

Request for Proposal  
Environmental Remediation  
Cameron-Cole, LLC.

ABC Chemicals  
1234 5<sup>th</sup> Street  
Anywhere Town, USA

Cameron-Cole, LLC. (Cameron-Cole), on behalf of ABC Chemicals invites you to submit a proposal for remediation services required at the ABC Chemical site located at 1234 5<sup>th</sup> Street in Anywhere Town, USA. The contractor will review this Request for Proposal for information on the complete scope of work. This work is being completed under a request by the AnyState Department of Environmental Quality (ADEQ) under a Voluntary Corrective Action Order.

### **Project Background**

Approximately thirteen years ago, a release of tetrachloroethene (PCE) occurred at the Mega Railroad (Mega) railyard in Anywhere Town, USA. The exact location of the release was documented to be near the southwest end of the former railyard depot. The spill occurred between the two northern-most mainline tracks (Mainline 1 and Mainline 2 – both oriented east-west). The release originated from a 26 inch long hairline crack on the underside of a tank car leased to ABC Chemicals for shipment of PCE manufactured at ABC Chemicals manufacturing plant in Somewhere Else Town, USA. The tank car left the manufacturing plant with approximately 14,800 gallons of PCE. The leak is believed to have begun somewhere in transit. It is not known how much PCE remained in the tank car upon arrival at the Mega Railyard in Anywhere Town. Based on surface staining and pooling of PCE, the immediate area of contamination at the railyard appeared to be confined to a 200 foot x 10 foot wide section between the mainline 1 and mainline 2 tracks. Mega personnel removed as much of the pooled PCE from the ground surface as possible and covered the spilled area with plastic sheeting and ballast to minimize further PCE mobilization.

A number of previous investigations and remedial actions have been conducted at the site. The investigative work has identified PCE concentrations in vadose zone soil and dissolved in groundwater. In addition, extensive contamination of the sub-surface from diesel fuel is present as a result of past Mega operations. Free phase diesel is present in most areas showing impacts from PCE. PCE concentrations have also been seen in the diesel free phase product. No free phase PCE has been identified, all of the PCE impacts are associated with another phase (soil, groundwater or diesel). The following ranges are indicative of the initial PCE impacts determined from site investigations:

Shallow Soils – 2.08 to 7309 mg/kg;  
Deeper Soils – 37 to 249 mg/kg;  
Groundwater – 0.011 to 170 mg/L;  
Diesel – 14 to 17 mg/L

In addition, concentrations of trichloroethene (TCE), dichloroethene (DCE) and vinyl chloride (VC) have been detected in groundwater. Some of the dissolved constituents have been shown to have migrated to the north of the original spill and are now underneath the west wing of the former Mega Railyard Depot Building. This building has served as a Museum for a number of years (approximately thirty) and the east wing has recently been converted to a brewery and restaurant with offices, brewing equipment and storage located in the basement.

As a result of the initial investigations and potential targets for exposure, two remediation systems were placed at the Railyard. The first consists of two ozone generators placed in the center and west wing of the former depot building basement to protect workers and visitors from chemicals volatilized into basement air from underlying impacted groundwater. The second consisted of a dual-phase extraction pump coupled

to a soil vapor extraction system to remove free phase diesel and strip volatile chemicals from the vadose zone. These systems were placed at the site in November 1989. Treatment of extracted liquid was via an oil-water separator, air stripping and carbon polishing. Extracted soil vapor is not treated before venting to the atmosphere based on low concentrations of contaminants observed in the vapor stream.

Based on diminishing recovery from the dual-phase extraction, the pump was shut down in May of 1997. Approximately 1,000 gallons of PCE was estimated to have been recovered by the dual-extraction system. The SVE system remains operational and is estimated to have collected approximately 10,400 pounds to date. However, all quantities of recovered mass are considered to be estimates. There is a significant fraction of residual diesel in the subsurface with associated PCE contamination. In addition, significant concentrations of PCE and daughter products are still measured in groundwater.

### **Physical Setting**

Site cross-sections show a shallow unit of fill, asphalt and concrete that extends from 0 to 1 foot below ground surface (bgs). An underlying unit of silty sand with gravel and clay lenses extends from 1 to 8 feet in most wells. The main water bearing unit appears to be a sand layer underlain by a claystone/sandstone which was observed at depths ranging from 17 to 24.5 feet bgs. This claystone/sandstone is believed to be an aquitard to the vertical migration of contaminants from the source area.

Groundwater has risen approximately 2 feet since the dual-phase extraction well was turned off. Current depth to groundwater fluctuates but averages approximately 10-15 feet bgs. The groundwater flow direction is northeast with an average rate of 0.004 feet per foot. Authoritative text (Freeze and Cherry, 1981) estimates the hydraulic conductivity of water table unconsolidated silty sand with clay lenses to be  $1 \times 10^{-04}$  centimeters per second (cm/s) to  $1 \times 10^{-06}$  cm/s. The claystone/sandstone aquitard underlying the water table unit is estimated to be  $1 \times 10^{-06}$  cm/s to  $1 \times 10^{-08}$  cm/s. The localized gradient in impacted area appears to be reversed from the regional gradient at the site.

### **Scope of Work**

The goal of this project is to complete a remediation of the ABC Chemical spill at the Mega Railroad railyard in Anywhere Town, USA to satisfy requirements of the ADEQ. The client is ABC Chemicals and therefore the contaminants of concern are PCE and associated chlorinated solvent compounds. ABC Chemicals is highly cost conscious and would prefer not to spend money cleaning up 'Mega's problem' – the existing diesel plume. The two parties, Mega Railroad and ABC Chemicals, are willing to discuss joint remediation schemes if costs can be amiably agreed upon. Proposals should be cognizant of costs and whether costs are attributable to Mega or ABC. ABC is interested in exiting the site in a short time period and is willing to entertain aggressive technologies if short remediation times can be accomplished. Finally, ABC is very interested in reviewing any and all proposals generated from this Request for Proposals.

Proposals should include all elements necessary for completion of the remediation including any necessary characterization, remediation strategy design, report preparation, implementation and potential operation and maintenance.

Unless specified otherwise, all material, labor and equipment shall be furnished by the Contractor. The Contractor shall be responsible for all materials and equipment in its custody or placed in construction by it.

### **Project Schedule**

The successful bidder shall plan to begin work immediately upon completion of the agreement between Cameron-Cole, ABC and the contractor.

## **Area of Work**

It is anticipated that work will be completed primarily within the property of the Site. It is the responsibility of the Contractor to obtain all necessary permits for work conducted in the City Anywhere Town right of Way or on properties not owned by ABC Chemicals. Agreements are currently in place for access to the Mega Railyard.

## **Performance and Confidentiality**

The successful bidder will work closely with ABC Chemicals and Cameron-Cole. All work shall be kept confidential until disclosure is authorized by ABC Chemicals.

## **Health and Safety Guidelines**

All contractors working at the Site will be subject to the provisions of the Cameron-Cole Site Health and Safety Plan. All contractor employees performing work at the Site are required to have completed the 40 hour training requirements of the Occupational Health and Safety Administration (OSHA) CFR 29 Part 1910.120, including 8-hour updates. All contractor employees will also be required to be familiar with the Site Health and Safety Plan and to conduct and document safety meetings prior to the start of each day's activities.

## **Guarantees, Warranties and Bonds**

The Contractor shall guarantee all work under this agreement for a period of one year from the date of acceptance by Cameron-Cole, unless otherwise indicated. Contractor will leave the work in perfect order at completion of the work and the final certificate of payment shall not relieve him of the responsibility for negligence, faulty materials, or workmanship. Upon written notice, the contractor shall remedy any defects or workmanship that may appear during this time hereinbefore mentioned and pay all expenses due therefrom to the entire satisfaction of Cameron-Cole.

## **Permits and Fees**

Contractor is responsible for including all transferable fees and permit costs in the Proposal.

## **Utilities**

It is the contractor's responsibility to locate and protect all utilities within the limits of construction. All utility poles located near the construction area shall be protected. Please note that fiber optic cables, sewer lines, water lines and gas lines may exist on and near the property.

Any utilities or arrangements for utilities, such as water, electricity, telephone, and toilets, shall be made by the contractor.

## **Project Team**

The contractor shall maintain at all times at the Site during the project a competent resident general superintendent.

## **Selection Criteria**

Cameron-Cole, on behalf of ABC Chemicals, will award the contract based on cost, qualifications and experience, and schedule availability. Bids will be evaluated based on the bidder's qualifications and ability to complete the project in a timely manner. Costs will be evaluated based on the proposed unit rates for each project task. The successful bidder will be required to complete the tasks to the satisfaction of Cameron-Cole within the proposed time and costs. No change orders will be allowed for tasks that stay

within the proposed scope of work. An increase or a decrease in the quantity of an item of work does not constitute a change in scope.

**Pre-bid site visit**

A pre-bid visit to a similar site can be arranged through Cameron-Cole. Bidders should contact the appropriate personnel listed under contacts to arrange potential times for site visits.

**Contacts**

All inquiries and documentation should be directed to either the Lisa Hennessy (Project Manager) or Ram Ramaswami (Principal Engineer) at Cameron-Cole.

Lisa Hennessy, P.E.  
Project Manager

Ram Ramaswami, P.E., Ph.D.  
Principal Engineer