

TAMCO, INC.



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The Honorable George Pataki
Governor of the State of New York
Executive Chamber / State Capital
Albany, N.Y. 12224

Dec.23, 2000

Ref: PCB treatment- Hudson River

Dear Governor:

Tamco Inc. USA is presenting this proposal to affect and complete bioremediation at the above referenced site. We are confident that this process will not only be successful, but can be fully completed in a short period of time. Provided below is a summary of our understanding of the site conditions, an explanation of the bioremediation process employed, a proposed scope of work, our performance objectives, and the cost to complete the project.

SITE CONDITIONS

Various problems have been known to exist at the Hudson River location which encompasses about forty-six miles of river or 2.65 million cubic yards of sediment where various levels of PCB contamination still exist in the sediment.

This proposal is based on a number of assumptions regarding site conditions and other factors including:

- * All permits and approvals in place.
- * The vertical and horizontal extent of contamination as defined by figures from GE & EPA.
- * Any contaminants present which are toxic to, or will inhibit microbial activity.
- * No up gradient contaminant sources exist which will impact the treatment zone.
- * EPA provision of complete lab and sample locations.

BIOREMEDIATION PROCESS

Bioremediation is the use of microorganisms and a microbial process to detoxify and degrade a select group of class environmental contaminants. Although bioremediation is viewed as a new technology, microorganisms have been routinely used for the treatment and transformation of waste products for at least a 100 years. Microorganisms have several characteristics which make them useful in bioremediation. These include rapid growth and metabolism, genetic plasticity and the ability to adjust rapidly to a variety of environments.

This process and procedure provides a viable, cost effective and innovative means to remediate many sub-surface soil/groundwater situations. Petroleum Hydrocarbon (gasoline, fuels, MTBE and oils) and TCE are particularly amenable to bioremediation through the application of a consortium of cometabolic, facultative, microaerophilic microorganisms, nutrients and oxygen.

In-situ and groundwater bioremediation is a particularly viable option for this site. No other option can as effectively, or as cost-effectively, complete an acceptable level of soil/groundwater remediation and can be completed in a matter of weeks or months instead of years.

In-situ bioremediation offers several important advantages over conventional techniques including:

- * Entire process is completed 100% on-site, eliminating off-site transportation treatment and/or disposal.
- * Long term off-site liability is eliminated.
- * Remediation time is dramatically reduced.
- * Costs are significantly less.
- * Innovative treatment methods are utilized.
- * Sub-surface structures are not impacted during process.
- * Can be coupled with other treatment techniques into a treatment train.
- * Surrounding environment will not be disturbed.

The treatment consists of bio-treatment fluids being injected into the sub-surface sediments allowing direct contact between sediment and the microbial slurry being applied. This is accomplished using a network of PVC pipes across an established grid and the installation of a pumping system into the network. Bio-fluids will be injected into the network at grid locations deemed necessary to provide complete treatment of the impacted area and remediate residual PCB contamination. We can inoculate soil or water at a concentration of 100 billion viable cells per gram, and with the properties of co-metabolizing multiple wide spectrum hydrocarbon oxidizing enzyme systems, we have the ability to aerobically decompose chlorinated and non-chlorinated compounds to their intermediate metabolites.

Tamco has a catalyst necessary to convert H_2O to atomic oxygen by cometabolic microorganisms. As the biological consumption of oxygen is probably the most limiting factor to the degradation of contaminants in the environment, a slow, constant supply of oxygen availability rather than a quick, one time burst, is the most beneficial to the microorganisms. This is accomplished by initially mixing the microbial consortium with the liquid oxygenated catalyst.

The primary objective of the microbial formula is to apply a synergistic colony of naturally occurring microorganisms, which feed directly on contaminants or petroleum based hydrocarbons, and recycle them into fatty acids and ultimately carbon, carbon-dioxide and water. The formula is balanced to contain appropriate quantities of natural biochemical and physical enhancements, which are necessary for the optimal growth of microorganisms.

The use of this balanced microbial formula represents a major step forward in this field. Previously, bioremediation was often commercially expedited only through fertilization of existing microorganism communities. This procedure often proves ineffective or even counter productive. As fertilizer, it encourages the growth of organisms which are counter productive and have no affinity to consume hydro-carbon molecules.

No waste or by-products are generated during this process which require disposal or special handling of any kind. The bioremediation will result in contaminant toxicity reduction at a level needed to satisfy state or federal requirements and to end the need for active remediation.

As previously stated, representative sub-surface soil and samples are collected during and after the process. These interim/post treatment samples are collected using conventional soil and groundwater sampling procedures to document that site contamination is below acceptable levels. This work will be completed by GE and EPA.

SCOPE OF WORK

Proposed scope of work includes a number of activities essential for successful and rapid project completion. These activities include:

- * Preparation of action plan.
- * Installation of injection points.
- * Pre-remediation soil/groundwater samplings completed by EPA and/or GE.
- * Bio-treatment injection/application in delineated area.
- * Interim/post remediation samplings (soil and groundwater) completed by EPA, GE, or Tamco.

Biotreatment Fluids Injection/Application

After the installation of fluid injection system and pre-remediation sampling, bio-treatment fluids will be injected into the sediment via the network of PVC pipes which will be treating and containing any residuals caused by pumping. Bio-treatment fluids consist of a proprietary combination of microbes and oxygenated water.

Interim/Post Remediation Sampling

Sampling of key monitoring areas will occur every thirty days following the injection of bio-treatment fluids. Interim/final samples will be collected by GE and EPA to document the progress of the remediation process. Standard sample collection procedures and protocols will be utilized and written results provided to Tamco. Tamco reserves the right (at our own expense) to do interim samplings.

PERFORMANCE OBJECTIVES

TAMCO, INC. USA will provide a performance guarantee which ensures that levels obtained will end the active remediation phase and will be achieved for the contract price. If actual conditions change (i.e., the size of the impact area is larger than currently represented on attached figures or other changes to reported site conditions) TAMCO, INC. USA reserves the right to increase bio-remediation costs accordingly.

PROPOSED COST

The proposed cost to complete this project is \$398,000,000.00 for sediment and water remediation which includes labor, material and equipment. A 40% retainer/deposit will be required. The remaining balance will be billed to the average degradation rate and area of completed measurement.

TERMS AND CONDITIONS

FEES QUOTED

A pilot plan can be designed to prove effectiveness of the remediation. The plan will be on GE and/or EPA account, paid in advance. The Fees quoted will remain in effect for ninety days from the date of this proposal, after which TAMCO, INC. USA reserves the right to revise this proposal.

BILLING

Invoices will be issued every thirty days based on the average degradation rate, payable on receipt, unless otherwise agreed. Interest of 1.5% a month will be payable on any amount not paid within 30 (thirty) business days. Payment thereafter to be applied first to accrued interest and then to the principal unpaid amount. Any attorney fees or other costs in collecting any delinquent amount shall be paid by the client.

WARRANTY AND LIABILITY

TAMCO, INC. USA warrants that its services are performed within the limits prescribed by its clients with the usual thoroughness and competence of its professional service, in accordance with the standard for consulting services at the time those services are rendered. No other warranty or representation, whether expressed or implied, is included or intended in its proposals, contracts, or reports. Liability shall be limited to injury or property damage caused by any negligence of Tamco.

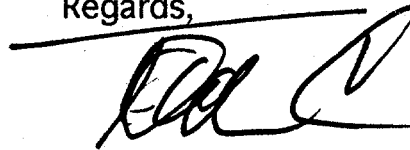
TAMCO, INC. USA has neither created nor contributed to the creation or existence of any hazardous, radioactive, toxic, irritant, pollutant, or otherwise dangerous substances or conditions on site, and its compensation hereunder is in no way commensurate with the potential risk of injury or loss that may be caused by such substances or conditions.

ACCEPTANCE

Please accept this letter of proposal by signing the original and returning to TAMCO, INC. USA.

We are looking forward to completing this project with you. Please do not hesitate to contact us if you have any questions.

Regards,



Tadeusz A.J.E. Czolowski
Vice Chairman & CEO

ACKNOWLEDGED AND ACCEPTED

Signature

Title

Date

Tajec/MPC

CC: A. Hess, D. Tomchuk, EPA
S. Ramsey, V.P. GE Co.

U.S. EPA, REGION II
EMER. & REM. RES. DIV.
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DIRECTOR'S OFFICE