

JOINT MEXICO-UNITED STATES OIL SPILL RESPONSE PREPAREDNESS TRAINING ACTIVITIES

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ABSTRACT

Exercise and evaluation of the Pacific Annex of the Joint Contingency Plan Between the United Mexican States and the United States of America Regarding Pollution of the Marine Environment by Discharges of Hydrocarbons or Other Hazardous Substances (MEXUSPLAN) uncovered a significant need for joint training between spill responders, planners, decision-makers and stakeholders on both sides of our border.

Sponsored by U.S. Coast Guard District 11 (USCG D11) and the Second Mexican Naval Zone (ZN2), a series of training sessions were held for Mexican officials from the Northern Baja California region and Mexico City in early 2003. The first of these well-attended sessions was held in two locations: San Diego, CA and Ensenada, Mexico in February 2003. The U.S. National Oceanic and Atmospheric Administration (NOAA) Hazmat facilitated the first session, the Joint Mexico-United States Oil Spill Science Forum. It provided a scientific view of oil spills. The following joint session facilitated by USCG D11 and held in Ensenada was a tabletop exercise designed in preparation for the signing of the MEXUSPAC Annex. Through the use of a spill drill scenario, this session included instruction and dialogue about the roles and responsibilities of both U.S. and Mexican spill responders. Both sessions included presentations from several agencies of the Regional Response Team IX/Joint Response Team: U.S. Dept. of Commerce, U.S. Dept. of the Interior and California's Office of Spill Prevention and Response. Industry partners also contributed topics of discussion, further complementing the U.S. response landscape. Mexican response agencies, including PEMEX, SAGARPA, SEMARNAT and PROFEPA, provided valuable input ensuring dialogue helping to identify additional joint response gaps. Upon the most significant gaps brought to light was the need for additional information regarding dispersant use by Mexican agencies, particularly in light of the approaching international SONS Exercise in April 2004. To this end, USCG D11 and NOAA HAZMAT developed and presented a modified Ecological

Risk Assessment for their Mexican counterparts. Hosted by ZN2 in October 2003, this highly successful workshop brought together many key decision makers, planners and stakeholders from both sides of the border to discuss tradeoffs inherent in the use of existing spill response tools, including dispersants. Joint training and discussion sessions such as these are key to ensuring any measure of success in a joint spill response. Several additional training and discussion topics designed for the Mexican-U.S. joint response forum have been identified with many in the planning phase. Acknowledging the similarities as well as differences in response systems of our two nations' is essential to the success of these joint collaborations. Such continued efforts will help bridge existing gaps.

DISCUSSION

In July of 1980 the United States and Mexico signed a document formally known as the *Agreement of Cooperation Between the United States of America and the United Mexican States Regarding Pollution of the Marine Environment by Discharges of Hydrocarbons and Other Hazardous Substances*. This international agreement established the platform from which the United States Coast Guard and the Mexican Navy would work together to develop the MEXUSPLAN, a cooperative agreement between the two nations to assist one another in the event of a significant oil spill incident occurring in or near the coastal border region of the United States and Mexico through the efforts of a joint response operation.

The MEXUSPLAN has two geographic annexes, the *Mexico-United States Pacific Annex (MEXUSPAC)* and the *Mexico-United States Gulf of Mexico Annex (MEXUSGULF)* that address region-specific procedures, contact information, resources, and other pertinent information. All three documents must clearly address all aspects of a bi-national response operation to be of full value

to response managers in their effort to protect the marine environment from the detrimental effects of an oil spill. If not, response managers from both Mexico and the United States will be hard pressed to contend with the issues not fully addressed in the plan during the first few critical hours and days of a response operation resulting in lost valuable time and possibly further damage to resources. The MEXUSPLAN also established planning bodies in both the Pacific and Gulf regions that are designed to support the MEXUSPLAN and its annexes. The bodies known as Joint Response Teams are comprised of resource trustees and response managers, co-chaired by the US Coast Guard and MEXNAV.

Joint preparedness for oil spills near the border region between Mexico and the United States has been ongoing for years. Recent evaluation of the MEXUSPAC annex uncovered a significant need for joint training and coordination on a variety of response related issues between Mexican and U.S. responders in the Pacific coastal border region. In particular, several aspects of joint spill response were identified as a critical need for coordination: notification procedures, roles and responsibilities of response agencies, communications, cross-border transportation issues, funding mechanisms and a common baseline knowledge of oil spill scientific issues. To address these gaps, a number of joint activities were held in the Pacific region over the past two years, several of which will be discussed below.

TABLE TOP EXERCISE

To best identify potential response preparedness shortfalls of the MEXUSPAC Annex, a tabletop exercise was developed to discuss and evaluate the effectiveness of the content of this international oil spill response plan. A tabletop planning team consisting of members of the U.S. Coast Guard Eleventh District (USCG D11), Second Mexican Naval Zone (ZN2), and the U.S. National Oceanic and Atmospheric Administration (NOAA) Hazmat Division organized the exercise. The tabletop exercise, which took place on February 25, 2003, was hosted by the Second Mexican Naval Zone Headquarters in Ensenada, MX and facilitated by members of the USCG D11 Response Branch (for more information, see Holmes 2003).

To maximize the effectiveness of the tabletop exercise, a large number of oil spill response organization representatives from both Mexico and the United States were invited to participate. By involving over sixty experienced response personnel from the regulatory, natural resource management, industry and environmental activist arenas in the Pacific border region, this well rounded representation of the response community allowed for many different concerns and perspectives to be addressed.

The tabletop exercise served as a means of sifting through oil spill response expert's concerns and applying them to the plan by presenting five core elements of a bi-national spill response operation. The five key core elements discussed were solicited from a large group of response experts, selected by the exercise planning team and then presented to the group for debate at the tabletop exercise. The resulting core elements of the exercise were as follows:

- Roles and responsibilities of response agencies;
- Oil spill notification procedures;
- Communications;
- Transportation;
- Funding mechanisms.

Each core element was supported by a particular participating agency that could then clarify most questions or uncertainties the group raised. For example, to ensure that questions pertaining to *Funding Mechanisms* were clearly answered, representatives from the Coast Guard National Pollution Fund Center (NPFC) and from

Mexican Naval Headquarters were in attendance. This helped to eliminate any skepticism that questions being asked by the group would not be answered by a credible source.

The group began the exercise with a one-hour activity on staffing a joint marine oil spill response command based on the response management system referred to as the National Inter-agency Incident Management System Incident Command System (NIIMS ICS). Because of their lead role as On-scene Coordinator (OSC) in a Unified Command during a marine oil spill response, senior members of both the U.S. Coast Guard and the Mexican Navy were requested to identify which agencies or specific individuals would fill each response management position. The purpose of this activity was to ensure that both the United States and Mexico have pre-identified agencies that will participate in a bi-national oil spill response in the Pacific coastal border region.

To begin the core discussions, the NOAA Scientific Support Coordinator for California ran a series of oil spill trajectories reflecting a spill scenario occurring off the coast of the U.S. and Mexican Pacific coastal border region. The scenario was based upon a tank vessel collision with a freight ship at the PEMEX Facility Mooring Buoy off of Rosarito Beach, Mexico resulting in a 10,000-barrel (40,000 liter) spill of petroleum product that ultimately flowed northward threatening U.S. waters. The purpose of presenting the scenario and trajectories was to help bring about a more realistic and regionally focused discussion.

As each of the five core elements was discussed, a series of sub-elements were then introduced. These sub-elements were developed by the exercise planning team to stimulate a more comprehensive debate of each core element, as well as to identify additional shortfalls in the MEXUSPAC Annex.

A facilitator guided the discussions by addressing the importance of each core element, where it was addressed in the plan, and addressed a series of initial questions drafted by the exercise planning team. The initial questions served as a catalyst for further inquiries by participants directed at respective agencies. Participant questions and concerns were then met with responses from agency representatives. Concerns presented by exercise participants that were not addressed in the *MEXUSPLAN* or its two geographic annexes were considered plan shortfalls.

JOINT MEXICO-U.S. OIL SPILL SCIENCE FORUM

In preparation for the Ensenada Table Top Exercise, Coast Guard District 11 (USCG D11) and the Second Mexican Naval Zone (ZN2) sponsored a training session held for Mexican officials from the Northern Baja California region and Mexico City to help lay a common baseline of scientific background on oil spill response issues. NOAA Hazmat (the U.S. National Oceanic and Atmospheric Administration) organized and facilitated this session, the Joint Mexico-United States Oil Spill Science Forum.

This forum provided an overview of the scientific aspects of responding to oil spills. Instructors from several branches of NOAA as well as the California Department of Fish and Game's Office of Spill Prevention and Response (CDFG OSPR) and industry partners brought their expertise to the group in an interactive session that included field trips and numerous small group break-out sessions. The forum was held at (Marine Safety Office) MSO San Diego on February 18-20, 2003. Field trips were extremely productive and allowed participants to view firsthand some of the valuable border-region resources and to have opportunities in small groups to better utilize their own expertise to jointly solve response problems. Locations for these off-site visits included trips to the Tijuana River Slough NOAA National Estuarine Research Reserve where the group received a presentation in Spanish by one of the Educational Directors from this important wetland area that spans the border of Mexico and

the U.S.; and to Imperial Beach where the group was divided into well-mixed small teams to jointly conduct a mock shoreline assessment and develop protection, cleanup and removal strategies. The local lead OSPR biologist also provided an excellent discussion of the challenges of protecting this wetland region, one of the most sensitive coastal resources in the San Diego/Mexican Border region. Additionally, a lead biologist from the National Marine Fisheries Service (NMFS) La Jolla, CA laboratory who focuses on Grey Whale migration was also able to highlight the movement, possible protection strategies and concern regarding impacts to these highly sensitive mammals that share their time between the waters off Baja California and Northern/Central California. The forum also included a highly informative presentation from a local Oil Spill Response Organization (OSRO) to discuss the local response resources available in Southern California to respond to a spill in the border region, as well as a discussion of how and when each type is utilized.

This joint forum was a tremendous success by providing an opportunity for decision-makers, resource trustees and scientific and subject matter experts from Mexico to interact with those from our side of the border. Not only were they able to hear and have a dialog about the science we rely on to help respond effectively and to mitigate harm, they also achieved a sense of how we set up a response in the U.S. and establish objectives and response priorities; how we determine the most effective response that enhances cleanup while minimizing further damage and promoting long-term recovery. By having open dialog about these overarching principles behind oil spill response, the Mexican responders were able to see how we can better integrate our joint response management structures during future incidents, and how their responders can train and prepare for this sort of response system.

ECOLOGICAL RISK ASSESSMENT—NET ENVIRONMENTAL BENEFIT ANALYSIS

One of the most significant gaps identified in these joint training sessions was the need for a common level of understanding between the joint responders of the use of dispersants and their applicability to spills in the Pacific coastal border region. Since Mexico's governmental structure and regulations do differ significantly from those of the U.S., it is essential that some baseline understanding exists so that when the time comes to make decisions about the use of dispersants and their potential impacts, response agencies are on a level playing field.

To help achieve this goal, USCG D11, ZN2 and NOAA Hazmat sponsored a three-day Ecological Risk Assessment-Net Environmental Benefit Analysis (ERA/NEBA) held in Ensenada, MX in October, 2003. The Project Team of planners, facilitators and presenters included two NOAA SSCs, a NOAA Hazmat Senior Scientist/toxicologist and members of USCG D11 Marine Safety Response Branch. This workshop was run much like many of the ERAs that have been conducted around the U.S. and continue to be sponsored by the USCG, with some modification to allow the workshop to be completed within a three-day period. We drew heavily from the USCG document on ERAs for our methodology (Aurand et al, 2000), as well as from Project Team member's personal experience of past ERAs they had each participated in.

Participation from the Mexican government was exemplary—members from Mexican Naval Headquarters in Mexico City as well as representatives from ZN2 were fully engaged throughout the session. The function itself was hosted by ZN2 in Ensenada. Additionally, representatives from PROFEPA, SEMARNAT, SALUD, and other Mexican agencies showed their deep concern for local resources and successful joint responses by participating fully.

The first day of the workshop began with a presentation of various conventional open water cleanup methods and their benefits and limitations, followed by a several hour discussion about how chemical dispersants work, when they are and are not appropriate to use, the benefits and limitations to their use and the toxicity of dispersed oil. These topics were all presented in a format promoting full dialog with the Mexican participants and many good discussion points were brought out, including some of the key drivers for setting response priorities in the coastal waters off Ensenada and the Northern Baja California region.

The afternoon of the first day was spent discussing the process of an ERA, including the modifications made by the Project Team to better fit the goals and time-constraints of the participants of this workshop (for more information about the ERA process, (Aurand). This discussion focused on the essential elements the USCG's ERA process—that it is a risk-based ranking of response options with a focus on discussing the inherent tradeoffs of each amongst the various decision-makers, stakeholders and resource trustees of a particular region. The discussion then moved to the immense benefits that an ERA-type process provides spill planning and response. Further attention was given to one of the key success factors of this planning effort: getting the right people at the table, followed by a description of the outcome of this process and how it can enhance future planning and response efforts in their region.

This session was followed up by a description of the scenario, the response options that would be considered and ranked for this scenario chosen by the Project Team, including estimates of efficiency, and a lengthy discussion of the environmental resources of concern in the area. For the purposes of this group of participants, and in the interest of time, the Team pre-selected three response options: Natural Recovery, Conventional and Alternative. Conventional was defined as a combination of on-water skimming and shoreline protection and removal. Alternative was the term used to define the use of chemical dispersants. The estimates of efficiency for these types were: Mechanical = 15%, Dispersants = 75%. The Project Team began with a gathering of resource information from local scientists, resource managers—coordinated through ZN2. During this section of the workshop, the Team relied heavily on input from the participants to fine-tune this list and help prioritize resources.

Next followed a discussion of the Risk Ranking Matrix, how it is used and a discussion on defining the levels of Concern and simplifying the scoring system for this session. Once this preliminary work had been achieved, we determined the habitats we would evaluate, then further defined subhabitats and summary tables. The group then began a discussion of the scenario and how to use it to facilitate the ranking of the three response options.

After the group had walked through the concept of the risk ranking process, discussion then turned to how to use this information: understanding the limitations of the analysis, summarizing the general level of information used and its adequacy, and developing conclusions and recommendations.

The second day of this workshop began with the participants broken up into three small groups. Each group walked through the scoring for Natural Recovery including evaluating this response option and its impacts on each habitat versus how well it did or did not mitigate impacts from the spill scenario itself. We reconvened as a large group to review the individual groups' initial scores and worked toward consensus for each of the habitat types to derive one final scoring matrix for Natural Recovery.

After a review of open water cleanup and shoreline cleanup options, the small groups again walked through the scoring matrix for the Conventional Response Matrix, followed by a large group discussion about each group's scoring and then consensus-building to produce a final matrix for Conventional. A similar process was followed for the Alternative Response option matrix.

One final matrix was compiled with all these scores to allow for overall comparison of the benefits and limitations of each response option for the key habitats of this region for this scenario.

After much discussion about response priorities, and the key drivers determining these priorities in this region, the group as a whole turned the final discussions toward lessons learned from engaging in this process, identifying unresolved issues that need further attention, how to use the results for planning and response, and an overall evaluation by the participants of this process.

CONCLUSIONS

The joint activities described were all a tremendous success on many levels. Primarily, just being able to gather the responders from both sides of the border together in an atmosphere that promotes dialog and exchange of ideas is essential to better overall integration and cooperation.

Additionally, one of the key overarching components of our U.S. response structure that the Mexican responders achieved a strong appreciation for during these sessions is the concept of the strong partnership between Federal, State, Local governments and industry during a response. The concept of a Unified Command structure during response is relatively new to them, particularly to the Mexican Navy—being in a team setting with other agencies during a response, setting priorities and making tactical decisions jointly with other agencies is not generally how they have operated. However, having an opportunity to see how well this structure works in the U.S. and promoting dialog about how inherent differences in their government and regulations would promote or inhibit these relationships was a key component to our success during our joint forums.

The benefit of these continued joint forums focused on the *MEXUSPLAN* and its Pacific geographic annex has been to improve the oil spill response preparedness of the governments of Mexico and the United States in their effort to protect the fragile resources of a common marine environment in the Pacific coastal region. By identifying relatively significant shortfalls within the plan and presenting them to the agencies that make up the Pacific Coastal Joint Response Team, this international team of trustees and response managers can then consider making necessary changes and improvements to the *MEXUSPLAN*, a monumental achievement in marine environmental protection. Many years of effort went in to the development of the *MEXUSPLAN* and its two geographic annexes resulting in the close, invaluable rapport between Mexico's and the United States' oil spill response com-

munity that exists today. To be simply satisfied with the status quo and leave this cooperative response agreement in an idle state would be a tragedy to the marine environment and to those who committed so much time and effort to develop it.

BIOGRAPHY

Since 1999, Heather Parker Hall has been the NOAA (National Oceanic Atmospheric Administration) Scientific Support Coordinator (SSC) for USCG District 11 (California) and US EPA Region IX (California, Arizona and Nevada) and has responded to numerous spill responses throughout Region IX as well as in other regions of the U.S. and internationally. Ms Parker Hall received her Bachelor of Science degree in Ecology and Evolutionary Biology from the University of Connecticut and a Masters of Science degree in Physical Oceanography from the Naval Postgraduate School in Monterey, CA.

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