New EPA Guidance - Effective Contracting Approaches for Operating Pump and Treat Systems

Kathy Yager
EPA - OSRTI

Peter Rich, Rob Greenwald, and Doug Sutton
GeoTrans, Inc.

Accelerating Site Closeout, Improving Performance, and Reducing Costs through Optimization
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Presenters

- Kathy Yager
  - EPA Office of Superfund Remediation and Technology Innovation (OSRTI)
    - yager.kathleen@epa.gov

- Peter Rich, P.E.
  - GeoTrans, Inc.
    - prich@geotransinc.com
Introduce the new EPA fact sheet titled

*Effective Contracting Strategies for O&M of Pump and Treat Systems*

OSWER 9283.1-21FS, EPA 542-R-04-002 (Coming Soon!)
Presentation Objective

- Please note that there are three other new companion EPA fact sheets

  - *Elements for Effective Management of Operating Pump and Treat Systems*
    - OSWER 9355.4-27FS-A, EPA 542-R-02-009, December 2002

  - *O&M Report Template for Ground Water Remedies with Emphasis on P&T Systems*
    - OSWER 9283.1-22, EPA 542-R-04-003, Coming Soon!

  - *Cost-Effective Design of Pump and Treat Systems*
    - OSWER 9283.1-20FS, EPA 542-R-04-004, Coming Soon!
    - Presented at 2:00pm on Day 2, Track A

*Look for all of the fact sheets at www.cluin.org/optimization*
Background

- All of these fact sheets were inspired by the results of a nationwide pilot to optimize operating Fund-lead P&T systems
  - 20 optimization evaluations (RSEs) were conducted
  - RSEs identified a number of useful practices
  - RSEs also identified over 200 opportunities for improvement
    - Over 60 related to improving or evaluating protectiveness
    - Over 60 related to cost reduction

Results suggested need for more specific guidance on O&M
These fact sheets are intended to
- Demonstrate the need for active management during O&M
- Outline primary responsibilities during O&M
- Provide general information, tools, and “rules of thumb” for addressing those responsibilities

They are NOT intended to
- Replace hydrogeological or engineering expertise
- Replace the need for external or independent optimization evaluations
Effective Contracting Approaches for Operating Pump and Treat Systems
Topics

- Essential contract components
- Options for contract type
- Considerations specific to contracts for operating P&T systems
- Optimization
General Themes

- A contract governs the relationship between the customer and the contractor
- A good contract...
  - Is beneficial to both parties
  - Clearly outlines roles and responsibilities
  - Allows for flexibility and modifications to account for changes in site conditions and system requirements
Contract Components

- Scope of work
- Schedule and deliverables
- Level of effort and/or pricing
- Period of performance
- Terms and conditions
- Points of contact
- Procedures for contract changes
- Special clauses
- Others…
Contract Types

- **Fixed-price** – contractor must complete scope, regardless of cost
  - Firm-fixed price
  - Fixed-price with economic price adjustment
  - Fixed-price incentive
- **Cost-reimbursable**
  - Cost plus fixed fee
  - Cost plus incentive fee
  - Cost plus award fee
- **Time and materials**
  - May be open-ended or may include a “not to exceed” clause
## Contract Types

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Fixed-Price</th>
<th>Cost-Reimbursable or T&amp;M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk to contractor</td>
<td>Higher risk</td>
<td>Lower risk</td>
</tr>
<tr>
<td>Definition of tasks</td>
<td>Appropriate for tasks with predictable components</td>
<td>Appropriate for tasks with unpredictable components</td>
</tr>
<tr>
<td>Contractor incentive</td>
<td>Encourages contractor to work efficiently</td>
<td>No incentive within contract for contractor to work efficiently</td>
</tr>
<tr>
<td>Invoice information</td>
<td>Fewer details to review</td>
<td>More details to review</td>
</tr>
<tr>
<td>Risk to customer</td>
<td>Lower risk</td>
<td>Higher risk</td>
</tr>
</tbody>
</table>
Considerations for Operating P&T Systems

- Operating P&T systems have the following characteristics
  - They are long-term activities
  - Actual O&M is generally routine, but P&T systems are often associated with complex sites with non-routine activities
  - Site conditions change over time. Some items remain predictable while others are unpredictable
Considerations for Operating P&T Systems

P&T Related Items

Routine/Baseline O&M
- Predictable Components
- Unpredictable Components

Non-routine Items
Considerations for Operating P&T Systems

- Routine vs. non-routine
  - Non-routine items might include
    - Non-routine maintenance
    - Community relations
    - Evaluations (e.g., receptor evaluations, 5-year Reviews)
    - Source area investigations
    - Etc.

- Consider the scenario on the following slide to see why non-routine items should be tracked separately from routine items
## Considerations for Operating P&T Systems

<table>
<thead>
<tr>
<th>Year</th>
<th>General Tasks</th>
<th>Approach 1 (Recommended)</th>
<th>Approach 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Baseline O&amp;M</td>
<td>$125,000</td>
<td>$225,000</td>
</tr>
<tr>
<td></td>
<td>• Non-routine tasks</td>
<td>$100,000</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• Baseline O&amp;M</td>
<td>$150,000</td>
<td>$220,000</td>
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<tr>
<td></td>
<td>• Non-routine tasks</td>
<td>$70,000</td>
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<tr>
<td>3</td>
<td>• Baseline O&amp;M</td>
<td>$175,000</td>
<td>$225,000</td>
</tr>
<tr>
<td></td>
<td>• Non-routine tasks</td>
<td>$50,000</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>• Baseline O&amp;M</td>
<td>$205,000</td>
<td>$225,000</td>
</tr>
<tr>
<td></td>
<td>• Non-routine tasks</td>
<td>$20,000</td>
<td></td>
</tr>
</tbody>
</table>

*With Approach 2, a customer may not see the cost increase for baseline O&M, which may signal contractor inefficiency or changes in O&M costs that need to be addressed.*
Considerations for Operating P&T Systems

- Predictable vs. unpredictable

<table>
<thead>
<tr>
<th>Lump Sum</th>
<th>Cost-Reimbursable or T&amp;M</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Project management</td>
<td>- Non-routine maintenance and plant upgrades</td>
</tr>
<tr>
<td>- Reporting/data analysis</td>
<td>- Utilities</td>
</tr>
<tr>
<td>- Process monitoring/analysis*</td>
<td>- Consumables</td>
</tr>
<tr>
<td>- Groundwater monitoring/analysis*</td>
<td>- Disposal</td>
</tr>
<tr>
<td>- O&amp;M labor and routine maintenance</td>
<td></td>
</tr>
</tbody>
</table>

*Fixed prices per unit item allow for reductions or increases depending on site conditions.
Optimization

- As part of providing quality service, the contractor should continually work to optimize the system, but...
  - Contractors may be hesitant to recommend changes that reduce their level of effort
  - This consistent effort should not necessarily require an additional optimization line item

- A contract could outline incentives or awards to foster contractor-based optimization

- Contractors should receive awards for optimization, NOT simple reductions in scope

- More comprehensive optimization should be provided by an independent party that does not gain or lose from changes in the O&M level of effort
Optimization

• Examples of optimization include
  – Using a new oxidant that will increase efficiency of a metals removal system
  – Replacing a thermal oxidizer with GAC to treat air stripper or SVE offgas
  – Improving automation

• Examples of scope reductions include
  – Reducing groundwater monitoring due to established trends
  – Reducing process monitoring locations due to demonstrated system effectiveness
  – Reducing operator labor because the system operates continually without incident
  – Discontinuing a treatment process because the plant influent already meets effluent criteria
Other Reminders

- Eliminate services no longer required after construction completion (e.g., trailers)
- Utilize technical assistance resources to scope work properly prior to O&M contract
- Each level of subcontracting costs money with no direct return
- Beware of O&M bids based on worst-case data from remedial investigation
- Use the contract to establish the O&M reporting requirements
Discussion