

THE NATIONAL RESPONSE TEAM

Working together to protect Americans from threats to our land, air, and water.

November 15, 2007

National Response Team (MS 5401)

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The enclosed guidance document, *Scientific Support Coordinator (SSC) during an Emergency Response: The Role of the SSC*, was prepared by the U. S. National Response Team (NRT). Composed of 16 federal departments/agencies with responsibilities and expertise in various aspects of emergency response to oil and hazardous substance pollution incidents, the NRT has national responsibilities for interagency planning, policy, and coordination. The goal of the National Response System (NRS) is to protect the environment, public health, and worker safety while coordinating responses to pollution incidents in an efficient and effective manner.

The NRT's observations and lessons learned following Hurricanes Katrina and Rita included a recommendation that the SSC position should be defined and standardized within the context of National Incident Management System (NIMS)/Incident Command System (ICS). In response to this recommendation, the NRT prepared the attached document, *SSC during an Emergency Response: The Role of the SSC*. The purpose of this document is to provide guidance and technical assistance regarding the role of the SSC as a scientific advisor to the Federal On-Scene Coordinator (OSC). The SSC responsibilities include obtaining consensus on scientific issues affecting the response, communicating differing opinions, and resolving conflicting scientific information within the scientific community to the Incident Command (IC). This document clarifies the agency-specific tasking for those SSCs deployed by the Environmental Protection Agency (EPA) and the National Oceanic Atmospheric Administration (NOAA), and explains the relationship of the SSC within the Incident Command Structure, specifically with the Environmental Unit and Incident Commander.

Sincerely,


Debbie Dietrich, Chair
National Response Team


Commander Anthony Lloyd, Vice Chair
National Response Team

Enclosure: *Scientific Support Coordinator (SSC) during an Emergency Response: The Role of the SSC*



Scientific Support Coordinator (SSC) during an Emergency Response: The Role of the SSC

Guidance Document

September 27, 2007

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Acknowledgement

The National Response Team (NRT) acknowledges the NRT member agencies, and state and Federal agencies participating on the Regional Response Teams (RRTs), for their contributions in preparing this document. We invite comments or concerns on the usefulness of this document in all-hazard planning for responses. Please send comments to:

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For more information on the NRT, please visit www.nrt.org.

Document Purpose

This document is a product of the U.S. National Response Team (NRT), which is the organization of 16 Federal agencies responsible for national planning and coordination of oil and hazardous substance emergency preparedness and response under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).¹ For additional information on the National Response System (NRS) and Federal response authorities, visit *www.nrt.org*.

This document is intended solely as guidance and was designed to provide technical assistance to the federal OSCs on the role of the Scientific Support Coordinator (SSC) during responses to releases of hazardous substances, pollutants, contaminants, or discharges of oil (or threats of either). This document was prepared by the NRT because the review of the response activities for Hurricane Season 2005 indicated that the SSC position needed to be defined and standardized.

In accordance with the NCP, the Scientific Support Coordinator (SSC) is a scientific advisor to the federal On-Scene Coordinator (OSC) responsible for obtaining consensus on scientific issues, affecting the response, communicating differing opinions, and resolving conflicting scientific information within the scientific community to the Incident Command (IC).

This guidance document will provide the reader with an overview of the SSC. Both the Environmental Protection Agency (EPA) and the National Oceanic Atmospheric Administration (NOAA) provides SSCs. Agency-specific SSC tasking is contained in Appendix B and C, respectively. While all SSCs have scientific background, technical expertise of individual SSCs varies (e.g., hydrology, geology, etc.).

Note: This document does not impose any legal obligations or duties on any party. This document does not supersede the NCP, found in 40 CFR Part 300, or any regulations issued by Federal agencies.

¹ 40 Code of Federal Regulations (CFR) Part 300

Overview of the function of the SSC

Scientific support to the Environmental Protection Agency (EPA) On-Scene Coordinators (OSCs) and Remedial Project Managers (RPMs), and the U.S. Coast Guard (USCG) Federal On-Scene Coordinators (FOSCs) is provided by Special Teams specified in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Part 300.145(c)(1)).² All SSC support is at the request and direction of the incident specific federal OSC, and performed in order to promote effective coordination and communication among the scientific community during a response. Federal OSCs often act as Incident Commanders (ICs) within the National Incident Management Systems (NIMS), and it is critical that the SSC support the IC/Unified Command (UC).

An SSC may be designated by the federal OSC as the principal advisor for scientific issues, including communicating with the scientific community and coordinating requests for assistance from state and Federal agencies regarding scientific studies. The SSC strives for a consensus on scientific issues affecting the response, but ensures that differing opinions within the community are communicated to the federal OSC.³

The SSC's role as an objective scientific advisor or "trusted agent" has been developed over many years of working with response personnel on routine removal actions and emergency responses, attending conferences and participating in drills and exercises. The benefits provided by an SSC are critical to the overall mission of national pollution planning and response.

History of the SSC

The SSC and scientific support team (see Appendix A) has its roots in the Argo Merchant spill off Nantucket Island, MA in 1976 where it became apparent that the federal OSC required a specialist for coordinating scientific activity and a scientific support team/technical specialists who focused entirely on the scientific support needs of the incident. This concept was incorporated into the Oil Pollution Act of 1990 (OPA) following the 1989 Exxon Valdez oil spill.

Expertise Available from the SSC

Today direct support of the federal OSC from scientists and technicians with a wide range of expertise is available to respond and recover from accidents involving hazardous chemicals as well as consequence management from intentional acts using weapons of mass destruction. The technical pool of experts an SSC may be selected from is comprised of EPA and National Oceanic Atmospheric Administration (NOAA) scientists and technicians who can access a broad spectrum of science and technology expertise, including but not limited to the following areas:

- ◆ Biology
- ◆ Bioremediation
- ◆ Chemistry
- ◆ Decontamination science
- ◆ Emergency data management
- ◆ Engineering
- ◆ Health and safety
- ◆ Hydrology
- ◆ Information management
- ◆ Natural resources
- ◆ Oceanography
- ◆ Oil and chemical spill response

² See Appendix A for SSC language extracted from NCP.

³ 40 CFR Part 300.145(c).

- ◆ Environmental sampling
- ◆ Geology
- ◆ Geomorphology
- ◆ Hazard evaluation
- ◆ Hazardous materials' response training
- ◆ Hazardous waste disposal
- ◆ Remediation
- ◆ Radiation
- ◆ Remote sensing
- ◆ Site assessment
- ◆ Toxicology
- ◆ Treatment technologies
- ◆ Veterinary science

Roles and Responsibilities of the SSC

Similarities between EPA and NOAA SSCs

All EPA and NOAA scientific support is at the request and direction of the federal OSC. The pool of technical specialists that an SSC can be drawn from represents a broad range of scientific disciplines and operational experience, having responded to most major U.S. incidents over the last two decades and many major overseas incidents. An SSC can access all of the science, advanced technology, and policy resources from coordination with federal, state, public, private and academic agencies or institutions. SSCs can also coordinate requests for assistance from federal and state organizations.

Many technical experts' assets may be needed in a reach-back capability, supporting the response from research facilities, laboratories or offices rather than at the scene of the incident. These technical experts, while not at the scene, are still an integral component of the scientific support team.

Appendix A is an excerpt from the NCP and provides details describing the roles and responsibilities of both EPA and NOAA SSCs.

Differences between EPA and NOAA SSCs

An SSC may be provided by either EPA or NOAA. The primary differences between an EPA SSC and NOAA SSC center on their respective areas of expertise. Other differences exist due to the agency's specific authorities (i.e. response authority, funding mechanisms, NOAA's responsibility as a Natural Resource Trustee, etc.)

An EPA SSC normally responds in support to EPA OSCs to incidents affecting the inland zone, whereas a NOAA SSC normally responds in support of USCG OSCs to incidents affecting the coastal zone. EPA and NOAA expertise tends to focus on subject matters specific to their respective geographic zones, but both agencies also maintain expertise in more generalized areas (i.e., biology, chemistry, etc.) that are applicable to both zones.

Appendix B and Appendix C provide EPA- and NOAA-specific descriptions, respectively, of the differences between NOAA and EPA SSCs.

SSC and the Incident Command System

The SSC has a direct responsibility to the federal OSC as a principal advisor. Depending on the complexity of the incident, some incidents may require technical experts from a variety of different functional areas of response. When more than one technical expert is required on scene, one will be designated the SSC by the federal OSC to coordinate all on-scene scientific activity.

Depending on the nature and location of the incident, the SSC may obtain input from government agencies, universities, community representatives, and industry to assist the federal OSC in evaluating the hazards and potential effects of an incident and in developing response strategies.⁴ The NOAA SSC serves as the lead NOAA representative for the NOAA Scientific Support Team (SST). The EPA SSC also serves as the lead representative on Incident Management Teams (IMTs) for EPA Special Teams.

Scaling a Response Effort

The scale, positioning, makeup, and duration of the incident specific scientific support team always depends on the specific circumstances of the incident. For a minor incident, the federal OSC typically requests technical information via phone contact with the SSC, who then reaches back as necessary to the scientific support team. A slightly more complex incident is likely to involve a technical expert responding as the SSC on-scene to the incident. Major incidents will present a range of scientific issues that change over the first days and weeks of the incident. Immediate issues usually involve trajectory analysis and modeling, chemical properties of hazardous materials and the potential for on-site treatment, toxicology, and engineering of containment areas. Over the course of response the SSC and scientific support team may change based on the needs of the dynamic incident.

The SSC will typically focus on interacting with the federal OSC as a member of the Command Staff. The SSC may staff other roles within the Incident Command System (ICS). At the request and support of EPA or USCG, the SSC may also staff technical working groups at the Joint Field Office(s) (JFO(s)), the Regional Response Coordination Center(s) (RRCC(s)), Environmental Clearance Committees and Stakeholder Technical Working Groups. The SSC may also coordinate communications from the Regional Response Team (RRT) to the federal OSC. This allows the SSC to have a complete understanding of the scientific issues impacting the response. The SSC will base his/her recommendations to the federal OSC on the best and most current information available from all sources.

Summary

All EPA and NOAA scientific support is at the request and direction of the federal OSC, and performed in order to promote effective environmental protection, mitigation, and recovery. The pool of technical experts an SSC may be selected from is composed of members that possess scientific expertise in a wide variety of disciplines. The number and capabilities of the technical experts responding to an incident will depend on the federal OSC tasking and the judgment of the selected SSC as to the support necessary to carry out those tasks. The benefits provided by an EPA or NOAA SSC are critical to the overall response effort.

⁴ Ibid.

Appendix A: Scientific Support Coordinator, as defined by the NCP

The following excerpt is from the NCP, 40 CFR Part 300.145(c):

(c) SSCs may be designated by the OSC (and Remedial Program Manager (RPM) in the case of EPA SSCs) as the principal advisors for scientific issues, communication with the scientific community, and coordination of requests for assistance from state and Federal agencies regarding scientific studies. The SSC strives for a consensus on scientific issues affecting the response, but ensures that differing opinions within the community are communicated to the OSC/RPM.

(1) Generally, SSCs are provided by NOAA in the coastal zones, and by EPA in the inland zone. OSC/RPM requests for SSC support can be made directly to the SSC assigned to the area or to the agency member of the RRT. NOAA SSCs can also be requested through NOAA's SSC program office in Seattle, WA. NOAA SSCs are assigned to USCG Districts and are supported by a scientific support team that includes expertise in environmental chemistry, oil slick tracking, pollutant transport modeling, natural resources at risk, environmental tradeoffs of countermeasures and cleanup, and information management.

(2) During a response, the SSC serves on the Federal OSC's/RPM's staff and may, at the request of the OSC/RPM, lead the scientific team and be responsible for providing scientific support for operational decisions and for coordinating on-scene scientific activity. Depending on the nature and location of the incident, the SSC integrates expertise from governmental agencies, universities, community representatives, and industry to assist the OSC/RPM in evaluating the hazards and potential effects of releases and in developing response strategies.

(3) At the request of the OSC, the SSC may facilitate the OSC's work with the lead administrative trustee for natural resources to ensure coordination between damage assessment data collection efforts and data collected in support of response operations.

(4) SSCs support the RRTs and the Area Committees in preparing regional and area contingency plans and in conducting spill training and exercises. For area plans, the SSC provides leadership for the synthesis and integration of environmental information required for spill response decisions in support of the OSC.

Appendix B: EPA SSC

Scientific support to U.S. EPA's OSCs is provided by Special Teams specified in the NCP. This support may be provided in the role carried out by the EPA SSC. All scientific support is at the request and direction of the OSC, and performed in order to promote effective environmental protection, mitigation, and recovery.

EPA SSCs provide technical expertise in treatment technologies, biology, chemistry, hydrology, geology, engineering, radiation, decontamination science, analytics, veterinary science, emergency data management, bioremediation, phytoremediation, health and safety, toxicology, hazardous materials' response training, hazard evaluation, environmental sampling, site assessment, oil spill response, and hazardous waste disposal.

EPA SSCs reside in the EPA Special Teams and assist with responses to actual and potential hazardous substance releases. EPA Special Teams have a history of being part of EPA response and recovery operations. Special Teams, to a large part through the role of the SSCs, provide training, review and develop contingency plans, support the OSC and Command Staff, and respond to incidents collaboratively with the EPA response team within an ICS.

OSC requests for SSC support can be made directly to the SSC and can also be made through the program offices of the Environmental Response Team (ERT) at 732-321-6740, National Decontamination Team (NDT) at 513-487-2420, or Radiological Emergency Response Team (RERT) at 202-343-9290.

Appendix C: NOAA SSC

The NOAA SSC has evolved into a team of NOAA scientists and technicians with expertise in oceanography, biology, chemistry, geomorphology, natural resources, human health and safety, remote sensing, and information management who directly support the FOSC.

The SSCs are part of NOAA's Emergency Response Division (ERD) but are stationed with the USCG Districts to optimize support to the USCG for both preparedness for and responses to actual and potential discharges of oil and other hazardous substances. NOAA's ERD has a history of being part of the USCG's internal, pre-spill operations. ERD, through the SSCs provide training, review and development of contingency plans, support to USCG enlisted personnel and command staff, and respond to incidents collaboratively and cooperatively with the USCG as a team.

NOAA SSCs also support the RRTs and the Area Committees in preparing regional and area contingency plans and in conducting spill training and exercises. SSCs serve as either primary or alternate RRT representatives for the Department of Commerce (DOC). For Area Contingency Plans (ACPs), the SSC provides leadership for the synthesis and integration of environmental information required for any incident response decisions in support of the IC.⁵ To avoid any conflict of interest, no SSC serves as both RRT representative and SSC for the same incident.

NOAA SSCs can be requested through NOAA's SSC program office in Seattle, 24 hour duty phone, at (206) 526-4911.

Scaling a Response Effort during an Oil Spill

Depending on the nature of a specific incident and the requirements identified by the FOSC, the SSC recommends a mix of NOAA responders to provide support during a spill. In general, there are three levels of response: minor, medium, and major. The scale, positioning, makeup, and duration of the SST response always depend on the specific circumstances of a spill. As defined by the NCP, a minor discharge in the coastal zone is one that is less than 10,000 gallons, a medium discharge is 10,000 to 100,000 gallons, and a major discharge is greater than 100,000 gallons of oil. In the inland zone, the size classes are less than 1,000 gallons for a minor discharge, 1,000 to 10,000 gallons for a medium, and greater than 10,000 gallons for a major discharge. However, location, site sensitivity, and local/regional political considerations can change the relative classification of any spill.

For minor or potential spills, support is often provided by telephone or with only the SSC reporting to the spill scene. FOSCs typically request a pollutant trajectory forecast and initial resources at risk summary for minor spills. The SSC will obtain this information via telephone contact with SST members based in Seattle. The SSC verbally or electronically conveys this information to the FOSC. There are usually no costs billed to the National Pollution Funds Center (NPFC) for these types of responses.

A medium response is likely to involve two to four NOAA personnel depending on the incident characteristics. Members might include the SSC, one or two discipline specialists (usually a physical oceanographer/modeler and an expert on environmental consequences of spills and response countermeasures) and an information management technician. Home Team specialists are also available for remote support. Depending on the spill, trajectory analysis can be a critical element of the response. If this type of support is required, accurate trajectory forecasts require overflight observers to determine oil location, oil weathering and ocean conditions. To provide more frequent updates and more comprehensive

⁵ §300.145(c)(4)

interpretation of the trajectory predictions, one member of the trajectory modeling team will likely go on-scene. When other issues arise such as shoreline oiling, natural resource impacts, seafood contamination concerns, release of other hazardous materials, or consideration of chemical countermeasures, other SST members could be called to the scene.

Major spills will present a range of scientific issues that change over the first days and weeks of the spill. Immediate issues usually involve trajectory analysis, physical and chemical properties of oil over time, or chemical properties of hazardous materials, natural resource protection priorities, and the use of dispersants or in-situ burning. As the emphasis moves from initial efforts of source control and pollution prevention to shoreline cleanup operations; technical issues shift to documenting the extent of contamination, evaluating clean up methods, balancing environmental and economic trade-offs, and establishing clean up levels.

The initial SST might include 5 people: the SSC, a deputy SSC, one or two specialists in trajectory analysis, coastal processes and resource impacts, and a person for information management support. The SSC will typically focus on interacting with the FOSC and, as appropriate, the RRT when special issues, like approval of dispersant use, need to be addressed. The deputy SSC and subject matter specialists focus on coordinating scientific information from local representatives and experts from Federal, state, and other organizations.

NOAA SSC Response Support and Natural Resource Trustee Activities

Independent of a SSC's response duties are program elements of NOAA related to Natural Resource Trusteeship and damage assessment issues. The DOC RRT member is the focal point for policy and trustee response issues, while the NOAA Assessment and Restoration Division is the focal point for initiating and conducting damage assessments. NOAA employees performing Natural Trustee Damage Assessment functions will often be at the scene of significant spills. They are not under the control of the SSC. The SST works strictly on response issues under the direction of the FOSC and does not conduct Natural Resource Damage Assessment activities. If an RRT issue should arise, the DOC alternate representative will serve on the RRT, keeping the SSC focused on response.

At the request of the FOSC, the SSC may facilitate the FOSC's work with the Lead Administrative Trustee for natural resources to ensure coordination between Natural Resource Damage Assessment data collection efforts and data collected in support of response operations.⁶ In addition, SSCs may facilitate discussions regarding endangered species consultations and cultural/archeological issues.

NOAA costs related to initiation of damage assessment are resolved through direct discussion with the Responsible Party, or may be documented as part of a specific authorization between the Lead Administrative Trustee and the NPFC. These costs are not part of NOAA's response cost documentation provided to the FOSC.

Funding and Cost Documentation for NOAA SSC Response Actions

The SSC and all team members work at the direction of the FOSC. It is ERD's responsibility to translate what are usually general requests from the FOSC into specific staffing and cost estimate tasking based upon the characteristics of the spill incident and knowledge of past spill operations. It is ERD's policy that the SSC review this tasking with the FOSC or delegated staff member and gain approval for such tasking, staffing levels, and rotation of personnel.

⁶ §300.145(c)(3)

NOAA provides SSCs to the USCG at no cost for base salary. SSC travel and overtime costs, and additional support for an incident, both on-site and off-site, is funded by the Oil Spill Liability Trust Fund (OSLTF) through a Pollution Removal Funding Authorization (PRFA) number established pursuant to an interagency agreement between the USCG and NOAA. Consequently, when FOSC requests SSC assistance, a PRFA number and cost ceiling should be provided if such assistance is likely to require more than what the SSC alone can provide. Along with the SSC estimates of support levels required to respond to an FOSC's specific requests, NOAA administrative support personnel in Seattle provide the FOSC's staff and the NPFC with regular estimates of expended and projected costs. These estimates provide the FOSC with current information on NOAA response costs and ensure that NOAA response operations are within ceilings that have been established for its operations.

Allowable costs for NOAA operations are established on the basis of audits by the Office of Inspector General, Oil Pollution Act Trust Fund implementing regulations, and specific agreements between NOAA and the NPFC. These procedures establish strict guidelines on what must be charged and how costs must be documented. These procedures have been developed over the 20+ years that NOAA has been providing scientific support to the USCG and are routinely included in all SSC training.

Appendix D: Acronyms

| | |
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| ACP | Area Contingency Plan |
| CFR | Code of Federal Regulations |
| DOC | Department of Commerce |
| ERD | Emergency Response Division |
| EPA | Environmental Protection Agency |
| ERT | Environmental Response Team |
| EU | Environmental Unit |
| EUL | Environmental Unit Leader |
| FOSC | Federal On-Scene Coordinator |
| IC | Incident Command |
| ICS | Incident Command System |
| IMT | Incident Management Team |
| JFO | Joint Field Office |
| OPA | Oil Pollution Act of 1990 |
| OSLTF | Oil Spill Liability Trust Fund |
| OSC | On-Scene Coordinator |
| NDT | National Decontamination Team |
| NIMS | National Incident Management System |
| NOAA | National Oceanic and Atmospheric Administration |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| NPFC | National Pollution Fund Center |
| NRS | National Response System |
| NRT | National Response Team |
| PRFA | Pollution Removal Funding Authorization |
| RERT | Radiological Emergency Response Team |
| RRCC | Regional Response Coordination Center |
| RRT | Regional Response Team |
| RPM | Remedial Program Manager |
| SSC | Scientific Support Coordinator |
| SST | Scientific Support Team |
| UC | Unified Command |
| USCG | United States Coast Guard |