

## **Appendix A**

### **SCOPE OF WORK FOR BROWN AND BRYANT SUPERFUND SITE REMEDIAL ACTION SECOND OPERABLE UNIT ARVIN, CALIFORNIA 2 October 2008**

#### **Introduction**

This Scope of Work (SOW) is attached to the Settlement Agreement for Recovery of Response Costs for the Brown and Bryant Superfund site in Arvin, California CERCLA Docket No. 2008-28 ("Settlement Agreement") solely for purposes of outlining the remedial actions and defining Phase 1 of the remedial actions which the United States Environmental Protection Agency (EPA) intends to implement using Settled Response Costs paid under the Settlement Agreement, consistent with the priorities described in Paragraph 14 of the Settlement Agreement. Those portions of the SOW discussing completion of tasks by the responsible parties are not incorporated into or referenced by the Settlement Agreement.

#### **Purpose of Effort**

The purpose of this Scope of Work (SOW) is to outline the remedial actions (RA) to be completed by (the Respondents ) as selected by the United States Environmental Protection Agency's Record of Decision (ROD) signed September 28, 2007 for the Brown and Bryant Superfund site in Arvin, California. The Responsible Parties ((Respondents) shall complete the following tasks under the (agreement/ Order):

1. Project Planning and Support: Attend Meeting in San Francisco, California; Review Existing Information; and Develop Data Quality Objectives (DQOs)
2. Develop and Submit a Work Plan and Site Specific Work Plans
3. Data Review: Site Reconnaissance, Geological Investigations, and Drilling Activities
4. Review Sample Analysis Reports
5. Review Record of Decisions for the Brown and Bryant Site
6. Remedial Action Implementation Management
7. Prepare a Draft and Final Remedial Action Work Plans for Phase I and Phase II of selected remedial actions by the ROD
8. Prepare a Draft and Final Remedial Action Report for work completed under the ROD
9. Continue Operation and Maintenance (O&M) activities for remedies constructed at the Brown and Bryant Superfund Site and develop a new O&M plan for current RA completed including the existing A-zone and B-Zone groundwater well field, the large diameter A-zone dewatering wells, the RCRA cap, the non-RCRA cap and the overall integrity and security of the site

## **History and Objective**

The Brown and Bryant pesticide facility (B&B Site) is located at 600 South Derby Road in Arvin, California, about 18 miles southeast of Bakersfield. Brown and Bryant operated as a pesticide reformulator and custom applicator facility from 1960 to 1989. The Brown and Bryant site is approximately 4.96 acres. A perched aquifer (A-zone) underlying the Brown and Bryant pesticide Superfund site, has been identified as a contamination threat to a deeper underlying unconfined regional aquifer (B-zone) which serves as a potential municipal regional water supply. Work performed in the First Operable Unit (OU1) for this project included: installation of a RCRA and non-RCRA cap; installation of groundwater monitoring, extraction, and injection wells; and treatment and disposal of the aboveground tank contents. The objectives for the Second Operable Unit (OU2) project include: closure and relocation of the Arvin City well No. 1 (CW-1), installation of several larger diameter wells (8-foot in diameter) for source reduction, and monitored natural attenuation for groundwater in the B-zone. The final objectives will be to maintain integrity and security of the site, conduct periodic A-zone and B-zone groundwater sampling, and continue operation and maintenance of all activities and remedies constructed at the Brown and Bryant Superfund Site, including the RCRA cap, the non-RCRA cap, the large diameter A-zone dewatering wells, and the A-Zone and B-Zone groundwater well field.

## **General Requirements**

This SOW describes the Work required to complete an RA that meets the objectives and performance criteria specified in the ROD issued on September 28, 2007 and the remedial design (RD). Furnish all necessary and appropriate personnel, including subcontractors, materials, and services needed for, or incidental to, performing and completing the RA. The RA and associated deliverables under this SOW shall be consistent with the ROD, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RA (Attachment 3).

The RA implementation shall be specifically based on the selected remedy of the ROD issued on September 28, 2007 and will be performed in two phases. The selected remedy for this site includes monitored natural attenuation and source mobility reduction. The relocation of the Arvin City Well CW-1 to prevent future exposure to contaminated groundwater is also a part of the remedy. The various components of the selected remedy are described as follows:

### **Phase I**

**Relocate the Arvin City Well CW-1:** This remedy was chosen to eliminate the risk pathway by properly plugging and abandoning the Arvin City Well CW- 1 and installing a replacement well. The C-zone aquifer is the potable water aquifer used by the City of Arvin. The Arvin City Well CW- 1 is completed with the production screen set below the B-zone and the Corcoran Clay layer, but the well is reported to be gravel packed from 50 below ground surface (bgs) and to a total depth at 730 feet. Since Arvin City Well CW-1 is located downgradient from the site's contamination plume, its construction may provide a conduit for B-zone groundwater contamination to migrate into the C-zone.

Arvin City Well CW- 1 shall be plugged and abandoned in accordance with all State of California requirements. A replacement well shall be installed outside the known extent of the B&B Site contaminant plume and in a location acceptable to the City of Arvin and the Arvin Community Well District. This would eliminate the potential exposure pathway for contaminated groundwater ingestion. Groundwater produced from this well shall meet all State of California and City of Arvin requirements for potable drinking water supply.

## **Phase II**

**Monitored Natural Attenuation for groundwater in the B-zone:** Monitored Natural Attenuation (MNA) refers to the reliance on natural attenuation processes to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in-situ processes include biodegradation, dispersion, dilution, sorption, volatilization and chemical or biological stabilization, transformation, or destruction of contaminants. EPA does not view MNA to be a “no action” or “walk-away” approach, but rather considers it to be an alternative means of achieving remediation objectives that may be appropriate for specific, well-documented site circumstances where its use meets the applicable statutory and regulatory requirements. The fate and transport model for the Site indicates that relatively fast flow and transport in the B-zone aquifer would attenuate more contaminants of concern (COC) concentrations below the drinking water MCL within a reasonable timeframe, if the source, which is COCs present in the A-zone groundwater, is reduced or controlled. Note that attenuation and transport of Trichloropropane (1,2,3-TCP) have not been fully assessed because of changes in the cleanup standard at the time the ROD was signed.

MNA is typically used in conjunction with active remediation measures. For example, active remedial measures could be applied in areas with high concentrations of contaminants while MNA is used for low concentration areas; or MNA could be used as a follow-up to active remedial measures, such as source mobility reduction or source removal.

The use of MNA at a site does not preclude the use of “active” remediation or the application of enhancers of biological activity (*e.g.*, electron acceptors, nutrients, and electron donors). 1,2,3-TCP may require additional active remediation to reach the MCL requirements.

The groundwater monitoring associated with the MNA will consist of sampling and analysis of key monitoring wells. Analytical results shall be compiled and presented to USEPA, following each sampling event, with interpretation and graphics showing COC concentration contour maps. The remedial action cleanup levels for the B-zone groundwater (drinking water Maximum contaminant level (MCL)) presented in Table 1, will be used as a guide for evaluating the natural attenuation process. The monitoring schedule shall be quarterly and monitoring frequency could be adjusted, depending on the analytical results and trends. Any change in monitoring frequency shall be approved by USEPA.

(Respondents) shall develop an MNA performance plan during implementation of the remedy. The MNA Plan shall include details of the groundwater monitoring and natural attenuation progress evaluation for the B-zone groundwater. Actual performance of the natural attenuation remedy shall be carefully monitored in accordance with the MNA Plan. If monitoring data indicate that the COC levels do not continue to decline, USEPA and DTSC (Department of Toxic Waste Substances Control) will reconsider the remedy decision. If monitoring and evaluations indicate that the B-zone groundwater COC concentrations are not attenuating as expected, after controlling the source of contamination (the COC impacted A-zone groundwater) appropriate measures shall be implemented to address contamination in the B-zone groundwater. The MNA performance plan shall also include necessary monitoring requirements for contaminated groundwater plume containment evaluation. The purpose of the B-zone containment evaluation is to ensure that the groundwater contamination is not migrating and becoming a risk to human health and the environment. Boundaries of the leading edge plume shall be established for appropriate containment evaluation. If the containment evaluation indicates that the B-zone groundwater is migrating such that it creates a risk to human health or the environment, appropriate containment shall be evaluated and contamination migration will be addressed. In addition, the effectiveness of the MNA program shall be evaluated at the end of every five years .

This part of the remedy shall also include additional institutional controls to address potential health risks and maintain effectiveness of remediation. These controls shall include necessary deed and zoning restrictions (short-term or long-term) and/or permit requirements that will restrict access to portions of aquifers impacted by COC to prevent exposure to contaminated water and spread of contamination. The objective of the institutional controls is to:

- Prevent completion of wells in portions of aquifers impacted by COC, and assure appropriate completion of wells in deeper aquifer (C-zone) to seal off impacted groundwater zones and aquifer units to avoid cross contamination,
- Restrict well drilling and groundwater pumping within at least half a mile from the Site to ensure that pumping influences do not spread contamination and reduce the effectiveness of the remedy.

These controls shall remain in effect until the remedy has restored the impacted groundwater to the MCLs established in the ROD, see Table 1. Specifics of the institutional controls to address the potential health risks will be assessed and developed by the USEPA and DTSC during the remedy implementation.

**A-zone Groundwater Source Reduction:** This part of the remedy consists of dewatering in the A-zone and treating the extracted water. The treated groundwater will then be discharged to the Arvin City sewer. The most optimum location for such a dewatering system shall be identified during the design of the system.

In this part of the remedy, several large diameter wells shall be installed off-site in the locations described above. Up to four large-diameter sump wells shall be constructed by drilling 8-foot diameter holes at the select locations to a depth of 75 feet or into the clay layer that separates the A-zone and B-zone. Because this clay layer is relatively thin, field procedures shall be required to ensure that penetration into the clay is minimal to avoid breaching it, but sufficient to allow the well to serve as a sump for A-zone water. The design of this well shall be approved by the USEPA during the Remedial Design (RD) phase of the project.

It is expected that an average of 15 to 150 gallons per day of water may be extracted from the A-zone using this approach. At peak, this may approach or slightly exceed 1,000 gallons per day. A cost-benefit assessment shall be conducted during the design to assess the best option for storing, treating and disposing of the extracted A-zone groundwater.

The design of the A-zone groundwater dewatering system shall allow for periods of time when the wells are dry. After several years of operation, the A-zone groundwater may occur only on a seasonal and periodic basis. Because of the presence of the A-zone RCRA and non-RCRA caps, the replenishment of the A-zone from infiltration from the B&B Site areas will be limited, allowing for little flushing of the soil contamination that remains. As the remediation progresses, site observations will allow better evaluation of the availability of water in the A-zone and the effectiveness of its dewatering. To the extent that methods are available to improve the process by increased “flushing” of the contaminants, these shall be considered as system enhancements at a later stage.

Periodic monitoring of the A-zone and B-zone groundwater shall be conducted to assess the changing site conditions and the impact of the installed remediation system. It is expected that this monitoring will extend until the OU-2 goal of limiting the B-zone groundwater to COC MCL levels is achieved and no further threat to the B-zone groundwater from the A-zone contamination exists. The remedial action cleanup level goals for A-zone groundwater (10 times the contaminant MCL) are presented as Table 12-6 in the OU2 ROD dated September 28, 2007. These goals shall be used as a basis for evaluating the progress of the remedial action.

The RA shall be complete when the following cleanup criteria have been achieved:

**Table 1  
Cleanup Levels for B-zone Groundwater**

| <b>Contaminant of Concern</b>      | <b>Maximum Contaminant Level (µg/L)<sup>1</sup></b> | <b>Source</b>  |
|------------------------------------|---|--|
| Chloroform                         | 80 <sup>2</sup>                                     | Federal National Primary Drinking Water Standards (40 CFR Part 141)  |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.2   | Federal National Primary Drinking Water Standards (40 CFR Part 141)  |
| 1,2-Dichloropropane (1,2-DCP)      | 5   | Federal National Primary Drinking Water Standards (40 CFR Part 141)  |
| 1,3-Dichloropropane (1,3-DCP)      | 0.5   | California Safe Drinking Water Act (CCR, Title 22, Sec 64444)  |
| Dinoseb                            | 7   | Federal National Primary Drinking Water Standards (40 CFR Part 141)  |
| Ethylene Dibromide (EDB)           | 0.05  | Federal National Primary Drinking Water Standards (40 CFR Part 141)  |
| 1,2,3-Trichloropropane (1,2,3-TCP) | 0.5   | Response Level, Drinking Water Program, California Department of Health Services, 1999; and available analytical practical quantification limit for 1,2,3-TCP. |

**Notes:** <sup>1</sup> micrograms per liter or parts per billion

<sup>2</sup>Total Trihalomethanes (sum of bromodichloromethane, dibromochloromethane, bromoform and chloroform), EPA MCL effective 01/01/04.

**Source:** OU2 Record of Decision, September 28, 2007.

This SOW and accompanying work breakdown structure (WBS) is provided as a format for (Respondents) to structure its work plan.

A summary of the major deliverables and schedule for submittals is in Attachment 1. The USEPA Remedial Project Manager will track deliverables submitted by the (Respondents).

USEPA will provide oversight of (Respondents) activities throughout the RA. USEPA review and approval of deliverables is a tool to assist this process and to satisfy, in part, USEPA's responsibility to provide effective protection of public health, welfare, and the environment.

## **RECORD KEEPING REQUIREMENTS**

(Respondents) shall maintain accurate work files on all work. Documentation may include but not limited to calculations, assumptions, interpretations of regulations, photographs, sources of information and other raw data required to complete the RA. (Respondents) shall submit an official record of the actions completed within that year. The Annual Progress Performance Report shall include, but is not limited to:

- a description of all work conducted on the site or in support of the site-work,
- a listing of all personnel, including subcontractors, who performed work at the site and the dates the work was performed,
- a photo summary with dates, descriptions of work being performed, names of personnel and equipment photographed,

- an evaluation and percentage of the progress made toward the completion of each portion of the remedy: Relocation of CW-1, Monitored Natural Attenuation of the B-Zone groundwater, and Source Reduction of the A-Zone Groundwater.

(Respondents) at the completion of the RA work, shall submit an RA Completion Report encompassing all work performed at the site. Hard-copy and electronic medial requirements are provided in Attachment 2.

## **Task 1 Project Planning and Support**

The purpose of this task is to set forth the requirements for project planning and project management. The following activities shall be performed as part of the project-planning task:

- 1.1 Review Existing Information.** (Respondents) shall review existing data and documents for work performed throughout the history of the site, including, but not limited to: previous site investigations, Preliminary Assessment Reports, Site Inspection Reports, Hazardous Ranking System Scoring Package, the Final Remedial Investigation Report, Feasibility Studies, Baseline Human Health and Ecological Risk Assessment Report, Community Relations Plan, Groundwater Treatment Plant Operation and Maintenance Manual, Volumes I-III, Quarterly Groundwater Monitoring Reports, Record of Decision ,and other data and documents as directed by USEPA.
- 1.2 Develop Data Quality Objectives.** (Respondents) shall prepare data needs and data quality objectives (DQOs) for analytical sampling to be performed during the RA. These DQOs shall be developed in accordance with the EPA 7-step method (EPA 540R-93-071) utilized by USEPA and regulators. The submittal shall include, but not be limited to the following:
  - a) An evaluation of all past data.
  - b) A determination of what information is useful for the RA.
  - c) Identification of data gaps and potential data requirements for the RA.
  - d) Identification of past obstacles encountered which may be useful or impact the decisions on this project.
  - e) (Respondents) shall send out the draft Site Summary report twenty-one (21) days in advance of the scheduled review meeting to the distribution agreed upon.
- 1.3 Attend Scoping Meeting.** The (Respondents) shall attend a scoping meeting to be held in San Francisco as scheduled by USEPA (September 2008). (Respondents) shall ensure all required key personnel attend the scoping meeting to develop the project.
- 1.4 Identification of Key Personnel.** (Respondents) shall identify all key personnel associated with the implementation of the RA. Names, titles, and contract information shall be provided to USEPA.

## **Task 2 Develop and Submit Remedial Action and Site-Specific Work Plans**

**2.1 Develop Remedial Action Work Plan.** The (Respondents) shall develop and submit a work plan following the SOW for this RA. The document shall be prepared in accordance with all applicable federal, state, and local regulations. All work plans shall be submitted initially as draft. The (Respondents) shall incorporate all comments in the draft document within twenty-one (21) days of receipt of all comments. Upon approval, (Respondents) shall submit final work plan addendum incorporating all accepted review comments. Information shall be presented in a sequence consistent with the Work Breakdown Structure (WBS) format as provided in this SOW. The Work Plan shall present, but not be limited to the following:

- 1) A background summary setting forth:
  - a) a brief description of the site including the geographic location and a description of the physiographic, hydrologic, geologic, demographic, ecological, cultural, and natural resource features of the site;
  - b) a brief synopsis of the history of the site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties at the site;
  - c) a summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the site.
- 2) (Respondents's) technical and management approach to each task to be performed, including: a detailed description of each task; the assumptions used; the identification of any technical uncertainties (with a proposal for the resolution of those uncertainties); the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to USEPA. (Respondents) shall identify any subcontracts it plans to use to accomplish all or part of a task's objectives. Tasks and subtasks shall be presented in the same WBS format as provided in this work assignment.
- 3) A schedule for specific dates for the start and completion of each required activity and submission of each deliverable required by this scope of work (SOW). This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for USEPA.
- 4) (Respondents) shall perform project management and reporting activities required to effectively manage the RA project. These activities typically include, but are not limited to, the following: monitoring progress, preparing and submitting monthly progress reports that document monthly performance status, and technical progress. (Respondents) shall also prepare or assisted in the community involvement plan. Activities may include but are not limited to: conducting community interviews, provided support for public meetings, publish public notices in local newspapers, prepare presentation materials, provide final approved documents to the Arvin Public Library, and provide reports to community involvement groups.

**2.2 Site Specific Work Plans.** The (Respondents) shall provide the following:

**2.2.1 Develop Site Management Plan.** The (Respondents) shall submit a site-specific Site Management Plan (SMP) that provides the USEPA with a written

understanding of how mobilization, access, security, contingency procedures, demobilization, and management responsibilities are to be handled. This plan shall address the RCRA and non-RCRA cap portions of the site and provide an on-site mobile office. (Respondents) shall be responsible for the payment of all utility costs including but not limited to: sewer, water, electricity, phones, and natural gas.

**2.2.2 Develop Health and Safety Plan.** (Respondents) shall submit a site-specific Health and Safety Plan (HASP) that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with 40 CFR 300.150 of the NCP and 29 CFR 1910.120 1(1) and (1)(2). A task-specific HASP must also be prepared to address health and safety requirements for site visits.

**2.2.3 Develop Sampling and Analysis Plan (Chemical Data Acquisition Plan).** (Respondents) shall refer to 40 CFR 300.415(b)(4)(ii), Environmental Data Quality Management- for the Sampling Analysis Plan (SAP) format. (Respondents) shall follow the Specifications as outlined in 40 CFR 300.415(b)(4) (ii).

**1) Quality Assurance Project Plan.** (Respondents) shall submit a site – specific Quality Assurance Project Plan (QAPP) in accordance with EPA QA/R-5 (latest draft or revision) and EPA 240/B-01/003. The QAPP shall describe the project objectives and organization desired DQOs. The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan.

**2) Field Sampling Plan.** The (Respondents) shall submit a site-specific Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the Contract Laboratory Program (CLP) and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. Therefore, Standard Operating Procedures (SOPs) will be provided for the field tasks. The FSP shall identify the laboratory to be used for the analysis of all collected samples. The laboratory shall be NELAC certified in the specified method. (Respondents) shall document any required changes to the FSP in a memorandum to the USEPA Remedial Project Manager.

**3) Data Management Plan.** The (Respondents) shall submit a site-specific Data Management Plan to address requirements for project management systems including tracking, storing, and retrieving data. The plan shall also identify software to be used, minimum data requirements, data format, and backup data management. The plan shall incorporate the use of Electronic Data Deliverables (EDD) and the ANSETS database program. The plan shall address both data management and document control for all RA activities, including the use of the existing Corps of Engineers analytical database for this project.

**4) Data Validation.** (Respondents) shall arrange for the validation of environmental samples collected **during task 3.2.** (Respondents) shall

perform appropriate data validation by a contracted third party laboratory to ensure that the data are accurate and defensible. The plan shall incorporate the use of Electronic Data Deliverables (EDD), the ANSETS database program, and the existing Corps of Engineers analytical database for this project. (Respondents) shall submit a QCSR in accordance with USEPA Contract Laboratory Program, National Functional Guidelines for Organic and Inorganic Data Review (EPA540/R-94/012,013. (Respondents) shall perform the following activities or combinations of activities to validate test results:

- a) Coordinate with appropriate sample management, field and laboratory personnel.
  - b) Prepare and ship environmental samples.
  - c) Review and approve laboratory QA and sample management programs.
  - d) Provide sample management (i.e. chain of custody, sample retention, and data storage) and ensure the proper management of samples. (Respondents) shall ensure accurate chain-of-custody procedures for sample tracking, protective sample packing techniques, and proper sample-preservation techniques.
  - e) Validate data. Provide data validation report (QCSR) for each data package and final PARCC report for full sampling event. Review analysis results against validation criteria EPA540/R-94/012, 013.
- 5) Develop Pollution Control and Mitigation Plan.** (Respondents) shall submit a site-specific Pollution Control and Mitigation Plan that outlines the process, procedures, and safeguards that will be used to ensure contaminants or pollutants are not released off-site during RA implementation.
- 6) Transportation and Disposal Plan** (Waste Management Plan). (Respondents) shall submit a site-specific Transportation and Disposal Plan that outlines how wastes that are encountered during the investigations will be managed and disposed off site. (Respondents) shall specify the procedures that will be followed when wastes will be characterized, transported off-site for storage, treatment, or disposal.

**2.3 Attend Work Plan Meeting.** (Respondents) shall attend a scoping meeting to be held at the USEPA office in San Francisco to discuss the draft work plans. The date will be contingent upon the (Respondents) proposed work schedule. (Respondents) shall send appropriate personnel to the scoping meeting.

**2.4 Prepare Final Work Plans.** (Respondents) shall incorporate all comments on the work plans within twenty-one (21) days of receipt of government's comments. Site work shall not commence until the Final Work Plans are approved by the USEPA.

### **Task 3 Data Acquisition**

Data acquisition entails collecting environmental samples and information required to support the RA for OU2. Data acquisition starts with USEPA approval of the Site Specific Work Plans and ends with the demobilization of field personnel and equipment from the site. All data must support risk assessment protocol.

The (Respondents) shall perform the following field activities or combination of activities for the RA as required for completion in accordance with the USEPA approved Site Specific Work Plans.

**3.1 Mobilization and Demobilization.** (Respondents) shall provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the site for the purpose of conducting the sampling program, Field Investigation.

**3.1.1 Identify Field Support Equipment, Supplies, and Facilities.**

**3.1.2 Mobilization.** (Respondents) shall mobilize to perform collection of field samples and drilling activities.

**3.1.3 Demobilization.** (Respondents) shall demobilize to remove any temporary facilities.

**3.2 Field Investigation.** (Respondents) shall provide all labor and equipment necessary to conduct environmental sampling to include the following:

**3.2.1 Perform Site Reconnaissance.** (Respondents) shall conduct site surveys including property, boundary, utility rights-of-way, and topographic information. These surveys are to ensure the accuracy of existing information for the RA.

- 1) Ecological Resources Reconnaissance
- 2) Well Sampling and Analysis
- 3) Land Survey
- 4) Field Screening
- 5) Physical properties of the soils

**3.2.2 Conduct Geological Investigations (Soils)**

- 1) Collect Surface Soil Samples
- 2) Collect Subsurface Soil Samples
- 3) Soil Boring and Permeability Sampling

**3.2.3 Conduct Air Investigations**

- 1) Sample Collection
- 2) Air Monitoring Station
- 3) Survey Soil Gasses

**3.2.4 Conduct Hydrogeological Investigations: Ground Water**

- 1) Install Well Systems
  - a) Accomplish Mobilization
  - b) Drilling Boreholes
  - c) Develop Wells
  - d) Conduct Down hole Geophysics
  - e) Install Monitoring Wells
  - f) Install Test Wells
  - g) Install Vadose Wells
- 2) Collect Samples (including background samples)
- 3) Collect Samples during Drilling (e.g., Hydro-Punch or Equivalent)
- 4) Perform Hydraulic Tests (Pump Tests)
- 5) Measure Ground-Water Elevation
- 6) Measure Surface-Water Elevation

**3.2.5 Conduct Waste Investigation**

- 1) Collect Samples (Liquid, Solid)
- 2) Analyze Derived Waste (Liquid, Solid)

**3.2.6 Dispose of Investigation-Derived Waste.** Characterize and dispose of investigation-derived wastes in accordance with local, State, and Federal regulations as specified in the FSP (see the Fact Sheet, *Guide to Management of Investigation-Derived Wastes*, 9345.3-03FS (January 1992)).

## **Task 4 Sample Analysis**

(Respondents) shall arrange for the analysis of environmental samples collected during the RA work. (Respondents) shall provide a NELAC and California Certified validated laboratory for this task. This task ends with the (Respondents) validating the analytical data received from the laboratory as specified in the QAPP. All data must support risk assessment protocol.

(Respondents's) selected laboratory shall perform the following activities or combination of activities to analyze for all contaminants of concern listed in the ROD test results:

### **4.1 Screening-Type Laboratory Sample Analysis (Laboratory or On-Site)**

- 4.1.1 Analyze Air and Gas Samples**
  - 1) Organic
  - 2) Inorganic
  - 3) Wet Chemistry (pH, alkalinity, etc)
- 4.1.2 Analyze Ground-Water Samples**
  - 1) Organic
  - 2) Inorganic
- 4.1.3 Analyze Surface-Water Samples**
  - 1) Organic
  - 2) Inorganic
- 4.1.4 Analyze Soil and Gas Samples**
  - 1) Organic
  - 2) Inorganic
- 4.1.5 Analyze Waste (Liquid) Samples**
  - 1) Organic
  - 2) Inorganic
- 4.1.6 Analyze Waste (Solid) Samples**
  - 1) Organic
  - 2) Inorganic

### **4.2 Laboratory Sample Analysis**

- 4.2.1 Analyze Air and Gas Samples**
  - 1) Organic
  - 2) Inorganic
- 4.2.2 Analyze Ground-Water Samples**
  - 1) Organic
  - 2) Inorganic
- 4.2.3 Analyze Surface-Water Samples**
  - 1) Organic
  - 2) Inorganic
- 4.2.4 Analyze Soil and Gas Samples**
  - 1) Organic
  - 2) Inorganic
- 4.2.5 Analyze Waste (Liquid) Samples**
  - 1) Organic
  - 2) Inorganic
- 4.2.6 Analyze Waste (Solid) Samples**
  - 1) Organic
  - 2) Inorganic

## **Task 5 Data Evaluation**

(Respondents) shall organize and evaluate existing data and data gathered during the previous tasks that will be used later in the RA effort. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of the Data Evaluation Summary Report. All data must support risk assessment protocol. All validated data shall be incorporated into the draft findings report. Specifically, (Respondents) shall perform the following activities or combination of activities during the data evaluation effort:

### **5.1 Data Usability Evaluation and Field QA/QC.**

**5.2 Data Reduction, Tabulation, and Evaluation.** Evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. Design and set up an appropriate database for pertinent information collected that will be used during the RA. This will include construction of cross sections, plume map(s), and water table elevation contours to understand the framework of groundwater and contaminant movement.

### **5.3 Evaluate Geological Data (Soils and Gases).**

### **5.4 Evaluate Hydrogeological Data: Ground Water.**

### **5.5 Evaluate Waste Data.**

**5.6 Modeling Contaminant Fate and Transport.** Could require setting up a conceptual model and basic analytical model to determine if more detailed numerical modeling is required.

### **5.7 Validate Analytical Data.**

## **Task 6 Remedial Action Implementation Management**

(Respondents) shall provide field supervision associated with the monitoring and documentation of the work being done at the site in accordance with the design and all subcontract(s) documents (e.g., drawings, specifications and plans) and ensure the implementation of the remedial action at the site is protective of human health and the environment. Typical activities include, but are not limited to, the following:

1. Conducting/attending progress meetings,
2. Maintaining field logs and daily diaries,
3. Providing advice on what is intended by subcontract documents,
4. Preparing sketches to reflect field conditions,
5. Checking construction drawings submitted by construction subcontractors for compliance with design concept, preparing reports on inspections,
6. Attend final inspection and preparing report w/punch list,
7. Monitoring, updating, and reporting construction progress,
8. Reviewing and recommending time extensions,
9. Coordinating with Home Office/Management Support Conducting regular Davis-Bacon Act interviews on-site,
10. Reviewing and making recommendations for changes,
11. Providing advice on need and cost of proposed change orders,
12. Providing assistance in prevention and resolution of subcontractor claims,
13. Seeking approval of pending construction schedules,
14. Maintaining an on-going photo log of all activities performed on the site,
15. Evaluating rebound for remediation systems,
16. Performing field testing, recommending action on health and safety considerations (e.g., site safety plan), monitoring quality control procedures.

- 6.1 Project Performance.** (Respondents) shall perform all activities necessary to ensure the RA implemented at the site is in accordance with the design developed for the RA and in the O&M plan. (Respondents) shall perform typical activities include, but not limited to the following:
- 6.1.1 Conduct pre start-up check out.** (Respondents) shall perform the following task for pre-start up of remedies implement under the RA, which includes, but not limited to:
- 1) Review the existing O&M manual,
  - 2) Describing and analyzing potential operating problems,
  - 3) Supporting training operation and maintenance of O&M staff
  - 4) Provided O&M training for State personnel
  - 5) Report on conformity to applicable performance and operations requirements,
  - 6) Determine cause of failure and develop corrective action report
  - 7) Review record development and laboratory procedures,
  - 8) Review process system, safety and emergency systems, and warranty files.
- 6.1.2 Evaluate system performance.** (Respondents) shall for the one-year operational and functional period, evaluate equipment system performance, witness performance tests, gather and test samples.
- 1) Operate and provided appropriate upkeep and maintenance,
    - a) Facilities (buildings, fencing, and appropriate signage)
    - b) Equipment
    - c) RCRA and Non-RCRA Capped Area
    - d) Monitoring Well Installation, Repair, and Maintenance
    - e) All System Selected by ROD and Installed
  - 2) Provide appropriate security to site
- 6.1.3 Update Operation and Maintenance Manual (as needed)**
- 6.1.4 Conduct Trend Analyses and Optimization Of Systems**
- 6.2 Draft Annual Project Performance Report.** (Respondents) shall compile a draft Annual Project Performance Report that includes all item identified in Task 6 and Section 6.1.
- 6.3 Final Annual Project Performance Report.** (Respondents) shall finalize the draft Annual Project Performance Report within twenty-one (21) days of the receipt of all government comments.

## **Task 7 Remedial Action Completion**

(Respondents) shall ascertain project completion and closeout tasks associated with the RA for the B&B site. These tasks include but are not limited to, the following:

- 7.1 Demobilization of site workers and on-site project office, final payment and shutoff of all utilities.**
- 7.2 Pre-final/Final Activities.** The (Respondents) shall perform the following: consolidation of project needs, pre-final/final inspection and certification, direct final project demobilization and make lockout inspection.
- 7.3 Final Payment/Punch list.** The (Respondents) shall perform the following: resolution /certification that the project is complete according to plans and specifications. This task may involve trial periods, shakedown, test or trial runs/burns.
- 7.4 Submission of as-built drawings.**
- 7.5 Update the O&M Manual.**

- 7.6 Training for State and/or contractor employees who will conduct future O&M.**
- 7.7 Assist in transfer of the project to the State at USEPA request.**
- 7.8 Draft Remedial Action Report.** The (Respondents) shall prepare a draft Remedial Action Report in accordance with Closeout Procedures for National Priorities List Sites OWWER Directive 9320.2-09A-P.
- 7.9 Final Remedial Action Report.** (Respondents) shall prepare a Final Remedial Action Report thirty (30) days after receipt of comments from USEPA.

#### **Task 8 Remedial Action Closeout**

Perform the necessary activities to close out the remedial action work in accordance with order requirements. Typical activities include but are not limited to, the following :

- 8.1 Packaging and returning documents to the government.**
- 8.2 Duplicating/distribution/storage of files.**
- 8.3 Archiving files in accordance with Federal Record Center requirements.**
- 8.4 Preparing microfiche/microfilm/optical disk or other USEPA-approved data storage technology.**
- 8.5 Preparing the closeout report in accordance with USEPA guidance.**

## **Distribution List**

Wherever possible, (Respondents) shall submit three-ring bound copies. Any revisions shall be submitted as replacement sheets along with a register of changes. The following are the names and addresses of the team members who are to receive the documents for review and comment. (Respondents) shall be responsible for ensuring that each of these members receives the documents on the established deadlines.

U.S. Environmental Protection Agency, Region IX  
Hazardous Waste Management Division, SFD-7-4  
75 Hawthorne Street  
San Francisco, CA 94105  
Attn: Travis Cain

CA EPA  
Dept of Toxic Waste Substances Control  
Northern California Region  
Northern California Case  
Development Unit  
8800 Cal Center Drive  
Sacramento, CA 95826  
Attn: Emmanuel Mensah

*NOTE: (Respondents) shall be responsible for providing hard copies of all documents required for the Administrative record to the RPM (currently Travis Cain) in EPA Region IX. In addition, all documents including, but not limited to, electronic mail, meeting minutes, scopes, cost estimates and schedules shall be incorporated onto a compact disc (CD) for the record.*

**Attachment 1  
Summary of Major Submittals for the Remedial Action**

| <b>TASK</b> | <b>DELIVERABLE</b>                          | <b>NO. OF COPIES</b> | <b>DUE DATE (calendar days)</b>       | <b>DATE RECEIVED</b> |
|-------------|---|----------------------|---------------------------------------|----------------------|
| 1.2         | Site Summary Report                         | 6                    | 21 days before scoping meeting        |                      |
| 2.1.1       | Draft RA Work Plan                          | 6                    |                                       |                      |
| 2.4         | Final RA Work Plan                          | 6                    | 21 days after receipt of comments     |                      |
| 2.2.1       | Draft Site Management Plan (SMP) Addendum   | 6                    |                                       |                      |
| 2.4         | Final SMP                                   | 6                    | 21 days after receipt of comments     |                      |
| 2.2.2       | Draft Health and Safety Plan (HASP)         | 6                    |                                       |                      |
| 2.4         | Final HASP                                  | 6                    | 21 days after receipt of EPA comments |                      |
| 2.2.3       | Draft Sampling and Analysis Plan (SAP)      | 6                    |                                       |                      |
| 2.4         | Final SAP                                   | 6                    | 21 days after receipt of EPA comments |                      |
| 2.2.3.1)    | Draft Quality Assurance Project Plan (QAPP) | 6                    |                                       |                      |
| 2.4         | Final QAPP                                  | 6                    | 21 days after receipt of EPA comments |                      |

|          |   |   |  |  |
|----------|---|---|--|--|
| 2.2.3.2) | Draft Field Sampling Plan (FSP)             | 6 |  |  |
| 2.4      | Final FSP                                   | 6 | 21 days after receipt of EPA comments        |  |
| 2.2.3.3) | Draft Data Management Plan                  | 6 |  |  |
| 2.4      | Final Data Management Plan                  | 6 | 21 days after receipt of comments            |  |
| 2.2.3.4) | Draft Data Validation QCSR                  | 6 |  |  |
| 2.4      | Final Data Validation QCSR                  | 6 | 21 days after receipt of comments            |  |
| 2.2.3.5) | Draft Pollution Control and Mitigation Plan | 6 |  |  |
| 2.4      | Final Pollution Control and Mitigation Plan | 6 | 21 days after receipt of comments            |  |
| 2.2.3.6) | Draft Transportation and Disposal Plan      | 6 |  |  |
| 2.4      | Final Transportation and Disposal Plan      | 6 | 21 days after receipt of comments            |  |
| 6.2      | Draft Annual Project Performance Report     | 6 | Annually on the date that this SOW is issued |  |
| 6.3      | Final Annual Project Performance Report     | 6 | 21 days after receipt of comments            |  |
| 7.8      | Draft Remedial Action (RA) Report           | 6 | At Completion of RA                          |  |
| 7.9      | Final RA Report                             | 6 | 30 days after receipt of comments            |  |

## **Attachment 2 Submittal Criteria and Standards**

(Respondents) shall prepare the draft and final reporting materials in accordance with criteria and applicable publications and manuals specified in the Scope of Work. All reports shall also be prepared in accordance with guidance previously furnished or with supplemental detailed instructions which may be provided in writing by the USEPA Remedial Project Manager before and during the progress of the work. (Respondents) is not to undertake action for relocation, enlargement or deletion of any features of this proposed project. (Respondents) shall be responsible for notifying the USEPA Remedial Project Manager of any missing criteria needed for their work.

a. Paper Copy Format: The paper copy reports (hard copy) shall be submitted bound in a 3-ring binder or comb-bound with dividers for the major sub-portions of the report. The reports shall be printed double-sided. Photographs and figures shall be presented in color.

b. Electronic Format: The magnetic media shall be compact disks formatted for use on an IBM Pentium 1 or 2 PC or compatible. All text shall be in a format compatible to software being used by the Government. Utilized software is a follows: Microsoft Word, Release 5; Microsoft Excel, Release 4; and MS DOS, Release 6.22. All disks shall be clearly labeled with the following information:

- (Respondents) or Subcontractor's Name
- Project Number, Task Order Number
- Descriptions of content
- Name of Software and Release Number utilized
- MS-DOS Release Number
- Any other pertinent information.

c. Contractor Quality Control: Prior to transmittal of the draft submittal, (Respondents) shall perform an internal review of materials to be submitted. Submitted drafts shall be free of typographical errors and other general errors. For each submittal, (Respondents) shall be able to provide check sheets, marked sketches, etc., as evidence that internal review has been performed if requested by the USEPA Remedial Project Manager.

## **Attachment 3**

### **Regulations and Guidance Documents**

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RA process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund □ A Handbook, U.S. EPA, Office of Emergency and Remedial Response, January 1992, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. Data Quality Objectives for Remedial Response Activities, U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.

26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.
28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. Remedial Design and Remedial Action Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1995, OSWER Directive No. 9355.5-22.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.
46. U.S. EPA, Publication EPA540/R-94/012, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February 1994.
47. U.S. EPA, Publication EPA540/R-94/013, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994.