FWWTP, & GETS Optimization**  
 Feasibility Study  
 Church Road TCE Site, Mountain Top, Pennsylvania

| DESCRIPTION   | QUANTITY | UNIT        | UNIT COST | CAPITAL COSTS      | NPV O&M COSTS <sup>1</sup> |
|---|----------|-------------|-----------|--------------------|----------------------------|
| <b>Institutional Controls / Engineering Controls (ICs / ECs)</b>              |          |             |           |                    |                            |
| ICs   |          |             |           |                    |                            |
| Evaluate existing deed restrictions/need for amendments or ordinances         | 1        | year        | \$3,000   |                    | \$37,000                   |
| Conduct Five-Year Reviews, Reporting  | 1        | each        | \$20,000  |                    | \$248,000                  |
|   |          |             | subtotal  | \$0                | \$285,000                  |
| ECs   |          |             |           |                    |                            |
| Install Fencing & Warning Signage - Impacted Soil/Sediment Areas              | 1,000    | linear feet | \$15      | \$15,000           |                            |
| Maintain Fencing & Warning Signage - Impacted Soil/Sediment Areas             | 1        | year        | \$1,500   |                    | \$19,000                   |
|   |          |             | subtotal  | \$15,000           | \$19,000                   |
|   |          |             | subtotal  | \$15,000           | \$304,000                  |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$3,000            | \$61,000                   |
| <b>Total Cost - ICs / ECs</b>   |          |             |           | <b>\$18,000</b>    | <b>\$366,000</b>           |
| <b>Excavation</b>   |          |             |           |                    |                            |
| <b>Pre-Design and Design Activities</b>                                       |          |             |           |                    |                            |
| Biological survey and/or wetland delineation, reporting, agency interaction   | 1        | lump sum    | \$10,000  | \$10,000           |                            |
| Engineering design, specifications, and bidding support                       | 1        | lump sum    | \$50,000  | \$50,000           |                            |
| Permitting  | 1        | lump sum    | \$15,000  | \$15,000           |                            |
|   |          |             | subtotal  | \$75,000           | \$0                        |
| <b>Removal</b>  |          |             |           |                    |                            |
| Surveying   | 1        | lump sum    | \$10,000  | \$10,000           |                            |
| Contractor mobilization/demobilization  | 1        | lump sum    | \$10,000  | \$10,000           |                            |
| Contractor project management (submittals, reporting, etc)                    | 1        | lump sum    | \$20,000  | \$20,000           |                            |
| Excavate, haul and stockpile waste  | 5,200    | cubic yard  | \$10      | \$52,000           |                            |
| Site controls (erosion, utilities, etc)                                       | 1        | lump sum    | \$10,000  | \$10,000           |                            |
| Onsite borrow backfill, grading, compaction                                   | 6,800    | cubic yard  | \$7       | \$47,600           |                            |
| Transportation  | 7,800    | tons        | \$15      | \$117,000          |                            |
| Offsite Disposal  | 7,800    | tons        | \$50      | \$390,000          |                            |
| Engineering oversight, confirmation sampling, and reporting                   | 1        | lump sum    | \$50,000  | \$50,000           |                            |
|   |          |             | subtotal  | \$707,000          | \$0                        |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$141,000          | \$0                        |
| <b>Total Cost - Excavation</b>  |          |             |           | <b>\$923,000</b>   | <b>\$0</b>                 |
| <b>FWWTP - Dredging and Backfilling</b>                                       |          |             |           |                    |                            |
| <b>Pre-Design and Design Activities</b>                                       |          |             |           |                    |                            |
| Engineering design, specifications, and bidding support                       | 1        | lump sum    | \$30,000  | \$30,000           |                            |
| Permitting  | 1        | lump sum    | \$25,000  | \$25,000           |                            |
|   |          |             | subtotal  | \$55,000           | \$0                        |
| <b>Dredge and Backfill</b>  |          |             |           |                    |                            |
| Mobilization/Demobilization   | 1        | lump sum    | \$20,200  | \$20,200           |                            |
| Site Prep (Workplans and submittals, grubbing and clearing, erosion controls) | 1        | lump sum    | \$22,900  | \$23,000           |                            |
| Surveys (Pre-dredge, post-dredge, post cap)                                   | 1        | lump sum    | \$10,000  | \$10,000           |                            |
| Dredging and Processing   | 617      | cubic yard  | \$37      | \$23,000           |                            |
| Transportation and Disposal   | 771      | ton         | \$100     | \$77,200           |                            |
| Backfill  | 617      | cubic yard  | \$40.67   | \$25,000           |                            |
| Restoration   | 1        | lump sum    | \$5,200   | \$5,000            |                            |
| Engineering oversight and implementation reporting                            | 1        | lump sum    | \$20,000  | \$20,000           |                            |
|   |          |             | subtotal  | \$203,000          | \$0                        |
| <b>Long Term Monitoring</b>   |          |             |           |                    |                            |
| Semi-annual inspection and annual report.                                     | 5        | annual      | \$10,000  |                    | \$41,000                   |
|   |          |             | subtotal  | \$258,000          | \$41,000                   |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$52,000           | \$8,000                    |
| <b>Total Cost - Dredging and Backfilling</b>                                  |          |             |           | <b>\$310,000</b>   | <b>\$49,000</b>            |
| <b>Groundwater Extraction &amp; Treatment System Optimization</b>             |          |             |           |                    |                            |
| <b>System optimization design, testing, startup</b>                           |          |             |           |                    |                            |
| System optimization design, testing, startup                                  | 1        | lump sum    | \$40,000  | \$40,000           |                            |
| System optimization construction, new recovery well installation              | 1        | lump sum    | \$200,000 | \$200,000          |                            |
| Replacement of system components after 20 years of operation                  | 1        | lump sum    | \$80,000  | \$80,000           |                            |
| Routine O&M, preventive maintenance, system & well sampling, reporting        | 1        | lump sum    | \$50,000  |                    | \$993,000                  |
|   |          |             | subtotal  | \$320,000          | \$993,000                  |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$64,000           | \$199,000                  |
| <b>Total Cost - Groundwater Extraction Treatment System Optimization</b>      |          |             |           | <b>\$384,000</b>   | <b>\$1,192,000</b>         |
| <b>Groundwater Monitoring</b>   |          |             |           |                    |                            |
| <b>Workplan preparation (Years 1-5)</b>                                       |          |             |           |                    |                            |
| Groundwater Sampling (Years 1-5)  | 1        | annual      | \$17,000  |                    | \$70,000                   |
| Data Validation, Reporting (Years 1-5)  | 1        | annual      | \$50,000  |                    | \$205,000                  |
| <b>Data Validation, Reporting (Years 6-30)</b>                                |          |             |           |                    |                            |
| Workplan preparation (Years 6-30)   | 1        | annual      | \$43,000  |                    | \$178,000                  |
| Groundwater Sampling (Years 6-30)   | 1        | annual      | \$5,000   |                    | \$58,000                   |
| Data Validation, Reporting (Years 6-30)                                       | 1        | annual      | \$20,000  |                    | \$233,000                  |
|   |          |             | subtotal  | \$175,000          | \$175,000                  |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$0                | \$917,000                  |
| <b>Total Cost - Groundwater Monitoring</b>                                    |          |             |           | <b>\$0</b>         | <b>\$1,100,000</b>         |
| <b>Vapor Intrusion Monitoring &amp; Mitigation</b>                            |          |             |           |                    |                            |
| <b>System Installation (Years 1-5)</b>  |          |             |           |                    |                            |
| System Installation (Years 1-5)   | 1        | annual      | \$10,000  |                    | \$41,000                   |
| Workplan preparation (Years 1-5)  | 1        | annual      | \$5,000   |                    | \$21,000                   |
| Monitoring (Years 1-5)  | 1        | annual      | \$10,000  |                    | \$41,000                   |
| Data Validation, Reporting (Years 1-5)  | 1        | annual      | \$5,000   |                    | \$21,000                   |
| <b>System Installation (Years 6-30)</b>                                       |          |             |           |                    |                            |
| System Installation (Years 6-30)  | 1        | annual      | \$5,000   |                    | \$58,000                   |
| Workplan preparation (Years 6-30)   | 1        | annual      | \$2,500   |                    | \$28,000                   |
| Monitoring (Years 6-30)   | 1        | annual      | \$5,000   |                    | \$58,000                   |
| Data Validation, Reporting (Years 6-30)                                       | 1        | annual      | \$1,250   |                    | \$15,000                   |
|   |          |             | subtotal  | \$0                | \$284,000                  |
| Contingency, QA/QC, procurement, project management                           | 20%      |             |           | \$0                | \$57,000                   |
| <b>Total Cost - Vapor Intrusion Monitoring &amp; Mitigation</b>               |          |             |           | <b>\$0</b>         | <b>\$341,000</b>           |
| <b>Total Capital &amp; NPV O&amp;M Costs</b>                                  |          |             |           | <b>\$1,636,000</b> | <b>\$3,047,000</b>         |
| <b>TOTAL NET PRESENT VALUE FOR THIS ALTERNATIVE</b>                           |          |             |           |                    | <b>\$4,682,000</b>         |

**Assumptions**

Number of years of remediation (O&M, groundwater monitoring, vapor mitigation) 30  
 Number of years of remediation (Dredge and Backfill O&M) 5  
 Real discount rate 7%

**Footnote**

(1) Costs were estimated based on a conceptual design of remedial components that could address impacted media at the Site containing concentrations of constituents that exceed Remediation Goals (RGs) identified in the Feasibility Study (FS) Report, the results of the Remedial Investigation (RI) presented in the Draft Final RI Report (11/2016), and readily available cost information on labor and material typical for similar projects. Cost estimates for this project will be further refined and may vary depending on the final design and contract bids at the time of final design implementation. For costing purposes, it is assumed that up to 2 vapor intrusion (VI) mitigation systems would need to be installed each year in Years 1-5, and 1 VI system would need to be installed each year in Years 6-30, and these and existing VI systems would be monitored and maintained. The total net present value presented has been rounded to the nearest \$10,000.

(2) Total estimated present worth costs of alternatives are expressed in terms of constant purchasing power in 2040 dollars (30 years of long term costs). Total estimated present worth costs assume a real discount rate and lifecycle listed under the assumptions above. These are generally based on guidance from EPA OSWER document 540-R-00-002, with additional input based on existing estimated site-specific costs.

Table B-6. Cost Estimate - Alternative B - Capping, Source Area Treatment, Dredge and Backfill FWWT, & GETS Optimization

|   |          | Feasibility Study |           | CAPITAL COSTS <sup>(1)</sup> |  | NPV O&M COSTS <sup>(1,2)</sup> |             |
|---|----------|-------------------|-----------|------------------------------|--|--------------------------------|-------------|
| Church Road TCE Site, Mountain Top, Pennsylvania  |          |                   |           |                              |  |                                |             |
| DESCRIPTION   | QUANTITY | UNIT              | UNIT COST |                              |  |                                |             |
| <b>Institutional Controls / Engineering Controls (ICs / ECs)</b>                                  |          |                   |           |                              |  |                                |             |
| <b>ICs</b>  |          |                   |           |                              |  |                                |             |
| Evaluate existing deed restrictions/ordinances for amendments or ordinances                       | 1        | year              | \$3,000   |                              |  |                                | \$37,000    |
| Conduct Five-Year Review, Reporting   | 1        | each              | \$20,000  |                              |  |                                | \$248,000   |
|   |          |                   | subtotal  | \$0                          |  |                                | \$285,000   |
| <b>ECs</b>  |          |                   |           |                              |  |                                |             |
| Install Fencing & Warning Signage - Impacted Soil/Sediment Areas                                  | 1,000    | linear feet       | \$15      |                              |  |                                | \$19,000    |
| Maintain Fencing & Warning Signage - Impacted Soil/Sediment Areas                                 | 1        | year              | \$1,500   |                              |  |                                | \$19,000    |
|   |          |                   | subtotal  | \$15,000                     |  |                                | \$38,000    |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           |                              |  |                                | \$81,000    |
|   |          |                   |           |                              |  |                                | \$19,000    |
|   |          |                   |           |                              |  |                                | \$285,000   |
| <b>Capping</b>  |          |                   |           |                              |  |                                |             |
| <b>Pre-Design and Design Activities</b>   |          |                   |           |                              |  |                                |             |
| Biological survey and/or wetland delineation, reporting, agency interaction                       | 1        | lump sum          | \$10,000  | \$10,000                     |  |                                |             |
| Engineering design, specifications, and bidding support   | 1        | lump sum          | \$10,000  | \$10,000                     |  |                                |             |
| Permitting  | 1        | lump sum          | \$15,000  | \$15,000                     |  |                                |             |
|   |          |                   | subtotal  | \$35,000                     |  |                                | \$0         |
| <b>Cap Installation</b>   |          |                   |           |                              |  |                                |             |
| Surveying   | 1        | lump sum          | \$5,000   | \$5,000                      |  |                                |             |
| Contractor mobilization/demobilization  | 1        | lump sum          | \$5,000   | \$5,000                      |  |                                |             |
| Contractor project management (submittals, reporting, etc)  | 1        | lump sum          | \$10,000  | \$10,000                     |  |                                |             |
| Site control (erosion, utilities, etc)  | 1        | lump sum          | \$5,000   | \$5,000                      |  |                                |             |
| Excavate onsite borrow source - 6-inch soil cover   | 200      | cubic yard        | \$7       | \$1,400                      |  |                                |             |
| Grade cap area, install 60 mil liner, place sand, 6-inch soil cover                               | 11,000   | square foot       | \$1.50    | \$17,000                     |  |                                |             |
| Engineering oversight and implementation reporting  | 1        | lump sum          | \$3,000   | \$3,000                      |  |                                |             |
|   |          |                   | subtotal  | \$63,000                     |  |                                | \$0         |
| <b>Cap O&amp;M</b>  |          |                   |           |                              |  |                                |             |
| Annual inspection, repairs, reporting   | 1        | annual            | \$1,500   |                              |  |                                | \$19,000    |
|   |          |                   | subtotal  | \$98,000                     |  |                                | \$19,000    |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           | \$20,000                     |  |                                | \$4,000     |
|   |          |                   |           |                              |  |                                | \$118,000   |
|   |          |                   |           |                              |  |                                | \$23,000    |
| <b>FWWT, Dredging and Backfilling</b>   |          |                   |           |                              |  |                                |             |
| <b>Pre-Design and Design Activities</b>   |          |                   |           |                              |  |                                |             |
| Engineering design, specifications, and bidding support   | 1        | lump sum          | \$30,000  | \$30,000                     |  |                                |             |
| Permitting  | 1        | lump sum          | \$25,000  | \$25,000                     |  |                                |             |
|   |          |                   | subtotal  | \$55,000                     |  |                                | \$0         |
| <b>Dredge and Backfill</b>  |          |                   |           |                              |  |                                |             |
| Mobilization/Demobilization   | 1        | lump sum          | \$20,200  | \$20,200                     |  |                                |             |
| Site Prep (Workplans and submittals, grubbing and clearing, erosion control)                      | 1        | lump sum          | \$22,800  | \$22,800                     |  |                                |             |
| Survey (Pre-dredge, post-dredge, post-cap)  | 1        | lump sum          | \$10,000  | \$10,000                     |  |                                |             |
| Dredging and Processing   | 617      | cubic yard        | \$37      | \$23,000                     |  |                                |             |
| Transportation and Disposal   | 771      | ton               | \$10      | \$7,710                      |  |                                |             |
| Backfill  | 617      | cubic yard        | \$40.87   | \$25,000                     |  |                                |             |
| Restoration   | 1        | lump sum          | \$5,200   | \$5,200                      |  |                                |             |
| Engineering oversight and implementation reporting  | 1        | lump sum          | \$10,000  | \$10,000                     |  |                                |             |
|   |          |                   | subtotal  | \$203,000                    |  |                                | \$0         |
| <b>Long Term Monitoring</b>   |          |                   |           |                              |  |                                |             |
| Semi-annual inspection and annual report  | 5        | annual            | \$10,000  |                              |  |                                | \$41,000    |
|   |          |                   | subtotal  | \$258,000                    |  |                                | \$41,000    |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           | \$52,000                     |  |                                | \$8,000     |
|   |          |                   |           |                              |  |                                | \$318,000   |
|   |          |                   |           |                              |  |                                | \$49,000    |
| <b>Soil Vapor Extraction</b>  |          |                   |           |                              |  |                                |             |
| <b>Pre-Design and Design Activities</b>   |          |                   |           |                              |  |                                |             |
| Survey  | 1        | lump sum          | \$20,000  | \$20,000                     |  |                                |             |
| Engineering design, specifications, and bidding support   | 1        | lump sum          | \$30,000  | \$30,000                     |  |                                |             |
| Air discharge permitting  | 1        | lump sum          | \$5,000   | \$5,000                      |  |                                |             |
|   |          |                   | subtotal  | \$55,000                     |  |                                | \$0         |
| <b>System Installation</b>  |          |                   |           |                              |  |                                |             |
| Contractor mobilization/demobilization  | 1        | lump sum          | \$10,000  | \$10,000                     |  |                                |             |
| Contractor project management (submittals, reporting, etc)  | 1        | lump sum          | \$20,000  | \$20,000                     |  |                                |             |
| Surface Cap   | 8,000    | sf                | \$3       | \$24,000                     |  |                                |             |
| Soil Vapor Extraction system installation, startup  | 1        | lump sum          | \$150,000 | \$150,000                    |  |                                |             |
| Engineering oversight and implementation reporting  | 1        | lump sum          | \$70,000  | \$70,000                     |  |                                |             |
|   |          |                   | subtotal  | \$274,000                    |  |                                | \$0         |
| <b>System O&amp;M</b>   |          |                   |           |                              |  |                                |             |
| Remote operation, monthly maintenance & sampling, annual reporting, post-treatment system removal | 2        | annual            | \$50,000  |                              |  |                                | \$100,000   |
|   |          |                   | subtotal  | \$0                          |  |                                | \$100,000   |
|   |          |                   |           |                              |  |                                | \$323,000   |
|   |          |                   |           |                              |  |                                | \$100,000   |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           | \$65,000                     |  |                                | \$20,000    |
|   |          |                   |           |                              |  |                                | \$388,000   |
|   |          |                   |           |                              |  |                                | \$129,000   |
| <b>Groundwater Extraction Treatment System Optimization</b>                                       |          |                   |           |                              |  |                                |             |
| <b>System optimization design, testing, startup</b>   |          |                   |           |                              |  |                                |             |
| System optimization construction, new recovery well installation                                  | 1        | lump sum          | \$40,000  | \$40,000                     |  |                                |             |
| Replacement of system components after 20 years of operation                                      | 1        | lump sum          | \$200,000 | \$200,000                    |  |                                |             |
| Routine O&M, preventive maintenance, system & well sampling, reporting                            | 1        | lump sum          | \$80,000  | \$80,000                     |  |                                |             |
|   |          |                   | subtotal  | \$320,000                    |  |                                | \$993,000   |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           | \$64,000                     |  |                                | \$199,000   |
|   |          |                   |           |                              |  |                                | \$384,000   |
|   |          |                   |           |                              |  |                                | \$1,192,000 |
| <b>Groundwater Monitoring</b>   |          |                   |           |                              |  |                                |             |
| Workplan preparation (Years 1-5)  | 1        | annual            | \$17,000  |                              |  |                                | \$70,000    |
| Groundwater Sampling (Years 1-5)  | 1        | annual            | \$50,000  |                              |  |                                | \$205,000   |
| Data Validation, Reporting (Years 1-5)  | 1        | annual            | \$43,000  |                              |  |                                | \$178,000   |
| Workplan preparation (Years 6-30)   | 1        | annual            | \$5,000   |                              |  |                                | \$58,000    |
| Groundwater Sampling (Years 6-30)   | 1        | annual            | \$20,000  |                              |  |                                | \$233,000   |
| Data Validation, Reporting (Years 6-30)   | 1        | annual            | \$15,000  |                              |  |                                | \$175,000   |
|   |          |                   | subtotal  | \$0                          |  |                                | \$971,000   |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           | \$0                          |  |                                | \$183,000   |
|   |          |                   |           |                              |  |                                | \$0         |
|   |          |                   |           |                              |  |                                | \$844,000   |
| <b>Vapor Intrusion Monitoring &amp; Mitigation</b>  |          |                   |           |                              |  |                                |             |
| <b>System Installation (Years 1-5)</b>  |          |                   |           |                              |  |                                |             |
| Workplan preparation (Years 1-5)  | 1        | annual            | \$10,000  |                              |  |                                | \$41,000    |
| Monitoring (Years 1-5)  | 1        | annual            | \$5,000   |                              |  |                                | \$21,000    |
| Data Validation, Reporting (Years 1-5)  | 1        | annual            | \$5,000   |                              |  |                                | \$21,000    |
| System Installation (Years 6-30)  | 1        | annual            | \$5,000   |                              |  |                                | \$58,000    |
| Workplan preparation (Years 6-30)   | 1        | annual            | \$2,500   |                              |  |                                | \$29,000    |
| Monitoring (Years 6-30)   | 1        | annual            | \$5,000   |                              |  |                                | \$58,000    |
| Data Validation, Reporting (Years 6-30)   | 1        | annual            | \$1,250   |                              |  |                                | \$15,000    |
|   |          |                   | subtotal  | \$0                          |  |                                | \$284,000   |
| Contingency, QA/QC, procurement, project management   | 20%      |                   |           | \$0                          |  |                                | \$57,000    |
|   |          |                   |           |                              |  |                                | \$0         |
|   |          |                   |           |                              |  |                                | \$341,000   |
| <b>EPA Fees</b>   |          |                   |           |                              |  |                                |             |
|   |          |                   |           |                              |  |                                | \$1,219,000 |
|   |          |                   |           |                              |  |                                | \$2,832,000 |
| <b>Total Capital &amp; NPV O&amp;M Costs</b>  |          |                   |           |                              |  |                                |             |
|   |          |                   |           | \$1,219,000                  |  |                                | \$2,832,000 |
| <b>TOTAL NET PRESENT VALUE FOR THIS ALTERNATIVE</b>   |          |                   |           |                              |  |                                |             |
|   |          |                   |           |                              |  |                                | \$4,190,000 |

**Assumptions**

- Number of years of remediation (SVE) 2
- Number of years of remediation (Cap O&M) 30
- Number of years of remediation (Dredge and Backfill O&M) 5
- Number of years of remediation (GETS optimization, groundwater monitoring, vapor mitigation) 30
- Real discount rate 7%

**Footnotes**

(1) Costs were estimated based on conceptual design of remedial components that could address impacted media at the site containing concentrations of constituents that exceed Remediation Goals (RGs) identified in this Feasibility Study (FS) Report, the results of the Remedial Investigation (RI) presented in the Draft Final RI Report (11/2018), and readily available cost information on labor and material typical for similar projects. Cost estimates for this project will be further refined and may vary depending on the final design and contract bids at the time of final design implementation. For costing purposes, it is assumed that up to 2 vapor intrusion (VI) mitigation systems would need to be installed each year in Years 1-5, and 1 VI system would need to be installed each year in Years 6-30, and these air existing VI systems would be monitored and maintained. The total net present value presented has been rounded to the nearest \$10,000.

(2) Total estimated present worth costs of alternatives are expressed in terms of constant purchasing power in 2048 dollars (30 years of long term costs). Total estimated present worth costs assume a real discount rate and include listed under the assumptions above. These are generally based on guidance from EPA OSWER document 540-R-00-002, with additional input based on existing estimated site specific costs.

**INTERIM REMEDIAL DESIGN/REMEDIAL ACTION**

**STATEMENT OF WORK**

**FOSTER WHEELER ENERGY CORPORATION/CHURCH ROAD TCE SUPERFUND  
SITE**

**Mountain Top, Luzerne County, Commonwealth of Pennsylvania**

**EPA Region III**

**August 2019**

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## 1. INTRODUCTION

**1.1 Purpose of the SOW.** This Statement of Work (SOW) sets forth the procedures and requirements for implementing the Work.

### 1.2 Structure of the SOW

- Section 2 (Community Involvement) sets forth EPA's and Settling Defendant's responsibilities for community involvement.
- Section 3 (Interim Remedial Design) sets forth the process for developing the Interim RD, which includes the submission of specified primary deliverables.
- Section 4 (Interim Remedial Action) sets forth requirements regarding the completion of the Interim RA, including primary deliverables related to completion of the Interim RA.
- Section 5 (Reporting) sets forth Settling Defendant's reporting obligations.
- Section 6 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Settling Defendant's submission of, and EPA's review of, approval of, comment on, and/or modification of, the deliverables.
- Section 7 (Schedules) sets forth the schedule for submitting the primary deliverables, specifies the supporting deliverables that must accompany each primary deliverable, and sets forth the schedule of milestones regarding the completion of the Interim RA.
- Section 0 (State Participation) addresses State participation.
- Section 9 (References) provides a list of references, including URLs.

**1.3** The Scope of the Remedy includes the actions described in the Interim Record of Decision (IROD) relating to the Foster Wheeler Energy Corporation (FWEC)/Church Road TCE Site, signed by EPA on September 25, 2018. The Selected Remedy is referred to in the IROD as Alternative 5: Capping, Source Area Treatment, & Groundwater Extraction and Treatment System (GETS) Optimization.

The major components of the Selected Remedy consist of the following elements:

- (a) Capping and soil vapor extraction (SVE) treatment of Source Area Soils;
- (b) Continued groundwater extraction and treatment using the existing groundwater extraction and treatment system (GETS);
- (c) Optimization of the GETS;
- (d) Sediment removal and restoration at the Former Waste Water Treatment Pond;
- (e) Vapor Intrusion monitoring and mitigation;

- (f) Groundwater monitoring;
- (g) Institutional Controls (ICs).

1.4 The terms used in this SOW that are defined in CERCLA, in regulations promulgated under CERCLA, or in the Consent Decree (CD), have the meanings assigned to them in CERCLA, in such regulations, or in the CD, except that the term “Paragraph” or “¶” means a paragraph of the SOW, and the term “Section” means a section of the SOW, unless otherwise stated.

## 2. COMMUNITY INVOLVEMENT

### 2.1 Community Involvement Responsibilities

- (a) EPA has the lead responsibility for developing and implementing community involvement activities at the Site. Previously during the RI/FS phase, EPA developed a Community Involvement Plan (CIP) for the Site. Pursuant to 40 C.F.R. § 300.435(c), EPA shall review the existing CIP and determine whether it should be revised to describe further public involvement activities during the Work that are not already addressed or provided for in the existing CIP.
- (b) If requested by EPA, Settling Defendant shall participate in community involvement activities, including participation in (1) the preparation of information regarding the Work for dissemination to the public, with consideration given to including mass media and/or Internet notification, and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site. Settling Defendant’s support of EPA’s community involvement activities may include providing online access to initial submissions and updates of deliverables to (1) any Community Advisory Groups, (2) any Technical Assistance Grant recipients and their advisors, and (3) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP Settling Defendant’s responsibilities for community involvement activities. All community involvement activities conducted by Settling Defendant at EPA’s request are subject to EPA’s oversight. Upon EPA’s request, Settling Defendant shall establish a community information repository at or near the Site to house one copy of the administrative record.
- (c) **Settling Defendant’s CI Coordinator.** If requested by EPA, Settling Defendant shall, within 15 days, designate and notify EPA of Settling Defendant’s Community Involvement Coordinator (Settling Defendant’s CI Coordinator). Settling Defendant may hire a contractor for this purpose. Settling Defendant’s notice must include the name, title, and qualifications of the Settling Defendant’s CI Coordinator. Settling Defendant’s CI Coordinator is responsible for providing support regarding EPA’s community involvement activities, including coordinating with EPA’s CI Coordinator regarding responses to the public’s inquiries about the Site.

## 3. INTERIM REMEDIAL DESIGN

3.1 **Interim Remedial Design Work Plan.** Settling Defendant shall submit an Interim Remedial Design (Interim RD) Work Plan (IRDWP) for EPA approval. The IRDWP must include:

- (a) Plans and schedules for implementing all Interim RD activities identified in this SOW, in the IRDWP, or required by EPA to be conducted to develop the Interim RD;
- (b) A description of the overall management strategy for performing the Interim RD, including a proposal for phasing of design and construction, if applicable;
- (c) A description of the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the Interim Remedial Action (Interim RA) as necessary to implement the Work;
- (d) A description of the responsibility and authority of all organizations and key personnel involved with the development of the Interim RD;
- (e) Descriptions of any areas requiring clarification and/or anticipated problems (e.g., data gaps);
- (f) Description of any proposed pre-design investigation;
- (g) Description of any proposed treatability study;
- (h) Descriptions of any applicable permitting requirements and other regulatory requirements;
- (i) Description of plans for obtaining access in connection with the Work, such as property acquisition, property leases, and/or easements; and
- (j) The following supporting deliverables described in ¶ 6.7 (Supporting Deliverables): Health and Safety Plan; Field Sampling Plan; Quality Assurance Project Plan; and Emergency Response Plan.

**3.2** Settling Defendant shall meet regularly with EPA to discuss design issues as necessary, as directed or determined by EPA.

**3.3 Pre-Design Investigation.** The purpose of the Pre-Design Investigation (PDI) is to address data gaps by conducting additional field investigations.

- (a) **PDI Work Plan.** If EPA requests, Settling Defendant shall submit a PDI Work Plan (PDIWP) for EPA approval. The PDIWP must include:
  - (1) An evaluation and summary of existing data and description of data gaps;
  - (2) A sampling plan including media to be sampled, contaminants or parameters for which sampling will be conducted, location (areal extent and depths), and number of samples; and
  - (3) Cross references to quality assurance/quality control (QA/QC) requirements set forth in the Quality Assurance Project Plan (QAPP) as described in ¶ 6.7(d).

- (b) Following the PDI, Settling Defendant shall submit a PDI Evaluation Report. This report must include:
  - (1) Summary of the investigations performed;
  - (2) Summary of investigation results;
  - (3) Summary of validated data (i.e., tables and graphics);
  - (4) Data validation reports and laboratory data reports;
  - (5) Narrative interpretation of data and results;
  - (6) Results of statistical and modeling analyses;
  - (7) Photographs documenting the work conducted; and
  - (8) Conclusions and recommendations for Interim RD, including design parameters and criteria.
- (c) EPA may require Settling Defendant to supplement the PDI Evaluation Report and/or to perform additional pre-design studies.

#### **3.4 Treatability Study**

- (a) Settling Defendant shall perform a Treatability Study (TS) for the purpose of selecting appropriate treatment for the contaminated soil.
- (b) Settling Defendant shall submit a TS Work Plan (TSWP) for EPA approval. Settling Defendant shall prepare the TSWP in accordance with EPA's *Guide for Conducting Treatability Studies under CERCLA, Final* (Oct. 1992), as supplemented for Interim RD by the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995).
- (c) Following completion of the TS, Settling Defendant shall submit a TS Evaluation Report for EPA comment.
- (d) EPA may require Settling Defendant to supplement the TS Evaluation Report and/or to perform additional treatability studies.

#### **3.5 Preliminary (30%) Interim RD.** Settling Defendant shall submit a Preliminary (30%) Interim RD for EPA's comment. The Preliminary Interim RD must include:

- (a) A design criteria report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995);
- (b) Preliminary drawings and specifications;
- (c) Descriptions of permit requirements, if applicable;

- (d) Preliminary Operation and Maintenance (O&M) Plan and O&M Manual;
- (e) A description of how the Interim RA will be implemented in a manner that minimizes environmental impacts in accordance with EPA's *Principles for Greener Cleanups* (Aug. 2009);
- (f) A description of monitoring and control measures to protect human health and the environment, such as air monitoring and dust suppression, during the Interim RA;
- (g) Any proposed revisions to the Interim RD schedule included in the approved IRDWP or the Interim RA Schedule that is set forth in ¶ 7.3 (Interim RA Schedule); and
- (h) Updates of all supporting deliverables required to accompany the IRDWP and the following additional supporting deliverables described in ¶ 6.7 (Supporting Deliverables): Site Wide Monitoring Plan; Construction Quality Assurance/Quality Control Plan; Transportation and Off-Site Disposal Plan; O&M Plan; O&M Manual; and Institutional Controls Implementation and Assurance Plan.

**3.6 Pre-Final (95%) Interim RD.** Settling Defendant shall submit the Pre-final (95%) Interim RD for EPA's comment. The Pre-final Interim RD must be a continuation and expansion of the previous design submittal and must address EPA's comments regarding the Preliminary Interim RD. The Pre-final Interim RD will serve as the approved Final (100%) Interim RD if EPA approves the Pre-final Interim RD without comments. The Pre-final Interim RD must include:

- (a) A complete set of construction drawings and specifications that are: (1) certified by a registered professional engineer; (2) suitable for procurement; and (3) follow the Construction Specifications Institute's MasterFormat 2012;
- (b) A survey and engineering drawings showing existing Site features, such as elements, property borders, easements, and Site conditions;
- (c) Pre-Final versions of the same elements and deliverables as are required for the Preliminary Interim RD;
- (d) A specification for photographic documentation of the Interim RA; and
- (e) Updates of all supporting deliverables required to accompany the Preliminary (30%) Interim RD.

**3.7 Final (100%) Interim RD.** Settling Defendant shall submit the Final (100%) Interim RD for EPA approval. The Final Interim RD must address EPA's comments on the Pre-final Interim RD and must include final versions of all Pre-final Interim RD deliverables.

#### 4. INTERIM REMEDIAL ACTION

**4.1 Interim RA Work Plan.** Settling Defendant shall submit an Interim RA Work Plan (IRAWP) for EPA approval that includes:

- (a) A proposed Interim RA Construction Schedule using critical path method or other format approved by EPA; and
- (b) An updated health and safety plan that covers activities during the Interim RA.

#### 4.2 Meetings and Inspections

- (a) **Preconstruction Conference.** Settling Defendant shall hold a preconstruction conference with EPA and others as directed or approved by EPA and as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995). Settling Defendant shall prepare minutes of the conference and shall distribute the minutes to all Parties.
- (b) **Periodic Meetings.** During the construction portion of the Interim RA (Interim RA Construction), Settling Defendant shall meet regularly with EPA, and others as directed or determined by EPA, to discuss construction issues. Settling Defendant shall distribute an agenda and list of attendees to all Parties prior to each meeting. Settling Defendant shall prepare minutes of the meetings and shall distribute the minutes to all Parties.
- (c) **Inspections**
  - (1) EPA or its representative shall conduct periodic inspections of or have an on-site presence during the Work. At EPA's request, the Supervising Contractor or other designee shall accompany EPA or its representative during inspections.
  - (2) Upon notification by EPA of any deficiencies in the Interim RA Construction, Settling Defendant shall take all necessary steps to correct the deficiencies and/or bring the Interim RA Construction into compliance with the approved Final Interim RD, any approved design changes, and/or the approved IRAWP. If applicable, Settling Defendant shall comply with any schedule provided by EPA in its notice of deficiency.

#### 4.3 Emergency Response and Reporting

- (a) **Emergency Response and Reporting.** If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Settling Defendant shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the authorized EPA officer (as specified in ¶ 4.3(c)) orally; and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plan, the Emergency Response Plan, and any other deliverable approved by EPA under the SOW.
- (b) **Release Reporting.** Upon the occurrence of any event during performance of the Work that Settling Defendant are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, Settling Defendant shall immediately notify the authorized EPA officer orally.

- (c) The “authorized EPA officer” for purposes of immediate oral notifications and consultations under ¶ 4.3(a) and ¶ 4.3(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA, Region III Hotline at (215)-814-3255 (if neither EPA Project Coordinator is available).
- (d) For any event covered by ¶ 4.3(a) and ¶ 4.3(b), Settling Defendant shall: (1) within 14 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.
- (e) The reporting requirements under ¶ 4.3 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

#### 4.4 Off-Site Shipments

- (a) Settling Defendant may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Settling Defendant will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Settling Defendant obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b).
- (b) Settling Defendant may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, it provides notice to the appropriate state environmental official in the receiving facility’s state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Defendant also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Defendant shall provide the notice after the award of the contract for Interim RA construction and before the Waste Material is shipped.
- (c) Settling Defendant may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, *EPA’s Guide to Management of Investigation Derived Waste*, OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the IROD. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off-site for treatability studies, are not subject to 40 C.F.R. § 300.440.

#### 4.5 Interim RA Construction Completion

- (a) For purposes of this ¶ 4.5, “Interim RA Construction” comprises, for any Interim RA that involves the construction and operation of a system to achieve Performance Standards (for example, groundwater or surface water restoration remedies), the construction of such system and the performance of all activities necessary for the system to function properly and as designed.
- (b) **Inspection of Constructed Remedy.** Settling Defendant shall schedule an inspection to review the construction and operation of the system and to review whether the system is functioning properly and as designed. The inspection must be attended by Settling Defendant and EPA and/or their representatives. A re-inspection must be conducted if requested by EPA.
- (c) **Shakedown Period.** There shall be a shakedown period of up to one year for EPA to review whether the remedy is functioning properly and performing as designed. Settling Defendant shall provide such information as EPA requests for such review.
- (d) **Interim RA Report.** Following the shakedown period, Settling Defendant shall submit an “Interim RA Report” requesting EPA’s determination that Interim RA Construction has been completed. The Interim RA Report must: (1) include statements by a registered professional engineer and by Settling Defendant’s Project Coordinator that construction of the system is complete and that the system is functioning properly and as designed; (2) include a demonstration, and supporting documentation, that construction of the system is complete and that the system is functioning properly and as designed; (3) include as-built drawings signed and stamped by a registered professional engineer; (4) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA’s *Close Out Procedures for NPL Sites* guidance (May 2011), as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); and (5) be certified in accordance with ¶ 6.5 (Certification).
- (e) If EPA determines that Interim RA Construction is not complete, EPA shall so notify Settling Defendant. EPA’s notice must include a description of, and schedule for, the activities that Settling Defendant must perform to complete Interim RA Construction. EPA’s notice may include a schedule for completion of such activities or may require Settling Defendant to submit a proposed schedule for EPA approval. Settling Defendant shall perform all activities described in the EPA notice in accordance with the schedule.
- (f) If EPA determines, based on the initial or any subsequent Interim RA Report, that Interim RA Construction is complete, EPA shall so notify Settling Defendant.

#### 4.6 Certification of Interim RA Completion

- (a) **Monitoring Report.** Settling Defendant shall submit a Monitoring Report to EPA requesting EPA’s Certification of Interim RA Completion. The report must: (1) include certifications by a registered professional engineer and by SD’s Project Coordinator that the Interim RA is complete; (2) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA’s *Close Out Procedures for NPL Sites* guidance (May 2011),

as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); (3) contain monitoring data to demonstrate that Performance Standards have been achieved; and (4) be certified in accordance with ¶ 6.5 (Certification).

- (b) If EPA concludes that the Interim RA is not Complete, EPA shall so notify Settling Defendant. EPA's notice must include a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require Settling Defendant to submit a schedule for EPA approval. Settling Defendant shall perform all activities described in the notice in accordance with the schedule.
- (c) If EPA concludes, based on the initial or any subsequent Monitoring Report requesting Certification of Interim RA Completion, that the Interim RA is Complete, EPA shall so certify to Settling Defendant. This certification will constitute the Certification of Interim RA Completion for purposes of the CD, including Section XV of the CD (Covenants by Plaintiffs). Certification of Interim RA Completion will not affect Settling Defendant's remaining obligations under the CD.

**4.7 Periodic Review Support Plan (PRSP).** Settling Defendant shall submit the PRSP for EPA approval. The PRSP addresses the studies and investigations that Settling Defendant shall conduct to support EPA's reviews of whether the Interim RA is protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c) (also known as "Five-year Reviews"). Settling Defendant shall develop the plan in accordance with *Comprehensive Five-year Review Guidance*, OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidances.

#### **4.8 Certification of Work Completion**

- (a) **Work Completion Inspection.** Settling Defendant shall schedule an inspection for the purpose of obtaining EPA's Certification of Work Completion. The inspection must be attended by Settling Defendant and EPA and/or their representatives.
- (b) **Work Completion Report.** Following the inspection, Settling Defendant shall submit a report to EPA requesting EPA's Certification of Work Completion. The report must: (1) include certifications by a registered professional engineer and by Settling Defendant's Project Coordinator that the Work, including all O&M activities, is complete; and (2) be certified in accordance with ¶ 6.5 (Certification). If the Monitoring Report submitted under ¶ 4.6(a) includes all elements required under this ¶ 4.8(b), then the Monitoring Report suffices to satisfy all requirements under this ¶ 4.8(b).
- (c) If EPA concludes that the Work is not complete, EPA shall so notify Settling Defendant. EPA's notice must include a description of the activities that Settling Defendant must perform to complete the Work. EPA's notice must include specifications and a schedule for such activities or must require Settling Defendant to submit specifications and a schedule for EPA approval. Settling Defendant shall perform all activities described in the notice or in the EPA-approved specifications and schedule.

- (d) If EPA concludes, based on the initial or any subsequent report requesting Certification of Work Completion, that the Work is complete, EPA shall so certify in writing to Settling Defendant. Issuance of the Certification of Work Completion does not affect the following continuing obligations: (1) activities under the Periodic Review Support Plan; (2) obligations under Sections VIII (Property Requirements), XIX (Retention of Records), and XVIII (Access to Information) of the CD; (3) Institutional Controls obligations as provided in the Institutional Controls Implementation and Assurance Plan (ICIAP); and (4) reimbursement of EPA's Future Response Costs under Section X (Payments for Response Costs) of the CD.

## 5. REPORTING

**5.1 Progress Reports.** Commencing with the month following lodging of the CD and until EPA approves the Interim RA Construction Completion, Settling Defendant shall submit progress reports to EPA on a monthly basis, or as otherwise requested by EPA. The reports must cover all activities that took place during the prior reporting period, including:

- (a) The actions that have been taken toward achieving compliance with the CD;
- (b) A summary of all results of sampling, tests, and all other data received or generated by Settling Defendant;
- (c) A description of all deliverables that Settling Defendant submitted to EPA;
- (d) A description of all activities relating to the Interim RD or Interim RA Construction that are scheduled for the next six weeks;
- (e) An updated Interim RD or Interim RA Construction Schedule, together with information regarding percentage of completion, delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;
- (f) A description of any modifications to the work plans or other schedules that Settling Defendant has proposed or that have been approved by EPA; and
- (g) A description of all activities undertaken in support of the Community Involvement Plan (CIP) during the reporting period and those to be undertaken in the next six weeks.

**5.2 Notice of Progress Report Schedule Changes.** If the schedule for any activity described in the Progress Reports, including activities required to be described under ¶ 5.1(d), changes, Settling Defendant shall notify EPA of such change at least 7 days before performance of the activity.

## 6. DELIVERABLES

**6.1 Applicability.** Settling Defendant shall submit deliverables for EPA approval or for EPA comment as specified in the SOW. If neither is specified, the deliverable does not require EPA's approval or comment. Paragraphs 6.2 (In Writing) through 6.4 (Technical Specifications) apply to all deliverables. Paragraph 6.5 (Certification) applies to any deliverable that is required to be

certified. Paragraph 6.6 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval.

- 6.2 In Writing.** As provided in ¶ 86 of the CD, all deliverables under this SOW must be in writing unless otherwise specified.
- 6.3 General Requirements for Deliverables.** All deliverables must be submitted by the deadlines in the Interim RD Schedule or Interim RA Schedule, as applicable. Settling Defendant shall submit all deliverables to EPA in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in ¶6.4. All other deliverables shall be submitted to EPA in the electronic form specified by the EPA Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5” by 11”, Settling Defendant shall also provide EPA with paper copies of such exhibits.
- 6.4 Technical Specifications**
- (a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.
  - (b) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at <https://edg.epa.gov/EME/>.
  - (c) Each file must include an attribute name for each site unit or sub-unit submitted. Consult <https://www.epa.gov/geospatial/geospatial-policies-and-standards> for any further available guidance on attribute identification and naming.
  - (d) Spatial data submitted by Settling Defendant does not, and is not intended to, define the boundaries of the Site.
- 6.5 Certification.** All deliverables that require compliance with this ¶ 6.5 must be signed by the Settling Defendant’s Project Coordinator, or other responsible official of Settling Defendant, and must contain the following statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and

belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

## 6.6 Approval of Deliverables

### (a) Initial Submissions

- (1) After review of any deliverable that is required to be submitted for EPA approval under the CD or the SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.
- (2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

(b) **Resubmissions.** Upon receipt of a notice of disapproval under ¶ 6.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 6.6(a), Settling Defendant shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring Settling Defendant to correct the deficiencies; or (5) any combination of the foregoing.

(c) **Implementation.** Upon approval, approval upon conditions, or modification by EPA under ¶ 6.6(a) (Initial Submissions) or ¶ 6.6(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the CD; and (2) Settling Defendant shall take any action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under ¶ 6.6(a) or ¶ 6.6(b) does not relieve Settling Defendant of any liability for stipulated penalties under Section XIV (Stipulated Penalties) of the CD.

**6.7 Supporting Deliverables.** Settling Defendant shall submit each of the following supporting deliverables for EPA approval, except as specifically provided. Settling Defendant shall develop the deliverables in accordance with all applicable regulations, guidances, and policies (see Section 9 (References)). Settling Defendant shall update each of these supporting deliverables as necessary or appropriate during the course of the Work, and/or as requested by EPA.

- (a) **Health and Safety Plan.** The Health and Safety Plan (HASP) describes all activities to be performed to protect on site personnel and area residents from physical, chemical, and all other hazards posed by the Work. Settling Defendant shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration (OSHA) requirements under 29 C.F.R. §§ 1910 and 1926. The HASP should cover Interim RD activities and should be, as appropriate, updated to cover activities during the Interim RA and updated to cover activities after Interim RA completion. EPA does not approve the HASP, but will review it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.
- (b) **Emergency Response Plan.** The Emergency Response Plan (ERP) must describe procedures to be used in the event of an accident or emergency at the Site (for example, power outages, water impoundment failure, treatment plant failure, slope failure, etc.). The ERP must include:
- (1) Name of the person or entity responsible for responding in the event of an emergency incident;
  - (2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;
  - (3) Spill Prevention, Control, and Countermeasures (SPCC) Plan (if applicable), consistent with the regulations under 40 C.F.R. Part 112, describing measures to prevent, and contingency plans for, spills and discharges;
  - (4) Notification activities in accordance with ¶ 4.3(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004; and
  - (5) A description of all necessary actions to ensure compliance with Paragraph 11 (Emergencies and Releases) of the CD in the event of an occurrence during the performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.
- (c) **Field Sampling Plan.** The Field Sampling Plan (FSP) addresses all sample collection activities. The FSP must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. Settling Defendant shall develop the FSP in accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988).
- (d) **Quality Assurance Project Plan.** The Quality Assurance Project Plan (QAPP) augments the FSP and addresses sample analysis and data handling regarding the Work. The QAPP must include a detailed explanation of Settling Defendant's quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance, and

monitoring samples. Settling Defendant shall develop the QAPP in accordance with *EPA Requirements for Quality Assurance Project Plans*, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006); *Guidance for Quality Assurance Project Plans*, QA/G-5, EPA/240/R 02/009 (Dec. 2002); and *Uniform Federal Policy for Quality Assurance Project Plans*, Parts 1-3, EPA/505/B-04/900A through 900C (Mar. 2005). The QAPP also must include procedures:

- (1) To ensure that EPA and the State and their authorized representative have reasonable access to laboratories used by Settling Defendant in implementing the CD (Settling Defendant's Labs);
  - (2) To ensure that Settling Defendant's Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;
  - (3) To ensure that Settling Defendant's Labs perform all analyses using EPA-accepted methods (i.e., the methods documented in *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis*, ILM05.4 (Dec. 2006); *USEPA Contract Laboratory Program Statement of Work for Organic Analysis*, SOM01.2 (amended Apr. 2007); and *USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration)*, ISM01.2 (Jan. 2010)) or other methods acceptable to EPA;
  - (4) To ensure that Settling Defendant's Labs participate in an EPA-accepted QA/QC program or other QA/QC program acceptable to EPA;
  - (5) For Settling Defendant to provide EPA and the State with notice at least 28 days prior to any sample collection activity;
  - (6) For Settling Defendant to provide split samples and/or duplicate samples to EPA and the State upon request;
  - (7) For EPA and the State to take any additional samples that it they deem necessary;
  - (8) For EPA and the State to provide to Settling Defendant, upon request, split samples and/or duplicate samples in connection with EPA's and the State's oversight sampling; and
  - (9) For Settling Defendant to submit to EPA and the State all sampling and tests results and other data in connection with the implementation of the CD.
- (e) **Site Wide Monitoring Plan.** The purpose of the Site Wide Monitoring Plan (SWMP) is to obtain baseline information regarding the extent of contamination in affected media at the Site; to obtain information, through short- and long- term monitoring, about the movement of and changes in contamination throughout the Site, before and during implementation of the Interim RA; to obtain information regarding contamination levels to determine whether Performance Standards (PS) are achieved; and to obtain information to determine whether to perform additional actions, including further Site monitoring. The SWMP must include:

- (1) Description of the environmental media to be monitored;
  - (2) Description of the data collection parameters and data quality objectives, including existing and proposed monitoring devices and locations, schedule and frequency of monitoring, analytical parameters to be monitored, and analytical methods employed;
  - (3) Description of how performance data will be analyzed, interpreted, and reported, and/or other Site-related requirements;
  - (4) Description of verification sampling procedures;
  - (5) Description of deliverables that will be generated in connection with monitoring, including sampling schedules, laboratory records, monitoring reports, and monthly and annual reports to EPA and State agencies; and
  - (6) Description of proposed additional monitoring and data collection actions (such as increases in frequency of monitoring, and/or installation of additional monitoring devices in the affected areas) in the event that results from monitoring devices indicate changed conditions (such as higher than expected concentrations of the contaminants of concern or groundwater contaminant plume movement).
- (f) **Construction Quality Assurance/Quality Control Plan (CQA/QCP).** The purpose of the Construction Quality Assurance Plan (CQAP) is to describe planned and systemic activities that provide confidence that the Interim RA construction will satisfy all plans, specifications, and related requirements, including quality objectives. The purpose of the Construction Quality Control Plan (CQCP) is to describe the activities to verify that Interim RA construction has satisfied all plans, specifications, and related requirements, including quality objectives. The CQA/QCP must:
- (1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP;
  - (2) Describe the PS required to be met to achieve Completion of the Interim RA;
  - (3) Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;
  - (4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQA/QCP;
  - (5) Describe industry standards and technical specifications used in implementing the CQA/QCP;
  - (6) Describe procedures for tracking construction deficiencies from identification through corrective action;
  - (7) Describe procedures for documenting all CQA/QCP activities; and

- (8) Describe procedures for retention of documents and for final storage of documents.
- (g) **O&M Plan.** The O&M Plan describes the requirements for inspecting, operating, and maintaining the Interim RA. Settling Defendant shall develop the O&M Plan in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017). The O&M Plan must include the following additional requirements:
  - (1) Description of PS required to be met to implement the IROD;
  - (2) Description of activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;
  - (3) **O&M Reporting.** Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and State agencies;
  - (4) Description of corrective action in case of systems failure, including:
    - (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve PS; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements; and
  - (5) Description of corrective action to be implemented in the event that PS are not achieved; and a schedule for implementing these corrective actions.
- (h) **O&M Manual.** The O&M Manual serves as a guide to the purpose and function of the equipment and systems that make up the remedy. Settling Defendant shall develop the O&M Manual in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017).
- (i) **Institutional Controls Implementation and Assurance Plan.** The Institutional Controls Implementation and Assurance Plan (ICIAP) describes plans to implement, maintain, and enforce the ICs at the Site. Settling Defendant shall develop the ICIAP in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), and *Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012). The ICIAP must include the following additional requirements:
  - (1) Locations of recorded real property interests (e.g., easements, liens) and resource interests in the property that may affect ICs (e.g., surface, mineral, and water

rights) including accurate mapping and geographic information system (GIS) coordinates of such interests; and

- (2) Legal descriptions and survey maps that are prepared according to current American Land Title Association (ALTA) Survey guidelines and certified by a licensed surveyor.

## 7. SCHEDULES

**7.1 Applicability and Revisions.** All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the Interim RD and Interim RA Schedules set forth below. Settling Defendant may submit proposed revised Interim RD Schedules or Interim RA Schedules for EPA approval. Upon EPA's approval, the revised Interim RD and/or Interim RA Schedules supersede the Interim RD and Interim RA Schedules set forth below, and any previously-approved Interim RD and/or Interim RA Schedules.

### 7.2 Interim RD Schedule

|   | <b>Description of Deliverable, Task</b> | <b>¶ Ref.</b>  | <b>Deadline</b>  |
|---|---|----------------|--|
| 1 | IRDWP                                   | 3.1            | 30 days after EPA's Authorization to Proceed regarding Supervising Contractor under CD ¶ 9.c |
| 2 | PDIWP                                   | 3.3(a)         | 45 days after EPA's Authorization to Proceed regarding Supervising Contractor under CD ¶ 9.c |
| 3 | Preliminary (30%) Interim RD            | 3.5,<br>3.3(a) | 120 days after EPA approval of Final IRDWP   |
| 4 | Pre-final (90/95%) Interim RD           | 3.6            | 120 days after EPA comments on Preliminary Interim RD  |
| 5 | Final (100%) Interim RD                 | 3.7            | 45 days after EPA comments on Pre-final Interim RD   |

### 7.3 Interim RA Schedule

|    | Description of Deliverable / Task | ¶ Ref. | Deadline   |
|----|-----------------------------------|--------|--|
| 1  | Award Interim RA contract         |        | 60 days after EPA Notice of Authorization to Proceed with Interim RA   |
| 2  | IRAWP                             | 4.1    | 30 days after Award of Interim RA Contract   |
| 3  | Pre-Construction Conference       | 4.2(a) | 45 days after Approval of IRAWP  |
| 4  | Start of Construction             |        | 90 days after Approval of IRAWP  |
| 5  | Pre-final Inspection              | 4.5(b) | 45 days after completion of construction   |
| 6  | Pre-final Inspection Report       | 4.5(d) | 30 days after completion of Pre-Final Inspection   |
| 7  | Final Inspection                  |        | 21 days after Completion of work punch list identified in Pre-Final Inspection Report                          |
| 8  | Interim RA Report                 | 4.5(d) | 30 days after Shakedown Period   |
| 9  | Monitoring Report                 | 4.6(a) | 60 days after SD has determined that monitoring data demonstrate that Performance Standards have been achieved |
| 10 | Work Completion Report            | 4.8(b) | 30 days after SD has determined that Work is Complete  |
| 11 | Periodic Review Support Plan      | 4.7    | Five years after Start of Interim RA Construction  |

## 8. STATE PARTICIPATION

- 8.1 Copies.** Settling Defendant shall, at any time it sends a deliverable to EPA, send a copy of such deliverable to the State. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Settling Defendant, send a copy of such document to the State.
- 8.2 Review and Comment.** The State will have a reasonable opportunity for review and comment prior to:
- (a) Any EPA approval or disapproval under ¶ 6.6 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval; and
  - (b) Any approval or disapproval of the Construction Phase under ¶ 4.5 (Interim RA Construction Completion), any disapproval of, or Certification of Interim RA Completion under ¶ 4.6 (Certification of Interim RA Completion), and any disapproval of, or Certification of Work Completion under ¶ 4.8 (Certification of Work Completion).

## 9. REFERENCES

- 9.1** The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below is available on one of the two EPA Web pages listed in ¶ 9.2:
- (a) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).
  - (b) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).
  - (c) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G-89/004 (Oct. 1988).
  - (d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).
  - (e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G-90/001 (Apr. 1990).
  - (f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).
  - (g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).
  - (h) Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).
  - (i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R-92/071A (Nov. 1992).
  - (j) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. Part 300 (Oct. 1994).
  - (k) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995).
  - (l) Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).
  - (m) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).
  - (n) Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P, 540-R-01-007 (June 2001).
  - (o) Guidance for Quality Assurance Project Plans, QA/G-5, EPA/240/R-02/009 (Dec. 2002).

- (p) Institutional Controls: Third Party Beneficiary Rights in Proprietary Controls (Apr. 2004).
- (q) Quality management systems for environmental information and technology programs -- Requirements with guidance for use, ASQ/ANSI E4:2014 (American Society for Quality, February 2014).
- (r) Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A through 900C (Mar. 2005).
- (s) Superfund Community Involvement Handbook, SEMS 100000070 (January 2016), <https://www.epa.gov/superfund/community-involvement-tools-and-resources>.
- (t) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).
- (u) EPA Requirements for Quality Assurance Project Plans, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006).
- (v) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).
- (w) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).
- (x) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).
- (y) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), <https://www.epa.gov/geospatial/geospatial-policies-and-standards> and <https://www.epa.gov/geospatial/epa-national-geospatial-data-policy>.
- (z) Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER 9283.1-33 (June 2009).
- (aa) Principles for Greener Cleanups (Aug. 2009), <https://www.epa.gov/greenercleanups/epa-principles-greener-cleanups>.
- (bb) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).
- (cc) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).
- (dd) Groundwater Road Map: Recommended Process for Restoring Contaminated Groundwater at Superfund Sites, OSWER 9283.1-34 (July 2011).
- (ee) Recommended Evaluation of Institutional Controls: Supplement to the “Comprehensive Five-Year Review Guidance,” OSWER 9355.7-18 (Sep. 2011).

- (ff) Construction Specifications Institute’s MasterFormat 2012, available from the Construction Specifications Institute, <http://www.csinet.org/masterformat>.
- (gg) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach, OSWER 9200.2-125 (Sep. 2012)
- (hh) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012).
- (ii) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012).
- (jj) EPA’s Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), [https://www.epaosc.org/\\_HealthSafetyManual/manual-index.htm](https://www.epaosc.org/_HealthSafetyManual/manual-index.htm).
- (kk) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).
- (ll) Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions, OSWER 9355.0-129 (Nov. 2013).
- (mm) Groundwater Remedy Completion Strategy: Moving Forward with the End in Mind, OSWER 9200.2-144 (May 2014).
- (nn) Guidance for Management of Superfund Remedies in Post Construction, OLEM 9200.3-105 (Feb. 2017), <https://www.epa.gov/superfund/superfund-post-construction-completion>.

**9.2** A more complete list may be found on the following EPA Web pages:

Laws, Policy, and Guidance: <https://www.epa.gov/superfund/superfund-policy-guidance-and-laws>

Test Methods Collections: <https://www.epa.gov/measurements/collection-methods>

**9.3** For any regulation or guidance referenced in the CD or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Settling Defendant receives notification from EPA of the modification, amendment, or replacement.



**SOURCES**

- AERIAL IMAGE FROM earthexplorer.usgs.gov, STATE OF PENNSYLVANIA, MARCH, 2010.
- FIGURE ENTITLED "SURROUNDING INDUSTRIAL PROPERTIES" (TETRA TECH, 2015).
- FIGURE ENTITLED "KNOWN AND POTENTIAL TCE SOURCES; TCE PLUME AT >5 ug/l" (TETRA TECH, 2015).

**LEGEND**

- AFFECTED AREA
- FORMER FWEC FACILITY (APPROXIMATE BOUNDARY)
- SURROUNDING INDUSTRIAL PROPERTIES (APPROXIMATE BOUNDARIES)
- MONITORING WELL LOCATION
- RECOVERY WELL LOCATION

Adapted from FWEC FS Figure 2

|  |  |
|--|--|
| <p><b>FWEC/Church Road<br/>TCE Site</b></p>  | <p><b>Figure 2<br/>Site Layout</b></p>   |
| <p>US EPA<br/>REGION III<br/>1650 Arch Street<br/>Philadelphia, Pennsylvania 19103</p> |  <p>United States<br/>Environmental Protection<br/>Agency</p> |

When recorded, return to:  
**William L. Goldschmidt**  
**Wood Environment & Infrastructure Solutions, Inc.**  
**751 Arbor Way, Hillcrest 1, Suite 180**  
**Blue Bell, PA 19422**

The County Parcel Identification No. of the Property is: **PIN-64-M10-00A-011-000**  
**GRANTOR: Westinghouse Air Brake Technologies Corporation (WABTEC)**  
**PROPERTY ADDRESS: 348 Crestwood Ave, Mountain Top, Pennsylvania 18707**

### **ENVIRONMENTAL COVENANT**

This Environmental Covenant is executed pursuant to the Pennsylvania Uniform Environmental Covenants Act, Act No. 68 of 2007, 27 Pa. C.S. §§ 6501 – 6517 (UECA). This Environmental Covenant subjects the Property identified in Paragraph 1 to the activity and/or use limitations in this document. As indicated later in this document, this Environmental Covenant has been approved by the United States Environmental Protection Agency (EPA). This Environmental Covenant supersedes any prior environmental restrictions or notices for the Property.

1. **Property Affected.** The property affected (Property) by this Environmental Covenant is located in **Mountain Top, Wright Township, Luzerne County, Pennsylvania.**

- The postal street address of the Property is: **348 Crestwood Drive, Mountain Top, Pennsylvania 18707.**
- The latitude and longitude of the center of the Property affected by this Environmental Covenant is: **41.136415, -75.874911**
- The Property has been known by the following name(s): **Foster Wheeler Energy Corporation/Church Road TCE Site; Westinghouse Air Brake Tech.; Morrison-Knudsen Rail.**
- The EPA Site ID # is: PAD003031788
- The PADEP Site # is: 511117

A complete description of the Property is attached to this Environmental Covenant as **Exhibit A**. A map of the Property is attached to this Environmental Covenant as **Exhibit B**.

2. **Property Owner / GRANTOR.** **WABTEC** is the owner of the Property and the GRANTOR of this Environmental Covenant. This Environmental Covenant is binding on Grantor, its successors and assigns, all successors in title, and its tenants, occupants, or licensees. This Environmental Covenant is made pursuant to the Interim Record of Decision issued by EPA on September 25, 2018 (IROD), a copy of which is attached hereto and incorporated by reference herein. The mailing address for the owner is: **WABTEC, 348 Crestwood Ave, Mountain Top, Pennsylvania 18707.**

3. **Holder / GRANTEE.** The following is the GRANTEE and a “Holder,” as that term is defined in 27 Pa. C.S. § 6502, of this Environmental Covenant: **Foster Wheeler Energy Corporation (FWEC), c/o William L. Goldschmidt, Wood Environment & Infrastructure Solutions, Inc., 751 Arbor Way, Hillcrest 1, Suite 180, Blue Bell, PA 19422.** FWEC has a beneficiary interest in the terms of this Environmental Covenant and a right to pursue enforcement of its provisions.

4. **Description of Contamination & Remedy.**

- The Property is part of the Foster Wheeler Energy Corporation/Church Road TCE Superfund Alternative Site (Site).
- FWEC operated a manufacturing facility on the Property (Former FWEC Facility) from 1953 until 1984, where it made large pressure vessels utilized in oil refineries, electric utility plants, and the shipping industry. The Former FWEC Facility occupied approximately 105 acres within the Site and was physically located within the Crestwood Industrial Park at or around 348 Crestwood Drive. FWEC ceased operations at the Former FWEC Facility in 1984.
- From 1989 through 1997, Morrison-Knudsen Company and its successors owned the Former FWEC Facility and used it to manufacture and remanufacture locomotives, small power control units, and flat cars for rail transportation of tractor-trailers. WABTEC re-initiated operations at the Former FWEC Facility and used it for warehousing of products (primarily fiberglass insulation products) by third parties under a lease agreement. The Former FWEC Facility is currently used for tractor-trailer parking.
- FWEC used trichloroethene (TCE) in a sealed vapor degreaser, located outside and adjacent to its main plant building. The degreaser was reportedly removed during the closure of the Former FWEC Facility between 1984 and 1985. Soil samples collected in November and December 1985 near the former sealed vapor degreaser indicated the presence of TCE at concentrations ranging from 0.08 mg/kg to 13.1 mg/kg. Groundwater samples collected in April 1986 from monitoring wells near the former vapor degreaser indicated the presence of TCE at concentrations ranging from 101 µg/L to 151,000 µg/L. Samples collected from the same wells in May 1986 indicated the presence of TCE at concentrations ranging from 15 µg/L to 42,000 µg/L.
- Pursuant to a Consent Order with EPA, the Pennsylvania Department of Environmental Resources, now the Pennsylvania Department of Environmental Protection (Department), and FWEC in 1988, Docket No. III-88-08-DC, FWEC agreed, among other things, to install a pump and treat system to remove and contain TCE groundwater contamination at the Former FWEC Facility. The treatment system began operation in October 1993. Groundwater samples were collected from extraction and monitoring wells on a monthly basis throughout 1994, on a quarterly basis from 1995 through 1997, and on an annual basis from 1998 through the present.
- In 2004, FWEC sampled 16 residential wells on Church Road, located approximately 3,000 feet or more from the southwest boundary of the Former FWEC Facility, in an area not suspected to be impacted by TCE. FWEC notified EPA and the Department that the sample results indicated the presence of TCE at concentrations exceeding the Safe Drinking Water Maximum Contaminant Level (MCL) of 5 µg/L in 14 of the 16 wells sampled. Concentrations exceeding the MCL ranged from 7.6 µg/L to 160 µg/L. EPA, the Department, and FWEC notified the impacted homeowners and Wright Township officials of the detection of TCE. FWEC provided

bottled water to all residents who requested it and to residents whose wells were potentially impacted by TCE.

- From approximately November 2004 through April 2005, FWEC, under EPA's supervision, installed carbon filtration units in approximately thirty-eight impacted or potentially impacted residential wells to eliminate exposure to groundwater impacted or potentially impacted by TCE.
- Pursuant to an Administrative Settlement Agreement and Order by Consent for Removal Response Action with EPA in 2005, Docket No. CERC-03-2005-0349DC, FWEC agreed to perform quarterly sampling, connect affected properties to public water and abandon residential wells within the Affected Area, as defined in Section IV of the IROD. In 2009, FWEC further agreed to connect four additional homes adjacent to the Affected Area to public water and to cover a groundwater seep with gravel.
- In response to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site, on April 9, 2009, FWEC and EPA entered into an Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study, Docket No. 03-CERC-2009-0061DC, where FWEC agreed to investigate and evaluate cleanup options for the Site following EPA's Superfund Alternative Approach.
- On September 25, 2018, EPA selected an interim remedial action to be implemented at the Site in an Interim Record of Decision (IROD). The IROD addresses contaminated sediment, soil, and groundwater at the Former FWEC Facility and Site-wide vapor intrusion. It does not address groundwater in the Surrounding Industrial Properties and the Affected Area, as defined in the IROD. A final remedial action for the entire Site will be selected in a future decision document.

A complete description of the contamination and remedy at the Property is contained in the IROD, identified in Paragraph 2 of this Environmental Covenant. The administrative record pertaining to the IROD is located at the locations listed below:

EPA Administrative Records Room,  
Attention: Administrative Coordinator  
1650 Arch Street  
Philadelphia, PA  
(215) 814-3157

Marian Sutherland Kirby Library  
35 Kirby Avenue  
Mountain Top, PA 18707  
(570) 474-9313

The administrative record is also available online at:  
<https://semspub.epa.gov/src/collection/03/AR65604>.

5. **Activity & Use Limitations.** The Property is subject to the following activity and use limitations, selected in the September 25, 2018 IROD, which the current and future owner(s) of the Property, and its tenants, agents, employees and other persons under its control, shall abide by:

a. Use and/or contact with groundwater at the Former FWEC Facility, via ingestion, dermal contact, or vapor inhalation, within the contaminated plume that would result in unacceptable risks to human health shall be prohibited until cleanup levels for groundwater contaminants of concern (COCs) are achieved throughout the plume at the Former FWEC Facility.

b. Activities that adversely impact the selected interim remedy, such as excavation or construction, shall be prohibited without prior EPA approval.

c. Conduct vapor intrusion sampling at any new construction within 100 feet of the contaminant plume:

(1) Vapor intrusion sampling shall consist of sub-slab, indoor air, and outdoor air sampling at each location, where practicable, in accordance with current EPA guidance;

(2) Vapor intrusion mitigation shall be conducted if multiple lines of evidence, such as sub-slab, indoor air, and/or outdoor air sampling results, indicate that actual or potential migration of Site-related compounds from contaminated groundwater to indoor air would result in a cumulative excess carcinogenic risk of greater than or equal to  $10^{-4}$  and/or a cumulative excess non-carcinogenic Hazard Index (HI) greater than 1; and

(3) Vapor intrusion mitigation shall continue until:

- i. Groundwater beneath or within 100 lateral or vertical feet of the mitigated structure meets cleanup levels for groundwater COCs, and
- ii. Sub-slab concentrations are below the cleanup levels listed in Section 12.2.7.4 of the IROD and indoor air and/or outdoor air sampling results indicate that actual or potential migration of Site-related compounds from contaminated groundwater to indoor air would result in a cumulative excess carcinogenic risk of less than or equal to  $10^{-6}$  and a cumulative excess non-carcinogenic HI of less than or equal to 1.

A complete description of activity and use limitations is contained in the IROD identified in Paragraphs 2 and 4 of this Environmental Covenant.

6. **Notice of Limitations in Future Conveyances.** Each instrument hereafter conveying any interest in the Property subject to this Environmental Covenant shall contain a notice of the activity and use limitations and owner responsibilities set forth in this Environmental Covenant and shall provide the recorded location of this Environmental Covenant.

7. **Compliance Reporting.** By the end of every January following EPA's approval of this Environmental Covenant, the then current owner of the Property shall submit to EPA and the Department written documentation stating whether or not the activity and use limitations in this Environmental Covenant are being abided by. Within thirty days after a) written request by EPA or the Department, b) transfer of title of the Property or of any part of the Property affected by this Environmental Covenant, c) noncompliance with Paragraph 5 (Activity and Use Limitations), or application for a permit or approval for any building or site work that could affect contamination on any part of the Property, the then current owner shall send a report to EPA and the Department. The report shall state whether or not there is compliance with Paragraph 5. If there is noncompliance, the report will state the actions that will be taken to assure compliance.

8. **Access by EPA and the Department.** In addition to any rights already possessed by EPA and the Department, this Environmental Covenant grants to EPA, the Department, FWEC, and those authorized by EPA and the Department or FWEC, a right of reasonable access to the Property in connection with implementation or enforcement of this Environmental Covenant.

9. **Recording and Notification of Recording.** Within thirty days after the date of EPA's approval of this Environmental Covenant, the Property owner shall file this Environmental Covenant with the Recorder of Deeds for Luzerne County, and send a file-stamped copy of this Environmental Covenant to EPA and the Department within 90 days of EPA's approval of this Environmental Covenant. Within 90 days after this Environmental Covenant has been filed with the Recorder of Deeds for Luzerne County, the Property owner also shall send a file-stamped copy to each of the following:

- Luzerne County  
Luzerne County Courthouse  
200 N River Street  
Wilkes-Barre, PA 18702
- Wright Township Board of Supervisors  
321 S. Mountain Blvd.  
Mountain Top, PA 18707
- FWEC  
c/o William L. Goldschmidt  
Wood Environment & Infrastructure Solutions, Inc.  
751 Arbor Way, Hillcrest 1, Suite 180  
Blue Bell, PA 19422

10. **Termination or Modification.**

a. This Environmental Covenant runs with the land unless terminated or modified in accordance with 27 Pa. C.S. §§ 6509 or 6510, or in accordance with this paragraph. The then current owner of the Property shall provide EPA with written notice of the pendency of any proceeding that could lead to a foreclosure, as referred to in 27 Pa. C.S. § 6509(a)(4), within seven calendar days of the owner's receiving notice of the pendency of such proceeding.

b. In accordance with 27 Pa. C.S. § 6510(a)(3)(i), Grantor hereby waives the right to consent to any amendment or termination of the Environmental Covenant by consent; it being intended that any amendment to or termination of this Environmental Covenant by consent in accordance with this Paragraph requires only the following signatures on the instrument amending or terminating this Environmental Covenant: (i) the then current owner of the Property, and (ii) EPA.

11. **EPA and the Department**

a. **Notification.** The then current owner shall provide EPA and the Department with written notice of:

- (1) the pendency of any proceeding that could lead to a foreclosure as referred to in 27 Pa. C.S. § 6509(a)(4), within seven calendar days of the owner's receiving notice of such pendency;
- (2) any judicial action referred to in 27 Pa. C.S. § 6509(a)(5), within seven calendar days of the owner's receiving notice of such judicial action;
- (3) any judicial action referred to in 27 Pa. C.S. § 6509(b), within seven calendar days of the owner's receiving notice of such judicial action; and
- (4) termination or amendment of this Environmental Covenant pursuant to 27 Pa. C.S. § 6510, within seven calendar days of the owner's becoming aware of such termination or amendment.

b. **Enforcement.** A civil action for injunctive or other equitable relief for violating this Environmental Covenant may be maintained by EPA or the Department.

12. **EPA and the Department's Addresses.** Communications with EPA and the Department regarding this Environmental Covenant shall be sent to:

- **EPA**

Will Geiger, Remedial Project Manager  
United States Environmental Protection Agency – Region III  
Hazardous Sites Cleanup Division  
1650 Arch Street  
Philadelphia, PA 19103

- **The Department**

Environmental Cleanup & Brownfields Program Manager  
Pennsylvania Department of Environmental Protection  
DEP Northeast Regional Office  
2 Public Square  
Wilkes-Barre, PA 18701-1915

12. **Severability.** The paragraphs of this Environmental Covenant shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.



ACKNOWLEDGMENTS

Foster Wheeler Energy Corporation, Holder/Grantee

Date: \_\_\_\_\_

\_\_\_\_\_  
Name: \_\_\_\_\_

Title: \_\_\_\_\_

COMMONWEALTH OF PENNSYLVANIA )

COUNTY OF \_\_\_\_\_ ) SS:

On this \_\_\_ day of \_\_\_\_\_, 2019, before me, the undersigned officer, personally appeared \_\_\_\_\_ [Holder, Grantee] who acknowledged himself/herself to be the person whose name is subscribed to this Environmental Covenant, and acknowledged that s/he executed same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

\_\_\_\_\_  
Notary Public



**EXHIBIT A**

**LEGAL DESCRIPTION  
WRIGHT TOWNSHIP  
LUZERNE COUNTY, COMMONWEALTH OF PENNSYLVANIA**

ALL that certain piece or parcel or tract of land situate in the Township of Wright, County of Luzerne and Commonwealth of Pennsylvania, bounded and described in accordance with a field survey thereof conducted August 17, 18, 1989 by Thomas E. Dilley, R.P.L.S. as follows:

BEGINNING at a point in the northerly right of way line of lands now or formerly of the Consolidated Rail Corporation and in the southwesterly side line of lands now or formerly of the Luzerne County Industrial Development Authority, said beginning point being also 40.00 feet measured northwesterly from and at right angles to the monumented center line of said Consolidated Rail Corporation lands and opposite to said railroad station no. 4259 – 06.39 which is also 133.39 feet northeasterly from railroad Mile Post 153.

THENCE from said beginning point and along the aforesaid southwesterly side line of lands of the Luzerne County Industrial Development Authority, North 48° 45' West, 186.95 feet to an angle point in said line.

THENCE along the southerly line of said lands, and lands of the Glen Summit Springs Water Company, Inc., the same being for part of its length in the center line of the 50.00 foot wide County Road known as Crestwood Drive, South 88° 06' West, 1881.32 feet to a point.

THENCE passing out of said County Road and along the easterly side line of other lands of the Luzerne County Industrial Development Authority, South 1° 54' East, 1006.00 feet to a point.

THENCE along the southerly line of said lands, South 88° 06' West, 665.44 feet to a point.

THENCE along the westerly line of said lands, and lands of the American Tobacco Company, South 1° 54' East, 1952.55 feet to a point in the northerly line of a 50.00 foot wide railroad siding casement.

THENCE along said easement, North 88° 06' East, 1266.74 feet to a point in the aforesaid westerly right of way line of lands now or formerly of Consolidated Rail Corporation.

THENCE along said right of way line by the thirteen following described lines:

- (1) by a curve to the left in a northerly direction for an arc distance of 140.01 feet to a point of jog, said curve having a radius of 3739.83 feet and a chord with a course of North 10° 06' East for a distance of 140.00 feet;
- (2) South 80° 58' 30" East, 38.25 feet to a point;

- (3) North 08° 22' East, 691.95 feet to a point;
- (4) North 12° 22' 30" East, 100.24 feet to a point;
- (5) North 08° 43' East, 327.11 feet to a point;
- (6) North 10° 53' 30" East, 176.60 feet to a point;
- (7) North 16° 16' East, 204.56 feet to a point;
- (8) North 21° 18' East, 97.95 feet to a point;
- (9) North 22° 33' East, 98.27 feet to a point;
- (10) North 32° 33' East, 82.30 feet to a point;
- (11) North 36° 22' East, 96.66 feet to a point;
- (12) North 40° 46' East, 165.74 feet to a point; and
- (13) North 41° 15' East, 1082.58 feet to a point, the place of beginning.

CONTAINING 105.736 acres of land be the same more or less.

PROPERTY Identification Number of the above-described parcel is: Map M10, Block A, Lot 11.

**EXHIBIT B**

