



Emergency
Planning and
Spill Response



ENTRIX

Down to Earth. Down to Business.™

Natural Resource Damage Assessment

Even small oil or hazardous substances spills can create significant problems in terms of environmental impact, associated costs, and negative public relations. Reducing these liabilities and impacts requires an understanding of the operation, the local environmental conditions, the capabilities of available response resources, and the applicable regulations.

ENTRIX provides the diverse and in-depth experience, technical disciplines, and resources necessary to conduct thorough emergency planning and response to spills. Key

ENTRIX's emergency response support services include:

- Monitoring and surveillance of spill movements and mitigation activities including management and presentation of data in the field using Geographic Information Systems (GIS) and Global Positioning Systems (GPS)
- Identification and prioritization of resources at risk
- Development of priorities and protocol for selecting response strategies
- Selection of appropriate response equipment and methods
- Collection of ephemeral data for NRDA
- Documentation of response activities (including video surveys)
- Preparation and implementation of plans for chemical and ecological/biological sampling and monitoring
- Environmental sensitivity analyses
- Environmental liability management and strategy

ENTRIX personnel have been involved in spill planning and response since the 1970s.

These services include Spill Prevention and Response Plans, Oil Trajectory and Fate Modeling, Process Hazard Analysis, Training and Drills, Natural Resource Damage Assessment (NRDA), Habitat Restoration, Environmental Risk Assessment and Management, and Environmental and Resource Economics.

- Coordination with federal, state, regional, and local (as appropriate) agencies/trustees
- Supervision of air monitoring activities
- Real-time comprehensive data quality review
- Fingerprinting and forensic chemistry
- Preparation of SOPs, sampling programs, and Health & Safety plans
- Fate/transport and trajectory modeling of chemicals in air, groundwater, surface water, and soil
- On-site emergency training for response personnel
- Media/Public Relations support
- Preparation of plans and permits for in situ burning, bioremediation, and dispersant use
- Waste handling and disposal
- NRDA response teams composed of strategic and technical consultants
- Shoreline Cleanup Assessment Team (SCAT)
- Design and permitting for chemical treatment programs
- Technical support to lift fish and shellfish closures

Actual spill response experience has provided ENTRIX professionals valuable insights into the characteristic behavior of different oil/chemical types in the environment; the successes and failures of various response actions under varying conditions; an understanding of how to collect meaningful environmental samples and documentation; and an appreciation for the environmental implications of diverse situations and actions.

ENTRIX personnel are easily integrated into response organizations as needed. They communicate smoothly and effectively within any team or incident command structure. ENTRIX brings a third-party perspective coupled with the skills, judgement and experience to perform response activities consistent with a client's overall risk/benefit priorities. We believe these are critical assets during emergency and crisis situations.

Environmental and Natural Resource Management Consultants



Projects

Contingency Planning

Requirements for preparation of spill response plans in the United States exist at federal, state, and often at the local level. ENTRIX's response planning staff is well-versed with the guidelines and requirements of OPA '90 and equivalent state regulations. The types of plans are: Contingency Plans that meet federal and state requirements to detail procedures to prevent and control spills; Marine Terminal Operations Manuals that describe product onloading and offloading of vessels as well as procedures to prevent and control spills; and Spill Prevention Control and Countermeasure (SPCC) Plans required by the federal Environmental Protection Agency. SPCC plans identify spill prevention and control measures. Our planning services are comprehensive and include development of the following:

- environmental roles and responsibilities for Incident Command System (ICS) organizations;
- identification of environmental baselines and sensitive area/protection priorities;
- worse-case scenarios, including trajectory analyses;
- spill notification requirements and procedures;
- response procedures and equipment;
- procedures for waste handling and disposal/recycling;
- procedures for documentation; and
- support information, including contract resources.

ENTRIX has prepared spill response plans for a variety of facilities:

- chemical plants
- municipalities
- maintenance and repair facilities
- pipelines
- marine terminals
- power plants

- oil spill cooperatives
- offshore facilities
- petroleum storage facilities
- production facilities
- refineries
- gas stations

Spill Response

ENTRIX has, since 1984, provided spill response expertise. The team is comprised of highly trained technical personnel experienced in the Shoreline Cleanup Assessment Team (SCAT). The SCAT process is an integral component of the response phase of an oil spill.

Beginning with the development of the SCAT procedure during the 1989 Exxon Valdez Oil Spill, ENTRIX personnel have led many shoreline assessment processes in response to spill incidents. Using this experience, ENTRIX integrates an understanding of common objectives during the development of cleanup guidelines, constraints, and endpoints combined with the goal of reducing the overall magnitude of resource injury and the time necessary for environmental recovery.

We have developed and use advanced procedures and handheld electronic data collection to facilitate mapping and data management in order to reduce the time required to acquire, synthesize and present field data to response managers for decision-making purposes.

ENTRIX experience with SCAT includes:

- development of SCAT procedures;
- development of aerial video tape surveys for shoreline sensitivity analysis and mapping;
- development of cleanup/treatment techniques and methods

- application to GIS to shoreline sensitivity analyses and oil distribution mapping; and
- training.

Natural Resource Damage Assessment (NRDA)

Under the provisions of the Clean Water Act, the Comprehensive Environmental Response Compensation Liability Act (CERCLA), the Oil Pollution Act of 1990 (OPA '90), and numerous state statutes, natural resource impacts caused by the release of oil or hazardous substances into the environment must be restored with damages recovered from the responsible party. Natural resource damage claims can be filed by a federal or state government entity, an Indian tribe, or another country acting as a public trustee for the natural resources.

NRDA involves the assessment of the injury to natural resources and loss of services (i.e., physical and biological functions provided by resources) resulting from a spill or release. NRDA's consist of several phases and involve the process of collecting, compiling, and analyzing information and injury data to determine damages.

For a small spill, the NRDA process may only require a review of existing reports and data collected by the trustees or by the responsible party for resources in the immediate

vicinity of the spill. For larger spills, the NRDA may include detailed field studies.

ENTRIX has more cumulative experience with NRDA's for the private sector than any other consulting firm. We provide a range of services to assist clients through the NRDA process, including:

- identifying NRD liabilities;
- preparing NRDA guidance manuals for first responders;
- preparing NRDA response plans that are coordinated with other contingency and response plans;
- designing, managing, and implementing comprehensive NRDA activities, from pre-assessment screen and ephemeral data collection through negotiated settlement or litigation;
- identifying areas, habitats, and resources that are potentially injured;
- providing NRDA response teams of strategic and technical consultants;
- preparing a Net Environmental Benefit Analysis (NEBA) and Habitat Equivalency Analysis (HEA) to evaluate and scale restoration and remedial alternatives; and
- developing and implementing restoration plans that reflect the current focus of trustee agencies.

ENTRIX has prepared spill response plans for a variety of facilities including:

- chemical plants
- maintenance and repair facilities
- marine terminals
- municipalities
- offshore facilities
- oil spill cooperatives
- pipelines
- power plants
- production facilities
- refineries



ENTRIX's
Emergency Planning and Spill Response
professionals can be mobilized
within hours by calling
1-800-476-5886.

ENTRIX is committed to conserving and restoring our natural resources and the environment. We practice stewardship through the conduct of our business, the development of our staff, and the services we provide our clients.

For more information please contact:

Seattle Office
Gordon Robillard, PhD
Janice Page
200 First Avenue West, Suite 500
Seattle, WA 98119
Phone 206.269.0104

New Castle Office
Ralph Markarian, PhD
Cell 610.715.5330
Christopher Pfeifer
10 Corporate Circle, Suite 300
New Castle, DE 19720
Phone 302.395.1919

Houston Office
Bob Nailon
Cell 713.817.2469
John Slocomb, PhD
5252 Westchester, Suite 250
Houston, TX 77005
Phone 713.666.6223

1.800.476-5886 • entrix.com

