



USCG Sector Delaware Bay Response to Rail Risks Planning Project



LT Eric Nielsen
USCG Sector Delaware Bay
Philadelphia, PA

LTJG Terry Plank
USCG Sector Delaware Bay
Philadelphia, PA

MST2 Michael Schneider
USCG Sector Delaware Bay
Philadelphia, PA

What is a Geographic Response Plan (GRP)

The development and implementation of Area Contingency Plans (ACP) and Geographic Response Plans (GRP) is a core component of the Coast Guard's Marine Environmental Response (MER) program. The Oil-By-Rail (OBR) annex to the ACP was created as a result of the large increase of petrochemical products and domestic crude oils, specifically Bakken and Dilbit, which are transported by rail in the region.

GRPs provide tactical guidance to first responders to ensure that sensitive areas and resources at risk are protected in the immediate aftermath of an oil spill. GRPs contain maps and descriptions of areas and resources, outline strategies to protect those resources, incorporate pre-determined booming and equipment deployment strategies, and set priorities for various spill scenarios.

Pre-Approved Response Strategies

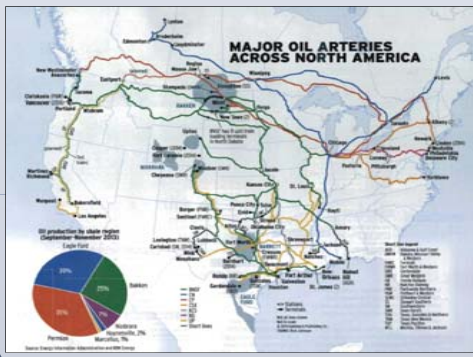
Once promulgated by the Area Committee, GRPs serve as "pre-approved" spill response strategies for the protection of sensitive areas and resources at risk in a given geographic area. This enables spill responders to rapidly identify priorities and act swiftly to mitigate the spill while incident response coordinating mechanisms, such as Incident Command System (ICS), are still being activated.



GRPs should be utilized during the initial response and assessment phase of the incident. As the response progresses, the GRP will continue to be used to inform the strategies and tactics developed by the response organization.

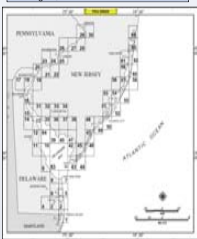
Why Develop an Oil-by-Rail Geographic Response Plan

Since 2012, the market share of crude oil transported to east coast refineries by rail has increased from 0% to 40%. Sector Delaware Bay's AOR has historically seen one Million Barrels Per Day (BPD) transported within our port; currently, 538,000 BPD of Bakken and 103,000 BPD of Bitumen/Dilbit are refined each day at five refineries which are serviced by three different Class I rail companies. On average, 170 trains per month transit through USCG Sector Delaware Bay jurisdiction, crossing or abutting 38 at risk rail-waterway nexuses.



Elements of the Geographic Response Plan

The GRP Map Index is built on the framework of NOAA's existing Environmental Sensitivity Index (ESI) maps. The GRP Map Index consists of numbered ESI cells which are each linked to corresponding booming strategies, ESI and other ACP data.



Linked GRP cells depict both the historic ACP booming strategies (magenta color) and the new OBR booming strategies (yellow color).



Booming Strategy Maps include symbols identifying equipment and tactics to be used, their operational location, access considerations and staging areas.



Each map contains links to corresponding ICS-204a, ICS-232, and ESI documents.



ICS-204a (Work Assignment Summary) Forms

Contain pre-scripted information regarding equipment and personnel required to implement the particular response strategies.



ICS-232 (Resources at Risk) Forms

Contain information on sensitive areas and resources within a particular cell derived from:
• ESI maps
• Environmental Risk Assessments
• Natural Resource Trustee input



Environmental Sensitivity Index (ESI) Maps

Provide concise summary of coastal resources (natural, historical, archeological, & critical infrastructure) that are at risk if an oil spill occurs nearby.

Ecological Risk Assessment (ERA)

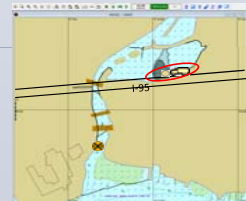
USCG Sector Delaware Bay performed an Ecological Risk Assessment in conjunction with the ACP/GRP update to study the effects of, and the proper response actions to, discharges of Bakken and Diluted Bitumen (Dilbit) in the Delaware River and Bay.

The high level of engagement by members of the Project and Area Committees strengthened the consensus value of the outcomes. Participants interpreted their results in terms of the costs and benefits of each response option to overall environmental protection as compared with natural recovery. Participants recognized that the potential risks of the oils and response options could vary from the ERA findings during an actual spill, depending upon exact location in proximity to sensitive resources of concern and time of year. Participants also noted the need for a holistic concept of operations for both Bakken and Dilbit oil spills that outline a priority sequence of response actions. These recommendations are captured in the updated ACP/GRP to best minimize ecological risk during an incident.

Major findings of the ERA include: (full report is located at <http://homeport.uscg.mil/delawarebay>)

- For Bakken oil: the primary initial strategy is to mitigate flammable vapor safety risks. Air monitoring is critical.
 - Protective booming strategies should be implemented during the initial stages of the response.
- For Dilbit oil: the primary initial strategy is to contain and recover the oil.
- There are greater long-term ecological risks associated with a Dilbit spill than a Bakken spill.
- There are moderate ecological risks associated with the use of fire fighting foam in fresh, brackish and salt water environments.

GRP Field Testing and Validation



To validate GRP strategies, both computer-based oil spill trajectory modeling and real-world boom deployment exercises were conducted at various sites to evaluate effectiveness. Equipment was deployed in real-time to validate:

Testing and Validation Requirements for Success

- Required resources (type and amount of boom, anchors, skimmers, personnel, and boats).
- Effectiveness of boom deployment configurations at various tides and tidal current flow.
- Recommended anchors and anchor points.
- Suitability of pre-identified equipment staging and support areas.
- Suitability of oil collection areas.
- Site access considerations.



Oil-by-Rail Geographic Response Plan Development Process

Collaborative Interagency Process

Development of the GRPs included extensive coordination with federal, state and local agencies, non-governmental organizations, and the private sector, to include the 3 Class Railroads in our AOR. Planning input was obtained, in part, through a series of workshops in Pennsylvania, Delaware, and New Jersey to identify sensitive resources at risk and develop spill response strategies to aid in their protection. The collaborative, consensus based approach used by the Area Committee was critical in ensuring that all stakeholder concerns were considered, and that the initial protective strategies represented in the GRPs were fully supported.



NHPA, ESA & Magnuson-Stevens Act Consultation

- The National Historic Preservation Act (NHPA) Section 106, The Endangered Species Act (ESA) Section 7, and The Magnuson-Stevens Fishery Conservation and Management Act mandate that Federal agencies must consult with the Services (NOAA and DOI) when activities may adversely affect natural, cultural or historic resources.
- Sector Delaware Bay is utilizing the 2001 Inter-Agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities under the National Oil and Hazardous Substances Pollution Contingency Plan and The Endangered Species Act, and the 2002 Guidebook to conduct consultations with the services.
- By working proactively during Pre-Spill Planning and in the development of ACPs/GRPs before a spill occurs, the Services can help to identify the potential effects of oil spill response activities on listed species, critical habitat, and cultural/historic resources, and jointly develop response plans and countermeasures (response strategies) to minimize or avoid any adverse effects.