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Office of Solid Waste and Emergency Response
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EPA

Procuring Innovative Technologies at Removal Sites: Q's and A's and Case Studies

Technology Innovation Office

Background - An innovative technology is a treatment technology for which cost or performance information is incomplete, thus hindering routine use at hazardous waste sites. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Contingency Plan (NCP) encourage the use of innovative treatment technology remedies if such remedies can be used: (1) at less cost; (2) with less adverse impacts; or, (3) to treat a site more effectively than other methods. Contracting for such innovative treatment technologies can be difficult due to the government's and industry's lack of experience. These technologies are relatively new and have rarely been applied to large clean-up projects. Therefore, special considerations are needed in scoping the procurement of innovative technologies.

Purpose - This fact sheet is designed to assist EPA On-Scene Coordinators (OSCs) and Contracting Officers (COs) with the procurement of innovative treatment technologies. OSCs and COs were interviewed to obtain information on their experiences in procuring innovative technologies. EPA's Technology Innovation Office (TIO) has documented case histories of previous experiences with acquiring innovative technologies. Removal sites chosen for inclusion in this review were Fund-lead sites that had started or completed the procurement of an innovative technology, including bioremediation, chemical treatment, soil washing and chemical extraction. The results of these interviews are presented in a question and answer format. In addition, specific detailed information on each site is presented in tabular form.

Q1. Why Do Innovative Technologies Need Special Consideration During Procurement?

A1. Innovative technologies are new treatment methods that have not been applied full scale under a variety of site conditions. Even though innovative technologies may be well designed and carefully planned, they may not meet contract specifications on initial attempts and may require some modification and reengineering. Equipment failures and waste processing problems are not unusual for first time use. The Superfund Start-Up Initiative (OSWER Directive 9380.0-17) encourages regions to allow contract flexibility for selected remedial and removal actions to assist vendors in establishing a pattern of reliable operation that satisfies performance standards.

Q2. What Types Of Contracts Have Been Used To Procure Innovative Technologies?

A2. Fixed price contracts have been used most often to procure innovative technologies. Fixed price contracts can include lump sums and/or fixed unit prices. A lump sum contract sets out the total price for completing the work, while fixed unit prices determine the price paid for individual items procured under the same fixed price contracting vehicle. In order to incorporate flexibility into the fixed priced contracts used to procure innovative technologies, performance specifications and/or a combination of lump sums and fixed unit prices for work that was still undetermined were written into the contracts. Unit prices were used for such items as excavation, cleaning, backfilling, well installation and treatment. Excavation and treatment were most often based on cubic yards and not on weight due to problems in weighing soil. As noted in the sidebar on pages 2 and 3, there are other types of contracts that can be used to procure an innovative technology.

Q3. Do Construction Contracts Have To Be Used To Procure Innovative Technologies?

A3. Although construction contracts have been used to procure innovative technologies, much of the removal response treatment work done using innovative technologies is service oriented and a service contract could be considered. The Davis-Bacon Act and the Service Contract Act require that all work be analyzed to determine which elements are construction and which are service. The contract is then awarded based on the preponderance of the work. A service contract procures the time and effort of a contractor whose primary purpose is to perform an identifiable task. A construction contract is a contract for the construction, alteration, or repair (including dredging, excavation and painting) of buildings, structures, or other real property.

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Q4. How Do Bonding Requirements Differ Between Service And Construction Contracts?

A4. Bonds are written instruments that ensure that the contractor's obligations are met or that compensation is awarded if the obligations are not met. There are different types of bonds and related documents. The Miller Act requires performance and payment bonds for construction exceeding $25,000. A bid bond assures that the bidder will not withdraw a bid within the period specified for acceptance, and will furnish required bonds within the time specified in the bid. A performance bond secures the work that the contractor has agreed to perform. A payment bond assures payment to all persons supplying labor or material in the performance of the work provided by the contract. It is important for the Contracting Officer to discuss bonding requirements with the contractor before the contract award so that bonding issues will not delay site cleanup. For example, if the contractor pledges private assets in lieu of obtaining a bond from a bonding company, each asset must be evaluated, which will lengthen the procurement process. However, contractors cannot be required to obtain bonds from bonding companies, and are allowed to pledge private assets to meet contractual bonding requirements. Although the contractor is not required to pledge bonds through a surety, the actual amount and means of pledging the bond must be acceptable to the CO prior to the award of the contract.

For service contracts, or any contracts other than construction contracts, performance and payment bonds are generally not required. However, if it is determined by the CO that a service contract contains elements of construction activity that are substantial and segregable, and the construction activity exceeds $25,000, then the Miller Act applies to that portion of the contract. The CO must make a determination as to the required level of bonding for that portion of the contract covered by the Miller Act. For further information, please refer to "Superfund Guidance on the Applicability and Incorporation of the Davis Bacon Act/Service Contract Act and Related Bonding."

Contracting and Solicitation Options/ Considerations

Solicitation Options: Contracts must be awarded competitively unless it can be demonstrated there is only one source. In the event there is only one source, a written justification for other than full and open competition (JOFOC) is required. The responsibility for writing the JOFOC rests with the program office. If the procurement is under $25,000, small purchase procedures may be used. If the procurement is over $25,000, solicitation procedures resulting in a contract must be used. There are three solicitation options:

1) Invitation for Bid (IFB) if two or more offerors can respond

2) Request for Proposals (RFP) if discussion with the offerors is necessary

3) Two Step Formal Advertising allows technical discussions with offerors to determine acceptable technical proposals with cost proposal submitted thereafter. The award must be made to the lowest offeror whose technical proposal is acceptable.

Types of Contracts: The different types of contracts that can be used for removal response are:

1) Firm Fixed Price Contracts- the government pays a fixed price or lump sums for a specified product or service which is established before the award. Fixed price contracts are usually used when the design or performance specifications are reasonably definite.

2) Indefinite Delivery/ Indefinite Quantity Contracts- the government places orders for supplies and/or services against the contract after the award. These types of contracts are used when the exact time or place of delivery, or quantity required, is

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SITE INFORMATION	CONTRACT INFORMATION
Site: Southeastern Wood Preserving Mississippi **Contact:** Ms. Sharyn Erickson, CO (404) 347-2374 FTS 257-7292 Don Rigger, OSC (404) 347-3931 FTS 257-3931 **Technology:** Slurry-phase bioremediation and soil washing	**Procurement Lead:** EPA site-specific contract **Contractor(s):** Prime: OHM Remediation Services Corporation **Procurement Started/Completed:** 1/90-9/90 (9 months) **Number of Bids:** 12 **Phase of Procurement:** Contract Administration **Method of Solicitation:** Competitive--negotiated without technical proposal submission. Obtained EPAAR waiver to permit this type of procurement. **Type of Contract:** Firm fixed price (lump sum) **Protests/Claims/Change Orders:** None to date **Special Clauses Used in RFP/IFB/Contract:** Payments clause, so that contractor would receive payment as work progressed. Payments were based on the amount of work completed. Contract required a full-scale demonstration be conducted at the vendor's expense and the contract could be terminated if the demonstration failed. A clause was included to notify offerors that EPA intended to conduct a pre-award survey to determine their capability to perform the requirements of the contract. An evaluation of offers clause was included to inform the offerors that proposals would be evaluated on the basis of the low-priced responsive, responsible offer. **Prequalified Bidders:** No **Bonding Requirements:** None, procured as a service contract **Patent Issues:** None **Type of Specifications:** Performance **Sole Source Issues:** Not applicable, competitive procurement

EXPERIENCES ENCOUNTERED	RESOLUTION/ OUTCOME	WHAT WORKED WELL/ADVICE
• Process took longer than usual because three separate pre-award surveys were completed.	• Pre-award surveys, while time consuming, can save critical time and money later by determining the qualifications of the bidders.	• Include statement of the item and schedule, payments clause, notification that EPA can do pre-award survey, and evaluation of offers clause in contract. • Use of performance specifications allowed technology to be changed from land treatment to slurry-phase bioremediation without a change order. Since a specific technology was not identified, performance specifications also allowed for bids from vendors proposing many different types of technologies.
• Vendor that was deemed not responsible complained to a member of Congress; the Congressman wrote to EPA regarding this complaint.	• EPA responded to the Congressman's letter and the inquiry ended.	• Write statement of work clearly, so that it cannot be misinterpreted. • Require a successful full-scale demonstration on small quantity prior to being able to proceed treating entire site. Only allow progress payments after completion and allow immediate termination for failure of demonstration phase.
• Had a small business referral, whom CO found not responsible (not technically qualified).	• Since the SBA did not guarantee the vendor, EPA did not have to award them the contract.	• Use pre-award survey to determine the qualification of the offerors. • Using a service contract, that does not require bonding, opens up competition. However, this CO added a special clause that allowed EPA to recover costs for reprocuring the technology if the vendor failed to meet the performance specifications. • Consider site factors, such as excessive rainfall, when procuring innovative technologies. • Make sure performance standards are realistic.

Site: Southeastern Wood Preserving (Region 4)

At the Southeastern Wood Preserving site in Mississippi (EPA Region 4), slurry-phase bioremediation and soil washing were competitively procured through an EPA direct contract with OHM Remediation Services Corporation. For this procurement, the CO was able to obtain a deviation from the EPA Acquisition Regulations to allow a negotiated procurement without submission of technical proposals. Performance specifications were used and the technology was not specified. Therefore, bidders submitted proposals for many different treatment technologies. The determining factor for award was price.

As this CO correctly pointed out, most treatment technologies do not involve substantial construction, but rather are service related in nature. Therefore, this CO used a service contract at this site. Service contracts do not require bonds, which often make it difficult for new and undercapitalized vendors to compete. Also, the cost of bonds is added to the price the government pays.

At this site, to protect the government, a demonstration at the vendor's expense was required. In addition, if the treatment technology was not successful, the contract also included a clause to terminate the contract to allow EPA to collect the costs for reprocuring the technology. The procurement began in January 1990 and was completed nine months later in September 1990. A pre-award survey was conducted to determine the capability of the vendors to perform the requirements of the contract.

The procurement process took longer than usual because EPA conducted three separate pre-award surveys, but there were no major problems in procuring the technologies for this site, and 12 offers were received. EPA conducted pre-award surveys to determine the qualifications of offerors, and the results of these surveys were used to determine whether the low offeror was technically and otherwise qualified. The entire project has been completed so far without a single change order or claim.

In an effort to avoid potential problems, the solicitation for this site included four key items: (1) the statement of the item to be provided, and the delivery schedule; (2) the payments clause, which indicates that the contractor will not be paid until the technology is demonstrated; (3) a notification that EPA has the right to conduct a pre-award survey; and, (4) an evaluation of offers clause, which tells offerors that the solicitation will be evaluated based on low price.

Due to record rain levels in Mississippi, the technology was changed from slurry-phase bioremediation and land farming to slurry-phase bioremediation and soil washing. Since performance specifications were used, the change in technologies could be accomplished without using change orders. The CO noted that good performance specifications also help avoid claims unless actual site conditions are drastically different than originally anticipated.

EPA also included a payments clause in the contract so that the contractor would receive payment as the work progressed. These payments were based on the amount of work completed. This clause was used as a means of ensuring that the contractor would only get paid if the treatment technology was successful, and if the work was completed. A fixed price (lump sum) contract was chosen for this site so that the contractor would only receive payment if each stage of the cleanup was completed.

SITE INFORMATION

Site:
Scott Lumber
Missouri

Contact:
Mr. Bruce Morrison
OSC
(913) 551-5218

Technology:
Bioremediation
(Land Treatment)

CONTRACT INFORMATION

Procurement Lead: Subcontract through prime contract
Contractor(s): Prime: Riedel; Subcontract: Remediation Technologies (Re-Tec)
Procurement Started/Completed: 5/88-6/89 (11 months)
Number of Bids: Information Unavailable
Phase of Procurement: Contract Administration
Method of Solicitation: Competitive -- sealed bid
Type of Contract: Fixed unit price and lump sum
Protests/Claims/Change Orders: Re-Tec found more contaminated soil than originally anticipated and submitted a change order.
Special Clauses Used in RFP/IFB/Contract: Subcontractor required to notify EPA if site conditions or events caused delay in their work. Bioremediation was specified in IFB as technology to be used. Required bidders to perform treatability study at their expense.
Bonding Requirements: EPA CO waived full bonding requirements for Re-Tec. Re-Tec submitted letter-of-credit for $100,000 performance bond.
Patent Issues: None
Prequalified Bidders: No
Type of Specifications: Performance
Sole Source Issues: Not applicable, competitive procurement

EXPERIENCES ENCOUNTERED	RESOLUTION/ OUTCOME	WHAT WORKED WELL/ADVICE
• Re-Tec was bought by another company and wanted to change their technical approach from what was originally proposed, causing procurement to take 5 months longer than anticipated. • EPA was uncertain of the level of protective gear which would be needed at the site, making it difficult for bidders to price protective gear as part of lump sum proposal. • Change order included many charges EPA found unrelated to the increase in amount of contaminated soil. • Re-Tec wrote a letter stating they were being delayed, and claimed that they should be paid for their down time.	• Competition was re-opened. Re-Tech once again had lowest price and was awarded the contract. • Separated personal gear out from rest of contract and had bidders price on unit basis. • Only half of Re-Tec's charges were approved. • Since letter did not quantify reasons for delay, EPA denied claim for these charges.	• Require subcontractors to be responsible for air monitoring. This was inadvertently left out of the Statement of Work and EPA had to provide monitoring. • Measure amount of soil at sites by volume, instead of weight. This contract utilized weights which was found to be difficult and time-consuming. • Make contract broad enough to cover total amount of waste that could possibly be found at the site. This contract, due to its lump sum nature, had a ceiling of 131,000 tons which was exceeded. Change orders to increase amount to be treated delayed clean-up by a month.

Site: Scott Lumber (Region 7)

Bioremediation (land treatment) was procured at the Scott Lumber site in Missouri (EPA Region 7). The technology was procured as a subcontract through an Emergency Response Cleanup Services (ERCS) contract. Riedel Environmental Services was the ERCS prime contractor. Remediation Technologies (Re-Tec) was the subcontractor who provided the bioremediation technology. The procurement process was initiated in May 1988 and was completed 13 months later in June 1989.

The technology was competitively procured using sealed bids. The bids were evaluated on technical and cost criteria. If the bids did not meet the technical requirements, they were deemed unresponsive and were not evaluated further. There were some bidders that were deemed unresponsive because they refused to estimate the cost of doing the work. These bidders viewed the work as risky, and wanted to do some studies on site before submitting a cost proposal.

The OSC at the site noted that the reason why they issued a contract for the bioremediation technology was because they did not have the necessary in-house expertise to perform the technology. The lack of technical expertise also made it difficult to properly evaluate the bids. A microbiologist from the Emergency Response Team in Edison provided technical assistance in reviewing the bids.

Regional COs were just being established when this procurement was taking place. Therefore, the Headquarters CO retained responsibility for the site. Because of the geographical distance, the procurement was slightly more difficult than those now handled by the regional COs.

The procurement took five months longer than anticipated. After Re-Tec was chosen as the subcontractor, they were bought by another company. While Re-Tec would still honor the initial price, they wanted to change their technical approach from what was originally proposed. The OSC reopened the competition because of the change in their technical approach. Best and Final offers were obtained from the three most qualified bidders, and Re-Tec once again had the lowest price, and was awarded the contract.

EPA wanted to avoid using a time and materials contract, and wanted to use performance specifications in a firm fixed price (lump sum) contract. However, EPA was not certain of the level of personal protective gear which would be needed at the site. This uncertainty made it difficult for bidders to price the protective gear as part of a lump sum proposal. This was resolved by separating personal protective gear from the rest of the contract and having the bidders price it on a man-day (unit price) basis.

The OSC at the site indicated that with fixed price contracts, many change orders tend to be submitted because site conditions are often different than originally anticipated. At this site, more contaminated soil was found than originally anticipated, and the subcontractor submitted a change order. This OSC recommended reading change orders very carefully as they may often include extra charges which are not related to the increase in the amount of contaminated soil. Not all charges have to be approved; partial payment is within EPA's control and should be negotiated if problems exist.

There was also a clause in the contract which stated that the subcontractor was required to notify EPA if there were site conditions or events that caused a delay in their work. If a letter is submitted by a contractor, it must state why they are being delayed, and make a claim for their down time. If the letter does not indicate the reasons for the delay, and the contractor could have been doing work at the site which they were not prevented from doing due to site conditions by rearranging priorities to complete activities in a different order than originally planned, then EPA can deny the claim for these changes.

The OSC recommends measuring the amount of soil that has been treated in cubic yards, instead of by weight. He weighed the soil at this site, which he felt was a mistake, since it took a lot of effort to weigh each truckload two times to ensure accuracy. He said it would have been more effective to survey the stockpile and base the amount of soil on volume.

It is important to require the subcontractor to be responsible for air monitoring. This requirement was not put in the subcontract at this site and subsequently the OSC had no other choice than to perform the air monitoring himself.

In addition, the OSC suggests making the contract broad enough to cover the total amount of waste that could potentially exist at the site. At this site, they had set a ceiling on the amount of soil to be treated, and when it became apparent that the subcontractor would need to exceed this ceiling, EPA had to work out an agreement to pay for the cost of additional tonnage.

It was also learned that it is important to be very general in the requirements stated in the Statement of Work. The more specific a statement of work is, the more difficult it is to procure the innovative technology.

The EPA CO waived the full bonding requirement for Re-Tec. Re-Tec submitted a letter of credit for $100,000 performance bond. While the OSC was concerned that Re-Tec was not fully bonded, bonding issues did not hold up the contracting process.

SITE INFORMATION
Site: Norco Battery California **Contact:** Mr. Richard Martyn OSC (415) 744-2288 **Technology:** Chemical Treatment

CONTRACT INFORMATION
Procurement Lead: Subcontract through prime contract **Contractor(s):** Prime: Riedel; Subcontract: QualTech **Procurement Started/Completed:** 12/88-6/89 (7 months) **Number of Bids:** 3 **Phase of Procurement:** Project completed **Method of Solicitation:** Competitive-negotiated **Type of Contract:** Fixed unit price and lump sum **Protests/Claims:** Contractor which submitted lowest bid, but was not awarded the contract, protested. This contractor did not meet technical requirements in RFP. Protest was resolved in September 1989, four months after contract was awarded, but did not hold up contract award because of special provisions in the EPAAR for emergencies. Also, contractor filed a claim at end of job. Contract required 300 tons of soil to be processed each day, using EPA scales. Contractor also weighed soil and claimed their weight was higher that EPA's weight. EPA denied the claim. **Special Clauses Used in RFP/IFB/Contract:** If subcontractor failed to meet the requirements in the contract, they would have to reprocess the soil or haul it away at their expense. Required bidders to perform a treatability study at their own expense. **Bonding Requirements:** None, QualTech was self insured **Patent Issues:** None **Prequalified Bidders:** No **Type of Specifications:** Performance **Sole Source Issues:** Not Applicable, competitive procurement

EXPERIENCES ENCOUNTERED	RESOLUTION/ OUTCOME	WHAT WORKED WELL/ADVICE
• A prime additive (fly ash) was changed without notifying EPA or the prime contractor. New vendor's fly ash had not been tested for other contaminants, and had not been bench scale or lab tested to ensure conformance with contract specifications. • No guidelines to follow, since no one had done the same type of procurement previously.	• Color change in soil treated with new fly ash alerted EPA and prime contractor to change in vendor. First vendor's fly ash was brought back on-site.	• Set out in writing, before the RFP is issued, whether cost or technical issues will determine to whom contract is awarded and emphasize the criteria in the RFP. • Specify in the RFP if the contractor must have prior experience. • Set standards which the contractor must meet in the contract and then document all problems. • Make sure that contract requires all materials to meet specifications or have successful bench, lab or pilot tests conducted to ensure that performance specifications are met. • Use performance specifications. • Meet with Contracting Officer to go over RFP and contract to ensure that requirements are not ambiguous. • Travel to location where technology has been tried before and discuss how effective technology was in cleaning up the site. • Require vendors to perform treatability studies at their own expense. • If weight is to used instead of volume for unit price of treatment, specify whose scales will be used. • Specify any penalties for downtime in the contract. • For this type of technology, be very specific in the RFP regarding when and how to perform leach and permeability tests.

Site: Norco Battery (Region 9)

Procurement of a chemical treatment technology to adjust the pH of lead sulfate at the Norco Battery site in California (EPA Region 9) began in December 1988 and was completed seven months later in June 1989. This innovative technology was competitively procured as a subcontract through an ERCS contractor, Riedel. Riedel sent the RFP to five bidders, and three bidders responded. The RFP required prior experience using the technology, and also required vendors to demonstrate that they could treat the soil. The vendors were not compensated for these demonstrations. The bidder that won the award (QualTech) had previously done the chemical treatment work successfully and was proposing the most moderate cost.

A bidder that had proposed the low bid, but did not meet the requirement of the RFP that the bidders had to have previous experience with the technology, protested to being eliminated from further consideration. This could have held up award of the contract, but the General Accounting Office (GAO) cannot put a stay on the funds for removal contracts since there is a specific provision in the Federal Acquisition Regulations (FAR) which states that in an emergency situation, it is allowable to continue with the procurement process even if there is a bid protest (as long as an investigation into the bid protest continues). EPA was able to minimize the impact of the protest. The OSC recommended, to avoid protests, that criteria -- cost and/or technical -- which will be used to decide which bidder will get the contract should be decided and documented prior to the release of the RFP and should be emphasized and highlighted in the RFP.

The contract was a fixed price contract, with a combination of firm fixed prices (lump sums) and fixed unit prices. Lump sums were used for all plans, site visits and reports. Fixed unit prices were used to pay per ton for the soil treatment, since it was unclear how many tons of soil needed to be treated. Performance specifications in the contract stated the cleanup goals to be met at the site, and that if the subcontractor failed to meet the requirements in the contract, it would have to reprocess the soil or haul it away at its own expense. The RFP also required vendors to demonstrate at their own expense that they could treat the soil, which avoided problems with nonperformance after awarding the contract.

The OSC recommended being very specific in the RFP for this type of treatment regarding when and how to perform leach tests and permeability tests. The contract should include a requirement that contractors use the same materials that were successful in the bench, lab and pilot tests to ensure meeting performance specifications. At the Norco Battery site, a prime additive (fly ash) was changed without notifying EPA or the prime contractor. The new vendor's fly ash had not been tested for other contaminants, and had not been bench scale or lab tested to ensure conformance with contract specifications. The color change in the soil treated with the new fly ash alerted EPA and the prime contractor to the change in vendors. Although the small amount of soil treated with the new fly ash did pass the contract specifications, it was decided to bring the first vendor's fly ash back on-site.

There was some difficulty with weighing the soil. Two scales were being utilized to weigh the soil-- EPA's and the vendor's. The vendor charged based on their scales but EPA scales showed different weights. If planning to use unit prices based on weight rather than volumes, this OSC advises specifying in the contract whose scales will be used and also who pays for down time due to equipment malfunction.

SITE INFORMATION

Site:
Signo/Mt. Vernon
New York

Contact:
Mr. Charles Fitzsimmons
OSC
(908) 321-6608
FTS 340-6608

Technology:
Chemical Treatment
(KPEG)

CONTRACT INFORMATION

Procurement Lead: Subcontract through prime contract
Contractor(s): Subcontract: Galson
Procurement Started/Completed: 9/87-11/87 (3 months)
Number of Bids: Not Applicable
Phase of Procurement: Completed project
Method of Solicitation: Sole source
Type of Contract: Lump sum
Protests/Claims: None
Special Clauses Used in RFP/IFB/Contract: Clause in subcontract releasing EPA from having Galson do the rest of the work if pilot test failed and releasing EPA from paying for pilot test if it failed.
Patent Issues: None, Galson holds patent on KPEG
Prequalified Bidders: Not Applicable, sole source arrangement
Type of Specifications: Performance
Sole Source Issues: None, KPEG technology was procured through sole source arrangement; however, this work was a small part of total work. Other work was procured competively.

EXPERIENCES ENCOUNTERED	RESOLUTION/ OUTCOME	WHAT WORKED WELL/ADVICE
• At the time, Galson was the only vendor of this technology.	• Because of this, it was easier to justify a sole-source procurement.	• Maintain contact with EPA CO to ensure that all necessary requirements have been met. • ERCS purchasing mechanism facilitated procurement; however, also required a 15% fee be paid to ERCS prime contractor. • Procure innovative technologies using site-specific contracts to eliminate General and Administrative costs.

Site: Signo/Mt. Vernon (Region 2)

Chemical treatment (KPEG) was procured to treat one dioxin contaminated drum at the Signo/Mt. Vernon site in the Bronx, New York (EPA Region 2). Procurement began in September 1987 and was completed one month later in November 1987.

The technology was procured as a subcontract through an ERCS prime contractor. At the time, the easiest and quickest way to procure innovative technologies at removal sites was through an ERCS contract. However, General and Administrative costs for the ERCS prime contractor can add considerable costs to the contract.

The KPEG technology was procured by the prime contractor through a sole source arrangement with a subcontractor, Galson Remediation. The sole source justification indicated that the technology was needed for an emergency situation, and that there was no other vendor who could perform the work on the site. While a lot of problems were avoided by procuring the technology through a sole source justification, it is now more difficult to procure KPEG through a sole source arrangement, since more companies are now able to provide the more generic form of the KPEG technology (i.e., APEG). However, at the time, Galson was the only vendor and presently holds the patent on their process.

The subcontract required Galson to pull samples and run a pilot test to see if the KPEG process would work. There was a clause in the subcontract which released EPA from having Galson do the rest of the work if the pilot test failed. This clause also released EPA from paying for the pilot test if it failed.

SITE INFORMATION

Site:
General Refining
Georgia

Contact:
Mr. Shane Hitchcock
OSC
(404) 347-3931

Technology:
Solvent extraction--
Basic Extractive Sludge
Treatment Unit (BEST)

CONTRACT INFORMATION

Procurement Lead: Subcontract through prime contract
Contractor(s): Prime: Haztech; Subcontract: Resources Conservation Company (RCC)
Procurement Started/Completed: 8/85-4/86 (9 months)- delayed due to re-authorization of Superfund
Number of Bids: Not Applicable
Phase of Procurement: Project Completed
Method of Solicitation: Sole Source
Type of Contract: Fixed unit price
Protests/Claims: None
Special Clauses Used in RFP/IFB/Contract: Prime contractor insisted on the inclusion of clauses in subcontract with RCC in order to minimize their liability. Subcontractor was required to conduct a lab scale treatability study; a pilot test at their own facility; and, a full scale pilot on site, at EPA's expense
Bonding Requirements: Yes
Patent Issues: None, RCC holds patent on BEST unit technology.
Prequalified Bidders: Not Applicable
Type of Specifications: Performance
Sole Source Issues: EPA CO required RCC to substantiate price of doing the work, in order to prove that they were not exceeding 10% profit margin. Needed EPA Headquarters approval to acquire solvent extraction through sole source procurement as well as exemption to old rule that no more than $1 million can be spent in 6 months at one removal site. Had to create a sole source justification without a model.

EXPERIENCES ENCOUNTERED	RESOLUTION/ OUTCOME	WHAT WORKED WELL/ADVICE
• Under ERCS contracts, EPA cannot dictate what should be subcontracted and there is no incentive for prime to assist subcontractor. • Difficulty negotiating and monitoring subcontract because EPA had to channel everything through prime contractor.	• Materials handling was not tied to performance specifications for RCC, and Haztech did materials handling under time and materials contract, which proved to be not very cost efficient.	• Use site-specific contract, which minimizes risk to the government even if the technology fails. Although additional lead-time is required, it is made up by not having to definitize the costs on the back end, which is required under the ERCS Delivery Order contracts. • Use SITE and Emergency Response Team resources to assist in evaluating the technology. • Include a clause in the contract which indicates that if the contractor fails for nonperformance, they have to pay for EPA's costs to reprocure the technology. • Use performance specifications to measure how subcontractors perform, and then pay for only what meets the specifications.

Site: General Refining (Region 4)

At the General Refining site in Georgia (EPA Region 4), a type of chemical extraction technology known as solvent extraction was procured for the first time by EPA as a subcontract through an ERCS prime contractor (Haztech) through a sole source arrangement with Resource Conservation Company (RCC). The sole source negotiations began in August 1985 and were completed nine months later in April 1986. The contract was ready for award in February 1986, but was delayed because the authorization for the Superfund program expired.

The technology was procured through a sole source arrangement because RCC was the only company EPA could identify that had a technology which could work on the site. In order to ensure that the technology would work, EPA required RCC to conduct a lab scale treatability study, a pilot test study at their own facility, and a full scale pilot test on site. These tests were funded by EPA, and were completed as part of the sole source negotiations.

EPA experienced a number of difficulties. In order to prove that they were not exceeding a 10% profit margin on a sole source procurement, the EPA CO required RCC to substantiate the price of completing the work. This "cost build-up" took three months, and was resource intensive. In addition, the On-Scene Coordinator needed to get EPA Headquarters approval to acquire the solvent extraction technology through a sole source procurement. An exemption to the rule that no more than $1 million can be spent in six months at one removal site was also required. Compounding these difficulties was the fact that there was no model for the sole source justification.

Because this was one of the first innovative technologies to be applied to a site, EPA encountered a number of contract management problems at this site. The major problems which occurred were due to the fact that an ERCS contract, and not a site-specific contract, which are now just beginning to be used, was used to procure the subcontractor. Under an ERCS contract, EPA cannot dictate what should be subcontracted, and there is little incentive for the prime contractor to assist the subcontractor. In this case, EPA wanted the prime contractor to subcontract for the solvent extraction technology and for materials handling. However, the prime contractor did not want to subcontract for both items. EPA was successful in convincing the prime contractor to subcontract for the solvent extraction technology, but was unsuccessful in persuading the prime to subcontract for materials handling. Therefore, materials handling was not tied to performance specifications for RCC, and Haztech did the materials handling under a time and materials contract. Because of the now recognized difficulties in materials handling which produced a lot of down time, much larger charges occurred under the time and materials contract.

In addition to the problems which were ERCS-contract specific, procurement was made more difficult because the plan to have Regional COs had not yet been implemented. In addition, EPA had to channel all communications to the subcontractor through the prime contractor, which limited EPA's authority over the subcontract.

General Refining was the first site at which performance-based specifications were used to subcontract for an innovative technology. Using performance specifications enabled EPA to pay for only the soil which was treated to EPA specifications. Since the subcontract with RCC was a fixed unit price contract, RCC was paid on a cost per unit ton basis for all material that met performance specifications.

Patent infringement issues were not a problem, since RCC holds the patent on the specific type of solvent extraction used at the site (the Basic Extractive Sludge Treatment Unit).

not known at the time of contract award.

Contracting and Solicitation Options/ Considerations *(continued from page 2)*

3) Time and Materials Contracts-the government pays a fixed rate for each hour of direct labor worked by the contractor, up to a negotiated ceiling on the total price. This type of contract is used for engineering and design services, repair, maintenance or overhaul work, or in emergency situations where there are generally unforeseen circumstances.

4) Cost Reimbursement Contracts-the government pays for reasonable, allowable and allocable costs of the removal response plus a fixed fee or an award fee. A fixed fee does not vary with performance while an award fee is based upon a government evaluation of contractor performance. Cost-type contracts are used when the performance desired cannot be clearly specified, and when accurate cost estimates are impossible.

Superfund Removal Contracting Options: For removal contracts, there are three choices:

1) Emergency Response Cleanup Services (ERCS) Contracts. ERCS contracts provide emergency, time-critical, and rapid remedial cleanup support to Superfund in containing, recovering, or disposing of hazardous substances and in sample analysis and site restoration. ERCS contracts provide expeditious response (i.e., within hours or days) to NPL and non-NPL sites. The contracts list the necessary personnel, equipment, services, and response times. The first generation of ERCS contracts covered large zones. Each zone comprised anywhere from one to five regions. The Long Term Contracting Strategy for Superfund calls for future Removal contracts to be smaller in size and to cover only one region. Several regional contracts have already been awarded and several more are soon to be awarded.

2) State Cooperative Agreement- EPA provides funds to states, political subdivisions, and Indian tribes to assume lead responsibility in awarding and managing contracts for removal response.

3) Site Specific Contract- EPA procures the work directly from a contractor instead of using the ERCS contracting vehicle.

4) Interagency Agreements with Other Federal Agencies - The Department of Energy and the Department of the Interior's Bureau of Reclamation are currently procuring innovative treatment technologies for EPA's removal program.

Q5. What Types Of Specifications Are Being Used In Bid Packages For Innovative Treatment Technologies?

A5. Design specifications precisely state how the contract is to be performed. Performance specifications as defined in this fact sheet specify the technology to be used and set goals to attain, but allow flexibility in design. Performance specifications work best in the procurement of innovative technologies. Since performance specifications specify the cleanup goals without specifying exactly how the site is to be cleaned up, EPA has to pay only for what is cleaned up to these performance standards. Also, if problems arise during contract administration, the contractor's performance can be measured against these standards, which facilitates documentation of any problems. Performance specifications are especially good to use when dealing with proprietary processes and/or materials, because corporations will not have to release their proprietary designs. An exception might be where a region is concerned about the by-products of treatment with a technology.

Q6. What Are The Advantages/Disadvantages Associated With Site Specific Contracts?

A6. Under a site specific contract, EPA procures the work on a site directly from a contractor: Many OSCs who have procured innovative technologies recommend using site specific contracts. The goal of these contracts is to obtain the least cost for the government in those situations where the time for competition is available. While site specific contracts require more work up front by EPA, they are favored because EPA can exercise greater control over the award and administration of the removal response contract. In addition, because the contract is awarded competitively, costs do not have to be definitized as under an ERCS contract and payment of an administrative fee to the prime is also avoided.

Q7. What Are The Advantages/Disadvantages Of Using An ERCS Contract?

A7. ERCS contracts provide emergency, time-critical, and rapid remedial cleanup support to Superfund in containing, recovering, or disposing of hazardous substances and in sample analysis and site restoration. ERCS prime contractors can perform clean-up services themselves or they can subcontract for the clean-up of a removal site. If an ERCS contract is used, it is up to the ERCS prime contractor to decide which portions of the clean-up they will perform or will be performed by subcontractors. Under ERCS, an administrative fee must be paid to the prime contractor. In addition, costs incurred under an ERCS contract must be definitized, which is very time consuming.

Q8. Can A Bid Protest Stop Work At A Removal Site?

A8. A bid protest cannot stop work at a removal site. The Federal Acquisition Regulations state that in an emergency situation, it is allowable to continue with the procurement process even if there is a bid protest. However, an investigation into the bid protest must continue.

Q9. What Contract Clauses Or Requirements In The RFP/IFB Have Been Used To Facilitate The Procurement Of An Innovative Treatment Technology?

A9. To facilitate the procurement of innovative technologies the following contract clauses have been used:

- Contract clauses which indicate that the contract can be terminated for convenience if the contractor's pilot test fails;
- Contract clauses which include optional years and high enough ceilings in service contracts in order to clean-up all of the waste that could possibly be found at a site; and
- Payments clauses which allow contractors to receive payment as the work progresses based on the amount of work completed.

In addition, several RFPs/IFBs required a demonstration that the technology would be effective at the site. This has resulted in bidders performing treatability studies at their own expense prior to bidding on the site.

Often IFBs and RFPs will include special requirements, such as treatability variances. All standards that the contractor must meet should be set out in the contract. It is essential that the EPA CO and the OSC both review the IFB/RFP and the contract to ensure that the requirements are not ambiguous from either a contractual or a technical perspective.

Pre-award surveys can be of use in determining the responsibility of the low bidder or selected offeror. These surveys are completed before the award of the contract, and are used to determine the financial capability as well as the physical and technical resources of the low bidder or selected offeror.

Q10. Are Subcontractors Prohibited From Being Awarded The Construction Contract At Sites Where They Have Performed A Treatability Study?

A10. 48 CFR Part 1536 of the EPA Acquisition Regulations (EPAAR) clarifies the Federal Acquisition Regulations (FAR) Part 36.209 by stating that subcontractors performing treatability studies are not prohibited from being awarded the construction contract for a project. Other subcontractors are also not prohibited from being awarded the construction contract for a project unless their work substantially affected the course of the design. Prime contractors of the design and subcontractors whose work substantially affected the course of the design must receive prior approval by the responsible Associate Director of the Procurement and Contracts Management Division under EPA's Office of Administration and Resources Management before they can be awarded the contract.

For further information on procuring innovative technologies, please refer to the following documents. EPA employees may request documents with EPA directive numbers by writing to: Superfund Document Center, U.S. Environmental Protection Agency (OS-245), 401 M Street, S.W., Washington, D.C. 20460, Fax: (202) 260-2596.

- **U.S. EPA/OSWER, "Furthering the Use of Innovative Treatment Technologies in OSWER Programs," EPA/9380.0-16, June 10, 1991.**
- **U.S. EPA/PCMD, "Superfund Guidance on the Applicability and Incorporation of the Davis Bacon Act/Service Contract Act and Related Bonding," January 1992 (this document may be obtained by calling Sue Anderson in PCMD at (202) 260-9170 or by mailing a request to EPA Mail Code PM214-F).**
- **U.S. EPA/OPM, "CORAS Bulletin," EPA/9200.5-4011, intermittent bulletin on different issues related to procurement.**
- **U.S. EPA/OSWER/TIO, "Innovative Treatment Technologies: Semi-Annual Status Report," EPA/540/2-91/001, semiannual publication on the status of implementation of innovative technologies at Superfund sites.**
- **U.S. EPA/OERR; OWPE, "Advancing the Use of Treatment Technologies for Superfund Remedies," EPA/9355.0-26, February 21, 1989.**
- **40 CFR 35, Final Rule, "Cooperative Agreements and Superfund State Contracts for Superfund Response Actions."**
- **48 CFR 1536, Final Rule, "EPAAR Clarification of Applicability to Subcontractors of the FAR Provisions on Construction Contracts with Architect/Engineering Firms."**

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