



2015 Refugio Oil Spill

After-Action Report and Improvement Plan

July 6, 2016



Administrative Handling Instructions

Document Title: *2015 Refugio Oil Spill After-Action Report and Improvement Plan*

Document Control: The *2015 Refugio Oil Spill After-Action Report and Improvement Plan* identifies areas of strength and opportunities for improvement based on the lessons learned associated with the County of Santa Barbara's (the County's) response to the oil spill that occurred on May 19, 2015. Structurally, this document is aligned with the core capabilities identified by the Federal government under the National Preparedness Goal (NPG) and was developed leveraging planning meetings as outlined under the Homeland Security Exercise and Evaluation Program (HSEEP).

The information contained in this document is current as of the date of publication, July 6, 2016. As of the date of publication, the incident is still ongoing, with response and recovery operations expected to end in December of 2016.

Authority: The *2015 Refugio Oil Spill After-Action Report and Improvement Plan* was developed under the authority of the County as an Operational Area (OA) under the *California Emergency Services Act* and the California Code of Regulations (CCR), Title 14, Subdivision 4, Office of Oil Spill Response, Chapter 5. This authority is further enumerated in the *Santa Barbara Operational Area Oil Spill Contingency Plan*, which states:

The planning process includes incident after-action/corrective action reports that examine the effectiveness of response operations. After-action/corrective action reports are structured as an interagency meeting to evaluate response, improve future response, and determine if any oil spill contingency plan elements need to be revised. After-action/corrective action reports will be conducted within 30 days of an incident, and will focus on lessons learned. The agency whose representative served as Incident Commander (IC) generally initiates the after-action/corrective action report process, however in-house after-action/corrective action reports within agencies may be beneficial. Support and coordination for after-action/corrective action reports will be provided by the Office of Emergency Management as needed.

Collaboration and input for the after-action report (AAR) was sought and provided from various non-governmental (NGO), local, County, and State agencies, supporting evaluation of response operations, identifying actions to improve future response, and determining required improvements to the *Santa Barbara Operational Area Contingency Plan*. Participating and contributing organizations are identified under Appendix C: After-Action Meeting Participants and Appendix E: Debrief Participants.

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Executive Summary

The purpose of the *2015 Refugio Oil Spill After-Action Report and Improvement Plan* is to identify areas of strength and opportunities for improvement based on the lessons learned associated with the County's response to the oil spill that occurred on May 19, 2015. Largely, this document focuses on the planning, organization, equipment, training, and exercise capabilities, and opportunities for improvement specific to the County. However, this AAR acknowledges that the recommendations contained in the document may require participation and engagement from NGO, local, State, and Federal partners in order to ensure the revised plans, policies, and procedures are robust and that the implementation of those recommendations is supported by the whole community.

The information presented in this report is current as of the date of publication, July 6, 2016. While response and recovery operations associated with the 2015 Refugio Oil Spill have largely been completed, response is still ongoing as the Phase III Maintenance and Monitoring Plan and Cliff Face Area (Section 5) Monitoring Plan are still being implemented. Additional findings, strengths, and areas for improvement associated with response and implementation of the Phase III plan may be identified by the County and the members of unified command (UC). Those findings will remain outside of the scope of this report.

Response operations specific to an oil spill operate under the *National Oil and Hazardous Substances Pollution Contingency Plan* (National Contingency Plan). This operational structure, codified in the United States Code of Federal Regulations (CFR) under Title 40 CFR Part 300, National Oil and Hazardous Substances Pollution Contingency Plan, establishes the authority of the Federal government and responsibility for the incident. Structurally, 40 CFR Part 300 also establishes the federal on-scene coordinator (FOSC) who has the ultimate authority for decision-making within a UC structure. 40 CFR §300.135(d) requires the FOSC to coordinate response operations with other appropriate Federal, State, local, and private response agencies within a UC system that also includes the responsible party (RP). Understanding this operational structure offers context to this AAR, particularly as it applies both to strengths and areas for improvement identified herein.

Event Summary

On May 19, 2015, a pipeline ruptured on the Gaviota Coast, west of Refugio State Park, causing an oil spill. Plains All American Pipeline, L.P.s, the RPs, Supervisory Control and Data Acquisition (SCADA) event logs reflect initial abnormal conditions as the release occurred between 10:53 and 10:58 a.m., when there were indications of decreased pressure and increased flow consistent with a pipeline release. At 11:42 a.m., a call reporting a petroleum smell was received by the Santa Barbara County Fire Department, who investigated the report near Refugio State Beach. At 12:15 p.m., prior to a scheduled exercise, the Fire Department notified the Santa Barbara County Office of Emergency Management (SBCOEM) that there was an oil spill; the SBCOEM representative and a representative of the RP left the exercise and drove to Refugio Beach. Santa Barbara Dispatch notified the National Response Center of an unknown sheen in the ocean near the Refugio Beach at 12:43 p.m.

At approximately 12:55 p.m., two representatives from the RP arrived onsite south of Highway 101 where representatives from the Santa Barbara County Fire Department were; however, the source of the oil was not determined until approximately 1:27 p.m. Representatives from the RP were notified of the leak at that time. At 2:56 p.m., the RP notified the National Response Center.

According to the RP, the initial estimate of the release was greater than 500 barrels (approximately 21,000 gallons) with a substantial portion of the release migrating into the Pacific Ocean. An updated report from the RP, based on pipeline flow rate and evaluation profile, is that approximately 2,400 barrels (101,000 gallons) of crude oil was

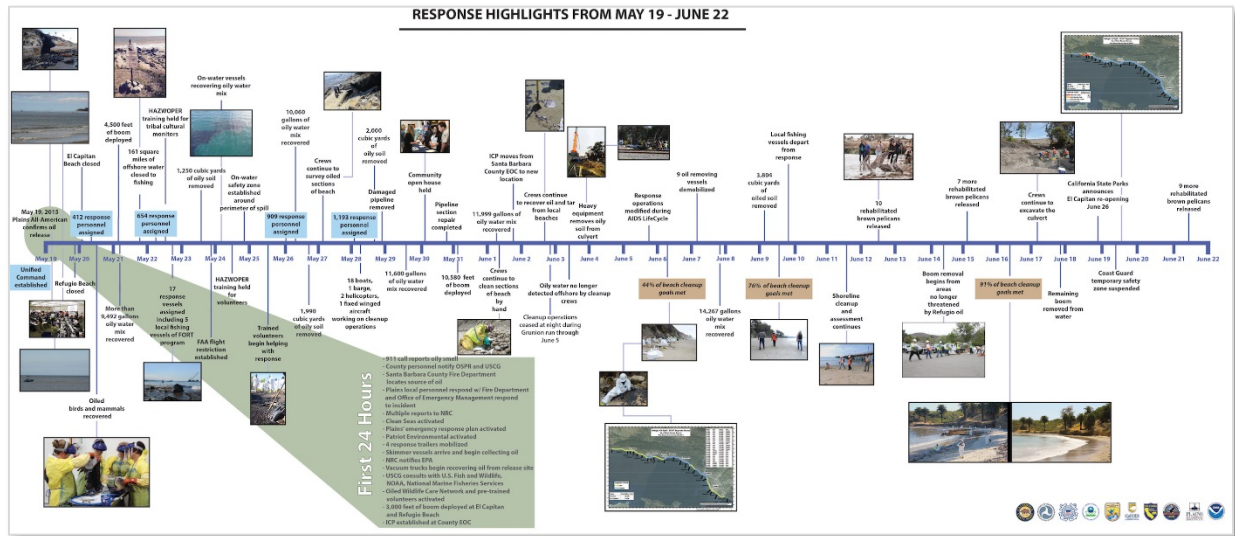
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released. On August 5, 2015, the RP announced that an alternate calculation using purge data which suggested that the worst-case scenario could be as much as 1,000 barrels (42,000 gallons) higher than the updated report that was released. The RP retained a third party engineering and consulting firm to develop an independent estimate of the worst case discharge. In the RP's most recent Securities and Exchange Commission 10-Q Form report, the firm orally advised the RP that based on their detailed analysis of the pertinent data and materials, their estimate of the worst case discharge is approximately 3,000 barrels (126,000 gallons).

Various agencies, including local, County, State, and federal partners were involved in response and recovery efforts, with the participation of approximately 1,300 field and 325 incident command post (ICP) personnel. Notifications from the County to State and Federal partners happened in alignment with the *Santa Barbara Operational Area Oil Spill Contingency Plan* and *Los Angeles – Long Beach Area Contingency Plan*. Within hours of these notifications, UC was established, and due to the lack of available space across the County, the ICP was established at the County emergency operations center (EOC). The ICP remained co-located at the EOC for the first 13 days of the incident.

It is important to note that beginning on the first day of the oil spill response and continuing throughout, County leaders regularly looked six months ahead in deciding what actions needed to be taken right away to best protect County residents, environmental resources, and businesses in addition to actions the County should take to recover its damages from the RP.

Figure 1: Response Highlights from the 2015 Refugio Oil Spill



In alignment with the National Oceanic and Atmospheric Administration (NOAA) *Shoreline Assessment Manual*, the 2015 Refugio Oil Spill leveraged the Shoreline Cleanup Assessment Technique (SCAT) process to remove oil. These teams integrated contract support, County and State personnel, alongside cultural resources representatives and environmental health and safety monitors to both protect the health and welfare of those removing oil as well as to protect the cultural resources found along impacted beaches. The overall response and cleanup has been managed in three phases: Phase I, focused on active cleanup and oil removal, Phase II, focused on refined cleanup and ongoing sampling, and Phase III, focused on monitoring and sampling for residual oil. Monitoring and sampling has been conducted by the RP, State, and United States Coast Guard (USCG) across all three phases.

Primary Strengths and Areas for Improvement

The process to develop this AAR has been iterative, including feedback from NGOs, private sector partners, local governments, County personnel, and State agency representatives. While this AAR identifies strengths and areas for improvement across multiple core capabilities, the following identifies the primary strengths and areas for improvement contained in the document. Further elaboration on these strengths and areas for improvement can be found throughout the response analysis portion of this report.

Primary Strengths

The top strength identified in this report pertains to the memorandum of understanding (MOU) between the County and State of California Office of Oil Spill Prevention and Response (OSPR). As detailed in this AAR, the CCR Title 14, Division 1, Subdivision 4, *Oil Spill Prevention and Response*, contains provisions that, when met, allow the County to designate a local on-scene coordinator (LOSC) to participate in UC. While the paramount authority for decision-making remains with the FOSC and state incident commander (SIC) in UC, without the MOU, the County may not be represented on UC, which would remove the County entirely from the decision-making process. In addition to this representation, the County preserved emergency permitting authority in the MOU through a provision that specifies that the decisions of UC do not preempt the County or impacted jurisdictions from "enforcing applicable ordinances, permit conditions, or other provisions of law such that they do not conflict with orders issued by the FOSC or SIC during the response." Preservation of this authority has been critical to the County's efforts to ensure comprehensive cleanup of impacted beaches and involvement from the RP as response operations have transitioned into the final phase.

The two additional primary strengths identified in this report focus on the operational structures implemented to support response. As noted earlier, SCAT teams were used to support cleanup operations. These teams were largely staffed by contract support through the RP. However, County Public Health Department personnel and contract support to Planning and Development were both operational on the impacted beaches. Direct support was provided from the Public Health Department related to health and safety monitoring at the incident site, and department staff were included on several UC environmental unit workgroups and on field teams. This internal capability provided the County visibility into field operations and demonstrates a strength in internal capability among County staff.

The final primary strength lies in the County Oil Response Group (COR) structure established to provide coordinating support across a multi-disciplinary team comprising County agencies and officials. COR functioned as a multi-agency coordination (MAC) group, supporting decision-making and collaboration with the LOSC as the operation transitioned from immediate response and cleanup into long-term response and recovery operations. While the COR was not immediately established following the incident, when it was established the COR increased visibility into the operations of UC and supported an efficient decision-making structure for the County.

Primary Areas for Improvement

While implementation of the COR is considered a primary strength for the County, the top area for improvement remains internal coordination to support decision-making and coordination with the LOSC in UC. Prior to establishing the COR, direct support and coordination with the LOSC was primarily ad-hoc. Various MAC groups established during early response served primarily in coordination and communication roles, rather than as support for decision-making and consensus-building among County stakeholders. Meetings were held with the Recovery Advisory Council and Disaster Council, which included elected officials from the County; the COR, however, did not include representation from elected officials. While the LOSC operated effectively in UC as it applies to initial response decision-making, the absence of an operational structure to support long-term decision-making resulted in decisions

begin made in UC without consensus from County stakeholders. Both the structures for internal County coordination and the processes for decision-making remain the primary areas for improvement for the County.

Another critical area for improvement pertains to incident communications. While a joint information center (JIC) was established to support UC at the ICP, a separate JIC specific to the County was not established. The lack of a separate County JIC resulted in delayed public messaging regarding general information about the incident and in some cases, delays to messaging about specific critical issues, like public health notifications. The County expressed dissatisfaction with the quality and quantity of public information and overall management of the JIC to UC. In an attempt to address these concerns, the County established various systems to ensure key stakeholders were provided information. In addition, the County began to release information pertaining to critical issues, such as public health-related information and information regarding beach closures. In addition to delays in messaging from the JIC, the 2015 Refugio Oil Spill response operation also experienced issues associated with press conferences, including the lack of an established schedule for press conferences and prevention of participation from local and County officials in those press conferences. Local press and the general public were also denied access to some press conferences.

An important consideration to note was that the County was not involved in staffing positions in the ICP, an area for improvement that could enhance internal County coordination and operations. While the LOSC serves a role in establishing incident objectives and crafting the incident action plan (IAP), strategic guidance and implementation of the IAP falls to the ICP. Local and County partners were not offered a significant opportunity to provide staff to the ICP by UC, creating an additional disconnect between operations through UC and the County, particularly when the ICP was relocated from the County EOC.

Synergy with State and Federal After-Action Reports

While this report is focused on the County, it is important to note that there is synergy in the recognized strengths, opportunities, and recommendations between the County, State, and Federal government. Across capabilities, the County, OSPR, and USCG identified similar areas for improvement and recommendations; collaboration to address these recommendations can enhance future response operations, both for the County and jurisdictions across the State of California. Common recommendations include:

- **Improvement in engagement of local government and NGO partners.** Across AARs, the County, OSPR, and USCG recognize the opportunity and strengths that can enhance future response offered by local and NGO partners. These recommendations include leveraging resources offered through local partners, formalizing structures to engage NGOs, and increasing planning inclusiveness as it applies to cultural resources representatives.
- **Clarifying the role and responsibilities of the LOSC.** The County, OSPR, and USCG also agree that the role and responsibility of the LOSC should be clarified. All stakeholders concur that this should include clarity on the decision-making process utilized by UC and the respective authority of each representative, including the LOSC, to improve the overall operation of UC.
- **Enhancing public engagement, including use of volunteers.** Stakeholders across the County, OSPR, and USCG agree that there are opportunities to improve public engagement. All three AARs include recommendations to improve volunteer management through planning, including a focus on non-wildlife volunteers, spontaneous volunteers, and trained volunteers. In addition, all AARs recognize the value of open house and community events to support community engagement, with recommendations associated with future planning and implementation during future oil spill response.

- **Improvement in operations of the JIC.** While the recommendations among stakeholders vary, the County, OSPR, and USCG recognize opportunities to improve public messaging through the JIC. One common observation, however, is that staff identified to support the JIC should have greater continuity to enhance coordination of operations.

These common recommendations demonstrate an opportunity for the County, OSPR, and the USCG to coordinate resources to enhance future operations. Planning resources across organizations are limited; using the Area Committee structure or upcoming workshops scheduled between these three partners, collaboration on common topics can enhance the synergy between disparate planning processes and allow partners to maximize time, resources, and engagement across the whole community.

Common Issues with Previous Oil Spill Response Operations

In addition to the common issues and recommendations identified by the County, OSPR, and USCG, it is important to note there are similarities between the experiences and findings of the County as well as those of other stakeholders during response operations to the Cosco Buscan oil spill in the San Francisco Bay (2007) and Deepwater Horizon in the Gulf of Mexico (2010). Information sharing, establishing a unified message, managing volunteers, incorporating local stakeholders, and increasing support to local stakeholders as it applies to scientific and environmental issues are common findings and recommendations. As of January 2016, the US Environmental Protection Agency (EPA) who maintains the *National Contingency Plan*, had a proposed rule change in the Federal Register to align the *National Contingency Plan* with the National Response Framework (NRF) and National Incident Management System (NIMS). These changes, however, do not alter the authorities outlined in the *National Contingency Plan* granted to the FOSC in 40 CFR Part 300, nor do the changes adjust UC to include local representation beyond the State.

In the absence of legislative changes to address issues common to oil spill response operations, a national conversation to share lessons learned, raise training and planning best practices to the national profile, and shape future changes to toolkits provided under National and Regional Response Reams should occur so that jurisdictions do not experience these same issues in future oil spill response operations. Lessons learned and resources can then be shared across the US, particularly as it applies to coordination with local governments who also have jurisdiction and responsibility when there is an oil spill.

Event Summary

Table 2: 2015 Refugio Oil Spill Event Summary

Event Name	2015 Refugio Oil Spill
Event Dates	May 19, 2015 to December, 2016. Response and recovery operations are ongoing as of the date of publication, July 6, 2016.
Event Scope	<p>On May 19, 2015, a pipeline ruptured on the Gaviota Coast, west of Refugio State Park, causing an oil spill. According to Plains All American Pipeline, L.P, the RP, the initial estimate of the release was greater than 500 barrels (approximately 21,000 gallons) with a substantial portion of the release migrating into the Pacific Ocean. An updated report from the RP, based on pipeline flow rate and evaluation profile, is that approximately 2,400 barrels (101,000 gallons) of crude oil were released. On August 5, 2015, the RP announced that an alternate calculation using purge data suggests that the worst case scenario could be as much as 1,000 barrels higher than the updated report were released. The RP retained a third party engineering and consulting firm to develop an independent estimate of the worst case discharge. In the RP's most recent Securities and Exchange Commission 10-Q Form report, the firm orally advised the RP that based on their detailed analysis of the pertinent data and materials, their estimate of the worst case discharge is approximately 3,000 barrels. Various agencies, including local, County, State, and Federal partners were involved in response and recovery efforts, with the participation of approximately 1,300 field and 325 ICP personnel. Response to this event is ongoing as of the publication date of this AAR, July 6, 2016.</p>
Participating Organizations	Participating organizations include local governments, County, State, and Federal agencies, in addition to tribal, NGO, and private sector partners. A full list of participating organizations can be found in Appendix B.

Description of Data Sources

This AAR was developed through review of relevant documentation and discussions with stakeholders involved in the oil spill response. Materials reviewed include, but are not limited to:

- *The Santa Barbara Operational Area Oil Spill Contingency Plan*
- *The Santa Barbara County Operational Area Emergency Management Plan*
- *The Los Angeles – Long Beach Area Contingency Plan*
- *The California State Oil Spill Contingency Plan*
- *The Federal Region IX Regional Contingency Plan*
- *The CCR Title 14, Division 1, Subdivision 4, Office of Oil Spill Prevention and Response*
- *The Plains All American Refugio Incident After-Action Report*
- *The Refugio Beach Oil Spill Santa Barbara County, California Federal On-Scene Coordinator's After-Action Report*
- *The Refugio Oil Spill Response Evaluation Report: Summary and Recommendations from the Office of Oil Spill Prevention and Response*
- *Failure Investigation Report, Plains Pipeline, LP, Line 901, Crude Oil Release, May 19, 2015, Santa Barbara County, California*

Additional documentation, including situation reports, meeting minutes, and emergency proclamations were also reviewed to collect data regarding incident objectives, response operations, and stakeholder feedback. Three debriefs were also held with stakeholders from the County, including local and NGO partners, to gather direct feedback. These sessions were as follows:

- October, 2015: County stakeholder debrief.
- January, 2016: NGO partner debrief.
- March, 2016: Local government stakeholder debrief.

Finally, a series of interviews were also conducted with stakeholders to collect feedback in either a group setting or on an individual basis. Group sessions were conducted with the COR as well as with NGO partners. Individual discussions were held with various local, County, and State officials. All participants in the AAR development process were offered an opportunity to conduct an individual feedback session to collect direct feedback and input.

The preliminary findings in the AAR were reviewed with stakeholders at an after-action meeting (AAM) on April 26, 2016. Feedback provided during this meeting regarding strengths, opportunities for improvement, and recommendations was incorporated prior to a comprehensive draft review by the COR. Subsequent to this review and revision, the AAR was reviewed and approved by the County Executive Officer prior to publication on July 6, 2016.

2015 Refugio Oil Spill Response Analysis

The following sections provide an overview of response and recovery activities, lessons learned, strengths, and opportunities for improvement as a result of the 2015 Refugio Oil Spill. References and recommendations are also identified to support improvements to plans, policies, and procedures with the aim of increasing the capability of the County to respond to a future oil spill.

This analysis is strategically presented in alignment with core capabilities under the NPG. The NPG provides a common taxonomy and framework for local, State, and Federal agencies to consider and increase their capabilities to prevent, prepare for, respond to, recover from, and mitigate against the potential impacts of future disasters. Aligning this AAR to the NPG also allows the SBCOEM to incorporate recommendations and improvement items with Countywide strategic plans. The relevant core capabilities associated with the event and examined in this AAR and improvement plan (IP) are presented below.

Table 3: Core Capabilities Associated with the 2015 Refugio Oil Spill

Core Capability	Mission Area	Definition
Planning	All	Conduct a systematic process engaging the whole community, as appropriate, in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.
Public Information and Warning	All	Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken and the assistance being made available, as appropriate.
Operational Coordination	All	Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
Community Resilience	Mitigation	Enable the recognition, understanding, communication of, and planning for risk, and empower individuals and communities to make informed risk management decisions necessary to adapt to, withstand, and quickly recover from future incidents.
Environmental Response/Health Safety	Response	Conduct appropriate measures to ensure the protection of the health and safety of the public and workers, as well as the environment, from all hazards in support of responder operations and the affected communities.
Situational Assessment	Response	Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.
Economic Recovery	Recovery	Return economic and business activities (including food and agriculture) to a healthy state, and develop new business and employment opportunities that result in an economically viable community.

Planning

The following strengths and areas for improvement were identified specific to planning associated with the 2015 Refugio Oil Spill. This includes plans previously developed to support response and recovery operations, such as the *Santa Barbara County Operational Area Oil Spill Contingency Plan*, as well as post-incident action planning.

Strengths

Strength 1: The participation of the County in UC is formalized in a MOU and incorporated into the Santa Barbara Operational Area Contingency Plan.

The organizational concept for the National Oil and Hazardous Substances Pollution Contingency Plan is outlined at 40 CFR §300.105, which states federal agencies should “coordinate their planning, preparedness, and response activities with affected states, local governments, and private entities.” Likewise, 40 CFR §300.135(d) states that the FOSC’s response efforts “shall be coordinated with other appropriate federal, state, local, and private response agencies.” While 40 CFR §300.135(d) provides that the UC system is the basic framework for oil spill response management, it does not provide details about the role of local governments within UC.

There is great value, therefore, in the MOU between the County and OSPR because it clarifies the County’s participation in UC. Fundamentally, UC is used when there is more than one agency with jurisdiction over the incident, and those agencies need to be brought together to establish a common set of objectives and strategies to support response in a single IAP. The MOU clarifies that the County is a member of UC and therefore has a role in developing objectives and strategies to support response. The CCR Title 14, Division 1, Subdivision 4, *Oil Spill Prevention and Response* contains the provisions that facilitate local representation in UC via an MOU. In addition to having a local plan and participating in the area contingency planning process, the CCR notes local governments shall recognize the “FOSC and state on-scene coordinator (SOSC) who have authority to issues orders and direction to the RP.” In meeting these conditions, the County as an OA entered into a MOU with OSPR, formalizing inclusion of a LOSC in UC. In this, the County is unique as it is the only OA in the State of California to have a MOU that includes a LOSC in UC.

While the legislative structures preserve the authority of the FOSC and SOSC, the MOU clarifies the County’s participation on UC and preserves specific authorities for the County and local governments. Operationally, the MOU does not define the authorities and responsibilities of the LOSC, but rather preserves the ability of the County to define the majority of the qualifications, authorities, and responsibilities of the LOSC. In two areas, the MOU is directive as it applies to local coordination and responsibilities. It specifically states “As a member of UC, the County representative shall coordinate input from and speak for all divisions and departments of the County” and:

The LOSC will be familiar with the local Oil Spill Contingency Plan element and the *Los Angeles/Long Beach Northern Sector Area Contingency Plan*, will be authorized to represent other local governments in the Santa Barbara OA Organization, and will assist in the administration of local permits, as required, for oil spill response and recovery efforts.

While preserving the ultimate authority of the FOSC and SIC, the MOU contains the following provision, which preserves certain rights and privileges of local government:

Such orders of the FOSC and the SIC do not preempt the County or the impacted city from enforcing applicable ordinances, permit conditions, or other provisions of the law such that they do not conflict with the orders of the FOSC or the SIC during the response.

Enumeration of local permitting authority, as specified in the MOU and codified elsewhere in State and Federal code, including the *Federal Water Pollution Control Act*, ensures the ability of the County and local governments to engage in response and recovery operations, particularly as it applies to long-term decisions regarding cleanup operations following oil spills. In fact, the *Santa Barbara County Operational Area Contingency Plan* does not contain provisions specific to permitting outside of specification in the MOU. The emergency permit issued by the County, as approved in July of 2015, authorizes emergency work and specifies the activities associated with cleanup at various locations impacted by the oil spill. In the absence of this permit, the ability of the County to engage the RP to support all areas impacted by the oil spill may be limited. The MOU also preserves the County's ongoing authority throughout response, and the emergency permit requires a follow-on permitting with discretionary approval by the County Planning Commission. The follow-on permit would ensure that long-term actions would be consistent with County ordinances and policies. This, coupled with the ability of the LOSC to participate in UC, offers the County a strength both in supporting development of immediate response objectives in the IAP as well as enforcing local codes and standards in long-term recovery operations.

Areas for Improvement

Area for Improvement 1: Existing plans do not currently account for the procedural needs of the County or local governments.

Reference: *Santa Barbara County Operational Area Oil Spill Contingency Plan*

Analysis: County and jurisdiction operational procedures specific to oil spill incidents are largely contained in multi-hazard emergency response plans. Generally, there are not specific appendices or operational procedures contained in these response plans that outline roles, responsibilities, and procedural requirements, particularly as they apply to an oil spill. While it is a strength that the MOU contained in the *Santa Barbara County Operational Area Oil Spill Contingency Plan* incorporates requirements associated with permitting, the plan does not enumerate how coordination should occur between the County and the ICP/UC to ensure timely permitting and coordination for emergency permits. While permits were issued by the County, those permits were delayed because the County was waiting for information from the RP in addition to a dispute from UC over the County's permitting authority. Additional specification regarding these procedural needs can reduce such delays in a future oil spill.

The lack of specificity in procedures also resulted in some confusion as it applies to coordination between the County and jurisdictions. One specific example that was raised applied to public health messaging on beaches. The thresholds for closing beaches, responsibility for posting signs, maintenance of signs, and removal of signs are not documented or specifically enumerated in plans or standard operating procedures (SOP) at the County level. This does not imply that coordination did not occur between the County and jurisdictions regarding these issues. The County was able to share resources and communicate with jurisdictions regarding beach closures and public health messaging. However, it would greatly benefit both the County and the jurisdictions to enumerate these procedural considerations either in the *Santa Barbara Operational Area Oil Spill Contingency Plan* or an associated public health SOP.

Recommendation 1.1: Revise the *Santa Barbara County Operational Area Oil Spill Contingency Plan* to document requirements associated with permitting and other procedural needs of the County and the jurisdictions.

County and jurisdiction processes and requirements are not currently documented in the *Santa Barbara County Operational Area Contingency Plan*. It is not clear whether these requirements are enumerated in site-specific plans

of the oil companies who operate within the County. While permits and processes were able to be implemented following the 2015 Refugio Oil Spill, enumerating these processes and requirements in plans will enhance coordination and increase visibility into operational requirements in future oil spill response operations. It will also increase the ability of the County to coordinate with UC and the RP. To the greatest extent possible, the County should document processes in plans, SOPs, checklists, flow charts, or other tools to ensure steps taken in response to the 2015 Refugio Oil Spill are also captured and documented in case of future oil spills.

Area for Improvement 2: Existing plans do not specifically enumerate the priority for cultural resources in the County.

Reference: *Santa Barbara Operational Area Oil Spill Contingency Plan*

Analysis: The current *Santa Barbara Operational Area Oil Spill Contingency Plan* includes environmental protection as a response priority in alignment with the *Santa Barbara Operational Area Emergency Management Plan*. Specific protection of cultural resources is not reflected as a priority in the plan. Functions associated with protection of cultural resources and methods to incorporate these representatives are also not enumerated in the plan.

This does not suggest that cultural resources were not incorporated into the response operation. Tribal representatives served as a direct liaison to the ICP to support development of IAPs and help guide protection of resources during cleanup. Notifications to the State were made in a timely manner, and personnel noted that cultural and historic representatives were engaged within hours of the spill. This includes integration of cultural resource monitors on teams responsible for cleaning beaches. Largely, however, formal engagement of cultural representatives at the ICP was ad-hoc and not specified in contingency plans.

Recommendation 2.1: Align and include cultural resources in the revised *Santa Barbara Operational Area Oil Spill Contingency Plan*.

While the *Santa Barbara Operational Area Oil Spill Contingency Plan* includes opportunities to establish MAC groups, the formal role of cultural resources is not enumerated in the plan. In collaboration with tribal, local, and agency partners, the County should consider functions to support coordination with cultural resources representatives to incorporate their knowledge and capabilities into the overall response operation. The most appropriate method to incorporate these representatives is through a MAC group that is inclusive in membership, and can provide guidance and direction associated with protection of cultural resources, both in planning and operations.

Area for Improvement 3: Existing plans do not specify the responsibilities and duties of the LOSC in UC.

Reference: *Santa Barbara Operational Area Oil Spill Contingency Plan*

Analysis: While the MOU between OSPR and the County clarifies the County's participation in UC, the *Santa Barbara Operational Area Oil Spill Contingency Plan* does not specify the qualifications, competencies, duties, and authorities for the position of LOSC. Specifically, as it applies to authorities and duties, this lack of documentation led to confusion regarding the role and authority of the LOSC in UC, both within the County and within UC.

As noted earlier, UC is used when an incident requires coordination among multiple agencies who have jurisdiction or responsibility for response operations. However, UC allows those members to carry out their own functional responsibilities. As outlined in the *National Response Team Unified Command Technical Assistance Document*, which supports execution of national and regional contingency plans specific to oil spills, members of UC have decision-making authority for response operations. Representatives to UC should:

- Have jurisdictional authority or functional responsibility under a law or ordinance for the incident.
- Have an area of responsibility that is affected by the incident or response operations.
- Have the regulatory authority for commanding, coordinating, or managing a major aspect of the response.
- Have resources, including funds, to support participation in the response organization.
- Be trained in the incident command system (ICS).
- Be able to provide a decision-capable representative to the incident for continuous operations.
- Have the authority to commit and direct agency or company resources, including funding, to the incident.

The personnel who fulfilled the position of LOSC largely had the authority or functional responsibility to represent the County in UC, and their operation in UC was generally in line with the recommendations outlined in the *National Response Team Unified Command Technical Assistance Document*. However, the authorities and responsibilities of the LOSC were not documented or agreed to by the County, which resulted in an expectations gap between desired activities from County agencies and leadership and the operation of the LOSC in UC. Stakeholders across the County believe the individuals who served as the LOSC should have sought input and approval for decisions made – particularly those that would have a long-term impact on the County. Stakeholders also reflected frustration that information regarding UC decision-making was not being shared, and that the interests of the County were not advocated for in UC.

This lack of clarity resulted in confusion and consternation within the County as well as with Federal stakeholders. As documented in the *Refugio Beach Oil Spill Santa Barbara County, California Federal On-Scene Coordinator's After-Action Report*, the USCG observed that the LOSC “did not have full and consistent decision-making authority throughout the response, and instead required higher-level concurrence to make decisions.” This was not entirely the case; the LOSC had full and consistent decision-making authority to support immediate response decision-making as it applied to IAP and other requirements in Phase I, as long as those were aligned with existing plans. Decisions regarding Phases II and III, and those that impacted long-term operations outside of existing plans, required input from others across the County. While the conclusion of the USCG does not specifically recognize this distinction, it does reinforce the opportunity to clarify the responsibilities and duties of the LOSC in UC.

The *Santa Barbara County Operational Area Oil Spill Contingency Plan* designates SBCOEM as the lead agency to serve as the LOSC. However, the plan does not specify how coordination will occur among local and County representatives, nor does it include processes to seek input from divisions and departments within the County. The plan currently lacks specificity in distinguishing between decisions that can be made by the LOSC and decisions that require consent and approval from County leadership.

It is important to note that the *Santa Barbara Operational Area Oil Spill Contingency Plan* does not specify competencies, duties, and authorities of other positions that may be required to support UC. While it is not *prohibited* for the County to fulfill staff positions within the ICP, it is not *specified* that County and local staff will fulfill staff positions within the ICP. During response to the oil spill, it is important to note that the County was not offered the opportunity to supply personnel to support those positions by UC. If the opportunity available to the County and local government stakeholders, those competencies, duties, and authorities were not enumerated.

Recommendation 3.1: Develop and incorporate into plans (as appropriate) processes to select the LOSC along with qualifications, required training, duties, responsibilities, authorities, and coordination and interaction with established structures for emergency management.

In the absence of clear guidance and authorities, there will be a lack of clarity on the role of the LOSC. While this position may operate within its designed responsibilities under UC, this may be counter to the desires of the County, the overall expectations of County leadership, and the expectations of State and Federal partners. By enumerating these responsibilities in current plans prior to another oil spill, the County enhances its ability to effectively coordinate response in UC through the LOSC.

To identify qualifications, duties, responsibilities, and authorities with respect to the LOSC, the County should consider building a working group. This working group can include stakeholders from across the County, local governments, OSPR, and Federal partners to enumerate duties, authorities, and coordination structures involving each phase of an oil spill. Clarification of duties, authorities, and coordination structures will enhance the ability of the County to communicate effectively with all stakeholders. It is important to note that the AARs developed and issued by OSPR and USCG align with this recommendation; these AARs incorporate similar recommendations focused on training regarding authorities (OSPR) and planning to clarify authorities (USCG).

Recommendation 3.2: Consider incorporating staffing positions for the ICP into the MOU or generally in the *Santa Barbara Operational Area Oil Spill Contingency Plan*.

As the County considers additional revisions to the *Santa Barbara Operational Area Oil Spill Contingency Plan*, stakeholders should also consider whether to expand the roles of the County to specify engagement in the ICP. Engagement in the ICP may be as section or unit leads across planning, logistics, or operations, allowing County staff to influence operational decisions around execution of response and recovery efforts, in alignment with the objectives developed by UC. One potential advantage of this level of County engagement would be enhancing the ability to reflect County and local processes and procedures into IAPs and other tactical documents. This is particularly important when considering the role of local subject matter experts from Planning and Development who have in-depth knowledge of plans, policies, and procedures specific to permitting. While the County considers this engagement, it is also important to consider the feasibility of diverting staff away from the EOC to support the ICP, given the limitations of staff that might be available to support positions across both functions.

Area for Improvement 4: Roles and responsibilities in the EOC are not clear, particularly as they apply to the finance/administration section.

Reference: *Santa Barbara County Operational Area Emergency Management Plan*

In the EOC, agencies that support emergency response may not have extensive experience in the response operations. This is particularly true of the finance/administration section, where position titles and responsibilities may not be a natural fit with the daily duties of staff fulfilling these positions. It is acknowledged that this issue may be specific to the terminology used in both ICS and the Standardized Emergency Management System (SEMS).

Recommendation 4.1: Provide additional training and clarify positions in the EOC.

The County should offer additional training to the agencies that compose the finance section on their roles and responsibilities in the EOC. This may include web-based training offered through State and Federal partners, and in-person training specific to County plans, policies, and procedures. The County may also consider developing standard operating guides (SOGs) and additional job aids to support the function of these positions, particularly when the activation of the section is infrequent and/or the function is not a part of the traditional roles and responsibilities of the individual fulfilling the position.

Public Information and Warning

The following strengths and areas for improvement were identified specific to public information and warning associated with the 2015 Refugio Oil Spill. This includes processes for sharing information with the public and coordination among agencies to support information sharing.

Strengths

Strength 2: Relationships among County and local public information professionals and local media are strong.

Local public information officials have strong relationships with local media. Multiple officials noted that local media reached out to them for incident-specific information. These relationships enable the County to maintain the message and distribute accurate information through formal channels in the event of any hazard, including a future oil spill incident.

Strength 3: Improvements are being implemented by the County as a result of the incident specific to public information and warning.

The County launched Aware and Prepare in 2016, a “public private partnership dedicated to strengthening community disaster resiliency within Santa Barbara County.” This includes articles supporting community awareness about hazards across the County, preparedness resources, information regarding major incidents, and opportunities to join various groups and engage with the local emergency management community. The County also broadened its alert notification system to support this expanded campaign, enhancing the function of the system as it applies to notification groups and group management.

Areas for Improvement

Area for Improvement 5: Local, County, State, and federal counterparts did not effectively integrate in a JIC.

Reference: Santa Barbara County Operational Area Emergency Management Plan

A JIC was established to support communication and coordination of messaging. Multiple stakeholders across the County and in the jurisdictions note the County has a strong plan and regularly exercises JIC in both training and operational environments during wildfire response. Specifically as it applies to the 2015 Refugio Oil Spill, it has been noted that variances in JIC operations occurred particularly with the introduction of the RP, State, and Federal partners. JIC structures are not standardized under any emergency management structure, allowing communities to implement systems that vary. When taking operations for State and federal partners into consideration, it is important to note that co-activation of a JIC had not previously occurred or been exercised by these parties.

The public information function was managed by the UC via Public Information Action Teams (PIAT). The teams addressed response operations according to their own plans, and initially were unwilling to adjust their approach. Further, the County's requests or advice were not considered in the early days of response due to the inability of the PIAT to effectively coordinate with superiors. A key contributing factor to inefficient messaging was the lack of a formal public information officer (PIO) directly connected to UC to ensure timely distribution of information. The inclusion of a PIO in the management function with direct unimpeded access to decision-makers is a fundamental component of SEMS. While the County established systems to address voids in the dissemination of public information (see Area for Improvement 6), the current *Santa Barbara County Operational Area Oil Spill Contingency Plan* does not clearly distinguish between the functions of UC and the County in the development and dissemination

of public information. Further, it states "Information released to the OA will include only the incident information that has been approved by the UC."

Local partners were not consulted in shaping the message to the public and were not engaged in ensuring information shared was responsive to the whole community in the County, including non-English speaking and tourist communities. In addition, local elected officials had no role in press conferences or were actively excluded.

The County did establish an intergovernmental liaison function to ensure elected officials throughout the County were aware of the status response and recovery operations. This was enhanced via the establishment of a liaison position to UC at the County's request. Further, the County facilitated development of meetings with key stakeholder groups from hospitality and tourism as well as the environmental community to enhance the flow of information regarding specific stakeholder needs. Ultimately, the intergovernmental relations function, via oversight by members of the County lead PIOs, served as a clearing house for the review of County-specific information to expedite the flow of information to the community.

As earlier noted, there were delays in releasing information to the public due to the requirement for approval from UC. Press releases issued by the JIC required approval from all members of UC, including the RP, prior to release. This requirement resulted in delays to public health advisories, press releases, and in some cases, notification regarding press conferences. The lack of timely communication undermined the long-standing strong relationships between local entities and the local media; it also made it difficult for all stakeholders to coordinate with local and regional press, and in some cases, resulted in press kits being distributed within the JIC after press conferences were conducted. In one case, specifically as it applies to volunteers, it was noted that when the information was approved, there was no actionable information pertaining to volunteer sign-up or engagement in the response.

An ongoing issue and concern of the County and associated stakeholders was the role of the RP in the JIC. Their active engagement in the JIC as well as approval authority gave the perception both to County staff and to the general public that messaging was crafted to offer the best possible perspective on the role of the RP and response operations. County stakeholders relayed that many inquiries into the JIC were distributed to the RP for response, and that the timeliness of these responses may have been impacted by the independent needs of the RP.

Information regarding fingerprint results from sampling was delayed in being released to the public. The inability to release any information regarding sampling, either from the State, USCG, or RP impacted the credibility and public perception of the response. The County had no independent access to sampling information outside of these resources, meaning that information regarding positive or negative samples could not be released once the results were available.

It is also important to note that there was a high level of staff rotation in the JIC, particularly from Federal partners. The rotation schedule resulted in frequent turnover, which made continuity and relationship building difficult. The rotation and expertise of those assigned to the JIC varied greatly.

Recommendation 5.1: Review current plans, policies, and procedures to clarify establishment of a separate JIC, as deemed necessary by the County, to support County operations.

Distinction should be made between operation of a JIC for UC and a JIC for the County, and utilized when deemed beneficial. While information shared through each JIC should be consistent, particularly as it applies to incident-specific information approved through UC, a County-specific JIC would allow the County and local jurisdictions to craft messaging specific to local operations.

As this distinction is clarified in plans, the County should work with State and Federal partners to delineate messaging requirements between the JIC to support UC and the JIC to support the County, particularly what messaging requires approval from UC prior to distribution. This would allow the County JIC and EOC to expedite dissemination of information outside of UC. Checklists, operational flowcharts, and roles and responsibilities should be enumerated in the *Santa Barbara Operational Area Oil Spill Contingency Plan* once agreement has been reached.

Recommendation 5.2: Conduct joint exercises with local, State, and Federal partners focused on operations of a JIC.

In addition to broader training and exercises focused on response and UC, the County should coordinate with local, State, and Federal partners to provide training and exercises specific to operation of a JIC to support UC at the ICP. Incorporating partners from local owners and operators of oil infrastructure may also benefit the County by introducing realistic dynamics associated with the RP in the JIC. Exercises should be structured to include considerations for coordination with local media, support local messaging, and message approval from UC.

Area for Improvement 6: Information available to the public regarding the incident on official incident websites was maintained by the RP.

Reference: www.refugioresponse.com

Analysis: The “official” website associated with the oil spill was maintained by the RP. While the site included information that was approved through the JIC and UC, information, fact sheets, and public engagement through the website is entirely controlled by the RP with no requirement for communication with the County. Current information and updates posted to the website, including any information regarding the status of cleanup, is not required to be approved by UC.

Figure 2: Refugio Response Joint Information Center Website Managed by the RP



The website, as currently presented, suggests that it represents the “Refugio Response JIC” and contains the logos of the primary agencies involved in response and UC, including the SBCOEM. The primary contact information on the website is managed by the RP, although telephone contact information is also provided for other members of UC

and State agencies. During response operations, the County established their own web presence to provide information supplemental to that presented on www.refugioresponse.com.

The aforementioned microsite established by the County was effective in sharing information when there were delays from UC. Key features of the website include:

- Headline news links to the latest updates.
- A newsletter that the public and press could subscribe to for updates.
- Claims information.
- Press releases.
- Health and safety information.
- Daily updates on:
 - Beach status.
 - Traffic impacts.
- Maps.
- Image and video galleries.
- Twitter feed.

Once established, the site received good traffic through the remainder of 2015. It also served as a template on which other stand-alone microsities were developed for other specific issues and emergencies.

Recommendation 6.1: Revise the *Santa Barbara Operational Area Oil Spill Contingency Plan* to specify the management and maintenance of public information resources outside of the RP.

While it is acknowledged that the RP has the ability to release their own messaging, the “official” information site regarding the incident, supporting distribution of press releases and providing information to the public on how to be engaged, should be managed by the lead agency, as agreed by UC, excluding the RP. The State and County have websites that could be used to support this information sharing. This would also offer the members of UC, including the County, greater visibility into inquiries from the public, and allow the State and County to manage a potential pool of volunteers through “sign-up” functions and direct responses about how individuals can engage. Funding from the website could be coordinated with the RP. In addition, links to claims pages managed by the RP could also be coordinated through the website. The responsibility for maintaining the website should be incorporated into the *Santa Barbara County Operational Area Contingency Plan*, and the microsite established by the County specific to the 2015 Refugio Oil Spill should be considered as a template.

Area for Improvement 7: Opportunities for engagement from the public were limited.

Reference: *Santa Barbara Operational Area Oil Spill Contingency Plan*

Analysis: There is some perception that the response was not transparent in sharing information with the public. This includes engagement of the press as well as the general public. Press conferences were not open to the general public. Further, UC identified a limited pool of reporters who would have access based on a favorability rating. It was earlier noted that schedules for press conferences were not shared with the JIC, which may have resulted in issues with providing timely communication to the press regarding upcoming events.

Limitation of access also applied to the public at press conferences. While originally in public locations, these were moved to a private indoor facility, which required security and credentialing to access. The resulting impact was that

the trust of the public was undermined by limited access to these events, and that stakeholders and advocates did not have access to seek information regarding response tactics.

While the presence of the public at press conferences may raise legitimate safety concerns, there were limited venues for the public to seek additional information regarding the incident. One community open house was held on May 30, which was generally noted as a strength. Established as something similar to a volunteer fair, the event was organized with various stations to provide an opportunity for the public to collect information. However, this forum did not offer a “town hall” setting, allowing the public to receive a briefing and ask questions regarding response operations. Two additional meetings were held with specific interested parties, as earlier noted; one with environmental representatives and one with business representatives. These provided a venue for communication, yet ongoing communication was limited.

The County is mindful of the need to communicate with the public, and maintains an operational posture that during emergencies, press conferences should be open to the public unless there would be danger to public due to a specific threat or hazard (e.g. a wildfire). In those cases, credentialing is required to access restricted areas (e.g. warm zones). Limiting access to the press and public was the result of decisions made in UC against recommendations made by the County. The County's *Public Information and Warning Annex to The Santa Barbara County Operational Area Emergency Management Plan* contains policies and procedures for press conferences and pre-identified locations in both the north and south County. Site-specific press conferences are determined in conjunction with logistics, operations, and EOC management to address the needs of the media while maintaining safety and security.

It is important to note that the County, State, and USCG agree in the AAR process that the community open house held on May 30 was a positive event, with the State identifying development of “open house event protocols and procedures for community outreach to facilitate earlier community engagement” as an area for improvement in their AAR. The open house conducted, however, was not structured as a town hall meeting, offering participants a limited opportunity to hear from and engage members of the response operation.

Recommendation 7.1: Establish a Countywide press credentialing policy.

The County does not currently have a press credentialing policy standardizing access to press conferences. Because events like the 2015 Refugio Oil Spill result in regional and national attention, press may vary outside of local and regional media sources. Credentialing processes, policies for access, and process for notification regarding press conferences are essential to maintaining public trust. Where possible, processes for gaining press credentials should be clearly articulated. While policies and procedures specific to the press are contained in the *Public Information and Warning Annex to the Santa Barbara County Operational Area Emergency Management Plan*, should determine whether a specific credentialing policy would ensure open access to press conference in a future oil spill, particularly if there are safety concerns that result in UC closing open access to conferences. Should the County determine there is a need for a Countywide press credentialing process, it should be enumerated in both the *Santa Barbara Operational Area Emergency Management Plan* and *Santa Barbara Operational Area Oil Spill Contingency Plan*.

Figure 3: Informational Piece Available at Community Open House



Recommendation 7.2: Review and revise current plans to account for press conferences and scheduling.

The County should revise the *Santa Barbara Operational Area Oil Spill Contingency Plan* to reflect pre-identified locations for press conferences. Locations have already been selected that are large and facilitate site access control. Development of schedules that specify the frequency of conferences by incident period should also be incorporated into the plan to ensure the JIC can support these events, with press releases and kits appropriately developed in a timely fashion.

Recommendation 7.3: Incorporate opportunities for community engagement into the *Santa Barbara Operational Area Oil Spill Contingency Plan*.

The County should take the lead on offering and enhancing opportunities for community engagement. Coordinated town hall meetings, community volunteer fairs, and information sessions can provide information to the public that offers education, enhances transparency, and increases public trust. When possible, the County should consider coordinating these events with local elected officials to offer an increased opportunity for engagement at all levels of government. The County can incorporate these meetings into the *Santa Barbara Operational Area Oil Spill Contingency Plan* or other plan with operational coordination with UC on timing and funding from the RP (as appropriate, dictated by the specific plan).

Operational Coordination

The following strengths and areas for improvement were identified specific to operational coordination associated with the 2015 Refugio Oil Spill. This includes activities associated with maintaining a unified operational structure, incorporating stakeholders, and operational capacity.

Strengths

Strength 4: Co-location of UC in the County EOC increased immediate response coordination.

Due to the timing of the incident, the RP could not find a location for the ICP for initial response. All hotel spaces were unavailable due to graduation activity and other previously scheduled events in the area. This is noted as both a strength and a weakness. As a strength, many at the County and local level believe co-location enhanced communication, overall situational awareness regarding the incident, and increased capacity for operational coordination. Local governments and other stakeholders noted that this co-location enhanced visibility and information flow that otherwise would not have been provided. As a weakness, the co-location limited the ability of the County to leverage the ICP to support County response coordination.

Strength 5: The EOC is a new resource to the County and enhanced the County's ability to coordinate within and among partners.

The County EOC is a relatively new structure and is an asset to the community. Specifically, as it applies to the 2015 Refugio Oil Spill, it offered the County a structure from which to manage the incident with a layout aligned with the ICS, NIMS, and SEMS. Both during the co-location of the ICP and subsequent to that, the EOC facilitated increased operational coordination among and within local and County stakeholders. Organizationally, the EOC also included stakeholders from across local and County governments, including staff new to emergency response. The operational structure implemented in the EOC facilitated cross-training and integration of staff with varying levels of experience, supporting continuity of knowledge among County staff.

Areas for Improvement

Area for Improvement 8: Formal structures to support Countywide operational coordination were not established immediately after the 2015 Refugio Oil Spill.

Reference: Not applicable.

Analysis: While the County took steps in the days following the 2015 Refugio Oil Spill to support Countywide coordination, a formal structure was not used regularly until the COR was established. Coordination immediately following the incident included daily briefings to the Chair of the Board of Supervisors and Third District Supervisor, County Executive Officer, and department heads specifically focused on response operations within and outside the ICP. In addition, the County held several meetings with the Recovery Advisory Council to support necessary operational coordination. These meetings were supplemented by a Special Meeting of the Board of Supervisors on May 26 and a formal meeting of the Disaster Council on October 27. Intergovernmental affairs also met frequently after the incident – initially twice a day – and then with diminishing frequency as immediate response operations began to transition into long-term response.

However, these structures left a gap in formal coordination, support, and sometimes approval of operations specific to the LOSC in UC. As noted earlier, once the COR was established, it served as a highly effective mechanism to support this coordination and facilitate approval in support of the LOSC.

The COR provided input, guidance, and coordination to enhance operations across the County and within UC. The COR included key representatives from agencies across the County and functioned as a MAC group, offering approval authority as well as support for decision-making. Members of the COR also met with County elected officials to further support coordination across the County. The composition of this group, however, did not include elected officials at the County level and was not designated as a Ralph M. Brown Act body.

Recommendation 8.1: Formalize the activation, structure, membership, and operation of MAC groups for oil spill incidents, specifically the COR.

MAC groups are valuable to support response and recovery operations. As documented elsewhere in this AAR, these groups may include local governments and the university, NGO partners, and other County agencies focused on specific functional areas. The COR, as operated during the 2015 Refugio Oil Spill, can be considered a best practice in MAC. The comprehensive representation from across the County coupled with effective coordination among stakeholders created an excellent venue for information sharing and decision-making.

The County should formalize the COR as a MAC in the *Santa Barbara Operational Area Oil Spill Contingency Plan*. The current members of the COR should participate in a planning process to develop a SOG or other reference materials to support the function of the COR in future response, capturing lessons learned from the 2015 Refugio Oil Spill response. Roles, responsibilities, checklists, flowcharts, and decision trees can all be built into the SOG to facilitate effective and efficient coordination among stakeholders. This knowledge is largely contained within the personnel or the department representatives who supported the COR, though the County worked to support cross-training of County personnel and effectively partnered less experienced staff with more experienced staff. Should these personnel retire and/or move to a different position, this institutional knowledge would be lost to the County.

To the greatest extent possible, SOGs developed should include immediate actions, and actions associated with Phases I, II, and III of the overall response. These phases should be tied to the environmental sampling process as opposed to delineated time periods. Whatever guidance document is developed should be aligned to the documented roles and responsibilities for the LOSC to ensure that appropriate support and coordination occurs between the COR and the LOSC.

In addition, the County should consider the composition of the COR, including agencies and organizations represented as well as the level of those participating in the body (e.g. director, assistant director, manager). As it was implemented during the 2015 Refugio Oil Spill and earlier noted, the COR did not include elected officials. Should the County decide to include elected officials on the COR, the County should consider at a minimum including representatives from the impacted district and the Chair of the Board of Supervisors.

Recommendation 8.2: Consider methods to enhance coordination with local elected officials and increase transparency.

While members of the COR regularly briefed local elected officials, formal structures for engagement of elected officials were not activated. As noted previously, the COR did not include representation from elected officials. The Disaster Council offers one venue to enhance coordination with local officials and to increase transparency as a public meeting. However, this structure may not meet the needs of the County, particularly as it applies to the increased demands on key public safety personnel, including the LOSC, to prepare for and attend public meetings while actively responding to a disaster. The Recovery Advisory Council, which was established and used by the County during the response, is an option for future use in coordination with local elected officials.

The County should consider and determine the function and responsibility of the Disaster Council, Recovery Advisory Council, and COR in future oil response operations. Specific to the COR, this consideration should include the body as implemented and formalized in future planning. Discussions among County leadership and locally elected officials should include when each group should meet, the frequency of meetings, and the roles and responsibilities of each body given local and State laws and ordinances, including the Ralph M. Brown Act and Chapter 12 of the County Code of Ordinances. In discussion, the County should consider the need to balance both transparency and expeditious decision-making.

In addition, recommendations contained in the Public Information and Warning and Community Resilience sections of this AAR speak to the need for increased communication and transparency with the general public, and should be considered in implementation of this recommendation.

Area for Improvement 9: Liaison positions were not immediately established between the County and UC.

Reference: *Santa Barbara County Operational Area Oil Spill Contingency Plan*

Analysis: Increased responsibility was placed on the LOSC to support coordination and communications with the County EOC and associated operational structures. Liaison officers are often effective at supporting communication and coordination between UC and various stakeholder groups, including MAC groups. The liaison officer position was not established, in part, because of staffing constraints on County emergency management personnel.

Inclusion of a County liaison officer is not specified in the MOU between the County and the State as enumerated in the *Santa Barbara Operational Area Oil Spill Contingency Plan*. The role of the liaison officer is accounted for in the plan, though it is unclear if this function is specific to UC or within the EOC. The *Federal Region IX Regional Contingency Plan* specifies the liaison officer function should be appointed by UC, and that only one liaison officer should be designated for each incident. This, however, does not prevent the County from establishing liaisons between the EOC and local governments, NGOs, and internal County stakeholders.

Recommendation 9.1: Enumerate the role of a County liaison officer or additional agency representatives to support incident coordination to County and local stakeholders.

The County should revise the *Santa Barbara Operational Area Oil Spill Contingency Plan* to specifically identify a liaison officer or deputy LOSC in UC. This function would enhance communication and coordination with County stakeholders through established MAC groups.

Area for Improvement 10: Coordination with local stakeholders outside of the EOC was not effective.

Reference: *Santa Barbara County Operational Area Oil Spill Contingency Plan*

Analysis: While operational structures for coordination were established at the EOC, local government stakeholders and resources were not always effectively coordinated into the response. In some cases, local knowledge specific to the incident site or location could have enhanced planning and communication, particularly with the ICP. One noted example was identifying coastal access points, information that is largely known by local governments and the university where coastal access is located. These stakeholders understand the ideal access points and have direct access to critical information, including gate codes, which can increase efficiency for SCAT teams and other responders reporting to the incident site.

Jurisdictions and university stakeholders suggested there was a disconnect between operations at the incident site and the EOC. Representatives from the RP and contract support on the beach provided a public presence for the

County, but the lack of presence of County personnel limited the ability of the County to receive information regarding response operations outside of what was provided from UC. It is important to note that there were two meetings with the local stakeholders from the business and environmental community in which the County participated. However, there was a lack of follow-up from these meetings, limiting engagement from the County.

Recommendation 10.1: Ensure a local liaison is established to support coordination with local governments and the university.

Establishing a local liaison to support coordination with local governments through a MAC group can greatly enhance the ability of the County to provide information to and collect information from local and university stakeholders. In addition, recommendations associated with local participation in the ICP under Area for Improvement 3 may also increase coordination with local and university partners, including leveraging their subject matter expertise.

Area for Improvement 11: Multi-agency training specific to an oil spill incident had not occurred in the County since 2011.

Reference: *Santa Barbara Operational Area Oil Spill Contingency Plan*

Analysis: Training and exercises are not enumerated in current County plans, including the *Santa Barbara Operational Area Oil Spill Contingency Plan*. Comprehensive local training regarding contingency plans (OA, sector, State, Federal regional, and national) had not occurred for Countywide stakeholders in four years. Moreover, local stakeholders have not been engaged with State and federal stakeholders for co-training and exercises specific to the plan or an oil spill. The County participates in facility operator exercises and hosted an OSPR spill response training in the fall of 2015. In addition, the County participates in and has hosted quarterly Area Committee meetings. These meetings are open to the public and all jurisdictions.

The County has been proactive in recognizing the need to increase coordination with State and Federal counterparts. To that end, the County has been coordinating with partners to host a workshop specific to the County plan as well as State and Federal plans with an emphasis on collaborative education. This will allow State and Federal partners the opportunity to share information and provide the County with the opportunity to share relevant plans, policies, and procedures.

As noted elsewhere in this report, the County should consider training opportunities to support plan validation and relationship building around response operations. UC is a unique operating environment for many of the stakeholders who are responsible for coordinating response and recovery. In addition, the attention that an oil spill receives increases the participation from senior leadership and other County stakeholders who may not be as involved in decision-making around traditional response operations. Workshops, tabletop exercises, and drills present an opportunity for the County to engage stakeholders and expand local capability.

Recommendation 11.1: Advance planning for a multi-agency training in 2016, incorporating stakeholders from the local, State, and Federal level.

The County should advance planning for multi-agency training in 2016. In addition to discussing the relationships around local, State, and Federal planning, the County should also consider how this workshop can advance planning and revision of the *Santa Barbara County Operational Area Oil Spill Contingency Plan* and common planning issues identified in 2015 Refugio Oil Spill AARs. Discussions may be focused on reaching consensus on issues that impact State and Federal partners, or separate sessions with local counterparts focused on plan revision. The County may

want to consider hosting an additional planning workshop the day after State and Federal counterparts are onsite to support advancement of planning with local stakeholders.

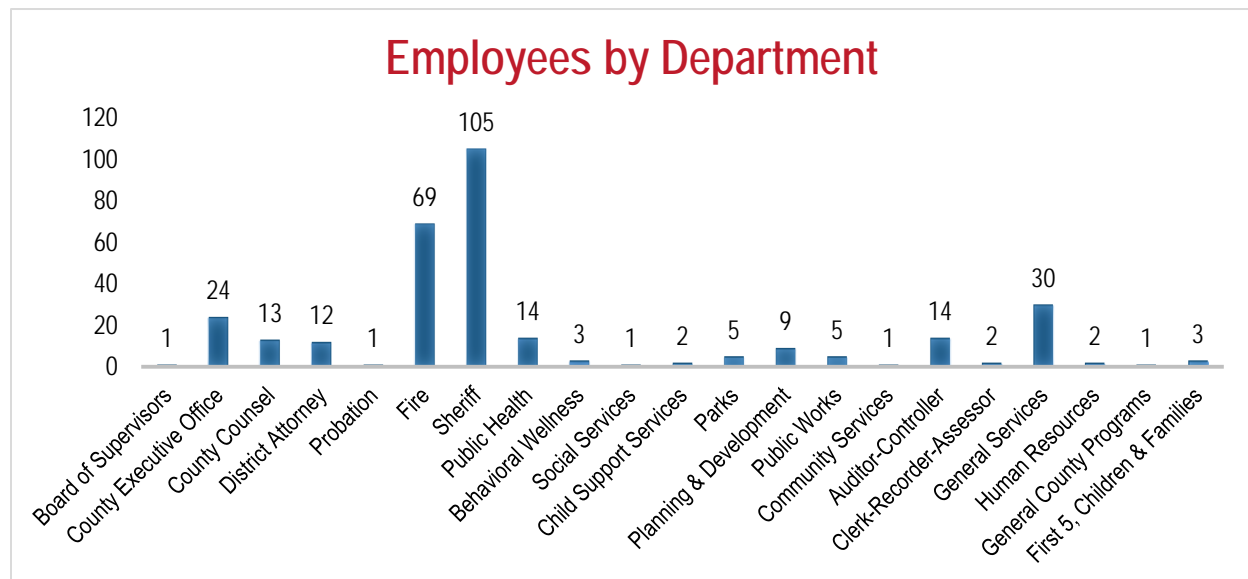
Recommendation 11.2: Develop a training and exercise schedule to accompany the *Santa Barbara County Operational Area Oil Spill Contingency Plan* and/or the County multi-year training and exercise plan. Coordinate this schedule with State and Federal partners.

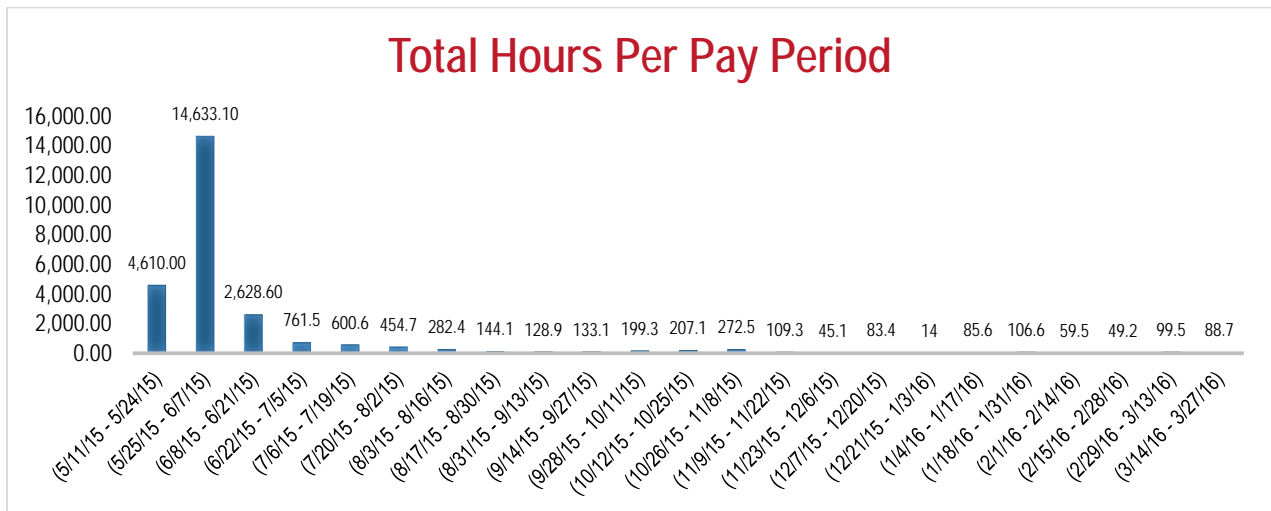
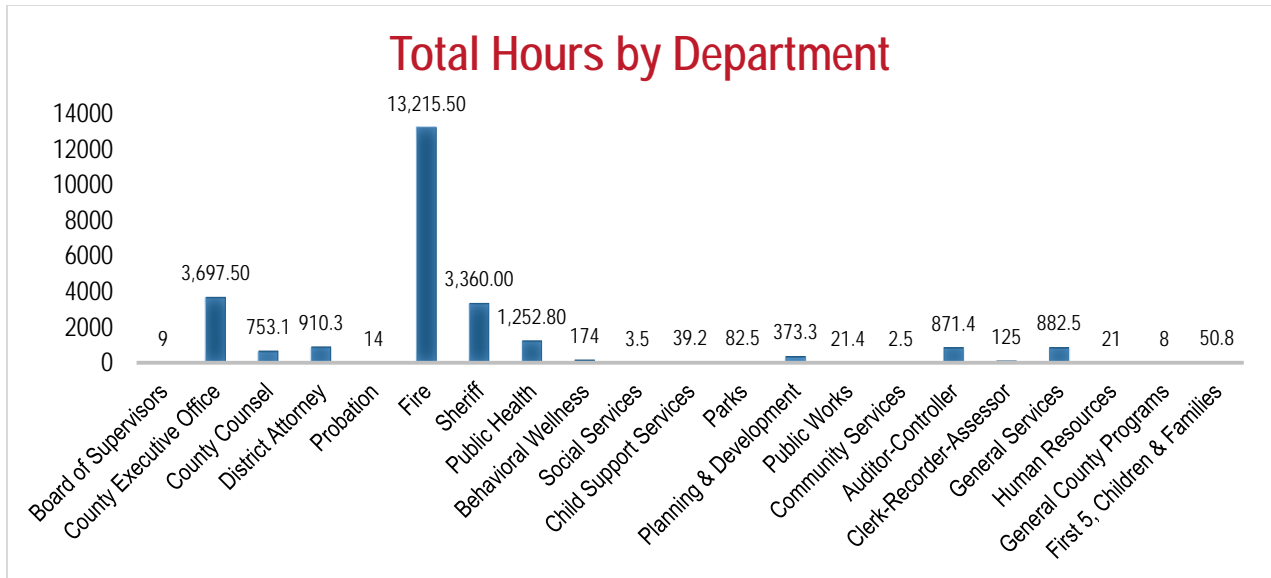
In addition to workshops, the County should also consider opportunities to increase exercises around the plan. When possible, a schedule for exercises should be coordinated with State and federal counterparts, and should incorporate local governments and the university. Plans can range from tabletops to full-scale exercises, with the focus on plan validation and continuous improvement. Exercises should be coordinated with the County's overall multi-year training and exercise plan.

Area for Improvement 12: Staffing to support response resulted in burnout.

Reference: Not applicable

Analysis: The County was stressed to support the level of staffing required for response and recovery operations over a long period of time. The number of County staff engaged, a total of 316, was highest in the first weeks of the incident. Over the long-term, staff who supported ongoing response and recovery were largely the same individuals. While this limits turnover and maximizes efficiency by maintaining incident knowledge, it is accompanied by reductions in staffing to some agencies and no backfill associated with ongoing tasks for County operations. While oil spill tasks were identified and triaged, the County did not triage day-to-day tasks and backfill or re-prioritize these responsibilities. As of March 27, 2016, County staff expended a total of 25,796.8 hours to support response and recovery operations.





In addition to hours expended by County staff, as earlier noted, contract support to Planning and Development was also used to support response operations. Those 1,412 hours are in addition to the 25,796.8 hours expended by County staff, for a total of 27,208.80.

Recommendation 12.1: Increase staff redundancy for future response operations.

The County should consider the overall staffing plan and pattern employed to support response and recovery operations. While maintaining consistency and subject matter expertise is important, the County risks both employee burnout and loss of capacity as employees retire. Job shadowing and cross training were used during response operations, and can be expanded to increase local capacity. The County should consider both the required support from County agencies in addition to the necessary depth of each position. When possible, it may be advantageous to modify job descriptions or appoint deputies to increase depth.

Recommendation 12.2: Consider ways to re-prioritize workloads of County personnel during response operations.

In collaboration with County departments, consider ways that ongoing workloads can be re-prioritized to support future response operations. This may include postponing ongoing projects, or adjusting staff to minimize the increased burden that results from an incident. As an option, the County may want to consider staff augmentation through contract support to increase surge capacity over a short period.

Community Resilience

The following strengths and areas for improvement were identified specific to community resilience associated with the 2015 Refugio Oil Spill. This includes activities associated with the provision of engagement of the community and the use of volunteers.

Strengths

Strength 6: Community volunteerism and the desire among community members to contribute during response and recovery is strong.

Immediately following the oil spill, community organizations and individual volunteers sought ways to contribute to response and recovery. In some cases, this includes local NGOs whose organic capability includes monitoring water quality and restoring ecosystems. Both the general public and local NGOs showed a high interest in supporting cleanup activities and sought opportunities to be engaged in response. The level of spontaneous volunteerism demonstrated during the 2015 Refugio Oil Spill response was noted by multiple stakeholders. First responders also noted that this high level of engagement was apparent in other types of incidents, including local AMBER Alerts.

Strength 7: Formal structures for volunteer engagement, including Community Emergency Response Teams, were effectively used to support elements of response.

While the County does not have a formal structure for volunteer engagement, community emergency response teams (CERT) from the County and jurisdictions were effectively used to support limited elements of response operations. These trained volunteers were used effectively to support staffing both in the EOC and to offer supervision to volunteer teams supporting cleanup on the beaches during response operations. CERT volunteers were engaged in activities that include traffic control, posting fishery and closure signs, EOC support, establishing a volunteer response center, and oiled beach cleanup support.

Figure 4: CERT Operations at Refugio Beach



Coordinated and trained volunteers offer a meaningful opportunity for engagement in response, and can augment the County's limited capacity by fulfilling roles in the EOC. It was noted by multiple participants that this level of engagement was supported in part by CaliforniaVolunteers, which offered expertise and coordination for both engaged and spontaneous volunteers.

Areas for Improvement

Area for Improvement 13: Formal structures and plans for volunteer engagement do not exist at the County level.

Reference: *Santa Barbara County Operational Area Oil Spill Contingency Plan, Santa Barbara Operational Area Emergency Management Plan*

Analysis: Though there was a very high level of interest in volunteering to support cleanup and response, structures do not currently exist at the County level to immediately engage volunteers. Largely, these capacity issues are

restricted to spontaneous volunteers, though there was a lag in engagement of trained volunteers to support response operations.

Interest in the oil spill was high and immediate. Largely due to the nature of the incident and the interests of the community, individuals and organizations sought ways to contribute. However, oil spill incidents require training in compliance with the hazardous waste operations and emergency response (HAZWOPER) standard, as included in 29 CFR, Part 1910. Title 40 CFR, Part 300 contains provisions for worker health and safety specific to oil spills, requiring compliance with the HAZWOPER provisions of 29 CFR. When combined, federal regulation requires a minimum of 24 hours of training, and up to 40 hours of training with practical experience, to earn HAZWOPER certification and support on-scene response operations.

Volunteers were initially directed to CaliforniaVolunteers for information on how to get involved. However, this was not immediately coordinated with CaliforniaVolunteers. During ongoing response operations, volunteers were directed to www.refugioresponse.com, which indicated there were no opportunities, or a form was provided for volunteers to input information, but with no follow-up.

A community fair was eventually held during response operations, allowing different organizations to provide information regarding their role in the response and potential opportunities for engagement. In addition, a one-time exception was used to facilitate use of volunteers to support cleanup operations. As outlined in the *Los Angeles – Long Beach Area Contingency Plan*, a four-hour HAZWOPER training can be provided on-scene, allowing volunteers to support limited cleanup operations. Once trained, these volunteers were used for limited cleanup on beaches where the majority of oil had already been cleaned up. The use of volunteers in this manner and the quality of this engagement was reported to be both positive and negative.

Recommendation 13.1: Develop a volunteer management plan for the County.

In the absence of formal volunteer engagement structures, the County was able to manage and utilize volunteers on a limited basis. As evidenced by the 2015 Refugio Oil Spill incident, there is significant opportunity to establish organizational structures that can support management, engagement, and use of volunteers.

The County should develop a volunteer management plan or annex to the *Santa Barbara County Operational Area Emergency Management Plan*. The *Los Angeles County Operational Area Spontaneous Volunteer Management Annex* is a reasonable model for establishing a volunteer management system following a disaster. Operationally, the volunteer management plan should include roles and responsibilities, structures for the engagement of both affiliated and spontaneous volunteers, options for just-in-time training of volunteers, and locations and potential resources to support establishment of emergency volunteer centers.

Recommendation 13.2: Review and revise language associated with volunteer engagement in the *Santa Barbara Operational Area Oil Spill Contingency Plan* based on structures developed in the volunteer management plan.

After developing a Countywide volunteer management plan, the County should then collaborate with the state to understand and develop a program for volunteers during oil spills. This planning process should be separate from the volunteer management planning process, as the requirements for oil spill volunteers are more stringent than those specific to the majority of other hazards. By collaborating with the State, including CaliforniaVolunteers, the County and State can develop a structure for management and engagement that can be duplicated or used in other California jurisdictions, maximizing resources and ensuring Statewide consistency.

In considering the use of volunteers specific to oil spills, the County should refer to the *Region IX Regional Contingency Plan* specifically as it applies to engagement of volunteers to support an oil spill. Relevant language or consideration by the County is presented in Appendix G. Further, the *National Response Team Technical Assistance Document* is particularly valuable in outlining authorities and considerations for use of volunteers, both affiliated and non-affiliated. Options identified in this document that should be considered by the County can be referenced in Appendix H. The *Los Angeles – Long Beach Area Contingency Plan* also notes that the RP may provide funding for volunteer management activities prior to cost recovery following an oil spill, which could be used by the County to provide training and support volunteer coordination. This should be considered in alignment with just-in-time training.

In the process of developing this plan, the County should also note that Santa Barbara County Voluntary Organizations Active in Disasters (VOAD) maintains a guide for activation of an emergency volunteer center. In addition, training resources are available through VOAD to support operations of the centers. County planning should take these resources into account, both from a planning perspective as well as an operational perspective. Upon completion of an oil spill volunteer engagement and management process, the County should consider both enhancing the *Santa Barbara Operational Area Oil Spill Contingency Plan* and the *Los Angeles – Long Beach Area Contingency Plan* to reflect updates and final documents.

Recommendation 13.3: Develop formal programs to expand County-level skilled volunteers and spontaneous volunteers.

Affiliated and trained volunteers are currently leveraged through the County's CERT, particularly as it applies to support in the EOC. The County should consider methods to expand this training either through expanding the CERT or another structure to increase the cadre of pre-disaster trained volunteers to support emergency response. Trained volunteers offer significant opportunity for the County to expand capacity, either during an oil spill or other emergency situation.

In the absence of (or in addition to) formal training programs, the County should consider developing structures for just-in-time training for volunteers. This training should be in alignment with the roles and responsibilities identified in both a formal volunteer management plan and as it applies to the *Santa Barbara County Operational Area Oil Spill Contingency Plan*. Training can include general position training aligned with ICS functions or position training in an emergency volunteer center. Training can also include limited or full HAZWOPER training that can be organized by the County but reimbursed through the RP. For HAZWOPER just-in-time training, it is recommended that the County consider establishing a pre-disaster standby contract with a HAZWOPER training provider to increase the timeliness and expedite provision of training.

Recommendation 13.4: Develop public messaging that clearly and concisely identifies restrictions on volunteer engagement in oil spill response operations.

In tandem with development of the volunteer management plan, the County should also develop pre-scripted messaging and messaging templates to be issued to the public specific to volunteering. This messaging should include frequently asked questions, underscore key issues associated with UC, and include information about when and how to engage in volunteer support. Specifically, communications should document the potential hazards associated with oil spills and actively discourage citizen engagement in the absence of training and personal protective equipment. Appendix H contains guidance as issued by the Occupational Health and Safety Administration (OSHA) regarding the potential adverse health impacts of various hazardous chemicals associated with an oil spill for consideration by the County.

Messaging should direct potential volunteers to the appropriate points of contact, either through a formal volunteer engagement program or to a partner (e.g. local CERT). Public messaging should also include how to volunteer, requirements for volunteering, and sufficient detail that ensures expectations are communicated to potential volunteers (e.g., next steps after signing up).

Area for Improvement 14: Non-traditional NGO partners were not consistently engaged in response and recovery operations.

Reference: *Santa Barbara Operational Area Emergency Management Plan*

Analysis: The engagement of NGO partners, particularly those focused on environmental issues, was not consistent during response and recovery operations. Formally, NGOs engage through the EOC. As currently outlined in the *Santa Barbara Operational Area Emergency Management Plan*, this coordination occurs through a VOAD liaison. While it was noted that VOAD supported the EOC, it is unclear whether or not this was noted as an opportunity for formal engagement of NGOs focused on environmental protection and advocacy.

The lack of formal coordination with these partners limited the ability of the County to access the networks of local NGOs. Particularly in the environmental community, NGO partners can serve as an asset to share information regarding the incident and provide opportunities for community engagement. Environmental NGO partners noted they were contacted by both affiliated members and the general public to gain information regarding the incident, in addition to learning about how they could contribute to the cleanup effort. Often, NGO partners were not able to provide substantial information because it was not available or because they were not provided with information to share with interested parties.

As community advocates, NGOs can provide additional connections for those impacted by a disaster. Environmental NGO partners noted instances of proactive communication with landowners and workers near the oil spill site. This outreach was in alignment with their role as advocates for health monitoring associated with the hazardous materials incident. The lack of formal coordination with these partners also limited the ability of the County to access the resources of these organizations. It was noted specifically that one partner organization had an organic capability, which included monitoring water quality and restoring ecosystems. Through their network of professional staff and affiliated volunteers, the County may have had access to additional capacity to support environmental monitoring – both in verification and identification of monitoring gaps.

Recommendation 14.1: Develop a formal process and structure to engage local non-traditional NGOs.

Engagement of NGOs offers an opportunity to expand capacity in the County. This might include access to resources in addition to enhancing the County's ability to provide timely and accurate information from trusted resources. NGO involvement in an oil spill could become a force to keep people away from beaches by providing health information through organizations that are known to the community and trusted for their expertise.

While the formal structure exists in the EOC for NGO engagement through VOAD, the County should host an information session to educate non-traditional NGOs on the role of VOAD and initiate conversations about establishing a formal environmental committee or MAC group. This would allow the County and NGO partners to establish roles, responsibilities, and procedures for information collection and dissemination. This engagement would also offer the County the opportunity to understand the resources and capabilities offered through these partners that could be leveraged during a future oil spill, and the ways those resources can be accessed and leveraged. NGOs should be engaged throughout the planning process, including planning to revise the *Santa Barbara County Operational Area Oil Spill Contingency Plan*.

Environmental Response/Health and Safety

The following strengths and areas for improvement were identified specific to environmental response/health safety associated with the 2015 Refugio Oil Spill. This includes activities associated with cleanup operations as a direct result of the oil spill.

Strengths

Strength 8: Local public health stakeholders, including the local Director of Public Health and County Environmental Health staff, were highly engaged in response operations.

The County's capability to support elements of response operations to clean the oil is strong. Direct support was provided from the Public Health Department related to health and safety monitoring at the incident site. Public Health Department staff were included on several UC environmental unit workgroups and field teams. The decision to close both Refugio and El Capitan State parks was made quickly and coordinated jointly between the County Public Health Department and California State Parks. Local public health resources also supported air quality monitoring, possessing a high level of capability to augment SCAT teams. These personnel offered immediate response capability for air quality monitoring as cities and departments received complaints about the strength of the smell of gas and presence of oil on local beaches.

As noted in the public information section of this AAR, there were some challenges in coordinating the release of information to the public. However, County Public Health staff was given real time access internally to all air and water-related monitoring data in order to make rapid decisions about health risks to the public. Warning signage was developed through the UC and posted when and where appropriate. The public health system of mutual aid and support was strong, as County Public Health received technical assistance from other jurisdictions, such as Los Angeles County, and other state public health departments, such as Louisiana. The County also provided technical assistance to other jurisdictions, such as Ventura County and the City of Long Beach, when there were oil-related health concerns in their jurisdictions.

Strength 9: Contract support enhanced the County's visibility into field operations and the assessment of the cleanup effort.

The majority of the staff supporting direct cleanup activities at the incident site were from the RP or from contractors of the RP. While these individuals were able to effectively execute their mission, ultimately this limited the County's information regarding beach operations and reduced visibility into the actual status of cleanup. A contractor for Planning and Development offered support to operations onsite, increasing the visibility of County personnel into operations on the incident site and raising issues to the County's EOC.

Figure 5: Image of the 2015 Refugio Oil Spill Over the Pacific Ocean



Areas for Improvement

Area for Improvement 15: Subject matter expertise to support analysis of oil spill samples was provided through the RP.

Reference: *Santa Barbara Operational Area Oil Spill Contingency Plan*

Testing after oil spills occurs to validate not only that all of the oil has been cleaned up, but that any remaining oil is not a result of the oil spill or leak. This is particularly important in the County, which is susceptible to natural oil seep and where tar balls regularly wash up on local beaches. Following the 2015 Refugio Oil Spill, the USCG, State, and RP all independently sampled oil and impacted areas. Results were then used to confirm whether or not oil sampled was a result of the oil spill. To support UC, the RP also contracted with a local subject matter expert to provide additional support in identifying oil that was a direct result of the event.

As earlier noted, legal proceedings limited the ability of this data to be released, both to internal County stakeholders and to the general public. The lack of third party data also limited the ability of the County to issue public information associated with samples and, in some cases, created the perception that information regarding oil spill samples were not trustworthy. The County had no mechanism on their own to validate sampling or to engage in independent environmental monitoring both on shore and in the ocean.

Recommendation 15.1: Develop and establish pre-event contracts with scientific and environmental subject matter experts to increase subject matter expertise offered to County personnel and offer the County independent sampling.

Local subject matter expertise was contracted to UC, limiting the ability for the County to contract with those resources. By establishing a pre-event contract that offers “standby services” to support fingerprint sampling, the County limits the requirement to pay for those services until the contract is activated, at which case costs can be claimed to the RP. Contracts can be established with more than one potential vendor, offering the County additional capacity to support sampling and offer subject matter expertise on scientific and environmental issues associated with an oil spill. In addition, these contracts can be established for multiple years, ensuring access to support in the event of a future oil spill. Methods to access and activate contracts associated with sampling should be documented in the *Santa Barbara County Operational Area Oil Spill Contingency Plan*.

Area for Improvement 16: Resources to support cleanup, including staffing and equipment, were primarily provided through the RP.

While the operational and organizational structures outlined in response plans at every level facilitate the involvement of the RP, there was an immediate delay in the ability of the RP to stem the flow of oil from the point of the spill. It is unclear what immediate assets were available to stop oil flow into the culvert once it was discovered, multiple sources noted a delay in deployment of resources to support oil containment once it was in the ocean.

Recommendation 16.1: Document the County’s current capability and capacity to support immediate oil response operations.

While there are options the County should consider to expand their capability to support both immediate and long-term response operations, the County does not have a current inventory of assets, resources, and personnel capabilities to support response to an oil spill. It is not clear what equipment the County has to support an immediate response, nor is it clear what resources the County may require to support this response. As a part of the ongoing Threat and Hazard Identification and Risk Assessment (THIRA) planning process underway in the County, the

SBCOEM can document their capabilities and understand potential capability gaps to support immediate and sustained response operations. Personnel, organization, equipment, training, and exercises should all be considered in this assessment.

Recommendation 16.2: Review and assess the requirements contained in oil company contingency plans as they apply to contract support and increase requirements associated with standby resources.

Resources to support environmental remediation and cleanup are traditionally provided through the RP. Delays in deploying assets to control and contain the oil spill may be the result of perception or the actual lack of available resources through vendors identified by the RP. The County should consider the sufficiency of resources responding to the 2015 Refugio Oil Spill and, as appropriate, consider increasing the requirements associated with standby resources for each company operational in the County, based on lessons learned from this incident.

Recommendation 16.3: Consider expanding training programs for County staff to increase skill sets and capacity, particularly regarding HAZWOPER training.

While it is noted that HAZWOPER training is costly for County staff to maintain, the County should conduct an inventory of County personnel that have and maintain this training. The overall capacity of the County should be documented, and potentially coordinated or shared with neighboring counties to understand potential mutual aid that can augment the capacity of the County. If possible, the County should explore expanding credentialing to County staff, including potential sources of funding to support both initial and ongoing training requirements.

In the absence of pre-event training, the County should consider training immediately following an event to increase the capacity of local personnel to support on-scene response operations. This may enhance the ability of the County to receive reimbursement for this training from the RP in absence of pre-event training. This training may also be offered to volunteers.

Situational Assessment

The following strengths and areas for improvement were identified specific to situational assessment associated with the 2015 Refugio Oil Spill. This includes activities associated with the provision of actionable information to County and local stakeholders.

Strengths

Strength 10: UC resources were helpful to maintain situational awareness at the County level.

Resources provided through UC were helpful for maintaining situational awareness during the initial incident response phases in the EOC. Aerial maps and maps from NOAA were useful not only from the perspective of understanding the extent of the incident but also developing tactical response plans for cleanup operations. These resources were incorporated not only into IAP for UC, but were also used to support development of situation reports in the EOC.

Areas for Improvement

Area for Improvement 17: A common operation picture was not established with County and local government stakeholders.

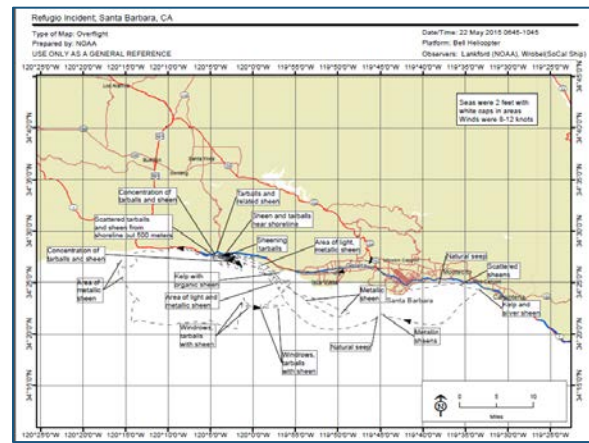
Reference: *Santa Barbara County Operational Area Emergency Management Plan, Santa Barbara County Operational Area Oil Spill Contingency Plan*

Analysis: Actionable information was not always shared in a timely fashion within the County and among local stakeholders. It was noted by County stakeholders that the initial extent of the spill was not known and that it took several days to establish situational awareness regarding the overall impact of the spill. It is possible that information regarding the extent of the spill was unavailable. It is also possible that this information was not shared specifically with certain local and County stakeholders, creating the impression that information was unavailable.

Using County incident notification systems, immediate notifications occurred for both County and jurisdiction personnel. The SBCOEM had pre-established distribution lists for incident notification, as well as to support regular incident communications, which may account for issues around incident information sharing. An example was noted that jurisdiction stakeholders contacted the SBCOEM, explaining that information was not being shared with them, only to find that the information was being shared to the jurisdiction, but to a different person or stakeholder.

While the ICP was co-located with the EOC, County and local stakeholders reported having an enhanced understanding of the overall situation. In part, this was because stakeholders were exposed to conversations, incident-specific documentation, and planning through proximity. Once the ICP was moved from the EOC, the frequency and quality of communications was reported to be reduced. Stakeholders generally agree that information sharing to enhance situational awareness could have been improved as the incident response was ongoing. This includes increases in the frequency of communications as well as the consistency in which situation-specific communication was shared.

Figure 6: 2015 Refugio Oil Spill Map



The issues faced by the County in disseminating actionable information regarding the situation largely reflect challenges in capacity and procedure. MAC groups were not established early in the incident, which would have supported information sharing to County agencies (through structures like the COR) as well as to local governments (through a local government MAC group). Use of these MAC groups is clearly articulated in both the *Santa Barbara County Operational Area Emergency Management Plan* and the *Santa Barbara County Operational Area Oil Spill Contingency Plan*. However, there is no requirement that MAC groups be established. Further, establishing these groups was delayed for a variety of reasons, including but not limited to, the lack of space at the EOC to establish MAC groups while co-located with the ICP.

It is also important to note that there were some issues related to roles and responsibilities for sharing situational awareness within the County and to local stakeholders. The SBCOEM maintains the tools and systems to support automated notification and mass distribution of information. However, in some cases, County leadership requested situation-specific information be shared through separate channels, such as through the County Executive Office. While these roles are not clearly identified in the *Santa Barbara County Operational Area Oil Spill Contingency Plan*, the *Santa Barbara County Operational Area Emergency Management Plan* states "Coordination and communications should be established between activated local government EOCs and the Santa Barbara OA. The County/OA EOC will communicate and coordinate with the most heavily impacted cities." Communications to elected officials and local government executives are not clearly defined. Further, specific processes, frequency, and methods for distribution of situational awareness from the County to local governments is not specified in either plan.

Finally, the County has incident management software, but the current version is out of date. An updated platform, shared with the jurisdictions and County departments, could serve as a valuable tool for supporting situational awareness and establishment of a common operating picture.

Recommendation 17.1: Document roles and responsibilities for situational communications among County stakeholders.

In order to streamline communications, the County should review, consider, and document roles and responsibilities associated with dissemination of incident-specific information to enhance situational awareness. This includes consideration for when information should be shared from the SBCOEM, and when information should be shared through other County agencies, including directly through the County Executive Office. A logical threshold for these roles and responsibilities may be established based on the audience. Information between the County and stakeholder emergency management representatives, for example, should continue to be disseminated from the SBCOEM. Conversely, information requested by elected officials at the jurisdictional level may be best disseminated from the County Executive Office.

In documenting these roles, the County should consider whether there are any deviations in how situational information is shared based on hazard. If deviations should be considered specific to an oil spill, those deviations should be documented in the *Santa Barbara Operational Area Oil Spill Contingency Plan* under Section 2.0 Emergency Notification. Conversely, if roles and responsibilities are considered to be appropriate for all-hazards, these should be documented in the *Santa Barbara County Operational Area Emergency Management Plan* under the planning and intelligence section and in roles and responsibilities, as appropriate.

Recommendation 17.2: Develop a situation reporting SOG to standardize development and distribution of situation reports in the EOC.

Situation reports are effective tools to summarize an agency's response activities. Specific to the County, it can be used to provide response information to County stakeholders, local stakeholders, and elected officials. The County should develop a SOG that dictates the development, content, and timing of situation reports to be used for future incidents. This tool can be used to document incident status, response operations, upcoming operational priorities, and resources.

A SOG should be developed for use by the planning and intelligence section in the EOC. Input from key local and County stakeholders should be sought to validate situation reporting needs for all-hazards, including oil spills.

Recommendation 17.3: Invest in, update, and grant access to the incident management software solution that allows local and County government stakeholders to gain situational intelligence and establish a common operating picture.

Incident management software is a valuable resource to share pertinent incident information on a single platform to multiple users. Given that the County has a resource that is currently deployed, but outdated, the County should consider the cost and level of effort associated with upgrading the system to facilitate Countywide incident management. This may include comparing the current solution to alternate vendors. As the solution is updated, the County should revisit access to the system, ensuring County and local government agency access is appropriate. After updating the system, the County should consider deploying training and exercises to ensure all stakeholders fully understand system use and operations.

Economic Recovery

The following strengths and areas for improvement were identified specific to economic recovery associated with the 2015 Refugio Oil Spill. This includes activities associated with the County's accounting for costs associated with the oil spill, as well as the overall impact and recovery of the community.

Strengths

Strength 11: The Auditor-Controller's Office successfully developed and supported processes to capture the majority of the County's costs associated with the 2015 Refugio Oil Spill.

Accounting structures established by the County facilitated full reimbursement for claims (to date) from the RP. Multiple stakeholders noted that the Auditor-Controller's Office reported to the EOC on the day of the incident and worked with County stakeholders to establish accounting systems that accurately captured the time of staff directly associated with response and recovery operations. This includes establishing an independent code (15RFGO) in the County's current timekeeping system. By swiftly establishing these structures, the Auditor-Controller's Office significantly enhanced the ability of the County to be reimbursed for all labor costs from the onset of the incident. This accounting is still ongoing, and will continue through the formal end of the incident (anticipated December 2016).

In addition to timekeeping by code using the County's established systems, the County also employed ICS forms to track activity in the EOC. Specifically, Form 214 was used by County staff to supplement time tracking and activities. Information supplied on the form was then used to support the Auditor-Controller's Office to substantiate time charged by County staff and to support invoices for that time to the RP. It is important to note that collaboration between other County agencies and the Auditor-Controller's Office was also a strength, particularly as it applies to the role of County Counsel, who contributed to the review of these forms, ensuring information documented and reported was appropriate.

Given the strength of timekeeping and tracking, the County has already made note of opportunities for improvement. ICS Form 214 is an activity log created to "record details of notable activities" within ICS. The form, once completed, is provided to the documentation unit which, if a separate position, works with the planning section chief to use this information to both document the incident and develop IAPs. As used during the 2015 Refugio Oil Spill response, Form 214 became an individual activity log. In some cases, County staff noted information captured using the form was not appropriate in the level of detail and content given the intended use of the form by the County. The Auditor-Controller's Office is currently working with internal County stakeholders to align documentation of tasks and work performed with forms used in the emergency management community across the State of California, including those used by the Santa Barbara County Fire Department. These forms support County documentation which is submitted to the State of California to support cost accounting and reimbursement during wildfire response. Both the Auditor-Controller's Office and the Fire Department acknowledge that this may be a better alternative to using the ICS Form 214 in a future incident.

The County is also exploring opportunities to enhance processes to capture and document time, another enhancement based on the lessons learned as a result of the 2015 Refugio Oil Spill response. Use of the ICS Form 2014 in the EOC resulted in some confusion regarding what should be done with forms following shifts by County staff. In some cases, multiple collection points were established and/or forms were not provided to the County to document tasks associated with work. The Auditor-Controller's Office is proactively adjusting timekeeping systems and exploring development of applications to streamline the information collection process, allowing County staff to input information into electronic systems while automating forms and data collection. These adjustments offer

potential benefit to the County in capturing and accounting for personnel costs associated with future response and recovery operations, both for oil spills and other hazards that may impact the County.

Areas for Improvement

Area for Improvement 18: Daily cost rates for County facilities are not established.

Reference: *Santa Barbara County Operational Area Oil Spill Contingency Plan, Los Angeles – Long Beach Area Contingency Plan*

Analysis: In the first 24 hours of incident response, the USCG and the RP collaborated to identify a location for the ICP and UC. This included exploration of hotel conference rooms and other large spaces that could be rented by the RP. Incident timing, however, prevented the RP from being able to identify a space. Local events and commencement activities meant that the majority of space was unavailable, including hotel accommodations. Ultimately, the County agreed to allow the ICP to be located in the County EOC.

The *Santa Barbara County Operational Area Contingency Plan* specifies in Section 3.2 that ICP will be determined by UC and that the *Los Angeles – Long Beach Area Contingency Plan* and existing available space should be used to identify locations. The *Santa Barbara County Operational Area Contingency Plan* specifically states “It may be located at the RP offices, at nearby hotels, or the Santa Barbara County OA EOC...” Links are also provided to websites for available lodging at local hotels. The *Los Angeles – Long Beach Area Contingency Plan* identifies one location in the County to potentially be used as the ICP. The absence of pre-event identified alternatives may have contributed to the decision to locate the ICP at the EOC.

While there was some benefit to the co-location of the ICP in the EOC, there were additional costs that were incurred by the County. The County had not previously established facility use costs or a daily rate for use of the EOC. While the facility is County owned, ultimately the costs associated with operating the ICP are the responsibility of the RP under the Oil Spill Pollution Act of 1990. In the absence of pre-established daily use rates for the EOC, the County successfully developed a formula to support a claim to the RP for use of the EOC.

Recommendation 18.1: Pre-identify facilities that can be used as the ICP.

Overall, the use of the EOC as the ICP had strengths and weaknesses. In future incidents, the two locations should be separated or the amount of time the ICP and EOC are co-located should be limited. Pre-identifying potential facilities and conducting a thorough analysis of commercially available space would offer UC and the RP a viable list of alternatives that could be expeditiously explored in a future incident.

In alignment with information documented in the *Los Angeles – Long Beach Area Contingency Plan*, the County should collect the following information regarding potential facilities for the ICP.

Table 4: Considerations for Potential Locations for the ICP Supporting UC

Considerations for Potential ICP Locations	
<ul style="list-style-type: none">• Facility name• Facility address• Contact information• Point of contact• Availability	<ul style="list-style-type: none">• Physical description• Communications capability• Security• Logistics• Parking• Cost

To the greatest extent possible, alternatives should include commercially available facilities and publicly owned facilities, including County and State resources. The County may also consider developing criteria to rank facility use either as it applies to physical proximity to potential oil spill sites identified in the *Los Angeles – Long Beach Area Contingency Plan* or based on the benefits presented by a facility's features. Identified facilities should either be incorporated into the *Santa Barbara Operational Area Oil Spill Contingency Plan*, incorporated by reference into the plan but maintained as a separate document, or incorporated into the *Los Angeles – Long Beach Area Contingency Plan*.

Recommendation 18.2: Consider alternative resources that may be available to support an ICP in the field.

The State of California, particularly the Department of Forestry and Fire Protection, is highly adept at supporting fire response and suppression operations across the State. This includes use of State-owned assets and use of mutual aid. Often, these assets are brought into an impacted jurisdiction or County to establish ICP and support those facilities throughout response operations. Physical spaces, supporting equipment, and communications assets are available to support these response operations.

While the availability of these resources is contingent on active fires across the State of California, they may be an alternative available to the County to support an ICP. Activation timelines to use these resources are minimal as compared to the requirements associated with wiring facilities for use. While permanent structures are ideal (e.g. less impact from natural elements), the use of temporary facilities may provide an interim solution in the event that permanent facilities are not available and/or while those facilities are being established.

Should the County seek to explore these options, the County should coordinate with both the SBCOEM and the Santa Barbara County Fire Department. Together, these agencies can work with the California Department of Forestry and Fire Protection to understand resources that may be available, requirements associated with accessing resources, costs, deployment timelines, and demobilization requirements.

If both the County and the State agree to leverage these resources to support operations of an ICP, this agreement should be documented in a MOU or other document, as appropriate. The agreement should either be incorporated into the *Santa Barbara Operational Area Oil Spill Contingency Plan*, incorporated by reference into the plan but maintained as a separate document, or incorporated into the *Los Angeles – Long Beach Area Contingency Plan*.

Recommendation 18.3: Identify and document daily facility use costs for County facilities.

In an alignment with Recommendation 18.2, the costs of County facilities should be identified and documented prior to an incident, expediting both the reimbursement process and allowing the County to fully understand operational costs associated with using facilities as an ICP. There are multiple ways the County can document costs, including establishing a daily rate for facility operations or establishing a rate that is based on the number of people operating in a facility. In addition, there are variables that need to be considered in establishing rates, including whether the facility is operating on a 24-hour staffing schedule, which will impact overall costs to the County.

In order to establish these costs, the County should first consider the methodology established to document the costs of using the EOC during the response to the 2015 Refugio Oil Spill. If this cost estimation structure is determined to be sufficient to capture the total cost to the County, then the County should apply those variables to other County-owned facilities to establish rates. The County can also develop a new cost estimation structure that accounts for utilities, security, estimated facility modifications, and supplies to estimate rates for facility use.

While the 2015 Refugio Oil Spill is not a declared disaster under the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), the recent Public Assistance Program and Policy Guide (January 2016) offers additional considerations as it applies to operating EOCs. These considerations may be helpful as the County establishes overall facility use rates for County facilities. These considerations include:

- Facility lease and rent (for County-owned facilities, this could be a daily maintenance rate or a portion of any municipal debt incurred to build or refurbish the facility).
- Utilities (power, water, telephone), including daily costs as well as increased operational costs.
- Minor facility modifications, including Americans with Disabilities Act compliance.
- Generator costs.
- Storage costs.
- Security costs.
- Supplies and commodities costs.
- Meal costs.

As an additional option, the County should also consider pre-establishing rates with other public organizations who maintain large facilities in the County that could be used to support the ICP. This may include cities or the University of California Santa Barbara, which operates independently of the State and County.

Recommendation 18.4: Consider methods to document facility damage and capture costs for reimbursement from the RP.

The County should document the process for establishing and claiming damages from the RP for facilities used as the ICP. This process may include documenting the original condition of facilities prior to use by UC as the ICP so that the RP is able to return the facility back to its original condition following response. Photographs and maintenance logs can be used to establish with the RP the previous condition of the facility. Lease or use agreements established with the RP can include provisions for returning the facility to its previous condition.

Recommendation 18.5: Develop guides to support co-location of the ICP in the EOC.

Should a future response require co-location of the UC ICP in the County EOC, guidance should be provided to UC staff and vendors to support operations. This guidance should include County requirements associated with facility access, including local and County officials who should have access to the building.

Appendix A: Improvement Plan

This IP matrix summarizes the areas for improvement and associated corrective actions identified throughout the AAR. Items identified in this IP are specific to the 2015 Refugio Oil Spill.

Table 5: 2015 Refugio Oil Spill After-Action Report Improvement Plan Matrix

Area for Improvement	Recommendation	Capability Element	Primary Responsible Organization(s)
1: Existing plans do not currently account for the procedural needs of the County or local governments.	1.1: Revise the Santa Barbara County Operational Area Oil Spill Contingency Plan to document requirements associated with permitting and other procedural needs of the County and the jurisdictions.	Planning	SBCOEM, Planning and Development, Public Health, County Counsel
2: Existing plans do not specifically enumerate the priority for cultural resources in the County.	2.1: Align and include cultural resources in the revised Santa Barbara Operational Area Oil Spill Contingency Plan.	Planning	SBCOEM, Planning and Development
3: Existing plans do not specify the responsibilities and duties of the LOSC in UC.	3.1: Develop and incorporate into plans (as appropriate) processes to select the LOSC along with qualifications, required training, duties, responsibilities, authorities, and coordination and interaction with established structures for emergency management.	Planning	SBCOEM, OSPR, and USCG
	3.2: Consider incorporating staffing positions for the ICP into the MOU or generally in the Santa Barbara Operational Area Oil Spill Contingency Plan.	Organization	SBCOEM and OSPR
4: Roles and responsibilities in the EOC are not clear, particularly as they apply to the finance/administration section.	4.1: Provide additional training and clarify positions in the EOC.	Training	SBCOEM and County Executive Office Budget Office
5: Local, County, State, and federal counterparts did not effectively integrate in a JIC.	5.1: Review current plans, policies, and procedures to clarify establishment of a separate JIC, as deemed necessary by the County, to support County operations.	Planning	County Executive Office, SBCOEM

Area for Improvement	Recommendation	Capability Element	Primary Responsible Organization(s)
	5.2: Conduct joint exercises with local, State, and Federal partners focused on operations of a JIC.	Exercise	SBCOEM, OSPR, EPA, and USCG
6: Information available to the public regarding the incident on official incident websites was maintained by the RP.	6.1: Revise the Santa Barbara Operational Area Oil Spill Contingency Plan to specify the management and maintenance of public information resources outside of the RP.	Planning	SBCOEM, OSPR, EPA, and USCG
7: Opportunities for engagement from the public were limited.	7.1: Establish a Countywide press credentialing policy.	Planning	County Executive Office, SBCOEM
	7.2: Review and revise current plans to account for press conferences and scheduling.	Planning	County Executive Office, SBCOEM
	7.3: Incorporate opportunities for community engagement into the Santa Barbara Operational Area Oil Spill Contingency Plan.	Planning	County Executive Office, SBCOEM
8: Formal structures to support Countywide operational coordination were not established immediately after the 2015 Refugio Oil Spill.	8.1: Formalize the activation, structure, membership, and operation of MAC groups for oil spill incidents, specifically the COR.	Planning and Organization	SBCOEM and County Executive Office
	8.2: Consider methods to enhance coordination with local elected officials and increase transparency.	Organization	SBCOEM and County Executive Office
9: Liaison positions were not immediately established between the County and UC.	9.1: Enumerate the role of a County liaison officer or additional agency representatives to support incident coordination to County and local stakeholders.	Planning and Organization	SBCOEM
10: Coordination with local stakeholders outside of the EOC was not effective.	10.1: Ensure a local liaison is established to support coordination with local governments and the University.	Organization	SBCOEM

Area for Improvement	Recommendation	Capability Element	Primary Responsible Organization(s)
11: Multi-agency training specific to an oil spill incident had not occurred in the County since 2011.	11.1: Advance planning for a multi-agency training in 2016, incorporating stakeholders from the local, State, and Federal level.	Training	SBCOEM, OSPR, and USCG
	11.2: Develop a training and exercise schedule to accompany the Santa Barbara County Operational Area Oil Spill Contingency Plan and/or the County multi-year training and exercise plan. Coordinate this schedule with State and Federal partners.	Training Exercise	SBCOEM
12: Staffing to support response resulted in burnout.	12.1: Increase staff redundancy for future response operations.	Organization	SBCOEM and County Executive Office
	12.2: Consider ways to re-prioritize workloads of County personnel during response operations.	Organization	SBCOEM and County Executive Office
13: Formal structures and plans for volunteer engagement do not exist at the County level.	13.1: Develop a volunteer management plan for the County.	Planning	SBCOEM
	13.2: Review and revise language associated with volunteer engagement in the Santa Barbara Operational Area Oil Spill Contingency Plan based on structures developed in the volunteer management plan.	Planning	SBCOEM
	13.3: Develop formal programs to expand County-level skilled volunteers and spontaneous volunteers.	Planning	SBCOEM
	13.4: Develop public messaging that clearly and concisely identifies restrictions on volunteer engagement in oil spill response operations.	Planning	SBCOEM, OSPR
14: Non-traditional NGO partners were not consistently engaged in response and recovery operations.	14.1: Develop a formal process and structure to engage local non-traditional NGOs.	Organization	SBCOEM

Area for Improvement	Recommendation	Capability Element	Primary Responsible Organization(s)
15: Subject matter expertise to support analysis of oil spill samples was provided through the RP.	15.1: Develop and establish pre-event contracts with scientific and environmental subject matter experts to increase subject matter expertise offered to County personnel and offer the County independent sampling.	Planning	SBCOEM, County Executive Office, Planning and Development, and Public Health
16: Resources to support cleanup, including staffing and equipment, were primarily provided through the RP.	16.1: Document the County's current capability and capacity to support immediate oil response operations.	Planning	SBCOEM, Fire Department
	16.2: Review and assess the requirements contained in oil company contingency plans as they apply to contract support and increase requirements associated with standby resources.	Planning	SBCOEM, Planning and Development, Environmental Health
	16.3: Consider expanding training programs for County staff to increase skill sets and capacity, particularly regarding HAZWOPER training.	Training	Santa Barbara County Fire Department, Public Health Department
17: A common operation picture was not established with County and local government stakeholders.	17.1: Document roles and responsibilities for situational communications among County stakeholders.	Organization	SBCOEM
	17.2: Develop a situation reporting SOG to standardize development and distribution of situation reports in the EOC.	Planning	SBCOEM
	17.3: Invest in, update, and grant access to the incident management software solution that allows local and County government stakeholders to gain situational intelligence and establish a common operating picture.	Equipment	County Executive Office, SBCOEM
18: Daily cost rates for County facilities are not established.	18.1: Pre-identify facilities that can be used as the ICP.	Planning	SBCOEM, OSPR, and USCG
	18.2: Consider alternative resources that may be available to support an ICP in the field.	Equipment	SBCOEM and OSPR

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Area for Improvement	Recommendation	Capability Element	Primary Responsible Organization(s)
	18.3: Identify and document daily facility use costs for County facilities.	Equipment	General Services
	18.4: Consider methods to document facility damage and capture costs for reimbursement from the RP.	Equipment	General Services
	18.5: Develop guides to support co-location of the ICP in the EOC.	Planning	SBCOEM, General Services

Appendix B: 2015 Refugio Oil Spill Response Participating Agencies

The following table lists entities, agencies, and organizations that participated in the 2015 Refugio Oil Spill response.

Table 6: 2015 Refugio Oil Spill Response Participating Agencies

Level	Participating Entity/Agency/Organization
Federal	Channel Islands National Marine Sanctuary
	Federal Aviation Administration
	Federal Emergency Management Agency
	National Park Service
	National Marine Fisheries Service
	National Oceanic and Atmospheric Administration
	US Bureau of Land Management
	US Coast Guard Air Station Los Angeles
	US Coast Guard Base Los Angeles
	US Coast Guard District One
	US Coast Guard District Seven
	US Coast Guard District Eight
	US Coast Guard District Nine
	US Coast Guard District Eleven
	US Coast Guard District Eleven Response Advisory Team
	US Coast Guard District Thirteen
	US Coast Guard District Seventeen
	US Coast Guard Marine Safety Detachment Santa Barbara
	US Coast Guard Marine Safety Lab
	US Coast Guard Maritime Safety and Security Team Los Angeles-Long Beach
	US Coast Guard National Pollution Funds Center
	US Coast Guard National Strike Force, Atlantic Strike Team
	US Coast Guard National Strike Force, Gulf Strike Team
	US Coast Guard National Strike Force, Pacific Strike Team
	US Coast Guard Pacific Area
	US Coast Guard Research and Development Center
	US Coast Guard Sector Humboldt Bay
	US Coast Guard Sector Long Island Sound
US Coast Guard Sector Los Angeles-Long Beach	
US Coast Guard Sector Puget Sound	
US Coast Guard Sector San Diego	
US Coast Guard Sector San Francisco	

Level	Participating Entity/Agency/Organization
	US Coast Guard Sector San Juan
	US Coast Guard Sector Sault Ste. Marie
	US Department of Energy
	US Department of Transportation/Pipeline and Hazardous Materials Safety Administration
	US Environmental Protection Agency
	US Fish and Wildlife Service
	US Geological Survey
Tribal	Barbareno Band of Chumash Indians
	Barbareno Ventureno Band of Chumash Indians
	Coastal Band of Chumash Indians
	Santa Ynez Band of Chumash Indians
State	California Air National Guard
	California Coastal Commission
	California Conservation Corps
	California Department of Fish and Wildlife
	California Department of Fish and Wildlife Natural Resource Volunteers
	California Department of Fish and Wildlife/Office of Spill Prevention and Response
	California Governor's Office of Emergency Services
	California Office of Environmental Health Hazard Assessment
	California State Department of Parks and Recreation
	California Volunteers
	State Historic Preservation Office
Local	Central Coast Regional Water Quality Control Board
	City of Goleta
	City of Los Angeles Fire Department
	City of Santa Barbara
	City of Santa Barbara Community Emergency Response Team
	City of Santa Barbara Fire Department
	City of Santa Barbara Police Department
	County of Santa Barbara
	Los Angeles Department of Public Health
	Los Angeles Regional Water Quality Control Board
	Office of Supervisor Janet Wolf (Chair of the Board of Supervisors during the 2015 Refugio Oil Spill Response)
	Office of Supervisor Doreen Farr
	Santa Barbara County Auditor-Controller
	Santa Barbara County Counsel
Santa Barbara County Fire Department	

Level	Participating Entity/Agency/Organization
	Santa Barbara County General Services
	Santa Barbara County Health Department
	Santa Barbara County Office of Emergency Management
	Santa Barbara County Planning and Development
	Santa Barbara County Sheriff's Office
	Santa Barbara Municipal Airport
	Ventura County Office of Emergency Management
NGOs and Other Stakeholders	AIDS/Life Cycle Event
	Coastal Advocates
	Coastal Fund
	Environmental Defense Center
	Heal the Bay
	Natural Resources Defense Council
	The Nature Conservancy
	Ocean Conservancy
	The Ocean Foundation
	Resources Legacy Fund
	Santa Barbara Channelkeeper
	Santa Barbara Museum of Natural History
	SeaWorld San Diego
	Surfrider Foundation
Wave Walker Charters	
Academia	University of California, Davis, Wildlife Health Center, Oiled Wildlife Care Network
	University of California, Santa Barbara
	University of California, Santa Barbara, Community Emergency Response Team
	University of California, Santa Cruz
	Louisiana State University
Industry	Center for Toxicology and Environmental Health
	Clean Seas, LLC
	Marine Spill Response Corporation
	National Response Corporation Environmental Services
	Ocean Blue Environmental
	Oil Mop, Inc.
	Patriot Environmental Services
	Plains All American Pipeline, L.P.
	Port of Hueneme
	T&T Yard
	Witt O'Brien's

Appendix C: After-Action Meeting Participants

The following table lists entities, agencies, and organizations who participated in the AAM on April 26, 2016, at the SBCOEM EOC. This meeting presented the preliminary findings of the *2015 Refugio Oil Spill After-Action Report and Improvement Plan*.

Table 7: 2015 Refugio Oil Spill After-Action Meeting Participants

Participating Entity/Agency/Organization
California Coastal Protection Network
California Department of Fish and Wildlife: Office of Spill Prevention and Response
California Governor's Office of Emergency Services
City of Goleta
City of Santa Maria
City of Santa Maria District Operations
County Counsel of Santa Barbara County
County Executive Office of Santa Barbara County
Environmental Defense Council
Santa Barbara Channelkeeper
Santa Barbara County Auditor - Controller
Santa Barbara County Fire Department
Santa Barbara County General Services
Santa Barbara County Joint Information Center
Santa Barbara County Office of Emergency Management
Santa Barbara County Office of Emergency Services
Santa Barbara County Planning and Development
Santa Barbara County Sheriff's Office
Storrer Environmental Services
United States Coast Guard
University of California Santa Barbara
Ventura County Office of Emergency Services
Voluntary Organizations Active in Disaster

Appendix D: After-Action Meeting Participant Feedback

This appendix contains information collected from participants in the Participant Feedback Form provided at the After-Action Meeting that occurred on April 26, 2016. Responses were collected from participants in person as well as electronically following this meeting. Responses are presented with minimal editing.

Strengths

The following table displays participants' direct identification of strengths regarding the 2015 Refugio Oil Spill response.

Strengths
<ul style="list-style-type: none">• The response of the County to open the EOC.• Security at the EOC and overall control.• The ability to maintain the EOC with 300 people in and out daily.• The city and County had contracts in place to enable immediate deployment of environmental monitoring teams. Team members provided initial input regarding access and location of sensitive resources, thereby facilitating implementation of the Area Contingency Plan.• MOU with State enabled local (County) representation on UC. Participation by local agencies was essential in realizing response and cleanup objectives.• City and County had ability to deploy local expertise in organizing response and cleanup objectives.• Location of EOC as ICP during initial response. This location, although inconvenient to the County, helped kick start the response by providing location and communications capability not normally available in the early days of the response.• The fact that the County is part of the UC (however, need to make sure that the County is treated equally with other members of the UC, and that the RP is not influencing decisions or messaging).• The Open House.• The environmental sensitivity of the response (e.g., no use of dispersants, hot washes, etc.).• OSPR calls with NGOs were initially helpful but then became frustrating because many questions and concerns were not answered.• State website with information was helpful.

Areas for Improvement

The following table displays participants' direct identification of areas for improvement regarding the 2015 Refugio Oil Spill response.

Areas for Improvement
<ul style="list-style-type: none">• The response tempo suffered with the lack of local knowledge by RP/Feds.• The County must not rely on the RP. I would hear, "It's their responsibility," creating an environment of lack of action.• Communication between logistics at the EOC and the County.• Required roles of the County team.• Understanding the roles between agencies.

Areas for Improvement

- Cost of EOC - damages to facilities and what to charge for.
- Lack of control of staff with too many bosses.
- Initial response to incident could have been far more robust, both on and offshore. A more efficient and timely response would have abated many of the problems with public perception (media), security (e.g., public desire to participate in cleanup), as well as enabling recovery of more product, thereby reducing impacts of spill.
- Interagency communication and coordination (State/Federal/local) was slow to gel and resulted in issues throughout the cleanup process, as has been reported in greater detail by those involved in the decision-making process.
- Assessment of shoreline impacts was not always efficient or effective in directing cleanup operations. This process improved over time. But again, effectiveness of cleanup operations diminished over time as product became geographically dispersed.
- Dissemination of information to the public was not well organized, as described in detail by those responsible for same (i.e., public relations personnel representing local government).
- Inability to distinguish between incident and non-incident ("seep") oil was problematic throughout the cleanup process.
- County representation in the UC ICP was inconsistent in the beginning. If part of the UC, they must be available all day until the end of the operational period to move decisions along.
- Perception by other County elected officials and County employees that representation in the UC is a panacea. Better representation in the Planning, Operations, Liaison, and Environmental Unit is far more important, and these are impactful roles to fill, as these roles really help plan the operations in future operational periods. Any local issues should be brought to the attention in these areas before going to final decision at the UC level.
- Need more immediate and effective response, in particular for an oil spill that starts onshore and spreads offshore. There was a significant lack of available personnel, vessels, equipment, staging, and planning. The fisherman's response program did not seem to be activated at the beginning of the spill. Clean Seas, while activated, could not help prevent oil from reaching the ocean. The main response did not occur until almost 24 hours after the spill, when much of the oil had already been washed to sea.
- Need better communication with the public. Press conferences should not have been closed to the public. Also, the lack of oil sampling information was frustrating. The RP should not be allowed to provide information such as the quantity of oil spilled.
- The UC should have consulted with scientists who had modeling and other information that would have improved oil spill response.
- Need to integrate NGOs in terms of assistance and communication.
- Public reports of oil on the beaches were often not responded to. Also, the volunteer program was extremely frustrating; first the websites were wrong, then the websites simply stated that no volunteers were needed; training was deferred; the public was not adequately notified of volunteer opportunities, other than beach cleanups, that were available earlier in the response process.

Corrective Actions

The following table displays corrective actions identified by participants that could be taken to address the provided areas for improvement from participant feedback forms. Priority ratings were provided by participants.

Corrective Action	Priority
Local knowledge would enhance the hired operators needed to start cleanup.	High
Conduct post-incident analysis and evaluation of initial response.	High
Revisit SCAT protocols and procedures to see how the data collected can be most efficiently translated into effective/efficient deployment of cleanup resources.	High
Develop a more efficient process for sampling and analysis of product to determine origin.	High
Train/qualify local representatives to fill certain roles in the ICP.	Priority not specified
Continue use of EOC whenever possible.	Priority not specified
Better attendance by County officials to quarterly Area Committee Meeting.	Priority not specified
Better attendance by County officials to planned exercises/drills.	Priority not specified
Update oil spill plans and conduct drills to improve response to spills that begin offshore, move onshore, and spread offshore. Provide for immediate response to prevent oil from entering the ocean (don't wait until the next day to fully activate containment and cleanup response). Require staging of vessels and equipment. Reactivate fishermen's response program.	High
Press conferences should be open to the public. Appropriate siting and security measures can be considered. The RP should have a limited role in the briefings and should not be allowed to provide information that has not been verified by the UC.	High
Contact scientists with relevant knowledge and skills who can be consulted as soon as a spill occurs (e.g., the MSI modeling program that predicted where the spill would go).	High
Coordinate with NGOs as contemplated in NIMS. Include a NGO liaison to the JIC (not to craft the message, but to ask questions and make sure the relevant information is being presented). Allow NGOs with knowledge, skills, and resources to assist with oil spill response and monitoring.	High
Respond to public reports of oil on beaches; do not ignore reports because the oil is from the same incident or because there is an assumption that the oil is from natural seeps. Coordinate with NGOs and other entities to foster an effective volunteer effort. Provide accurate and comprehensive information immediately so people know about various volunteer opportunities.	High
Preplanning should be required of producers of products that pose a hazard if released, including how the spill would be assessed.	High
Update oil spill plans (Agencies, EDC, and other NGOs).	Priority not specified
Provide NGO liaison to JIC (EDC).	Priority not specified
Identify scientists who can be involved with oil spill modeling, response, and research (UCSB, other academic institutions).	Priority not specified
Develop a more effective volunteer program which include training, information, local governments, Oiled Wildlife Care Network, and NGOs.	Priority not specified

Items for Review

The following table lists the identified policies, plans, and procedures that should be reviewed, revised, or developed as identified by participants on participant feedback forms. Priority ratings were provided by participants.

Item for Review	Priority
<p>Area Contingency Plan</p> <ul style="list-style-type: none"> • The plan is a living document to which even the County has the ability to make recommended changes. By attending Area Committee Meetings and getting involved, they can help shape local contingencies in the plan. • The plan should be updated to address: <ul style="list-style-type: none"> ○ General lessons learned regarding oil spill response and UC/JIC operations. ○ Specific challenges of responding to a pipeline oil spill (i.e., lack of nearby staging area with equipment, processing facility, marine terminal, etc.). ○ Information on spills that emanate onshore and spread towards the ocean; a plan should be developed that prevents the oil from reaching the ocean. ○ Recommendations from the Coastal Commission's 2013 "Oil Spill Prevention and Response Guidance Document for Oil and Gas Project Applications." 	High
<p>County Oil Spill Contingency Plan</p> <ul style="list-style-type: none"> • The plan should be updated to address: <ul style="list-style-type: none"> ○ General lessons learned regarding oil spill response and UC/JIC operations. ○ Specific challenges of responding to a pipeline oil spill (i.e., lack of nearby staging area with equipment, processing facility, marine terminal, etc.). ○ Information on spills that emanate onshore and spread towards the ocean; a plan should be developed that prevents the oil from reaching the ocean. ○ Recommendations from the Coastal Commission's 2013 "Oil Spill Prevention and Response Guidance Document for Oil and Gas Project Applications." 	High
<p>JIC Procedures</p> <ul style="list-style-type: none"> • Revise the JIC procedures to ensure meaningful local role and open communications with the public. Consider including a NGO liaison. 	High
<p>Coastal Act</p> <ul style="list-style-type: none"> • Ensure adequate understanding of the role and application of the Coastal Act e.g., that emergency permits and waivers are available to avoid delays to response activities. 	High
<p>Meetings and Exercises</p> <ul style="list-style-type: none"> • Engage in regular meetings and exercises so that the members of the various agencies know each other and their respective roles. 	High
<p>Volunteer Program</p> <ul style="list-style-type: none"> • Develop a clear volunteer program that identifies all opportunities. • Provide information about training opportunities on agency websites on an ongoing basis. 	High

Assessment of After-Action Report and Improvement Plan

The following table displays participants' overall assessment of the AAM, as well as the discussion of key elements of the AAR.

Assessment Factor	Strongly Disagree		Strongly Agree			Total	Average Score
	1	2	3	4	5		
I agree with the core capabilities identified for the AAR.			2	2		4	3.5
The presentation at the AAM helped me understand and become engaged in the AAR.		1	1	1	1	4	3.5
The facilitators were knowledgeable about the material, kept the AAM on target, and were sensitive to group dynamics.	1		1	1	1	4	3.25
I agree with the strengths identified in the AAR regarding the 2015 Refugio Oil Spill response.		2		2		4	3
I agree with the areas for improvement identified in the AAR regarding the 2015 Refugio Oil Spill response.		1	2	1		4	3
Participation in the AAM was appropriate for someone in my position.	1		1	2		4	2.4
The participants included the right people in terms of level, mix of disciplines, and response roles.	1		1	2		4	3
The AAM provided a chance to contribute feedback in regards to the 2015 Refugio Oil Spill response.	1		3	2		5	3

Participant Feedback

The following table displays what changes participants would make to the AAR in regards to improvement and enhancement.

Participant Feedback
<ul style="list-style-type: none">• The presentation and discussion was rushed; more time was needed to cover all the issues meaningfully.• There was no initial outline of topics, so it was sometimes difficult to know whether to speak up or wait for a potentially more opportune moment.• Having materials in advance may have facilitated a more productive and informed discussion.

The following table displays any additional participant feedback regarding experience in the 2015 Refugio Oil Spill response, the AAR, or the AAM.

Additional Participant Feedback
<ul style="list-style-type: none">• UCSB is not in the Santa Barbara Plan.• Aware and Prepare started in 2007. The County launched Aware and Prepare in 2016 as a messaging system.• Get the NGOs to sign up for VOAD.• There were issues of the RP not having their own ICP team. Exxon would have staffed the entire team versus the RP who only had three people in the area.• There was confusion over the JIC. It was an ICP, not an EOC.• Having the ICP at the EOC took the Office of Emergency Management away from their role as a regulator. They were a host, not a regulator.• Lack of use of the Area Contingency Plan in the response.• No discussion of SCAT.• I think the AAR is essential to improving response to future spills. Data collection (this exercise) is in turn essential to that process. The difficulty will be in the follow-through, regarding how to ensure meaningful revision and improvement in management, coordination, and (most importantly) efficient and effective ground operations.• For the most part, NGOs felt left out, despite our knowledge, skills and ability to assist with response, monitoring, and community outreach and education. Our confidence in the process was diminished by the deferred on-the-ground response, the closed briefings, and the lack of information regarding samplings, volunteer opportunities, etc. I recommend that the UC and JIC integrate with NGOs during planning, response, and communications. Sufficient time should be allowed to hear from NGOs about the AAR. Attendance at the meeting was limited, and the time allotted for outreach to other NGOs was also limited. I appreciate the outreach and offer by the facilitator to also talk to NGOs outside of the scheduled meeting.

Appendix E: Debrief Participants

The following table lists entities, agencies, and organizations who participated in the 2015 Refugio Oil Spill response debrief meetings.

Table 8: 2015 Refugio Oil Spill Debrief Participants

Debrief	Participating Entities
County October 26, 2015 Session I	County Counsel of Santa Barbara County
	County Executive Office of Santa Barbara County
	Naval Postgraduate School Center for Asymmetric Warfare
	Perceptronics Solutions
	Santa Barbara County of Alcohol, Drugs, and Mental Health Services
	Santa Barbara County Auditor – Controller
	Santa Barbara County Fire Department
	Santa Barbara County General Services
	Santa Barbara County General Services – Information and Communications Technology
	Santa Barbara County Office of Emergency Management
	Santa Barbara County Planning and Development
	Santa Barbara Public Health Department
	Santa Barbara County Public Health Department Environmental Health Services
	Santa Barbara County Sheriff’s Office
County October 26, 2015 Session II	County Counsel of Santa Barbara County
	County Executive Office of Santa Barbara County
	County of Santa Barbara Community Services Department
	Naval Postgraduate School Center for Asymmetric Warfare
	Perceptronics Solutions
	Santa Barbara County Auditor – Controller
	Santa Barbara County Board of Supervisors
	Santa Barbara County Fire Department
	Santa Barbara County General Services
	Santa Barbara County Office of Emergency Management
	Santa Barbara County Planning and Development
	Santa Barbara County Probation Department
	Santa Barbara County Public Health Department
	Santa Barbara County Sheriff’s Office
Storrer Environmental Services	

Debrief	Participating Entities
Non-Governmental Organizations January 21, 2016	Carpinteria Valley Association
	Citizens Planning Association of Santa Barbara County
	Community Environmental Council
	Environmental Defense Center
	Food & Water Watch
	Get Oil Out
	League of Women Voters of Santa Barbara
	Los Padres Chapter Sierra Club
	Naval Postgraduate School Center for Asymmetric Warfare
	Santa Barbara Channelkeeper
	Santa Barbara County Office of Emergency Management

Debrief	Participating Entities
Jurisdictional March 30, 2016	California Governor's Office of Emergency Services
	City of Santa Barbara Office of Emergency Services
	City of Goleta
	Hagerty Consulting
	Naval Postgraduate School Center for Asymmetric Warfare
	Santa Barbara County Office of Emergency Management
	Santa Ynez Band of Chumash Mission Indians

Appendix F: Region IX Regional Contingency Plan Use of Volunteers

The following is an excerpt of the *Region IX Regional Contingency Plan* specifically as it applies to engagement of volunteers to support an oil spill (Area for Improvement 13). As the County develops volunteer management plans and considers engagement of volunteers in a future oil spill, the following should be considered, particularly as it applies to the role of the FOSC to approve volunteer engagement.

4030 Resources Unit

4031 Volunteers

Each Area Contingency Plan contains guidance for how volunteers are managed locally. Properly trained volunteers may be used for such duties during an incident as beach surveillance, logistical support, and bird and wildlife rehabilitation. Such use of volunteers must, however, be approved by the appropriate State, federal, and Native American fish and wildlife officials, as well as by the RP. Unless specifically requested by the FOSC, these volunteers generally should not be used for physical removal or mitigation activities. If, in the judgment of the FOSC, dangerous conditions exist, these volunteers shall be restricted from on-scene operations.

4032 National Response Team Guidance Regarding Use of Volunteers for Oil Spills

The National Response Team maintains a Technical Assistance Document about the Use of Volunteers Guidelines for Oil Spills, September 2012 at

[http://www.nrt.org/production/NRT/NRTWeb.nsf/3cb9a6ef643b6e3685256ede006ef73a/3922c36897b0657a85257a9c00335c2d/\\$FILE/NRT_Use_of_Volunteers_Guidelines_for_Oil_Spills_FINAL_signatures_inserted_Version_28-Sept-2012.pdf](http://www.nrt.org/production/NRT/NRTWeb.nsf/3cb9a6ef643b6e3685256ede006ef73a/3922c36897b0657a85257a9c00335c2d/$FILE/NRT_Use_of_Volunteers_Guidelines_for_Oil_Spills_FINAL_signatures_inserted_Version_28-Sept-2012.pdf)

4033 National Memoranda of Understanding for Volunteers

The Corporation for National and Community Service, Environmental Protection Agency and United States Coast Guard have a memoranda of understanding about Developing and Supporting an Unaffiliated Volunteer Management Program, see Enclosure 4030 at <http://www.rrt9.org/go/doctype/2763/272926>.

Appendix G: National Response Team Technical Assistance Document Considerations

The following is an excerpt from the National Response Team Technical Assistance Document, and presents options for consideration specific to Area for Improvement 13. This is specific to considerations associated with the use of volunteers, both affiliated and non-affiliated. An asterisk (*) indicates the volunteer may require specific training or health and safety plans per federal regulations.

Oiled Wildlife Rehabilitation

- Wildlife reconnaissance*
- Wildlife recovery and transport*
- Wildlife care and processing - tasks include:
 - Animal washing/drying*
 - Food preparation*
 - Light construction (cage building)*
 - Facility cleaning*
 - Laundry*
 - Intake station processing for recovered wildlife (both alive and deceased)

Shoreline Cleanup Support

- Volunteer field observers and data recorders*
- Pre-impact beach cleanup, including temporary movement of natural debris above the water line*
- Local guides for beach access*
- Displaced boom surveys*
- Data entry

Public Relations and Community Liaison

- Guide visitors and media
- Identify lodging for responders
- Volunteer reception center support
- Phone answering, dispatching, messaging
- Information center staffing
- Beach closure information point of contact

Community Liaison Social Services

- Job placement (for unemployed)
- Public health information distribution
- Evacuation support*
- Shelters*
- Peer counseling* (similar to Critical Incident Stress Management) (only professionally certified counselors)

Logistics

- Inventory control
- Procurement
- Distribution of personal protective equipment
- Cleaning of personal protective equipment*
- Construction of temporary structures*
- Medical unit assistant* (appropriately qualified/certified medical professional)

Transportation

- Scheduling
- Dispatching
- Road building
- Medical dispatching
- First aid attendants*

Personnel Support Services

- Lodging attendants
- Message center
- Laundry service*
- Food preparation and distribution* (certain minimum food handling criteria may need to be met as required by State and local regulations)

Natural Resource Damage Assessment Support

- Field observers*
- Rapid assessment for marine and estuarine habitats*
- Boat operations (boat owners who volunteer)
- Area safety (informing and directing other vessels away from contaminated areas while allowing work vessels in)
- Transporting assessment teams or cleanup crews*
- Conducting on-water and near-shore field observations*

Appendix H: Messaging Regarding the Adverse Health Effects of Oil

To support public messaging regarding the adverse health impacts of oil, the County should consider messaging in alignment with information presented by OSHA. As it applies to Area for Improvement 13, this messaging may discourage spontaneous volunteers from engaging in future oil spill response.

Table 9: Adverse Health Effect Guidance from OSHA Specific to Chemicals Associated with Oil Spills

Hazardous Chemicals	Adverse Health Effects
Benzene (crude oils high in BTEX, benzene, toluene, ethylbenzene, and xylene)	Irritation to eyes, skin, and respiratory system; dizziness; rapid heart rate; headaches; tremors; confusion; unconsciousness; anemia; cancer
Benzo(a)pyrene (a polycyclic aromatic hydrocarbon reproductive [see below], formed when oil or gasoline burns)	Irritation to eyes and skin, cancer, possible effects
Carbon dioxide (inerting atmosphere, byproduct of combustion)	Dizziness, headaches, elevated blood pressure, rapid heart rate, loss of consciousness asphyxiation, coma
Carbon monoxide (byproduct of combustion) Irritation to eyes, skin, and respiratory	Dizziness, confusion, headaches, nausea, weakness, loss of consciousness, asphyxiation, coma
Ethyl benzene (high in gasoline)	Irritation to eyes, skin, and respiratory system; loss of consciousness; asphyxiation; nervous system effects
Hydrogen sulfide (oils high in sulfur, decaying plants and animals)	Irritation to eyes, skin, and respiratory system; dizziness; drowsiness; cough; headaches; nervous system effects
Methyl tert-butyl ether (MTBE) (octane booster and clean air additive for gasoline, or pure MTBE)	Irritation to eyes, skin, and respiratory system; headaches; nausea; dizziness; confusion; fatigue; weakness; nervous system, liver, and kidney
Polycyclic aromatic hydrocarbons (PAHs) (occur in crude oil, and formed during burning of oil)	Irritation to eyes and skin, cancer, possible reproductive effects, immune system effects
Sulfuric acid (byproduct of combustion of sour petroleum product)	Irritation to eyes, skin, teeth, and upper respiratory system; severe tissue burns; cancer
Toluene (high BTEX crude oils)	Irritation to eyes, skin, respiratory system; fatigue; confusion; dizziness; headaches; memory loss; nausea; nervous system, liver, and kidney effects
Xylenes (high BTEX crude oils)	Irritation to eyes, skin, respiratory system; dizziness; confusion; change in sense of balance; nervous system gastrointestinal system, liver, kidney, and blood effects

Appendix I: Acronyms and Abbreviations

The following acronyms and abbreviations are common and appear throughout this AAR.

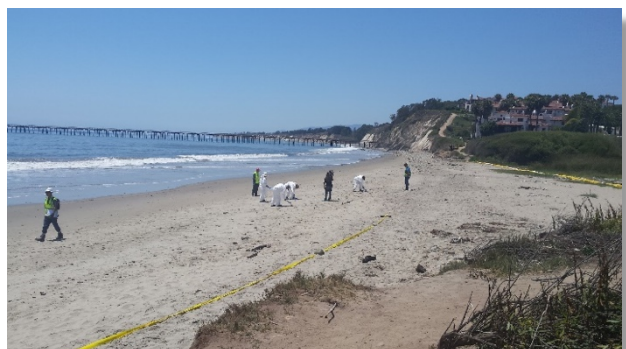
Table 10: Acronyms and Abbreviations

Acronym	Term
AAR	After-Action Report
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CDC	County Disaster Council
CEO	County Executive Office
CERT	Community Emergency Response Team
EDC	Environmental Defense Council
EMP	Emergency Management Plan
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
FOSC	Federal On-Scene Coordinator
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSEEP	Homeland Security Exercise and Evaluation Program
IAP	Incident Action Plan
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IP	Improvement Plan
JIC	Joint Information Center
LOSC	Local On-Scene Coordinator
MAC	Multi-Agency Coordination
MOU	Memorandum of Understanding
MTBE	Methyl Tert-butyl Ether
NOAA	National Oceanic and Atmospheric Administration
NGO	Non-governmental Organization
NIMS	National Incident Management System
NPG	National Preparedness Goal
NRDA	Natural Resources Damage Assessment
NRT	National Response Team
OA	Operational Area
OSHA	Occupational Safety and Health Administration
OSPR	Office of Spill Prevention and Response
PAH	Polycyclic Aromatic Hydrocarbons
PIAT	Public Information Action Team
PIO	Public Information Officer
POC	Point of Contact
RP	Responsible Party
SBC	Santa Barbara County
SBCOEM	Santa Barbara County Office of Emergency Management
SCADA	Supervisory Control and Data Acquisition

Acronym	Term
SCAT	Shoreline Cleanup Assessment Technique
SEMS	Standardized Emergency Management System
SIC	State Incident Commander
SOSC	State On-Scene Coordinator
SOG	Standard Operating Guide
SOP	Standard Operating Procedure
TTX	Tabletop Exercise
UC	Unified Command
UCSB	University of California Santa Barbara
USCG	United States Coast Guard
VOAD	Voluntary Organizations Active in Disasters

Appendix J: Event Images

The following images were captured throughout the 2015 Refugio Oil Spill response. A full archive of images is available through the SBCOEM.



2015 Refugio Oil Spill After-Action Report and Improvement Plan
County of Santa Barbara

