



## Shoreline Cleanup Assessment Techniques (SCAT) for Oil Spills in Inland (Freshwater) Environments <sup>1</sup>

### Course Outline

*Shoreline Cleanup Assessment Techniques (SCAT)\** is a systematic and comprehensive approach used during an oil spill to provide timely information on shore oiling conditions and to determine the best cleanup (treatment) options.

Within the dynamics of a spill, SCAT brings the field perspective to the Response Team to develop the objectives and strategies for cleanup operations.

The SCAT process strives for both *environmentally-sound* and *cost-effective* response activities to achieve an overall *net environmental benefit*. The goal is to maximize the recovery of oiled environments and resources while minimizing the risk of further ecological injury from cleanup.

Effective application of SCAT:

- ✓ Reduces spill response costs and meets the criteria of reasonable cost, and
- ✓ Meets environmental agency and stakeholder expectations.

\*\* Also referred to as: *Shoreline Cleanup Assessment Team*

Instructor: Stafford Reid (MSc)

**Course Objective:** to train personnel to be proficient in SCAT from the field to incident management response levels, as well as to understand the range of shore-based cleanup measures in which SCAT is operationally applied in an inland freshwater environment such as lakes, wetlands, rivers and streams.<sup>1</sup>

**Approach:** to provide a combination of classroom instruction that includes SCAT concepts, field data collection and command post data management. Course is structured in subject modules. Instruction includes a field tour for SCAT application wherever locating to various shore-types is feasible.

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<sup>1</sup> EnviroEmerg's SCAT courses are also available for both temperate and tropical marine environments.



**Style:** The course is delivered with a style that emphasizes the human relations dynamics of working together and addressing industry, agency and community concerns. Emphasis is placed on participant interaction and dialogue to explore issues and concerns as they arise.

**Audience:** Government and industry personnel who are either interested in field delivery of SCAT, the management or application of SCAT information, or both. Between 8 to 14 people is the optimal class size.

**Framework:** Course content is according to the *Incident Command System (ICS)* for emergency management and the SCAT standards and process established by *US National Oceans and Atmospheric Administration* and *Environment Canada*. Oil spill response training is focussed on shore cleanup operations in which SCAT is mainly applied.

**Length & Venue:** A three day course in a location that is near a variety of shoreline types to facilitate a field tour.

**Logistics:** Training room rental and transportation for field tour, lunches and coffee to be provided by sponsor. Box/catered lunches should be provided in-class and in-the-field to optimize class time.

**Expenses:** As per EnviroEmerg Fee and Expenses schedule for travel, meals, accommodation, and consumables.

**Instructor Fee & Materials:** \$3,000 CAN for instructor fee. Budget approximate \$30 per student for SCAT manual and CD reference materials. Cost does not include applicable taxes.

SCAT Course Outline	
Part 1 - The SCAT Framework	
<b>Module 1 – Course Objectives and Content</b>	Class introductions and an overview of course structure and contents
<b>Module 2 – SCAT Definition, Purpose, Principles, and Benefits</b>	Defines SCAT and explains its purpose and benefits
<b>Module 3 – Net Environmental Benefit Analysis</b>	Examines fundamentals of net environmental benefit to achieve the correct balance to meet stakeholder interests in the best practicable manner, and to compare tactical response options with the advantages and disadvantages of natural cleanup.
<b>Module 4 – SCAT Process</b>	Outlines the SCAT tasks and processes, explains the phases of an oil spill and introduces the Incident Command System.



SCAT Course Outline	
<b>Part 2 - SCAT within the Incident Command System</b>	
<b>Module 5 – SCAT Process within Incident Management</b>	Provides an overview of the Incident Command System for environmental emergency response and where and how the SCAT process fits within.
<b>Module 6 - Working Relationship with Operations</b>	Speaks of the essence of SCAT is to guide and work with operational personnel. Introduces Incident Action Plans, the Operational Period, and communications with operation’s division supervisors.
<b>Module 7 – SCAT Job Descriptions</b>	Explains standard SCAT job descriptions as “technical specialists” within the ICS and Incident Management Team. Looks at duties and tasks of SCAT members.
<b>Part 3 - SCAT Working Environments</b>	
<b>Modules 8 - About Oil in Freshwater</b>	Looks at the fundamental differences between an inland <i>versus</i> marine oil spill, SCAT challenges faced in inland spill response, and fate & effect of oil in freshwater.
<b>Modules 9, 10 &amp; 11 - Geomorphology and Ecology of Lakes, Rivers, Wetlands</b>	Modules explains the basics of geomorphological and ecological of lakes, rivers and wetlands to provide relevant terminology and system dynamics important to the SCAT process.
<b>Module 12 - Uses &amp; Values</b>	Examines the range of freshwater resource uses such as public, commercial, and First Nations (Aboriginal).
<b>Module 13 - Resource Inventory</b>	Examines how SCAT environments (ecology, geomorphology, resources uses) are inventoried and how to extract this information for use in the SCAT process.
<b>Part 4 - Shoreline Cleanup Methods</b>	
<b>Module 14 – Shoreline Cleanup (Treatment) Methods.</b>	Looks at a wide-range of shoreline cleanup options. Examines when and where to use, constraints and environmental effects of each option and other factors important to SCAT decision-making. Module is primarily based on NOAA’s <i>Options for Minimizing Environmental Impacts of Freshwater Spill Response</i> .
<b>Module 15 – Relative Environmental Impacts</b>	Examines the relative impact of shoreline cleanup (treatment) options without oiling, as well as <u>with</u> specific oil products on lakes, rivers, streams and different shoreline types (substrates)
<b>Modules 16 and 17 – Cleanup Options for Specific Environments and by Shoreline Types</b>	Examines what are the best options for treating oiled shores that are practical, safe and cost-effective by environment: lake, river, stream, and wetland (mod. 16) and also by shoreline types (bedrock, mud, sand, cobble, etc),



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Part 5 - Shoreline Cleanup Constraints and End Points	
<b>Module 18– Constraints for Shoreline Treatment</b>	Review “what not to do” as constraints to cleanup operations. Examines constraint categories (deferred, standard, holding, special consideration) and provides examples of pre-established operational constrains for a variety of cleanup options (mechanical, flooding, burning, etc) and actual constraints used in incidents.
<b>Module 19 – End Points for Shoreline Treatment</b>	Explains how to establish and to write endpoints as measurable criteria assigned to a segment of oiled shore used to determine the completion of a specific treatment plan. Focusses on qualitative and quantitative end-points and agency/RP/stakeholder participation.
Part 6 - SCAT Field Measurement & Documentation	
<b>Module 20 – Field Measurement Equipment</b>	Demonstration of field equipment such as hip-chains, range-finders, GPS, <i>etc.</i>
<b>Module 21 - SCAT Field Measurement of Oil</b>	Explains how to take measurements of oiling coverage, character, and thickness for an oiled shoreline segment.
<b>Module 22 – Field Documentation of Biological Resources</b>	Explains the differences been biological sensitivity and vulnerability, and the importance of species recruitment. Explains the Biological Observation Form to guide cleanup operations.
<b>Module 23 – SCAT Field Documentation Using Shore Oil Summary Forms</b>	Explains how to complete Shore Oil Summary forms for freshwater environments and sketches for oiled shore segment to identify specific locations to be cleaned, recommended methods, constraints, and other operational information. Information is based on field measurements.
Part 7 - SCAT Field Health and Safety and Field Tour	
<b>Module 24 - Field Health and Safety</b>	Module is based on the health and safety component of the April 2006, <i>Spill Tactics for Alaska Responders</i> (STAR), includes presentation of personal protective equipment and supplies that should accompany a SCAT field kit.
<b>Module 25 – Field Tour (optional)</b>	A field tour of selected shore types, habitats and environments to view the setting from the perspectives of: government agencies, industry (Responsible Party), stakeholders (community) and operations personnel. Other considerations include: safety, operational constraints, tactics end-points



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<b>Part 8 - SCAT Information Management</b>	
<b>Module 26 – Information Packaging and Presentation</b>	This module examines how - in the Incident Command Post - to take the field data for Shore Oil Summary forms and analyze and present the information to unified command, operations and stakeholders. Looks at data-management challenges and opportunities.
<b>Module 27 – Automation of SCAT Field Data Collection</b>	This module examines the challenges and opportunities to use technology in-the-field, limitations and benefits of electronic field equipment, GPS photo geo-referencing and SCAT data collection using a Personal Digital Assistant (PDA)
<b>Part 9 - SCAT Integration Table-Top Exercise</b>	
<b>Module 28 – Table top Exercise</b>	A short exercise to integrate the SCAT process from arriving at Command Post, for incident briefing SCAT standardization, safety <i>etc</i> , to going into the field, and returning to manage SCAT field data.
<b>Module 29 – Course Evaluation</b>	Course -evaluation - written submission by participants and verbal suggestions on course materials, presentations, relevance, <i>etc</i> .