

EMERGENCY RESPONSE MONITORING

Due to the dynamic nature of an oil spill, response activities often include a need for continual monitoring of site conditions especially as climatic and geographic influences change. Position (i.e., spreading and downstream movement) and chemical properties of the oil will also vary over the course of a response. River conditions and product composition will affect the fate and transport of the oil. The following describes the general components of a monitoring plan for use during a response action, particularly if chemical countermeasures are used during an oil spill.

OBJECTIVES AND SCOPE

Determine effectiveness of the selected countermeasures or removal actions in counteracting effects of the discharge or release. Evaluate the environmental impact of these activities.

MONITORING PLAN DESIGN

- **Monitoring Intensity Levels** – Intensity of monitoring efforts may be adjusted to the intensity of the response. Field activities consisting of reconnaissance, environmental parameters assessment, sampling and documentation efforts, and laboratory activities should occur on a scale appropriate to the response.
- **Selection of Treated and Untreated Sites** – Treated and untreated (or control) sites should exhibit similar chemical and physical characteristics to support their comparability. The following criteria should be considered: (1) environmental parameters, (2) physical habitat and geological morphology, and (3) degree of contamination from the released substance and probability of further contamination.

MONITORING PARAMETERS AND COLLECTION FREQUENCY

Monitoring at each site, such as water depth (as appropriate) and time should be performed in triplicate. Volumes of samples collected should be based on requirements of the analytical methods to be used for analysis of those samples.

DATA QUALITY REQUIREMENTS AND ASSESSMENTS

All data collection activities must be planned and conducted to produce data of known and acceptable quality. To ensure that these objectives are met, all contractors performing work as part of the monitoring effort must submit a quality assurance plan. Parameters for defining data quality include appropriateness of analyses, detection limits, precision, accuracy, representativeness, comparability, and completeness. Representativeness and comparability should be designed into the monitoring plan through provisions for

replicate sampling from remediated and control areas, and use of standard, approved methods for sampling and laboratory analysis.

SAMPLE CUSTODY PROCEDURES

Accurate identification and proper control of samples are important to ensure acceptability and usability of resulting analytical data. Standard sample custody procedures are particularly important if more than one individual will perform sample collection and if the individuals collecting samples will not be the ones analyzing the samples. When the monitoring program is conducted by a contractor, the contractor should designate a sample custodian who will ensure tracking of samples and that custody procedures are properly followed.

SAMPLING AND ANALYTICAL METHODS

All sampling and laboratory analysis should be developed in consultation with Natural Resource Trustees and natural resource managers and should follow EPA or other approved methods unless otherwise stipulated or requested by the OSC.

RESPONSE ORGANIZATION AND RESOURCE REQUIREMENTS

The decision to implement a monitoring plan is made in accordance with the NCP and the Region 8 RCP. A project manager, under direction of the OSC, is responsible for implementing the plan.

- **Project Manager** – Specific responsibilities of the project manager include obtaining approval from the OSC for the monitoring plan, assembling teams to perform observations and sampling as appropriate, coordinating activities with the OSC to ensure monitoring operations do not interfere with other response operations, naming a sample custodian to handle sample transfers and chain-of-custody concerns, ensuring representation from each RRT member agency that wishes to participate, ensuring consultation with the Natural Resource Trustees and natural resource managers, ensuring and documenting data quality, and ensuring preparation and submission of all required reports. The number of additional personnel required will depend on the size of the spill and the monitoring effort.
- **Equipment Requirements** – Equipment requirements will be determined by the scope of the monitoring effort. However, sufficient equipment to complete required sampling and photo documentation must be available.

DATA VALIDATION

All data will be subject to a thorough check by the OSC and the monitoring Project Manager, or their designated representative, for errors in transcription, calculation, or computer input. In addition, the

Project Manager will review all incident logs, sample logs, and data forms to ensure that requirements for documentation and data quality assessment have been met.

PERFORMANCE AND SYSTEM AUDITS

To ensure that work is being performed, whether by a contractor, EPA, or state personnel, and is progressing in accordance with the monitoring plan and specified objectives and procedures, the OSC, through the monitoring project manager, maintains the right to conduct performance or system audits of field and laboratory collection activities. The categories of audits are described below:

- **Management System Reviews** – Evaluate the quality assurance program of an organization, such as a firm contracted to conduct a monitoring project or a laboratory sample analysis. The purpose of this review is to verify whether the quality assurance management procedures stated by the contractor are in place prior to a contract award.
- **Data Quality Audits** – Evaluate a data set or all data sets of a particular project by comparing the data set against specified data quality requirements for that data set.
- **Technical System Audits** – Evaluate the actual environmental measurement data-collection systems and their associated quality control systems. These audits involve on-site auditing of field sampling activities, field measurement activities, and laboratory analytical procedures.
- **Performance Audits** – Evaluate analytical methods and procedures of a laboratory. These audits proceed by submittal of performance evaluation samples to a laboratory for analysis. The samples should contain specific pollutants in known matrices whose concentrations and identities are unknown to the testing laboratory.

DOCUMENTATION AND REPORTING

During the course of response activities and accompanying monitoring efforts, the following reports should be prepared and submitted to the OSC:

- **Activity reports** – Provide descriptions of the response activity area, weather, unique observations, and activities undertaken, as well as the names, affiliations, and signatures of persons on site. Activity reports should be prepared whenever activities occur at a site.
- **Analytical reports** – Provide results from laboratory analyses of environmental and control samples. Analytical reports should be prepared and submitted by the analytical lab within 10 business days after receipt of environmental samples for analysis.
- **After action report** – Provide a description of the overall bio-remediation activity and accompanying monitoring effort, including results of both field and laboratory activities.

REVISING PLANS AND PROCEDURES

Monitoring plans should include provisions for modifications, including additional consultation with Natural Resource Trustees and natural resource managers.