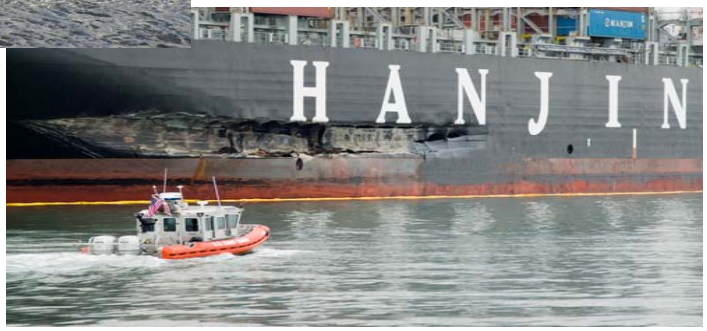
Incident Specific Preparedness Review (ISPR)
M/V *Cosco Busan* Oil Spill in San Francisco Bay

REPORT ON INITIAL RESPONSE PHASE
11 January 2008



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I. EXECUTIVE SUMMARY

This report will address all aspects, at all levels, of the response to the Cosco Busan oil spill, and provide an analysis of preparedness planning requirements and the actual response. Many events went as planned. Some exceeded expectations. Some actions taken were not consistent with response plans, and gaps or recommended improvements in the response plans and operations were identified. To address the public concerns, some operations not recommended by the Area Contingency Plan (Convergent Volunteers for oil spill cleanup) were conducted on an ad hoc basis. Finally, like all emergency responses of this magnitude, there were activities that should have occurred, and did not. There were delays in the gathering and transmission of information critical to responders. Weather and unusual tidal current conditions further complicated this process. There were errors in information provided to the media in the early hours of the response. These errors created the impression that initial response efforts were minimal, while the record shows otherwise.

The ISPR Team observed and felt that it was important to include a statement in the Executive Summary, that the overall reduction in large oil spills nationally has resulted in fewer responders, at all levels of government, having large response operations experience. While this issue is addressed specifically within the document, the document itself should be read in the context of the Team's observation.

Finally, it is equally important to state what the report will not encompass. This report will not address the causal factors leading up to the allision of the *Cosco Busan* with the San Francisco-Oakland Bay Bridge, and will not encompass the activities of any other investigation conducted by State or Federal agencies.

BRIEF TIMELINE OF EVENTS

On November 6, 2007, the M/V *Cosco Busan* was at berth 56, Port of Oakland located on the Oakland Estuary, completing cargo operations and making ready for sea. At 0620 on the morning of Wednesday, November 7th, the San Francisco Bar pilot, Captain John Cota, boards the *Cosco Busan*, and discusses the details of the ship's departure with the ship's master and bridge crew. Visibility in the Estuary is limited, and what was later described as "dense fog."

At 0645, the Pilot has initial communications with the master of the assist tug, *Revolution*, and by 0648, *Revolution* is made fast to the ship's port quarter.

At approximately 0745, the Pilot makes a preliminary check-in and provides a Sailing Plan with San Francisco Vessel Traffic Service on VHF FM Channel 14, which is required even in good visibility. He states that his intentions are to pass under the Delta-Echo span of the San Francisco-Oakland Bay Bridge. The Delta-Echo span has a horizontal clearance of 2,210 feet.

At 0748, the last line is taken in, and *Cosco Busan* is underway. Using a combination of the tug assist from *Revolution* and the ship's bow thruster, *Cosco Busan* is brought to mid-channel of the Oakland Estuary. Visibility has improved to approximately 1/4 mile.

At 0800, tug *Revolution* shifts to the ship's centerline stern chock. *Cosco Busan* passes the dredge *Njord*, and proceeds into the Bay proper. *Cosco Busan* is underway using diesel fuel due to air emission requirements for ships engaged in coastal navigation in the State of California.

At 0820, the Third Mate takes an initial position fix and notes that the *Cosco Busan* is 200 yards left of the intended track line, but fails to notify the Master or the Pilot.

At 0825 *Cosco Busan* is at Bar Channel Light 1 as it begins a turn to port. According to track lines recorded from transmissions from her AIS, *Cosco Busan* executed a turn away from the Delta-Echo span, proceeding on a course of 239, at 10.7 knots.

A short communication from SF VTS tells Captain Cota that he is running parallel to the bridge, running a course of 235, and asks his intentions. At 0829, Pilot states that it is still his intent to transit under the Delta-Echo span, and notifies VTS that his heading is 280. About this time, the forward lookouts on the bow report via radio that the bridge is "very close." The speed is now approximately 11 knots.

At 0830, the ship allides with the Delta Tower pier, causing damage to the pier's fendering and the port side of the ship, forward of amidships. The allision results in the breach of three port wing tanks, tanks 2, 3,

and 4. (Port tank 2 is a ballast tank. Port tanks 3 and 4 are used for fuel.) Captain Cota reports to VTS that the ship "touched" the bridge, and that he is heading to Anchorage 7.

At 0837, Captain Peter McIsaac, President of the San Francisco Bar Pilots, calls the Captain of the Port (COTP) regarding the allision and relays reports that fuel is leaking from the vessel. Calculations performed by the Salvage and Engineering Response Team would later show that the discharge was a sudden event involving seconds or minutes, and that the volume of discharge occurred between the point of impact and Anchorage 7.

At 0850, *Cosco Busan* is safely anchored at Anchorage 7, and at 0858, tug *Revolution* is released.

At about this time, a relief pilot is brought aboard *Cosco Busan* via port Pilot Boat. Anecdotal information indicates that Pilot boat crew reports to VTS they see oil pouring out of hull. At 0855, Captain Cota leaves *Cosco Busan*.

At approximately 0950, the relief pilot contacts VTS voicing a concern of limited under-keel clearance at Anchorage 7, and requests a shift to Anchorage 9. At 0954, COTP authorizes the move, and at 1022, anchor is aweigh, and *Cosco Busan* departs Anchorage 7 en route Anchorage 9 under her own power. The amount of oil leaking from the ruptured fuel tank during this transit is thought to be insignificant or de minimis because the remaining oil in the fuel tank had further chilled due to the breach, and the remaining oil had probably already achieved a static level consistent with the lowest point of breach of the tank. At this time, anecdotal descriptions describe the amount as a "seep". Records indicate that neither Port Tank 3 nor 4 was being heated at this time.

At 1028, the California Office of Spill Prevention and Response notifies the Governor's Office and the State Warning Center that a ship had allided with the San Francisco-Oakland Bay Bridge, and that approximately 10 bbls of oil had spilled. Through the Warning Center, the California Office of Emergency Services notifies several other State and local agencies of the event.

At approximately 1040, *Cosco Busan* transits the Alpha-Bravo span of the Bay Bridge, and completes anchoring in Anchorage 9 at 1105.

At 1054 the Coast Guard Pollution Investigation team, that first boarded the *Cosco Busan,* reports by cell phone to the Sector Commander that the ship's Chief Engineer calculated a loss of 0.4 metric tons from the ship's fuel tank array.

An employee of the State of California, Office of Spill Prevention and Response was asked to perform spill quantification calculations aboard the ship. He arrives at YBI at 0945, but it would not be until 1205 that he is able to obtain transportation to *Cosco Busan*. He completes his calculations onboard *Cosco Busan* at 1430, but it would be 1500 before he has transportation back to YBI. Sometime during the Unified Command objectives meeting that started at approximately 1600, he states that the actual amount spilled was 58,020 gallons and that the product spilled was Heavy Fuel Oil (specifically HFO 380). The UC reports this to the State Office of Emergency Services at 2000, and a press release is issued at 2100.

While this is not a particularly large spill, the event received extensive media coverage, attention from the public and their elected officials. The San Francisco Bay region has experienced several significant spills in recent decades. In 1971, 1,121,400 gallons of oil were spilled after the tank vessels *Arizona Standard* and *Oregon Standard* collided in fog under the Golden Gate Bridge. In 1984, the tanker *Puerto Rican* exploded and spilled approximately 1 – 1.5 million gallons of oil 12 nautical miles outside the Golden Gate. The Shell Martinez facility discharged 432,000 gallons of oil into Suisun Bay wetlands in 1988. In 1996, the SS *Cape Mohican* spilled 81,900 gallons at San Francisco Pier 70; all but 8,400 gallons were contained at the site. The latest figures indicate that 53,569 gallons spilled from the *Cosco Busan*.

This report will focus on the State and Federal oil spill prevention and response laws, and the San Francisco Area Contingency Plan (ACP). The ACP addresses spill response operations for the San Francisco Bay and adjacent coastal areas. It is used in conjunction with the Regional Contingency Plan which provides general guidance of a regional nature. The National Contingency Plan provides overarching guidance to incident response, and as used herein to describe responsibilities for response operations, the role of the Responsible Party, and the response organization. The ISPR Team felt that readers who are unfamiliar with the Incident Command System/National Incident Management System response organization should be

exposed to national directives that provide this information. For that reason, pertinent sections of the National Contingency plan are incorporated as part of this Report.

The Incident Specific Preparedness Review (ISPR) for the response to the Cosco Busan oil spill, was convened pursuant to a Charter issued by the Chief of Staff, U.S. Coast Guard on 14 November 2007. The ISPR process is outlined in Section 4C of the Coast Guard Marine Safety Manual (COMDTINST M16000.14) which establishes requisite reporting criteria. The Charter provides direction for ISPR Team membership, scope of the review, and reporting deadlines. The Review Team is comprised of State and local government representatives; representatives of environmental organizations, a shipping industry representative, and a representative of a non-governmental organization considered to be a major stakeholder in oil spill preparedness and response. Active duty Coast Guard personnel were limited to providing support, allowing the Team to conduct an independent and objective Review. The Chair retired in 2005 as the Administrator for the State of California Office of Spill Prevention and Response, and retired in 2002 from the Coast Guard Reserve. He was employed for this purpose as a civilian federal employee. Biographies of all team members are included with this report. All Team members and support staff were required to execute a confidentiality agreement. All Team deliberations were confidential and not available to Coast Guard prior to the completion of this Report.

The first plenary session was held from November 27th to November 30th, subjecting Team members to area familiarization and training necessary to conduct their review. The ISPR Team retraced the path of *Cosco Busan*, witnessed the area impacted by the oil spill and damage to the ship. The Team visited the Incident Command Post on Treasure Island where they received a briefing on the Unified Command function and organization. The Team also attended a special session of the San Francisco Harbor Safety Committee, which was called to review the Cosco Busan incident. Because many of the Team members were not familiar with the ICS/NIMS response organization, each Team member was provided with ICS training, completing the ICS 402 training program.

Prior to adjourning the first session, the Team identified preparedness focus issues and response focus issues to be addressed in this first report. These issues were used in the development of a Work Plan which provided a basis for various research and narrative reporting assignments.

In the following week, select members obtained multiple event logs which allowed for the development of a comprehensive timeline of critical events for the first day of response operations. The timeline provides a snapshot of events affecting notification, and response, and is included as a part of this first Report. The creation of an event timeline is critical to the evaluation of the response when compared to pre-existing response planning objectives. As with any record of events compiled from multiple reporting entities, not all times and descriptions of events are in complete agreement.

Due to exigent circumstances, an interview with Mr. Roy Mathur was conducted by staff, and then provided the Team with his personal notes, which became part the record. Mr. Mathur is employed by the California Office of Spill Prevention and Response. He was the individual who boarded the *Cosco Busan* after the Coast Guard Pollution Investigation team, met with the Chief Engineer, and performed a comprehensive quantification of the amount of fuel spilled. It was Mr. Mathur who reported the figure of 58,000 gallons used by the Unified Command, and reported to the media.

The second plenary session was devoted to joint interviews with individuals who played key roles in notification and response. These included:

- Federal On Scene Coordinator, Captain William Uberti
- State On Scene Coordinator, Lieutenant Rob Roberts
- Incident Commander for the Spill Management Team under contract with the Responsible Party, Mr. Barry McFarland.

These three individuals comprised the decision-making authority of the Unified Command. Captain Uberti was replaced by Captain Paul Gugg as the Federal On Scene Coordinator on November 14th.

A representative of the primary OSRO, Marine Spill Response Corporation, was interviewed extensively about spill notification, response timing, resources, and shortfalls. The Team interviewed the Coast Guard

Command Duty Officer of Coast Guard Sector San Francisco who was on duty at the time of the allision and the junior officer responsible for oil spill response, and her supervisor who was out of state during the response. The Team also conducted a video teleconference with the NOAA Emergency Response Division trajectory specialists (Seattle) who provided computer-assisted trajectory information to the Unified Command during the first week of response operations. To assess the amount and type of oil spill response resources in the San Francisco Bay area, the team interviewed the Chief of the Marine Safety Division, and the Drill and Exercise Coordinator for the California Office of Spill Prevention and Response. These interviews provided the Team with information about the State's OSRO certification program, and specifics as to the rating status and the resources of the two OSROs responding to the Cosco Busan oil spill.

Lastly, the Team interviewed representatives from the California Department of Fish and Game who maintain the State's environmentally sensitive site database. They provided sensitive site information and booming strategies to the Unified Command during spill response operations.

The Team members were assigned several subject areas for research, resulting in over a 100 contacts, collectively. Persons or agencies contacted are provided with each focus issue. All documents reviewed or made available to the Team are available through the ISPR Recorder, who will serve as the Custodian of Records.

The project was organized and coordinated through the Incident Specific Preparedness Review San Francisco 2007 Homeport Community. The review process was developed on the Coast Guard R&D Pollution Response System, and the Coast Guard Contingency Planning System (CPS), Coast Guard After Action Program (CGAAP). The Team adopted CGAAP as the appropriate methodology for the Report, because this format provides for a concise look at specific issues, and easily facilitates an accurate comparison of response operations and planning objectives. The CGAAPS methodology is explained in detail in COMDTINST 3010.19B.

Finally, the reader is cautioned not to use this Report beyond the objectives set forth in the Marine Safety Manual. Specifically, the ISPR is not to find fault or assign blame. ISPR findings are to be used to document a thorough assessment of the Coast Guard preparedness processes, from an enterprise perspective. Necessary remedial actions should be taken within that context.

This Report is the first of two. The second Report will cover primarily events occurring after the initial two weeks of response operations. Because there are issues that are less time-sensitive, or need additional research, or occur throughout the entire response, some focus issues captured by the Team, for this first Report will be included as part of the final report due in May of 2008.

THE NUMBERS

Total amount spilled	53,569 gallons (1275 bbls)
Total amount recovered first day	7,140 gallons (decanted) or 13.3%
Total amount recovered on water first two weeks	19,466 gallons (decanted), 36.3%
Total amount recovered on land first two weeks	Approximately 4,500 gallons, 8.4%
Total amount evaporated	4,060 gallons or 7.6%
Total personnel employed	168 on day one to 1,399 on day 7 (See Assets Used.)
Number of vessels assigned	25 on day one to 41 on day 7 (See Assets Used.)
Total boom deployed first six hours	8,500 feet
Total boom deployed first day	11,040
Total boom deployed end of day two	18,000 feet
Maximum boom deployed (day 3, does not include city/county/private)	38,200 feet

Total birds captured	1,039
Total birds cleaned	681
Total birds released in first two weeks	73
Total birds died in facility	317
Total birds dead on arrival	1,365
Number of contracted aircraft	1
Number of total aircraft	3
Description of oil discharged	Heavy Fuel Oil 380

On Water Recovery Requirements (EDRC*) Vs. Actual By Time

Bbls of oil spilled	1275
Federal on water recovery requirements for non-tank vessels to be on scene within six hours:	1,250 bbls EDRC (USCG Navigation Vessel Inspection Circular 01-05)
State on-water recovery requirements (14 CCR 827.02 (h) (2) (B) (1) (i)) for Cosco Busan to be on scene within six hours:	5,874 bbls
On water recovery capability required for tankers in High Volume Port (San Francisco) to be on scene within six hours:	23,437 bbls EDRC

Actual EDRC bbls (Cosco Busan incident) of on water recovery capability by hour, first six hours:

Time	Oil Spill Response Vessel (OSRV)	On-Water Recovery Capability (bbls)
0930	NRC Marco skimmer	3,125
0950	MSRC Spill Chaser	5,000
1000	NRC Marco 5 with tug	24,000
1000	NRC JBF skimmer	3,428
1125	Clean Bay II	3,288
1140	Spill Spoiler II	12,300
1445	Sentinel	6,150

Total on-water recovery capability on scene first six hours:	57,292 bbls EDRC
Total on-water recovery on scene first day:	75,043 bbls EDRC
Total boom on scene available first six hours:	15,825 feet
Total recovered oil storage capability on scene first six hours:	3,532 bbls

* EDRC is Effective Daily Recovery Rate which is the amount of oil (shown in barrels) that can be recovered by the response vessel. This includes a de-rating factor of 20%. EDRC is found in 33 CFR 154, Appendix C; and 33 CFR 155 Appendix B.

OSRO State recertification dates (most recent)

MSRC: August 2007

NRCES: March 2007

FOCUS ISSUES

PREPAREDNESS

I. Area Contingency Planning
   a. Available Resources
   b. Command Post and Logistics
   c. Low Visibility Weather
   d. Other Local Plans
   e. San Francisco Committee Representation/Involvement
   f. Priority Protection Area Identification
II. Exercises and Drills
   a. Federal (NPREP) Exercises
   b. California Office of Spill Prevention and Response (OSPR)
   c. Local Government
III. Ship Specific Plans (Non-tank Vessel Response Plan and Vessel Response Plan)
IV. California Oil Spill Response Organization (OSRO) Certification Program
   a. Pre-positioned Equipment (San Francisco Bay Area)
   b. Best Achievable Protection/Technology
   c. Dedicated Response Personnel
V. Training
   a. Oil Spill Response Organization (OSRO)
   b. Spill Management Team (SMT)
   c. Other Responders (CG Pollution Investigator, FOSCR, and Command Duty Officer)
   d. Responder Training: Local
VI. Volunteers
   a. Pre-Training
   b. Wildlife Care
VII. Bird Rescue

RESPONSE

I. Initial Notification
   a. OSPR and State Agency
   b. Responsible Party
   c. United States Coast Guard
   d. State Office of Emergency Services and Local Government
   e. Oil Spill Response Organizations (OSROs)
II. Media
III. Volunteers
   a. Incident Specific Training
   b. Wildlife Care Responder Training
IV. Bird Rescue
V. Initial Actions
   a. Oil Spill Response Organizations (OSRO)
   b. Sector San Francisco/COTP

c. Sector Command Center Information Coordination and VTS as a Resource
d. California State
e. Responsible Party (RP)

VI. Quantification
VII. Remote Sensing
VIII. Unified Command
a. On-Water Recovery
b. Shoreline Cleanup Assessment Teams (SCATs)
c. Booming Strategies
d. Trajectory Models

IX. Weather as a factor for Response
X. Resource Management
a. Available Assets not Used
b. Assets Used

XI. Communications between Field and UC
XII. Beach and Fishery Closure and Re-Opening
XIII. Relocating the Incident Command Post
XIV. Unified Command Liaison Officer
XV. Non Government Organizations (NGO)

LESSONS LEARNED/RECOMMENDATIONS

The methodology selected by the ISPR Team requires a statement as to the issue observed, discussion of that observation, lessons learned as a result of the review, and recommendations. The Team identified 38 lessons learned and provided 49 recommendations involving Preparedness, and cited 72 lessons learned and 79 recommendations involving Response. The ISPR Team elected to present lessons learned and the recommendations of ten Areas of Concern in the Executive Summary. The selection of these ten Areas was accomplished by voting, which occurred on the final day of the Team's deliberations. The selection of the Areas to be presented here does not diminish the importance of other Areas of Concern. To obtain a complete narrative of the Area selected (which provides the Observation and Discussion sections), readers are referred to the main report.

Priority Protection Area Identification

Lessons Learned

The Area Contingency Plan (ACP) was not specific enough as to protection priorities for the first 24-48 hours. There were too many "sensitive areas" for responders to protect along with on-water recovery operations.

It is not clear that the ACP made use of the National Oceanographic and Atmospheric Administration (NOAA) Trajectory Analyst Planner (TAP) model.

The ACP could do a better job of coordinating sensitive area protection strategies with response assets in SFB and the time and manpower necessary to accomplish those strategies.

The Office of Spill Protection and Response (OSPR) program of systematically testing protection strategies within San Francisco Bay (as many as eight per year) is quite excellent and should be copied elsewhere in the nation. However, there is no obvious system that tells if a particular strategy has been attempted and, if so, whether it was successful.

Recommendations

Re-examine the use of the NOAA TAP model as a planning tool.

Develop a series of standing 232 forms for the first 24 hours of the response based on risk, proximity to equipment and manpower and protection strategies.

Continue the necessary work of testing strategies in the field with Oil Spill Response Organizations (OSROs), but reflect the success of those tests or whether an area has been tested at all.

Volunteers: Convergent Non-Wildlife Responder Training

Lessons Learned

A lack of planning for a convergent volunteer program, and a general lack of attention to convergent volunteers, resulted in long and frustrating delays that impacted the response overall specifically management was pulled off other duties to address this issue, and the professional response organizations were directed to change strategies.

Establishing a training program for volunteers during an incident is challenging and impacts the ability for the Unified Command (UC) to adequately assess available resources and conduct normal operations.

Recommendations

Use the Oil Wildlife Care Network (OWCN) volunteer program and other available models for developing an organized volunteer program in San Francisco Bay Area.

Planners should develop a uniform approach to the use of convergent volunteers for oil spill response, consistent with local needs, to reflect the use of these volunteers in response operations.

The National response Team (NRT) should develop generic guidance for ACP committees to develop convergent volunteer sections in local ACPs.

Integrate trained, experienced organizations into the ACP and drills to assist with volunteer coordination and to be an outlet for volunteer interest. One good example is the Gulf of the Farallones National Marine Sanctuary Beach Watch Volunteer Program, which was involved in Safe Seas drill in 2006.

Initial Notification: USCG

Lessons Learned

The Coast Guard personnel engaged in the initial notification and response performed their duties as directed. The questionable decisions made in the initial actions taken seem to be a result of a lack of experienced pollution investigators on scene the first hours after the incident and also at Sector Command Center (SCC) that morning. The Commander of the Incident Management Division (IMD) at Yerba Buena island (YBI) was on travel status the date of the incident, with his duties assumed by more junior officers. It seems from the evidence provided that they took decisive action as needed. A more experienced field officer on the PI team may have resulted in a more accurate initial quantity report. Statements made by Lt. Roberts and Mr. Mathur of OSPR underscore the importance of having experienced personnel available to develop essential data on hazardous material type and quantity.

The ability of Vessel Traffic Service (VTS) in ports such as San Francisco to provide eyes and ears on the water 24/7 is an asset that should be used in a response to the greatest extent possible. The report of the *Encinal* of oil and debris at anchorage 8 may have been of benefit to the UC and OSROs in assessing the scope of the spill and directing recovery operations. Also, better communication between SCC and VTS would provide additional benefits.

Recommendations

Further evaluation should be done to determine whether formal notification or alerting Pacific Strike Team (PST), NOAA SCC and other special teams is necessary.

The USCG should ensure that at least one experienced Pollution Investigator (PI) be on duty or on recall status to the IMD. It is difficult to expect a junior officer with little or no direct experience with commercial ship operations to understand the complexities of oil spill scaling under such circumstances, especially when also confronted with language difficulties.

The USCG should adopt protocols using all available resources within a particular command (VTS) to receive both initial notifications and continual updates as to the position of oil sightings.

Initial Notification: State OES & Local Government

Lessons Learned

Although there is a non-passive warning system, the existing systems should have been engaged to alert local governments and agencies in affected operational areas.

In discussion with one of the OSRO contractors, National Response Corporation Environmental Services (NRCES), the Team learned of a system they have developed through simple internet web-based tools available to anyone that actively monitors various emergency resource systems for postings relevant to their business (see Notification – OSRO). Such systems may be of value to emergency response offices at the county and city level.

Recommendations

A comprehensive review of the notification protocols between the California Office of Emergency Services (OES), the Regional OES areas and County OES departments should be completed, both in terms of protocols within the ACP as well as other local plans.

The County of Marin recommends an annual unannounced oil spill notification communications exercise in concert with the required unannounced oil spill drills for oil spill response contractors.

Media

Lessons Learned

Media training is critical to all who speak for the Coast Guard or agencies or organizations represented in the UC, at any level.

The media want access to principal players, not merely the Public Affairs Officer (PAO).

There will be demands for information from the media prior to the establishment of a Joint Information Center (JIC) within the Unified Command, in the first critical hours of response. Historically, accurate information in the first few hours of spill response is scarce, no exception in *Cosco Busan* event. Errors occur in reporting, and the media often uses information selectively. There should be a written plan for surge operations to support commands needing immediate public information assistance.

Recommendations

The Coast Guard can and should expect senior response personnel to interact with the media, aided by personnel fully trained in media relations. Attendant to this expectation is the requirement that such personnel have adequate training. The Coast Guard should establish minimum requirements for public affairs training for its senior personnel, consistent with assigned duties, and all personnel expected to interact with the media.

The Coast Guard should consider at least one full time billet at each Sector in a major media market. Consistent with the Deployable Operations Group concept, the Public Information Assist Team (PIAT) should be “leaning forward”, and resident PAOs at local commands should have a thorough working knowledge of PIAT resources, and availability.

Where the amount of the spill is still under investigation, or simply unknown, the Coast Guard should adopt a policy of stating that the information will become available as soon as the preliminary investigation is completed, or the scale of the spill or potential spill is known with some certainty.

The Coast Guard should consider the cross training of personnel, providing a short TDY period at different commands to allow PAOs a better understanding of public affairs resources in their District.

OSPR response personnel need access to trained media relations personnel with knowledge of oil spill operations in the very early hours of the response.

An Incident Command Post (ICP) should be pre-designated to provide for JIC and all UC functions.

Consider the preparation of generic information packets for the media.

The federal On Scene Coordinator and the Unified Command should consider having press representatives handle the press conferences when response actions are still dynamic.

Volunteers: Incident Specific Training

Lessons Learned

Once training sessions were decided on, assistance from the cities (Berkeley, San Francisco) in obtaining training locations, signing in and certifying trainees, and taking them out expeditiously (often immediately) to work location was extremely valuable, and the four-hour training sessions went smoothly.

Early and accurate communication is essential to build immediate, essential trust with the public and affected local government about the extent of the oil spill and the cleanup plans. Clear and substantiated information provided expeditiously is necessary to ensure public trust.

The provision in the ACP prohibiting the use of convergent volunteers in oil spill recovery operations resulted in the general lack of attention to convergent volunteers initially and diverted the attention away from other response activities

Recommendations

Update ACP Section 9730.2 (and other state and federal safety policies/regulations accordingly) to provide a process and protocols for convergent volunteers to assist with some beach cleanup (e.g., who's responsible for volunteer coordination, how the volunteers can and cannot be used, liability, training venues, etc.). Volunteer management should be staffed at UC in accordance with the ACP and address the issue of convergent volunteers.

Integrate trained, experienced organizations into the ACP planning process and oil spill drills to assist with volunteer coordination and to be an outlet for volunteer interest. See After Action Report of Gulf of the Farallones National Marine Sanctuary Beach Watch Volunteer Program, which was involved in Safe Seas drill in 2006.

Develop a mechanism to allow the public to use current communication technologies to provide input to the UC to make oil and oiled wildlife observations.

Consider updating the ACP to include activities such as the use of volunteers for reporting the status of areas already addressed by oil spill responders.

Also need to get Liaisons out in the field to build relationships and trust with local communities.

Develop consistent policies across all local jurisdictions to provide consistent health and safety messages (i.e., as opposed to Marin and Berkeley/San Francisco taking different positions on volunteer safety).

Initial Response Actions: Sector San Francisco / COTP

Lessons Learned

The initial pollution investigation team did not accurately scale the volume of fuel oil lost from the tanks of the *Cosco Busan*. When spill volume can not be estimated visually, efforts must be concentrated on calculating total volume lost so appropriate response actions can be planned.

The communications between Vessel Traffic Service (VTS), Sector Command Center and the Captain of the Port/Federal On Scene Coordinator were effective early. VTS communications with Sector to pass oil sighting reports the second day were rerouted to National Response Center (NRC).

In accordance with the National Contingency plan (NCP), first responders did address, as a priority, public health and safety issues in advance of concerns for pollution or economic damage. Because of the concern of structural damage to the bridge, the early calls to California Department of Transportation (CALTRANS) were critical and appropriate. The importance of qualified watch standers can not be overstated.

Recommendations

In instances where complicated analysis of ship systems is needed, a highly trained and experienced boarding team must be formed quickly. They should have access to transportation and any other support that they need to obtain initial investigative information. A list of these experts should be compiled so that they can be called out as soon as possible. It was noted that in reviews of the Cape Mohican response, that it is difficult for USCG pollution responders to obtain experience in complex investigations. Frequently when they have gained experience, they are rotated to another area or duty. It is recommended that the USCG take advantage of civilian, state and local government experts to fill in gaps that exist in training and experience.

Ensure key oil spill response factors are listed in quick response sheets in SCCs (i.e., supply assets for OSPS deployment).

Early in response, investigators and responders should be given priorities from the IC or UC. The IC or UC must also make sure that they are sending the right workers to complete the job they have assigned. This needs to occur even if the RP or other member of the UC is not available to give input. The response must start quickly and aggressively. When all parties arrive at the command post, decisions can be made together.

Spill Volume Quantification

Lessons Learned

The Chief Engineer was not helpful to the initial pollution investigation team in the calculation of the amount of fuel spilled. It was not until the OSPS, who had sailed as a Chief Engineer, arrived and established a good communications to determine the amount spilled.

Using an interpreter may have helped the initial PI Team calculate spill volume earlier.

The pollution investigators followed standard quantification practices according to their training level to arrive at the initial spill volume but did not arrive at the correct result.

Initial spill volume estimates do not have much credibility with seasoned responders. Most responders use an experience-based error factor to adjust the initial quantification or may simply discount any initial quantification when making initial response decisions.

The faster a fully qualified expert, trained in spill quantification, gets to the scene, the sooner an accurate estimate is obtained.

Responses to requests for information on the amount spilled should be addressed in terms of potential amounts subject to revision.

Recommendations

All responders, especially in Coast Guard IMD and Command Centers, need training about the complexities of spill quantification. This should be done by experienced quantification experts.

Ensure the professional quantification personnel can be on scene during an incident as soon as possible. Include this on the Quick Response Sheets in all Command Centers so that they are considered high priority for resource allocation.

Practice quantification validation in future oil spill response exercises by including injects to the PIs that are very low volumes for the spill scenario. Measure their ability to handle that information and validate it in the observations for that exercise.

The Command Duty Officer (CDO), and Incident management Division (IMD) should ensure the FOSC is aware of the most current quantification information including an estimate of its variability and reliability.

Include injects in future exercises that test the FOSC's ability to give credibility to new quantification estimates.

Unified Command: Liaison Officer

Lessons Learned

A competent liaison officer is critical to an effective response in the San Francisco Bay Area. In order to be effective, potential liaison officers need to be involved with the planning process. In addition, they need to make contacts with local stakeholders before a spill to build trust and to identify critical local issues.

When local stakeholders feel like they are not being represented through the liaison officer, they will find another way to get their point across. In the *Cosco Busan* response, the result was heavy political pressure at all levels. This had an impact on the ability of the UC to carry out spill response operations.

Recommendations

The liaison function must be recognized as one of the most important positions in an oil spill response unified command structure. The effort to properly prepare and train them must be a high priority.

Ideally, the liaison efforts should begin during the planning process. The ACP is a logical place for this activity. If stakeholders are absent during the planning process, efforts must be initiated to engage them.

Liaisons should be familiar with the local area that they are expected to work in. The state should explore the possibility of assigning liaison officers to the first responder teams.

Sector Command Center (SCC) Information Coordination / VTS as a Resource

Lessons Learned

VTS is a valuable response resource and was underutilized during the critical early stages of the response.

Information from the public into the SCC about where oil is sighted can help in the quantification process and in trajectory feedback and ultimately provide a more accurate situational awareness to the UC early in response operations.

Recommendations

Enhance training, cross-training and familiarization programs between SCC and VTS personnel, both watch standers and supervisors, as it relates to oil spill response.

Emphasize VTS involvement in spill response planning and exercises where that capability exists.

The Coast Guard should explore a requirement for all Oil Spill Response Vessels (OSRVs) operating in San Francisco Bay to be AIS equipped. A similar requirement for emergency vessels should be evaluated.

CONCLUSION

The ISPR Team provided its best effort to identify, and report on, the preparedness and response issues surrounding the Cosco Busan incident. Sources of information came in several and diverse forms, including meteorological data, tape transcriptions, lab reports, Unified Command documentation, personal logs, and personal interviews, to name a few. The ISPR Team made every effort to validate sources of information, verify the accuracy of the information, and seek multiple sources of information where possible. Any errata necessary to maintain this level of accuracy will be provided in the ISPR final report.

REPORT ON INITIAL RESPONSE PHASE

II. PROCESS AND METHODOLOGY

The Incident Specific Preparedness Review (ISPR) for the response to the Cosco Busan allision of November 7, 2007, was convened pursuant to a Charter issued by the Chief of Staff, U.S. Coast Guard on 14 November 2007. The ISPR process is outlined in Section 4C of the Coast Guard Marine Safety Manual (COMDTINST M16000.14) which establishes requisite reporting criteria. The Charter provides direction for ISPR Team membership, scope of the review, and reporting deadlines. The Review Team is comprised of State and local government representatives; representatives of environmental organizations, a shipping industry representative, and a representative of a non-governmental organization considered to be a major stakeholder in oil spill preparedness and response. Active duty Coast Guard personnel were limited to providing support, allowing the Team to conduct an independent and objective Review. The Chair retired in 2005 as the administrator for the State of California Office of Spill Prevention and Response, and retired in 2002 from the United States Coast Guard Reserve. He was employed for this purpose as a civilian federal employee. Biographies of all team members are included with this report. All Team members and support staff were required to execute a confidentiality agreement. All Team deliberations were confidential and not available to Coast Guard prior to the completion of this Report.

The first plenary session was held from November 27th to November 30th, subjecting Team members to area familiarization and training necessary to conduct their review. Aboard Coast Guard Cutter *Hawksbill*, the ISPR Team retraced the path of *Cosco Busan*, witnessed the area impacted by the oil spill and damage to the ship. During that event, the Team had open access to Captain William Uberti, the Federal On Scene Coordinator for the first week of response operations, and the Coast Guard's Marine Casualty Investigator for the Cosco Busan incident. The Team visited the Incident Command Post on Treasure Island where they received a briefing on the Unified Command function and organization. The Team also attended a special session of the San Francisco Harbor Safety Committee, which was called to review the Cosco Busan incident. Because many of the Team members were not familiar with the ICS/NIMS response organization, each Team member was provided with ICS training, completing the ICS 402 training program.

Prior to adjourning the first session, the Team identified 33 preparedness focus issues and 57 response focus issues to be addressed in this first report. These issues were used in the development of a Work Plan which provided a basis for various research and narrative reporting assignments.

In the following week, select members obtained a series of event logs, seven in total, which allowed for the development of a comprehensive timeline of critical events for the first 24 hours of response operations. The timeline provides a snapshot of events affecting notification, and response, and is included as a part of this first Report. The creation of an event timeline is critical to the evaluation of the response when compared to pre-existing response planning objectives.

Due to exigent circumstances, an interview with Mr. Roy Mathur was conducted by staff, and then provided the Team with his personal notes, which became part the record. Mr. Mathur is employed by the California Office of Spill Prevention and Response. He was the individual who boarded the *Cosco Busan* after the Coast Guard Pollution Investigation team, met with the Chief Engineer, and performed a comprehensive quantification of the amount of fuel spilled. It was Mr. Mathur who reported the figure of 58,000 gallons used by the Unified Command, and reported to the media.

The second plenary session was devoted to joint interviews with individuals who played key roles in notification and response. These included:

- Federal On Scene Coordinator, Captain William Uberti
- State On Scene Coordinator, Lieutenant Rob Roberts
- Incident Commander for the Spill Management Team under contract with the Responsible Party, Mr. Barry McFarland.

These three individuals comprised the decision-making authority of the Unified Command. Captain Uberti was replaced by Captain Paul Gugg as the Federal On Scene Coordinator on November 14th.

A representative of the primary OSRO, Marine Spill Response Corporation, was interviewed extensively about spill notification, response timing, resources, and shortfalls. The Team interviewed the Coast Guard Command Duty Officer of Coast Guard Sector San Francisco who was on duty at the time of the allision, and the junior officer responsible for oil spill response (FOSCR for this incident), and her supervisor. The Team also conducted a video teleconference with the NOAA Emergency Response Division trajectory specialists (Seattle) who provided computer assisted trajectory information to the Unified Command during the first week of response operations. To assess the amount and type of oil spill response resources in the San Francisco Bay area, the team interviewed the Chief of the Marine Safety Division, and the Drill and Exercise Coordinator for the California Office of Spill Prevention and Response. These interviews provided the Team with information about the State's OSRO certification program, and specifics as to the rating status and the resources of the two OSROs responding to the Cosco Busan oil spill.

Lastly, the Team interviewed representatives from the California Department of Fish and Game who maintain the State's environmentally sensitive site database. They provided sensitive site information and booming strategies to the Unified Command during spill response operations.

The Team members were assigned several subject areas for research, resulting in over a 100 contacts, collectively. Persons or agencies contacted are provided with each focus issue. All documents reviewed or made available to the Team are available through the ISPR Recorder, who will serve as the Custodian of Records.

The project was organized and coordinated through the Incident Specific Preparedness Review San Francisco 2007 Homeport Community. The review process was developed on the Coast Guard R&D Pollution Response System, and the Coast Guard Contingency Planning System (CPS), Coast Guard After Action Program (CGAAP). The Team adopted CGAAP as the appropriate methodology for the Report, because this format provides for a concise look at specific issues, and easily facilitates an accurate comparison of response operations and planning objectives. The CGAAPS methodology is explained in detail in COMDINST 3010.19B.

Finally, this Report is the first of two. The second Report will cover primarily events occurring after the initial two weeks of response operations. Because there are issues that are not time-sensitive, or activities that occur throughout the entire response, focus issues captured by the Team as for this Report may be included as part of the final report due in May of 2008.

III. OVERVIEW

On November 6, 2007, the *Cosco Busan* was at berth 56, Port of Oakland located on the Oakland Estuary, completing cargo operations and making ready for sea. At 0620 on the morning of Wednesday, November 7th, the San Francisco Bay Bar pilot, Captain John Cota, boards the *Cosco Busan*, and discusses the details of the ship's departure with the ship's master and bridge crew. Visibility in the Estuary is limited, and what was later described as "dense fog."

At 0645, the Pilot has initial communications with the master of the assist tug, *Revolution*, and by 0648, *Revolution* is made fast to the ship's port quarter.

At approximately 0745, the Pilot makes a preliminary check-in and provides a Sailing Plan with San Francisco Vessel Traffic Service on VHF FM Channel 14, which is required even in good visibility. He states that his intentions are to pass under the Delta-Echo span of the San Francisco-Oakland Bay Bridge. The Delta-Echo span has a horizontal clearance of 2,210 feet.

At 0748, the last line is taken in, and *Cosco Busan* is underway. Using a combination of the tug assist from *Revolution* and the ship's bow thruster, *Cosco Busan* is brought to mid-channel of the Oakland Estuary. Visibility has improved to approximately 1/4 mile.

At 0800, tug *Revolution* shifts to the ship's centerline stern chock. *Cosco Busan* passes the dredge *Njord*, and proceeds into the Bay proper. *Cosco Busan* is underway using diesel fuel due to air emission requirements for ships engaged in coastal navigation in the State of California.

At 0820, the Third Mate takes an initial position fix and notes that the *Cosco Busan* is 200 yards left of the intended track line, but fails to notify the Master or the Pilot.

At 0825 *Cosco Busan* is at Bar Channel Light 1 as it begins a turn to port. According to track lines recorded from transmissions from her AIS, *Cosco Busan* executed a turn away from the Delta-Echo span, proceeding on a course of 239, at 10.7 knots.

A short communication from SF VTS tells Captain Cota that he is running parallel to the bridge, running a course of 235, and asks his intentions. At 0829, Pilot states that it is still his intent to transit under the Delta-Echo span, and notifies VTS that his heading is 280. About this time, the forward lookouts on the bow report via radio that the bridge is "very close." The speed is now approximately 11 knots.

At 0830, the ship allides with the Delta Tower pier, causing damage to the pier's fendering and the port side of the ship, forward of amidships. The allision results in the breach of three port wing tanks, tanks 2, 3, and 4. (Port tank 2 is a ballast tank. Port tanks 3 and 4 are used for fuel. Captain Cota reports to VTS that the ship "touched" the bridge, and that he is heading to Anchorage 7.

At 0837, Captain Peter McIsaac, President of the San Francisco Bar Pilots, calls the Captain of the Port (COTP) regarding the allision and relays reports that fuel is leaking from the vessel. Calculations performed by the Salvage and Engineering Response Team would later show that the discharge was a sudden event involving seconds or minutes, and that the volume of discharge occurred between the point of impact and Anchorage 7.

At 0850, *Cosco Busan* is safely anchored at Anchorage 7, and at 0858, tug *Revolution* is released.

At about this time, a relief pilot is brought aboard *Cosco Busan* via port Pilot Boat. Anecdotal information indicates that Pilot boat crew reports to VTS they see oil pouring out of hull. At 0855, Captain Cota leaves *Cosco Busan*.

At approximately 0950, the relief pilot contacts VTS voicing a concern of limited under keel clearance at Anchorage 7, and requests a shift to Anchorage 9. At 0954, COTP authorizes the move, and at 1022, anchor is aweigh, and *Cosco Busan* departs Anchorage 7 en route Anchorage 9 under her own power. The amount of oil leaking from the ruptured fuel tank during this transit is thought to be insignificant or de minimis because the remaining oil in the fuel tank had further chilled due to the breach, and the remaining oil had probably already achieved a static level consistent with the lowest point of breach of the tank. At this time, anecdotal descriptions describe the amount as a "seep". Records indicate that neither Port Tank 3 nor 4 was being heated at this time.

At 1028, the California Office of Spill Prevention and Response notifies the Governor's Office and the State Warning Center that a ship had allided with the San Francisco-Oakland Bay Bridge, and that approximately 10 bbls of oil had spilled. Through the Warning Center, the California Office of Emergency Services notifies several other State and local agencies of the event.

At approximately 1040, *Cosco Busan* transits the Alpha-Bravo span of the Bay Bridge, and completes anchoring in Anchorage 9 at 1105.

At 1054 the Coast Guard Pollution Investigation team, that first boarded the *Cosco Busan,* reports by cell phone to the Sector Commander that the ship's Chief Engineer calculated a loss of 0.4 metric tons from the ship's fuel tank array.

An employee of the State of California, Office of Spill Prevention and Response was asked to perform spill quantification calculations aboard the ship. He arrives at YBI at 0945, but it would not be until 1205 that he is able to obtain transportation to *Cosco Busan*. He completes his calculations onboard *Cosco Busan* at 1430, but it would be 1500 before he had transportation back to YBI. Sometime during the Unified Command objectives meeting that started at approximately 1600, he states that the actual amount spilled was 58,020 gallons and that the product spilled was Heavy Fuel Oil (specifically HFO 380). The UC reports the new amount to the State Office of Emergency Services at 2000, and a press release is issued at 2100.

While this is not a particularly large spill, the event received extensive media coverage, attention from the public and their elected officials. The San Francisco Bay region has experienced several significant spills in recent decades. In 1971, 1,121,400 gallons of oil were spilled after the tank vessels *Arizona Standard* and *Oregon Standard* collided in fog under the Golden Gate Bridge. In 1984, the tanker *Puerto Rican* exploded and spilled approximately 1 – 1.5 million gallons of oil 12 nautical miles outside the Golden Gate. The Shell Martinez facility discharged 432,000 gallons of oil into Suisun Bay wetlands in 1988. In 1996, the SS *Cape Mohican* spilled 81,900 gallons at San Francisco Pier 70; all but 8,400 gallons were contained at the site. The latest figures indicate that 53,569 gallons spilled from the *Cosco Busan*.

This report will focus on the State and Federal oil spill prevention and response laws, and the San Francisco Area Contingency Plan (ACP). The ACP addresses spill response operations for the San Francisco Bay and adjacent coastal areas. It is used in conjunction with the Regional Contingency Plan which provides general guidance of a regional nature. The National Contingency Plan provides overarching guidance to incident response, and as used herein to describe responsibilities for response operations, the role of the Responsible Party, and the response organization. The ISPR Team felt that readers who are unfamiliar with the Incident Command System/National Incident Management System response organization should be exposed to national directives that provide this information. For that reason, pertinent sections of the National Contingency plan are incorporated as part of this Report.

IV. NATIONAL CONTINGENCY PLAN EXCERPTS (APPENDIX E)

EXCERPTS FROM APPENDIX E OF THE NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN (NCP) 40 CFR PART 300*

Responsibility

(a) The pre-designated OSC has the responsibility to direct response actions and coordinate all other response efforts at the scene of an oil discharge or threatened discharge. The OSC monitors or directs all federal, state, local, and private removal actions, or arranges for the removal of an actual or threatened oil discharge, removing and if necessary, requesting authority to destroy a vessel. Additionally, the CWA requires the OSC to direct all federal, state, local, and private removal actions to any incident that poses a substantial threat to the public health or welfare.

(b) Cleanup responsibility for an oil discharge immediately falls on the responsible party, unless the discharge poses a substantial threat to public health or welfare. In a large percentage of oil discharges, the responsible party shall conduct the cleanup. If the responsible party does conduct the removal, the OSC shall ensure adequate surveillance over whatever actions are initiated.

(1) If effective actions are not being taken to eliminate the threat, or if removal is not being properly done, the OSC should, to the extent practicable under the circumstances, so advise the responsible party. If the responsible party does not respond properly, the OSC shall take appropriate response actions and should notify the responsible party of the potential liability for federal response costs incurred by the OSC pursuant to the OPA and CWA. Where practicable, continuing efforts should be made to encourage response by responsible parties.

On-Scene Coordinator

The OSC is the federal official predesignated by EPA or the USCG to coordinate and direct federal responses under subpart D of the NCP. The USCG shall provide OSCs for oil discharges, including discharges from facilities and vessels under the jurisdiction of another federal agency, within or threatening the coastal zone. EPA shall provide OSCs for discharges into or threatening the inland zone. In carrying out a response, the OSC may direct or monitor all federal, state, and private actions to remove a discharge. In contingency planning and removal, the OSC coordinates, directs, and reviews the work of other agencies, Area Committees, responsible parties, and contractors to assure compliance with the NCP, decision document, consent decree, administrative order, and lead agency-approved plans applicable to the response.

Response Operations

(a) The OSC shall direct response efforts and coordinate all other efforts at the scene of a discharge. As part of the planning and preparation for response, OSCs shall be predesignated by the regional or district head of the lead agency.

(c) The OSC shall, to the extent practicable, collect pertinent facts about the discharge, such as its source and cause; the identification of responsible parties; the nature, amount, and location of discharged materials; the probable direction and time of travel of discharged materials; whether the discharge is a worst case discharge; the pathways to human and environmental exposure; the potential impact on human health, welfare, and safety and the environment; whether the discharge poses a substantial threat to the public health or welfare; the potential impact on natural resources and property which may be affected; priorities for protecting human health and welfare and the environment; and appropriate cost documentation.

(d) The OSC's efforts shall be coordinated with other appropriate federal, state, local, and private response agencies. OSCs may designate capable persons from federal, state, or local agencies to act as their on-scene representatives.

(g) The OSC is responsible for addressing worker health and safety concerns at a response scene.

(j)(1) The OSC shall ensure that the natural resource trustees are promptly notified of discharges.

(2) The OSC shall coordinate all response activities with the affected natural resource trustees and shall consult with the affected trustees on the appropriate removal action to be taken.

(3) Where the OSC becomes aware that a discharge may affect any endangered or threatened species, or their habitat, the OSC shall consult with DOI, DOC/NOAA, and, if appropriate, the cognizant federal land managing agency.

(k) The OSC shall submit pollution reports (POLREPs) to the RRT and other appropriate agencies as significant developments occur during response actions, through communications networks or procedures agreed to by the RRT and covered in the RCP.

(l) The OSC should ensure that all appropriate public and private interests are kept informed and that their concerns are considered throughout a response, to the extent practicable.

Preliminary Assessment And Initiation Of Action

(a) The OSC is responsible for promptly initiating a preliminary assessment.

(b) The preliminary assessment shall be conducted using available information, supplemented where necessary and possible by an on-scene inspection. The OSC shall undertake actions to:

(1) Evaluate the magnitude and severity of the discharge or threat to public health or welfare or the environment;

(2) Assess the feasibility of removal; and

(3) To the extent practicable, identify potentially responsible parties.

(c) Where practicable, the framework for the response management structure is a system (e.g., a unified command system), that brings together the functions of the federal government, the state government, and the responsible party to achieve an effective and efficient response, where the OSC maintains authority.

(d) Except in a case when the OSC is required to direct the response to a discharge that may pose a substantial threat to the public health or welfare (including, but not limited to fish, shellfish, wildlife, other natural resources, and the public and private beaches and shorelines of the United States), the OSC may allow the responsible party to voluntarily and promptly perform removal actions, provided the OSC determines such actions will ensure an effective and immediate removal of the discharge or mitigation or prevention of a substantial threat of a discharge. If the responsible party does conduct the removal, the OSC shall ensure adequate surveillance over whatever actions are initiated. If effective actions are not being taken to eliminate the threat, or if removal is not being properly done, the OSC should, to the extent practicable under the circumstances, so advise the responsible party. If the responsible party does not respond properly, the OSC shall take appropriate response actions and should notify the responsible party of the potential liability for federal response costs incurred by the OSC pursuant to the OPA and CWA. Where practicable, continuing efforts should be made to encourage response by responsible parties.

(1) In carrying out a response under this section, the OSC may:

(A) Remove or arrange for the removal of a discharge, and mitigate or prevent a substantial threat of a discharge, at any time;

(B) Direct or monitor all federal, state, and private actions to remove a discharge; and

(C) Remove and, if necessary, destroy a vessel discharging, or threatening to discharge, by whatever means are available.

(e) The OSC shall ensure that the natural resource trustees are promptly notified in the event of any discharge of oil, to the maximum extent practicable as provided in the Fish and Wildlife and Sensitive Environments Plan annex to the ACP for the area in which the discharge occurs. The OSC and the trustees shall coordinate assessments, evaluations, investigations, and planning with respect to appropriate removal actions. The OSC shall consult with the affected trustees on the appropriate removal action to be taken. The trustees will provide timely advice concerning recommended actions with regard to trustee resources potentially affected. The trustees also will assure that the OSC is informed of their activities in natural resource damage assessment that may affect response operations. The trustees shall assure, through the lead administrative trustee, that all data from the natural resource damage assessment activities that may support

more effective operational decisions are provided in a timely manner to the OSC. When circumstances permit, the OSC shall share the use of non-monetary response resources (i.e., personnel and equipment) with the trustees, provided trustee activities do not interfere with response actions. The lead administrative trustee facilitates effective and efficient communication between the OSC and the other trustees during response operations and is responsible for applying to the OSC for non-monetary federal response resources on behalf of all trustees. The lead administrative trustee is also responsible for applying to the National Pollution Funds Center for funding for initiation of damage assessment for injuries to natural resources.

General Pattern of Response

(a) When the OSC receives a report of a discharge, actions normally should be taken in the following sequence:

(1) Investigate the report to determine pertinent information such as the threat posed to public health or welfare or the environment, the type and quantity of polluting material, and the source of the discharge.

(2) Officially classify the size (i.e., minor, medium, major) and type (i.e., substantial threat to the public health or welfare, worst case discharge) of the discharge and determine the course of action to be followed to ensure effective and immediate removal, mitigation, or prevention of the discharge. Some discharges that are classified as a substantial threat to the public health or welfare may be further classified as a spill of national significance by the Administrator of EPA or the Commandant of the USCG.

(A) When the reported discharge is an actual or potential major discharge, the OSC shall immediately notify the RRT and the NRC.

(B) When the investigation shows that an actual or potential medium discharge exists, the OSC shall recommend activation of the RRT, if appropriate.

(C) When the investigation shows that an actual or potential minor discharge exists, the OSC shall monitor the situation to ensure that proper removal action is being taken.

(3) If the OSC determines that effective and immediate removal, mitigation, or prevention of a discharge can be achieved by private party efforts, and where the discharge does not pose a substantial threat to the public health or welfare, determine whether the responsible party or other person is properly carrying out removal. Removal is being done properly when:

(A) The responsible party is applying the resources called for in its response plan to effectively and immediately remove, minimize, or mitigate threat(s) to public health and welfare and the environment; and

(B) The removal efforts are in accordance with applicable regulations, including the NCP. Even if the OSC supplements responsible party resources with government resources, the spill response will not be considered improper, unless specifically determined by the OSC.

Containment, countermeasures, and cleanup. (a) Defensive actions shall begin as soon as possible to prevent, minimize, or mitigate threat(s) to the public health or welfare or the environment. Actions may include but are not limited to: analyzing water samples to determine the source and spread of the oil; controlling the source of discharge; source and spread control or salvage operations; placement of physical barriers to deter the spread of the oil and to protect natural resources and sensitive ecosystems; measuring and sampling; control of the water discharged from upstream impoundment; and the use of chemicals and other materials in accordance with subpart J of part 300 of the NCP to restrain the spread of the oil and mitigate its effects. The ACP should be consulted for procedures to be followed for obtaining an expedited decision regarding the use of dispersants and other products listed on the NCP Product Schedule.

(b) As appropriate, actions shall be taken to recover the oil or mitigate its effects. Of the numerous chemical or physical methods that may be used, the chosen methods shall be the most consistent with protecting public health and welfare and the environment. Sinking agents shall not be used.

Nongovernmental Participation

(a) Industry groups, academic organizations, and others are encouraged to commit resources for response operations. Specific commitments should be listed in the RCP and ACP.

Natural Resource Trustees

Federal

(a) The President is required to designate in the NCP those federal officials who are to act on behalf of the public as trustees for natural resources.

State

(a) State trustees shall act on behalf of the public as trustees for natural resources, including their supporting ecosystems, within the boundary of a state or belonging to, managed by, controlled by, or appertaining to such state.

(b) The Governor of a state is encouraged to designate a lead state trustee to coordinate all state trustee responsibilities with other trustee agencies and with response activities of the RRT and OSC. The state's lead trustee would designate a representative to serve as a contact with the OSC. This individual should have ready access to appropriate state officials with environmental protection, emergency response, and natural resource responsibilities. The EPA Administrator or USCG Commandant or their designees may appoint the lead state trustee as a member of the Area Committee. Response strategies should be coordinated between the state and other trustees and the OSC for specific natural resource locations in an inland or coastal zone, and should be included in the Fish and Wildlife and Sensitive Environments Plan annex of the ACP.

State and Local Participation in Response

(a) Each state Governor is requested to designate one state office/representative to represent the state on the appropriate RRT. The state's office/representative may participate fully in all activities of the appropriate RRT. Each state Governor is also requested to designate a lead state agency that shall direct state-lead response operations. This agency is responsible for designating the OSC for state-lead response actions, and coordinating/communicating with any other state agencies, as appropriate. Local governments are invited to participate in activities on the appropriate RRT as may be provided by state law or arranged by the state's representative. Indian tribes wishing to participate should assign one person or office to represent the tribal government on the appropriate RRT.

(b) Appropriate state and local officials (including Indian tribes) shall participate as part of the response structure as provided in the ACP.

(e) Because state and local public safety organizations would normally be the first government representatives at the scene of a discharge or release, they are expected to initiate public safety measures that are necessary to protect the public health and welfare and that are consistent with containment and cleanup requirements in the NCP, and are responsible for directing evacuations pursuant to existing state or local procedures.

* These excerpts represent a distillation of the critical elements of the NCP as they relate to the review of actions and responsibilities in the Cosco Busan oil spill. Although these sections focus primarily on oil spill response, they represent only a fraction of the framework for emergency preparedness and response within the national response system. To obtain sections of Appendix E not provided above, the complete text can be found in 40 CFR Part 300.

V. FOCUS ISSUES

PREPAREDNESS

I. Area Contingency Planning
   a. Available Resources
   b. Command Post and Logistics
   c. Low Visibility Weather
   d. Other Local Plans
   e. San Francisco Committee Representation/Involvement
   f. Priority Protection Area Identification

II. Exercises and Drills
   a. Federal (NPREP) Exercises
   b. California Oil Spill Prevention and Response (OSPR)
   c. Local Government

III. Ship Specific Plans (Non-tank Vessel Response Plan and Vessel Response Plan)

IV. California Oil Spill Response Organization (OSRO) Certification Program
   a. Pre-positioned Equipment (San Francisco Bay Area)
   b. Best Achievable Protection/Technology
   c. Dedicated Response Personnel

V. Training
   a. Oil Spill Response Organization (OSRO)
   b. Spill Management Team (SMT)
   c. Other Responders (CG Pollution Investigator, FOSCR, and Command Duty Officer)
   d. Responder Training: Local

VI. Volunteers
   a. Pre-Training
   b. Wildlife Care

VII. Bird Rescue

RESPONSE

I. Initial Notification
   a. OSPR and State Agency
   b. Responsible Party
   c. United States Coast Guard
   d. State Office of Emergency Services and Local Government
   e. Oil Spill Response Organizations (OSROs)

II. Media

III. Volunteers
   a. Incident Specific Training
   b. Wildlife Care Responder Training

IV. Bird Rescue

V. Initial Actions
   a. Oil Spill Response Organizations (OSRO)
   b. Sector San Francisco/COTP
   c. Sector Command Center Information Coordination and VTS as a Resource
   d. California State
   e. Responsible Party (RP)

VI. Quantification

VII. Remote Sensing

VIII. Unified Command
   a. On-Water Recovery
   b. Shoreline Assessment Cleanup Teams (SCAT)
   c. Booming Strategies
   d. Trajectory Models

IX. Weather as a factor for Response

X. Resource Management
   a. Available Assets not Used
   b. Assets Used

XI. Communications between Field and UC

XII. Beach and Fishery Closure and Re-Opening

XIII. Relocating the Incident Command Post

XIV. Unified Command Liaison Officer

XV. Non Government Organizations (NGO)

SF ACP: Available Resources

Sources

SF ACP/RCP Section 5000, page 5-1 and 5-10

Observation

"Available Resources" are addressed in the Sector San Francisco Marine ACP in the Logistics Chapter #5000.

Section 5210, *Supply*, includes a link to Section 5500 Oil Spill Response Equipment, which provides a link to the Western Response Resource List (WRRL) website, which it explains "is an equipment inventory maintained by participating Oil Spill Removal Organizations (OSROs) and other organizations with response equipment. OSROs can subscribe and maintain a current list of their response equipment."

Section 5220 describes the function of the "Facilities" role in logistics (layout and activation of incident facilities).

Section 5230 explains the role of "Vessel Support", including docking, fueling, maintenance, and repair.

The Regional Contingency Plan does not address "Available Resources."

Discussion

The Sector San Francisco Marine ACP provides minimal information; furthermore, access to what is available is limited. For instance, any access to the Western Response Resource List (WRRL) website database requires a user name and password.

Neither Section 5220 nor 5230 provides any inventory information for facilities or vessel support.

No local government, federal, or state response resources are included in the ACP.

Lessons Learned

It appears that the Area Planning Committee delegates the maintenance of a spill response resource inventory, including support resources, to the Oil Spill Response Organizations (OSROs) active in the planning area.

Recommendations

Spill response and support resources should be itemized per the San Diego ACP model (e.g., sections for OSRO response equipment, hazardous response equipment, Incident Command Post options, port/dock facilities, staging areas, airports/airfields, airplanes/helicopters, storage and disposal facilities, and maintenance and fueling facilities (ashore, marine, and mobile). Once these sections are created in the SF ACP, data should be added and maintained. Links to websites are acceptable as long as access to these sites is available to those who need it.

Pacific Strike Team, other NCP Special Teams, State of California, and local government resources should also be described in the ACP, along with guidance regarding protocols to access this equipment.

Comments

During Phase II of their review, the ISPR Team will further evaluate the role of local governments, the State of California, and the Pacific Strike Team in listing and providing access to their spill response resources through the Area Contingency Plan process.

SF ACP: Command Post and Logistics

Sources

SF ACP/RCP; M/V Cape Mohican ISPR(CG CPS 1996); SAFE SEAS 2006 AAR (CG CPS); LT Aja Kirksey Sector SF ACP Coordinator; Lt. Rob Roberts, OSPR IC SOSC; Barry McFarland, TOG SMT

Observation

The ACP does not pre-designate any locations to serve as an ICP.

Requirements (such as infrastructure, proximity to response operations, etc.) for an ICP location are not contained in the ACP and are therefore ad hoc.

General requirements for a JIC are included in the ACP.

Due to the large geographic covered by the ACP, maintaining a real time database of pre-designated ICP locations poses challenges.

Discussion

The issue of selecting a specific ICP location is not discussed in the ACP, the Incident Management Handbook or other readily available resources. The few resources that do touch on the issue discuss merely provide general considerations regarding ICP functionality. While response to an incident can be managed from virtually anywhere, the response can be dramatically improved if the command post location and infrastructure are well-suited to the mission.

In crisis situations, streamlining the amount of decisions to be made is helpful. This is particularly true when faced with a significant spill and the dozens of actions that must happen simultaneously begin to occur. Typically response leaders will establish an ICP in the first location appears generally adequate, without giving much thought to long-term infrastructure needs such as capability to accommodate potential ICP expansion or improved ergonomics which become increasingly important during a sustained response.

Minimum requirements for a spill-response ICP should be identified in the ACP. The RCP provides a good example for this in the requirements for a JIC. Once the minimum requirements for an ICP are agreed upon and included in the ACP, facilities that meet them can be identified and an inventory of such facilities can be created.

Although the concept of identifying potential command post locations was raised after the Safe Seas 2006 exercise, apparently the task was deemed unviable due to the uniqueness of each incident and the logistical demands of maintaining a database of available locations. While maintaining a real-time inventory of pre-selected locations throughout the Bay Area may not be practical, it would be feasible to identify locations that may be available and meet the basic needs of an ICP. For example, assuming that major hotels with ballroom or convention facilities would suffice, it would be fairly easy to create and maintain a list of contact information and details of what they offer in a database or spreadsheet. During an incident the task then becomes finding a facility off of a list of known “good” choices rather than starting from scratch.

During the M/V *Cosco Busan* event, the command post was initially YBI and then Fort Mason – neither of which proved sufficient for the incident. Finding the facility for the command post was left to the RP’s incident management team, who arrived throughout the first day and were not familiar with the area. Had clear expectations been available in the ACP the disruption associated with inadequate facilities could have been avoided. Eventually, the Command Post was moved to Treasure Island for the duration of the spill response operations.

Lessons Learned

Failing to identify standards and/or potential ICP locations increases the potential for less than adequate sites being utilized which subsequently impacts the ability of personnel to efficiently and efficaciously manage the incident.

Recommendations

Define minimum requirements for an ICP. Identify facilities throughout Bay Area that meet minimum requirements and develop a resource inventory. Plot facilities on maps of Bay Area for easier identification of potential sites in relation to incident locations.

Review who is in charge of choosing a location in the ACP (agency, position, etc) and provide for practice in exercises.

SF ACP: Low Visibility Responses

Sources

SF ACP/RCP; M/V Cape Mohican ISPR, SAFE SEAS 2006 AAR, Area Committee Minutes, LT Aja Kirksey, SF ACP Coordinator; Lt. Rob Roberts, OSPR IC SOSC; Barry McFarland TOG SMT; Cosco Busan incident Environmental Unit Leaders

Observation

The ACP only addresses low visibility responses in very limited way. No specific low visibility strategy is noted or described other than academic discussion of options. ACP and RCP mentions use of infrared and floating radio beacons placed on oil to enable skimming operations in low visibility.

Discussion

The ACP only briefly discusses what options exist for operating at night or in a low visibility environment. Safety should always be the primary concern governing decisions to operate in low-visibility environments, but if low visibility operations can be done safely and effectively, they should be considered. However, the ACP does not address the topic in a clear and concise manner. Both on water recovery and defensive boom deployment should be discussed in the plan considering the likelihood of low visibility conditions on the Bay or in the Delta. Particularly in the area of boom deployment, where timely placement can prevent oiling of sensitive areas, historical knowledge of the waterway and modeling should provide some options for safe operations.

With a well organized discussion of the options, the Operations Chief will be able to determine what tactics could be used in a given situation. However, if as it is currently written, one must read pages of text in order to find the possibilities contemplated by the plan. Under stressful conditions, this is not helpful as most people will not take the time to seek out such information and will either not consider any options or operate from personal experience.

Lessons Learned

Spills occur under all conditions, including night and low visibility. Oil will move in water and impact unprotected sensitive sites. Early deployment of boom, where safe, can prevent oiling of sensitive sites. The ACP does not clearly indicate options for low visibility responses, nor does it discuss booming strategies or wildlife search and collection under such conditions.

Use of modeling and historic movement of debris on water may suggest what sensitive sites could be boomed safely in advance of oil.

Recommendations

Organize the ACP so that low visibility options are easy to find so that a UC can view options appropriate for area. Where possible, identify sites to be boomed based on known behavior of the bay and known collection areas (reference San Francisco TAP). Explore technology and tactics that allow for safe operations in low visibility environments and capture those appropriate in ACP.

Ensure the ACP addresses wildlife collection with low visibility conditions.

Add a process and specific protocols to track and quantify a spill in a low visibility environment to the ACP.

Include low visibility injects during exercises.

SF ACP: Other Local Plans

Sources

SF ACP/RCP; M/V Cape Mohican ISPR; SAFE SEAS 2006 AAR; SF ACP Committee Minutes; Marin County Oil Spill Plan – Draft; San Francisco Oil Spill Plan; Bay Area Regional Emergency Coordination Plan (RECP); RECP HAZMAT Subsidiary Plan; Regional OES Hotwash Notes; San Francisco Hotwash Minutes; Marin County M/V Cosco Busan AAR – Draft; LT Aja Kirksey, Sector SF ACP; Lt. Rob Roberts, OSPR IC SOSC; CAPT Uberti, Sector SF/COTP/FOSC; Richard Lee, SF DPH; Chris Godley, Marin OES; Christopher Barkley, URS Corporation; Gil Dong, Berkeley FD (attempted)

Observation

Oil Spill responses affecting local agencies are required to comply with the State's Standardized Emergency Management System (SEMS).

Local plans either utilize a template provided by OSPR or a local template that is consistent with their EOP. In cases of the OSPR template, the plan is foreign to new users during an event, with the local template the linkages between the ACP and local plan may not be clear.

The State is primarily responsible for oil spill response, with the understanding that they will represent local interests. Exercise design and planning relies on State representation and rarely includes local interests directly.

Communication with myriad Local Governments working from sometimes vastly different plans complicates relationships in the ICP.

The Bay Area, using Homeland Security grant funds, has developed a Regional Emergency Coordination Plan that could be integrated with the ACP to enhance Local and Area Plan unity of purpose and focus the response for Federal, State, and Local governments.

Discussion

As a measure of preparedness, during the M/V *Cosco Busan* incident, it did not seem SEMS was well understood and practiced for oil spill responses. The local government liaison in the UC proved to be ineffective in providing local agency input and communications to the Unified Command during the first two days. This proved extremely frustrating for local agencies attempting to gather information in their respective areas of responsibility, and limited the ability of the Unified Command to effectively incorporate local resources into spill response operations.

Oil spills are managed differently than other emergencies which present challenges in the California response community. From a local agency perspective, emergency response is predicated upon the locus of control resting with the lowest possible level. By State law oil spill response is comprised in part by a State agency that does not normally exercise the SEMS response structure at the local agency level. Local agencies typically establish response organizations within their jurisdictions expanding to neighboring jurisdictions regionally as required by circumstances. The Bay area has worked extensively to establish Bay area regional relationships. The San Francisco ACP has not been updated to integrate local response planning and organizations. Inclusion in the ACP is essential to developing and maintaining relationships with local agencies having spill response resources, their support networks and other mutual aid alliances.

The pollution response community is quite comfortable with this system, as one would expect, because that is what they do on a regular basis. Problems arise when an incident is large enough to have a significant impact on or garner the attention of local communities and the local responders (and their leadership). Their expectation is that SEMS will be used to respond to all hazards, as is mandated by State law. Local plans and response systems are built around that idea, and when it does not occur it takes a normally functionally local response community and puts it off kilter. Frustration abounds, tempers flare, and the real issue – cleaning up the spill and while protecting lives and property – is delayed and/or distracted from.

This happens as a result of the UC dealing with the demands for attention and resources from any number of local agencies, authorities and governments. By circumventing the regional system of interaction that

exists for most, if not all, other hazards the ACP response model positions the UC for unnecessary stress and distractions. While recognizing that in many parts of the country the ACP model works well, there should be room to maneuver the response model to leverage the existing SEMS structure by making some minor adjustments to the ACP, providing guidance for development of local plans and aligning the RECP and ACP.

Local plans typically take the form of the ACP or a locally used template that is aligned with an Operational Area's EOP. The ACP model, used in San Francisco, is a template provided by OSPR under a grant for developing local oil spill response plans. As a document, however, it is unwieldy and difficult to use for someone not already intricately familiar with pollution response. It does not describe how the City will function within its normal emergency management structure, but describes new methods incongruent with SEMS and identifies people not normally affiliated with this level of emergency management in positions representing the City as a whole. In the same way that the pollution response community is uncomfortable with SEMS (outside their comfort zone), the local responders – particularly those thrust suddenly into unfamiliar roles - are very uncomfortable with the response model used under the ACP.

The Marin plan follows a local template that aligns with their EOP and generally does a better job of describing the actions that the Marin OA will take and how they, as a jurisdiction will integrate with the UC. While better from a user perspective, it still establishes a direct UC/Local relationship for an event that is almost always a regional event. This will lead, once again, to the UC dealing with multiple jurisdictions

The missing element is the regional level. For years California has employed the regional OES structure to help manage events at the lowest level. In 2005 the Bay Area began development of a Regional Emergency Coordination Plan (RECP). This plan, specific to the counties surrounding the Bay and part of the Delta, provides a good solution to the issue of UC interaction with local communities. It also provides a mechanism that bridges the SEMS/ACP gap.

Homeland Security requires that all recipients adopt the Homeland Security Exercise and Evaluation Program (HSEEP) to receive grant money. Effectively, this means that almost all emergency response organizations are working on this common platform. NCP oil spills response preparedness has not been pushed to incorporate HSEEP because they are not part of the Homeland Security Grant Program (federally funded through OSLTF). Looking at ways to integrate these two programs would benefit both the local and the federal response agencies and accomplish the intent of NIMS.

Lessons Learned

During oil spill response operations the State considers local interests and includes local resources as needed according to ICS response organization. The ACP does not reflect local agency capabilities especially as it relates to the Regional Emergency Coordination Plan (RECP).

When the State (DFG/OSPR) represents local interests provided through the local government liaison, incident management becomes complicated because the relationship is unfamiliar to state and local government agencies. This can be mitigated through more extensive participation in the planning and exercise program by local governments.

Local plans are all configured differently. Although CG Template And Management System (TAMS) includes a placeholder for local organization specifics, the San Francisco ACP does not include guidance for a situation where the UC deals with regionally organized local entities.

Failure to establish a structure that engages with Regional OES results in marginalizing Local Governments and competition among them for ICP attention and resources.

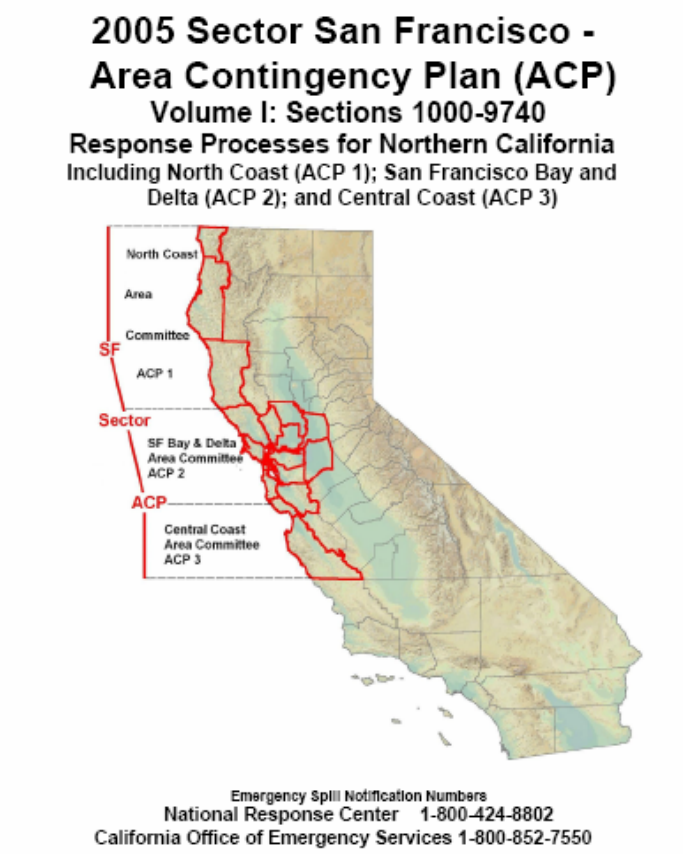
Recommendations

Update the ACP to include the Bay Area RECP. Update local plans to reflect the necessary actions by local government rather than follow a template that mirrors the ACP. The guidance should focus on elements that are local government responsibilities.

Ensure local representation in the next design team for PREP exercise in the San Francisco Area.

Consider integrating, at the National level, concepts from the Homeland Security Exercise and Evaluation Program (HSEEP) with the NCP Preparedness and Response Exercise Program (NPREP) because HSEEP

offers a known structure and is becoming more commonly used by other emergency response organizations.



San Francisco Area Contingency Plan Cover

ACP: Committee Representation

Sources

SF ACP Committee Attendance Summary; SF ACP/RCP; SF ACP Committee Minutes; Cape Mohican ISPR (From CG CPS dated 1996); LT Aja Kirksey, Sector SF ACP; SSF Sector Commander, USCG; SOSC, DFG OSPR (interview notes); Richard Lee, SF Dept of Public Health

Observation

Based on past committee documentation analysis, participation has largely been by USCG, OSPR, DOI, NOAA and OSROs. Other stakeholders, including local governments, attend only sporadically. However this is not due to a lack of effort from the CG ACP Coordinator. Invitations (meeting notices) are sent to a wide array of interested parties, but actual attendance usually reflects those listed above.

Although the NCP allows local areas to design representation that best fits the area's needs, the structure of the San Francisco Area Committee is only loosely defined in the local plan. It does not identify specific membership needs in terms of functions, disciplines or knowledge necessary to develop or maintain the ACP.

ACP committee member expectations and activity outcomes are unclear. How, or if, recommendations made at the local meetings ultimately affect the ACP are not discussed in the plan.

Discussion

Due to the plan structure and style, the ACP is not an easy document to use during crises - making it imperative that all those affected by decisions made under the plan participate in its and maintenance. Analysis of the attendance records reveals that participation by agencies and entities without a direct involvement in day to day pollution prevention and response is sporadic, at best. The Coast Guard, California's OSPR, DOI, NOAA and select OSROs all work in pollution prevention and response regularly and are predictably well represented at the meetings. Other entities, particularly those with peripheral involvement in pollution prevention and response, such as local governments, do not attend on a regular basis. While participation will ebb and flow with recognition of need and competing priorities, the overall goal of the Area Committee should be to produce a plan that reflects the input of a diverse and balanced group.

The lack of participation also affects the understanding of the capabilities and resources available outside the pollution response community. Properly leveraged, local government can contribute a host of resources in terms of HAZMAT certified personnel at all levels, logistical support, facilities, vehicles and incident management expertise. If a local government doesn't own something needed, there's a good chance that contacts exist to fill the need in a timely fashion through a local source. Additionally, in the initial hours of a response, while waiting for incident management teams to arrive, local governments and State OES can provide incident management assistance.

In the past, as noted in the M/V CAPE MOHICAN ISPR, there were varying degrees of competence with the Incident Command System. With the requirements of Homeland Security Presidential Directive 5 (HSPD 5), all people with an emergency response role are required to know NIMS and ICS. Most local entities have pushed ICS training deeper into their organizations than ever before and increased the proficiency first responders and emergency managers far beyond that of 1996. While California adopted ICS early on, and developed a predecessor system to NIMS, in the past few years the benefits of these systems are becoming increasingly evident through Federal funding and mandates.

The M/V CAPE MOHICAN ISPR also noted that it was unclear how local government should be integrated into the command structure. Changes to the ICS organization have already remedied this concern. However, participation in the Area Committee by appropriate members of local government's emergency management structure will help clarify their role through collaborative development of a management structure consistent with Federal and State requirements while satisfying the needs of local government. Ideally this will be accomplished through the involvement of the Regional OES office and consistent with SEMS.

Because the plan has evolved without the full measure of outside participation and benefit of the information brought by those entities, the ACP reflects only what is known to those who participate in its development. To alleviate this situation, the Area Committee structure should be better defined and documented in a Committee charter. As it is now, meeting notices are sent to wide array of individuals, and meetings are conducted with whoever shows up. It's important that disciplines and expertise known to be of value be consulted when working on the plan. Without a baseline representation model, this is impossible. With a known minimum membership model it becomes easier to ensure participation and form a multidisciplinary committee. For example, if the structure calls for a member from the regional emergency management community and that representative fails to participate or fails to share information with his peers, then the Area Committee has the option to returning to the group who appointed the individual and asking for a new person. The charter should also define the decision making process and describe how the Committee affects changes to the plan.

The committee generally comes to consensus regarding recommendations, after which, any changes must be vetted through the Coast Guard and State command structures. The process, much like the membership structure, is undefined. Without a clear process or purpose, participation will wane, particularly among those with only minor roles.

Increasing regular participation within a defined structure will likely alleviate many of the frustrations encountered as a result of unclear expectations.

Lessons Learned

Because local governments do not actively participate in the ACP committee, local governments and other responders do not have a clear understanding about how oil spill responses are managed.

Without a balanced representation, the ACP is developed in a vacuum, only considering expertise and resources that belong to the participants. This results in an artificial resources and expertise limitation that is highlighted and compounded during an actual response.

Without a defined committee structure identified by the OSPR and USCG committee chairs that appropriately includes the specific needs for area representation it is difficult to quantify what viewpoints are missing from meetings and work products.

Recommendations

USCG and OSPR Committee Chairs need to define the structure of the Area Committee, to include representation from critical agencies and organizations. Rather than targeting local governments individually, identify a position for representatives from existing OES Regional Committees.

Committee chairs conduct outreach and aggressively pursue participation by stakeholders and trustees and communicate the importance of their participation in the Area Committee. Ensure the committee has set objectives and goals with member expectations and engagement.

Define the decision making structure and process by which the ACP is affected by the Area Committee.

Develop user friendly communications method (i.e., electronic newsletter like in San Diego and LA/LB) to be sent to wide range of potentially interested parties.

Utilize CG HOMEPORT Communities or similar technology (webcast meetings and list serves) to provide on-line community for Area Committee, providing virtual method of participation for those unable to attend meetings and way of communicating with broader base without impacting efficiency of Area Committee.

Priority Protection Area Identification

Sources

SF ACP/RCP; Cosco Busan IAPs (201s, 232s); SF SITREPs; TAP Model: SF Bay, "Determining Best Achievable Shoreline Protection Using GNOME Trajectories" Carl Jochums; NOAA Case Study on the Exxon Valdez Heather Parker-Hall, Polaris Applied Sciences; Randy Imai, OSPR; Kathleen Jennings, OSPR; Steve Ricks, MSRC; Barry McFarland, TOG SMT

Observations

The Geographic Response Area section of the SF ACP reflects a great deal of quality effort by OSPR, USCG, NOAA and many others and despite some problems in methodology (common in many such plans) it is one of the better examples of this type work in the country.

The SF ACP is a scenario based plan where specific scenarios are presented (e.g.: X volume of oil is released at location Y with Z environmental conditions).

The San Francisco Bay's "Worst Case Discharge" scenario #3 initiates at Anchorage #9 (just south of the allision site) with 12,000 barrels of north slope crude oil with 20 knot SW – W winds.

The "Areas at Risk" include the "entire San Francisco Bay and tributaries and some coastline outside."

Modeling is based on a release at a particular tidal stage (for SFB scenario #3 it is flood) and the oil is assumed to have 0% "shoreline stickiness" (this is not true to nature, but allows for greater movement of the oil within modeled area).

TAP models are extremely rare in the world of oil spill response contingency planning, and even though SF Bay enjoys one of those models, there is virtually no mention of it in the 2005 ACP.

Discussion

San Francisco Bay is one of only four areas in the United States (including San Diego, CA; Kaneohe Bay, HI; and Puget Sound, WA) where a NOAA modeling program called Trajectory Analyst Planner (TAP) was implemented. Because the development costs of the program, both in real and personnel dollars, is high and strong commitment by local and regional stakeholders is necessary, few regions have been in a position to request this work (TAP models have been written for the US Navy in several locations including Korea and the Persian Gulf). What is important about TAP is that it allows the user to develop truly risk-based plans. For a specific port, TAP modelers at NOAA compile climatological and hydrodynamic data dating back as far as a decade. Then by combining several computers operating in parallel, multiple spill trajectories are run for a large variety of potential spill origination locations, often for several seasons (in the case of San Francisco Bay, 500 trajectories were run for approximately 100 spill locations over two seasons for a number of approximately 100,000 possible trajectories). This large statistical database is then processed such that it produces a true oil spill risk model that incorporates the primary ingredients of a risk assessment; threat (provided by the trajectory statistics), probability (also provided by TAP) and vulnerability (provided by resource stakeholders). A user of TAP can determine the likelihood that a given concentration of oil will reach a given shoreline from a given release point within a given number of hours (based on environmental statistics not actual, time-of-the-incident data). Similarly, the TAP user can determine how long it will take to respond to a particular location at a given level of protection. One of the key advantages of TAP, of course, is that it gives planners the ability to identify areas where there is a high probability of impact and compare that information to resource sensitivity and with that, make strategic decisions such as equipment cache locations, staging areas, and initial protection tactics.

Although easier for planners and responders to visualize, scenario-driven plans have very real limitations, chiefly that the likelihood of a given scenario happening is remote in the extreme. However, scenarios can be useful as a way of focusing stakeholders and planners on the difficult task of selecting protection priorities from among a wide variety and large number of sensitive areas. It should be noted that so-called "sensitive areas" are different from "priority protection areas" in that the latter is usually a subset of the former and reflects necessary choices by resource managers and stakeholders as to which sensitive area will

be protected, often at the cost of others. This is a challenging decision during a response, where equally important resources are weighed against one another. When these decisions are made in the planning process rather than during a response, many more factors can be considered by a larger number of stakeholders.

The SFB ACP does not seem to distinguish between "sensitive" and "priority" areas in an operationally useful way (too many areas, too few assets) nor does it give guidance to that end (perhaps the most difficult element in oil spill response planning). It only refers to the "entire San Francisco Bay and tributaries and some coastline outside" as resources at risk. As a result, in the first days of the response, the OSPR lead Environmental Unit was asked to prioritize protection sites on a one through ten basis (this was later changed to a one through four ranking, with one through three being "first," "second" and "third" sensitivity and four being economically sensitive sites). OSPR personnel indicated that this function was not anticipated, and presented a formidable challenge to this unit. For the first operational period (work to be accomplished during Nov. 8th), 20 sites were listed on the 232 form (Resources at Risk) and were presumably meant to be protected using the prescribed strategies in the GRA. Not including boom associated with on-water recovery strategies mentioned in the GRAs, this totaled over 67,000 feet of hard boom, approximately 12% of the total boom used at the height of the Exxon Valdez response. As the response progressed, more sites were added to the 232 form (resources at risk) such that by the third operational period (fourth day of the response) more than 200,000 feet (almost 38 miles) of boom would be required to accomplish the protection strategies in the ACP's GRAs (more than a third of the Exxon Valdez deployment response –NOAA Case Study). A system of prioritization of sensitive areas that incorporates site risk (based on both observed and predicted oil movement), proximity to response assets and a reasonable expectation of the capabilities of responders would be helpful. Currently most of the GRAs identify A, B, and C sites (this is not consistent throughout the plan however, with GRA-4 having all "A" sites and GRA-3 making no distinction whatsoever) where "A" denotes extreme sensitivity.

It is an unfortunate reality that a large spill in a water body as dynamic as San Francisco Bay will impact many of the defined sensitive areas before they can be effectively protected unless there is a significant (and probably practicable) increase in both response equipment and stand-by response personnel.

Therefore, at least for the first 24 to 48 hours of a response, the GRAs need to tie their protection priorities to the equipment available. For example, if 30,000 feet of hard boom is the most that can be deployed in a single 24 hour period, priorities should be linked to that reality. It should be assumed to be a "zero sum" strategy where a given priority requires a given length of boom and manpower and this total is subtracted from the standing 24 hour supply of both. As capabilities increase in the area due to increases in the standing resources of OSROs and others, more "day one priority sites" can be added to the "day one strategy." This method, not unlike the thinking involved in locating fire houses, looks at the probability of an area to be impacted, the relative sensitivity of those resources within the defined area and compares that to the response assets available, including transportation time, to effectively protect that area (again, a function available in TAP).

Lessons Learned

The ACP was not specific enough as to protection priorities for the first 24-48 hours. There were too many "sensitive areas" for responders to protect along with on-water recovery operations.

It is not clear that the SFB ACP made use of the NOAA TAP model.

The ACP could do a better job of coordinating sensitive area protection strategies with response assets in SFB and the time and manpower necessary to accomplish those strategies.

The OSPR / OSRO program of systematically testing protection strategies within SFB (as many as eight per year) is quite excellent and should be copied elsewhere in the nation. However, there is no obvious system that tells if a particular strategy has been attempted and, if so, whether it was successful.

Recommendations

Re-examine the use of the NOAA TAP model as a planning tool.

Develop a series of standing 232 forms for the first 24 hours of the response based on risk, proximity to equipment and manpower and protection strategies.

Continue the necessary work of testing strategies in the field with OSROs, but reflect the success of those tests or whether an area has been tested at all.

Cosco Busan oil spill (FOR RELEASE)

San Francisco - Workers deploy boom in an effort to contain oil spilled from the vessel Cosco Busan. Coast Guard Photo by CWO Scott Epperson

Exercises: Federal

Sources

ACP rosters and meeting sign in sheets, prior ISPR report, USCG records of drills and after action reports. USCG response team, Captain Uberti, Lt. Roberts, Rob Dudgeon, OSPR FRT members

Observation

The USCG is required to have periodic large scale drills to test preparedness. These drills are used to update and test the ACP. In addition to the large drills, the USCG often accompanies state responders on smaller drills that are required by state law. The USCG does not drill with local stakeholders and governments on a regular basis.

The cooperation among the USCG, OSPR, and O'Brien's with respect to past oil spill response exercises was described as functioning well. This is likely a result of the fact that these groups have drilled together at least 3 times in the past year.

The fact that the USCG, State, OSROs and local entities are not all engaged in drills and planning together led to confusion in the response to the M/V *Cosco Busan* incident.

Discussion

One of the key benefits to exercises is the ability to develop professional relationships with key personnel to avoid confusion, distrust and frustration during spill response operations. This will serve to minimize confusion in the response planning process. It should be recognized that all parties involved have an obligation to actively participate in planning and drills. If this is not done, planning must take place in an emergency setting and will be difficult at best. Trust and free-flow of accurate information are key to the success of a response. Trust and confidence are easier to build prior to an incident. The Cape Mohican ISPR indicated that an effort needed to be made to engage locals into the planning and drill process. This may have occurred, but currently locals are not participating on a regular basis.

Lessons Learned

All parties involved in spill response, and those that are impacted, must work together to coordinate efforts.

Many of the lessons learned from previous spills have been forgotten, due to the fact that spills are a rare event in this area. It is difficult to keep interest in planning and exercising for an event that may never occur again, and had not occurred for over ten years.

The success of a response has a direct relationship to the quality and frequency of drills. The level of understanding between the Incident Commanders was described to the ISPR Team as generally good. The challenge is to expand the understanding to all stakeholders.

Recommendations

The ACP planning meetings are the logical focal point for all planning and coordination. It is an established system and is supported by federal and state law. The process needs to include more local participation. If local groups do not attend, the USCG and the State must make efforts to bring them into the planning efforts. Once relationships and plans are established, they must be tested and practiced with drills that include as many stakeholders as possible.

Design future exercises to go beyond IAP development and into oil spill response basics. Evaluate the tactical decisions made during the exercises.

Comments

The ISPR team will expand on oil spill exercises in Phase II.

Consider combining NPREP exercises with Homeland Security exercises for joint credit.

Exercises: State

Sources

OSPR Documents describing recent changes to drills and exercises program; Drill records from Barbara Foster. Portions of an OSPR audit that identified the need to increase drill participation; Barbara Foster, OSPR, Bud Leland, OSPR; Carl Jochums, OSPR; Lt. Rob Roberts, OSPR IC SOSC; Roy Mathur, OSPR OSPS

Observation

OSPR has recognized the importance of drill participation with industry and the USCG. OSPR has received funding to conduct more drills and is working to increase the number and scope of drills.

Generally exercises are not conducted with bad weather injects or scenarios without a pre-designated ICP. This is partly due to concerns with safety in actual deployment exercises.

Local officials desire to participate in exercise design teams.

Very few if any of the drills that OSPR participates in include local stakeholders.

Discussion

As a result of items identified in an audit and lessons learned from drills, OSPR has increased effort to attend drills. OSPR received authority to hire employees to coordinate drills with industry and to plan larger drills. The State has done an increasingly good job of training and drilling with the USCG and the OSROs. This effort needs to be increased to include local governments and non-government organizations. There appears to have been confusion with local stakeholders about the process used to manage spills. This confusion could be reduced with drills and active planning with locals. The same observations were made in reviews of the Cape Mohican incident. The challenge is to keep all potential stakeholders and responders ready for events that are occurring with greater and greater infrequency.

Lessons Learned

Many stakeholders were not familiar with the current Area Contingency Plan and the Unified Command Structure. This needs to be addressed before a spill occurs. This is a common issue at spill events and drills. The number of agencies and groups impacted by a moderate spill is significant and unique in the San Francisco Bay area.

Recommendations

OSPR should continue to develop the expanded drills and exercise program, and include additional conditions such as varied weather injects and ICP situations. OSPR should make attempts whenever possible to include stakeholders at all levels when designing drills. This includes Federal, State, and local representatives. Local spill plans should be consistent with the ACP. If local stakeholders do not participate, efforts should be made to educate them about the planning process. The addition of the local drill coordinators should help this effort. OSPR Drill Coordinators should attend ACP meetings and publicly announce planned drills. OSPR should continue to track drills, and identify additional needs for drill attendance and planning. Potential liaison officers should also attend drills and area meetings to become familiar with local issues and to meet the local officials. Drills should also include a notification component to test the notification process to various stakeholders. This will require coordination with State OES.

Comments

The ISPR team will expand on oil spill exercises in Phase II.

Exercises: Local Government Drills

Sources

Inquiries to Bay Area Counties, local plans and attendance rosters from SF ACP meetings; Lt. Rob Roberts, OSPR IC SOSC; CAPT Uberti, Sector SF/COTP/FOSC; Cindy Murphy, OSPR

Observation

There is very little local involvement with oil spill drills. If local drills are being developed and completed, they are rarely coordinated with the USCG and the State. Large drills attended by USCG and the State are not reaching out and including local stakeholders.

Discussion

A key component to any successful response is prior planning. Once plans are developed they must be tested and updated on a regular basis. The fact that local governments and stakeholder participation have not been attending regional drills may lead to confusion and frustration. Drills allow responders at all levels to establish relationships and trust. This is particularly true with the liaison function. It is critical for locals to be engaged and have their concerns addressed. A complicated response to an emergency is not the time to figure out lines of communication. The challenge is to keep everyone familiar with the plans and processes for the large events that occur less than every ten years.

The lack of drills and common training led to some problems with the M/V *Cosco Busan* response. Many local stakeholders were upset with the structure of the unified command. If drills had included all levels of government prior to this incident the local governments may have been able to better integrate into the early phases of the response. The desire of some local stakeholders to operate outside established plans caused confusion at all levels.

Lessons Learned

Drills must include local stakeholders. Local plans must be updated and local stakeholders need to be familiar with the ACP. The liaison position within the UC structure needs to be tested at all drills. Drill participation is critical to successful response.

Local governments have not actively been participating in the ACP process. The lack of attendance should have been an indicator to the USCG and the State that the locals needed to be brought back into the planning process.

Recommendations

Locals should attend ACP meetings and participate in revising it to work for the unique situations that are present in the San Francisco Bay area. The State needs to reach out to local agencies that are absent from the ACP process. Whenever possible all levels of government and stakeholders should participate in drills. If funding is an issue, the state should investigate the possibility of using grants for local plans to include drill participation to test the plans. Local plans need to be updated after drills to identify deficiencies.

Comments

The ISPR team will expand on oil spill exercises in Phase II. Holiday schedules and conflicts have not allowed the compilation of all necessary documents for this section. It is anticipated that interviews of local governments impacted by the spill will occur in January or early February. Additional information from these interviews may slightly change the observations, discussion, and recommendations. Changes will be reported in ISPR Phase II.

Ship-specific Plans (Non-tank Vessel Response Plan and VCP)

Sources

A 11/27/2007 update from LCDR Rob Smith (Non-tank vessel VRP Project Officer) as part of a USCG report submitted to the American Petroleum Association's Spills Advisory Group on 12/13/07; The USCG's Vessel Response Plan database: **http://www.e-vrp.com**; The USCG website for Vessel Response Plans, both tank and non-tank: **www.uscg.mil/vrp;** Associated Press news article 12/18/2007; Barry McFarland, TOG SMT; Chris Klumpp, OSPR

Observation

U.S. Coast Guard Non-Tank Vessel Response Plan for the M/V Cosco Busan

The 2004 Coast Guard Authorization Act required "nontank vessels" to submit response plans by August 9, 2005. "Nontank vessels" are defined as vessels of 400 gross tons and above which use oil for propulsion. Navigation and Inspection Circular (NVIC) No. 01-05 was signed and published on February 4, 2005 to provide interim guidance to industry for the development and review of nontank vessel response plans. The document can be found at **www.uscg.mil/hq/g-m/nvic/NVIC%2001-05.doc.pdf.** On June 24, 2005, the Coast Guard published a Notice and Request for Comment in the Federal Register. On February 23, 2006, the USCG published a Notice of Availability to the public indicating that Navigation and Inspection Circular No. 01-05 was updated and reissued as NVIC 01-05 Change 1. NVIC 01-05 Change 1, can be found at **www.uscg.mil/hq/g-m/nvic/NVIC%2001-05,%20CH-1.pdf.** (Source: Reference #1 above)

Section 608 of the Coast Guard and Maritime Transportation Act of 2006 contained provisions to further amend the Federal Water Pollution Control Act with regard to applicability standards for nontank vessels; all nontank vessels that are not assessed under the convention tonnage measurement system will use the regulatory tonnage admeasurements system for their applicability tonnage. Additionally, U.S. vessels that are not operating on the navigable waters of the United States are not required to comply with this law. The Coast Guard is anticipating a 2008 release of the NPRM with public hearings to be held in various parts of the U.S. The Final Rule is projected to be published in 2010. To date, the Coast Guard has received 2,261 nontank vessel response plans covering approximately 15,000 vessels. (Source: Reference #1 above)

The M/V *Cosco Busan* is listed in the USCG's Vessel Response Plan database (at **http://www.e-vrp.com**) under the Fleet Management Ltd. Plan # 04002. The plan status is "interim ops", meaning it is operating under the 2-year interim approval. According to NVIC 01-05, nontank vessels are issued two year interim operating authorization for plans that meet the requirements of NVIC 01-05 paragraph 5.a. Nontank vessels may continue to operate until the two year interim operating authorization expires or until the Final Rule for Nontank Vessel Response Plans is promulgated, whichever comes first. In the event that the two year interim operating authorization expires prior to the Final Rule being promulgated, plan holders may request another two year interim operating authorization by certifying that their nontank vessel response plan meets the requirements of Title 33, United States Code (U.S.C.), Section 1321 (j) (5) as amended by the Coast Guard and Maritime Transportation Act of 2004, and that the information contained in the plan is accurate.

According to this USCG database, the *Cosco Busan* is listed as a "freight ship" and its worst-case discharge amount is 57,641 bbls.

All USCG-approved VRPs are kept at Headquarters, with no Sector access. A copy must be available on board the vessel.

The *Cosco Busan* received a Vessel Certificate of Financial Responsibility (COFR), No.861190-14, from the National pollution Funds Center. The COFR was effective 10/24/2007 and expires 10/24/2010. No amount is stated on the COFR, only that the vessel operators, Regal Stone Ltd., "has established evidence of financial responsibility in accordance with 33 CFR138 to meet liability under section 1002 of the Oil Pollution Act of 1990….".

California Vessel Response Plan for the Cosco Busan

California regulations governing the *Cosco Busan's* oil spill contingency plan can be found in Title 14, Division 1, Subdivision 4 (Office of Spill Prevention and Response), Chapter 3 (Oil Spill Prevention and Response Planning), Subchapter 4 (Oil Spill Contingency Plans, Nontank Vessels) and under Chapter 1, (General Definitions and Abbreviations). The California definition of a nontank vessel is "a vessel of 300 gross tons or greater that carries oil, but does not carry oil as cargo."

California's regulations governing Certificates of Financial Responsibility for nontank vessels can be found in Title 14, Subdivision 4 (Office of Spill Prevention and Response), Chapter 2 (Financial Responsibility). According to Section 791.7, (d)(1)(B), the *Cosco Busan* was required to hold a COFR for $300 million. OSPR issued a certificate to Regal Stone Ltd. for the *Cosco Busan* on 10/25/07; it expires 9/30/09.

The nontank vessel contingency plan covering the *Cosco Busan* was filed with the Office of Spill Prevention and Response (OSPR) by Fleet Management Limited. This plan also covers other tank and nontank vessels operating in California waters; it was submitted in 2000, and is kept updated by O'Brien Oil Pollution Service, Inc. The *Cosco Busan* was added on 10/15/2007 along with several other vessels as part of Revision #61.

According to the information in the California Nontank Vessel Contingency Plan, the *Cosco Busan* is a container ship owned by Regal Stone Limited and flagged in Hong Kong. It was built in 2001 and its hull type is "double bottom/double sides." The Steamship Mutual Underwriting Association (Bermuda) Ltd. is the P&I Club for the vessel and its Classification Society is Germanischer Lloyd AG.

There are two parts to Fleet Management Inc.'s California contingency plan: 1) the Initial Response Activity Manual and the Vessel Specific Volume; and 2) the Principal Volume (Public Copy).

Immediate Notifications in the event of a response are listed on the front page of the Initial Response Activity Manual; these include: 1) O'Brien Oil Pollution Service; 2) U.S. Coast Guard National Response Center; 3) California Office of Emergency Services; 4) MSRC; and 5) NRCES

The Initial Response Activity Manual also covers Notification Procedures; Steps to Control Discharge; Emergency Procedures; Geographic-specific information; and a Response Directory.

The Vessel Specific Volume has the following chapters:

a) Introductory Material (e.g., vessel information, the California COFR, OSRO and Salvor contracts, QI information, and oil transfer procedures);
b) Fuel and Tankage Description;
c) Prevention Measures;
d) Notification procedures;
e) Shipboard Drills and Training; and
f) Post-spill reviews.

The Principal Volume of the Contingency Plan has chapters covering the following:

a) Planning for the Location of Resources;
b) On-Water Containment and Recovery;
c) Shoreline Protection and Cleanup;
d) Response Procedures;
e) Temporary Storage and Waste Management;
l) Oiled Wildlife Care Requirements;
m) Drills and Exercises, Type and Frequency; and
n) Salvage Equipment and Services.

Discussion

The *Cosco Busan* was added to Fleet Management's U.S. Coast Guard and State of California vessel contingency plans less than a month before the oil spill incident.

Lessons Learned

The timely addition of the M/V *Cosco Busan* to both the U.S. and California Fleet Management Inc. vessel contingency plans ensured that a trained Spill Management Team as well as Oil Spill Response organizations and their resources were available to respond to her 11/7/2007 oil spill.

Recommendations

The U.S. Coast Guard should expedite rulemaking for nontank vessel contingency plans, since nontank vessels currently have only the NVIC guidance to ensure compliance with the 2004 law.

Comments

A question was raised as to the extent to which the limits to liability may or may not affect preparedness. This is something that could be addressed in Phase II. There is a current U.S. Federal limit of liability of $61.8 million for the M/V *Cosco Busan,* and California has unlimited liability and a COFR requirement of $300 million.

Cleanup costs for this spill, as well as the costs of Natural Resource Damage Assessments and restoration, appear likely to exceed the Federal cap for the M/V *Cosco Busan* of $61.8 million. If the OPA limit is applicable and exceeded, the federal Oil Spill Liability Trust Fund may have to make up the difference. At this time, nontank vessels do not contribute directly to that fund, which is capitalized by a per-barrel fee on petroleum products.

CA OSRO Certification Program: Pre-positioned Equipment (Bay Area)

Sources

Lempert-Keene-Seastrand Act (LKS) regulations at 14 CCR § 827.02; OES Hotwash Notes, 12/6/07; LCDR Arex Avanni, Sector SF, IMD Chief; Lt. Rob Roberts, OSPR IC SOSC; Kathleen Jennings, OSPR; Carl Jochums, OSPR; Chris Klumpp, OSPR Marine Safety Branch; CDR Mike Day, Pacific Strike Team

Observation

If OSRO equipment is available and pre-positioned then there is not an accurate updated list readily available to the UC. It can improve efficiency and effectiveness A lack of information readily available to the entire UC (which on much of the first day was only the Coast Guard and DFG) about equipment reduced the efficiency and effectiveness of the response.

The NSFCC RRI for OSRO classification is not well known as a resource for planning and preparedness and needs to be updated on a regular basis.

A clear inventory of equipment is important to ensure the equipment is allocated in a strategic way.

Discussion

The California Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (LKS) sets a high standard for oil spill preparedness and response, requiring the "highest level of protection that can be achieved" from equipment, manpower levels, and training methods. OSPR regulations at 14 CCR § 827.02 require that nontank vessels that transit SF Bay "shall have the on-water recovery capability to address the nontank vessel's reasonable worst case spill volume at the scene of the spill within six hours." (As an aside, this is an exception to the general rule in all other areas of the state except L.A./Long Beach, Sacramento and Stockton, where the general rule allows for on-water capability within 12 hours of "notification.")

Based on LKS high performance standard and the regulation's specific requirement for equipment that must be readily at hand in the event of a spill, there is a need for a clear sense of the amount and type of equipment, and its location, in the event of a large spill. However, there is no single updated database readily available. The state's Marine Safety Branch acknowledged that it does not have a comprehensive database of the type and location of equipment held by the private, rated OSROs, which the state regulates. Rather, the equipment is listed only in the separate files for each OSRO. DFG has no information at all on equipment owned by public entities (cities, parks, etc.) or other private entities (marinas) unless it was reported by those entities to the state. This is in contrast to USCG District 13, which several interviewees said has a good program to identify locally held equipment.

OSPR further indicated that there is a "Response Resource Inventory" (RRI), but it is not real time and more importantly "not always factual." OSPR stated that the amount and type of equipment reported by the OSROs needs regular verification. Moreover the RRI generally does not have sufficient detail and is not sufficiently organized to be quickly useful in identifying available equipment.

Both the Coast Guard and DFG stated that they rely heavily on the OSROs; the little Coast Guard equipment, other than the Pacific Strike Team equipment, that exists is intended for quick response until the OSROs arrive. So the importance of verification and identification of the location of adequate OSRO pre-positioned equipment is significant.

Lessons Learned

Without clear and instant information on the amount and type of available public and rated OSRO pre-positioned equipment, spill response will be less efficient, effective and coordinated.

Recommendations

All rated OSRO equipment should be placed in a database that can be sorted on a number of variables, including location and type, and equipment location centers should be mapped. Ideally public equipment should be included as well. This should be regularly checked, updated and widely distributed. The RRI

should be similarly updated on a more regular basis, and OSROs should be penalized for over-reporting the amount of equipment they have. Drills of rated OSROs should increase to test equipment readiness, and the Coast Guard should participate in a fixed percentage of drills.

All databases listing OSRO pre-positioned equipment need to be verified and updated to produce an accurate and readily available resource list for used quickly during oil spill responses.

Comments

ISPR will look, in Phase II, about cascading equipment under 14 CCR § 827.02.

Coast Guard Skimming Operations

SAN FRANCISCO -- Chris Hateln, an employee of the Marine Spill Response Corporation (MSRC) for over a year, operates an oil skimmer onboard The Sentinel, in an effort to clean-up oil that spilled Nov. 7, 2007 when the Cosco Busan allided with the San Francisco Bay Bridge. (U.S. Coast Guard photo by Petty Officer 3rd Class Melissa Hauck.)

CA OSRO Certification Program: Best Achievable Protection/Technology

Sources

Lempert-Keene-Seastrand Act (LKS) regulations at 14 CCR 819.01 *et seq.*; OES Hotwash Notes, 12/6/07; Barry McFarland, TOG SMT; Lt. Rob Roberts, OSPR IC SOSC; Steve Ricks, MSRC; Kathleen Jennings, OSPR; NOAA ERD, Seattle; Ted Mar, Chief, Marine Safety Division, OSPR; Chris Klumpp, OSPR Marine Safety Branch; Steve Sawyer, OSPR Staff Counsel

Observation

LKS mandates the "best achievable protection" (BAP) of California's marine waters from oil spills, a standard defined as the "highest level of protection that can be achieved" through the "greatest degree of protection available."[1] This standard is supposed to be implemented through requirements for use of the "best achievable technology" that provides the "greatest degree of protection"[2] for the coast and ocean. It is also supposed to be implemented through requirements for the "highest level of protection that can be achieved" from equipment, manpower levels, and training methods. This specifically includes "[p]rocesses that are currently in use anywhere in the world."[3] LKS gives protection of the coast "critical" consideration; cost is but a minor factor in the evaluation. In fact, the law prohibits cost-benefit and cost-effectiveness analyses in determining "best achievable protection."[4] The law also requires OSPR to look regularly to see if there are better ways to prevent and respond to spills.[5]

It is against this backdrop that the level of "best achievable protection" needs to be evaluated. A close examination found there are not currently protocols in place for continuously assessing progress against the Best Achievable Protection Standard. Among other things, there is no formal process to ensure that OSROs continually review and update their equipment; rather, OSPR relies in input from vendors and other oil spill agencies, and periodicals, for new information against which it can check OSRO performance. USCG District 13 apparently has a stakeholder group to review new technologies, but California reported it did participate in this effort. There is some evidence that this lack of a formal process for updating technology and equipment impacted the level of preparedness for this spill. For example, infrared cameras may have been useful in seeing the oil in low-visibility situations, increasing the effectiveness of the cleanup.

Other international ports have programs to consistently seek new technologies. For example, "Current Buster" boom skimmer, used in Prince William Sound, may have been an alternative to skimmers used in the high-energy Bay Area system.

Discussion

There were numerous indications on a variety of fronts that LKS "best achievable protection" standard is not being met generally, and was not met in the course of the M/V *Cosco Busan* spill specifically.

The OSRO rating regulations at 14 CCR §§ 819.01 *et seq.* do not reference this standard which may hamper accountability. This also reinforces the need for regular verification of OSRO equipment (see the discussion on OSRO pre-positioned equipment in the Preparedness section). Both the Coast Guard and DFG stated that they rely heavily on the OSROs; there is little Coast Guard equipment that exists other than that held by the Pacific Strike Team. Federal laws put the responsibility for providing oil spill response equipment on the Responsible Party.

The level of preparedness that did exist consistent with BAP was likely undercut by the response actions by the underwriters, who sent a competitor to audit The O'Brien's Group cleanup decisions. The O'Brien's The BAP standard is not limited to equipment, but also refers to "highest level of protection that can be achieved" from equipment, manpower levels, and training. Drills are similarly an issue in assessing

[1] Government Code §§ 8574.7, 8670.3, 8670.12, 8670.17, 8670.17.2, 8670.19, 8670.21, 8670.28, 8670.35.
[2] Government Code § 8670.3(c)(1) (emphasis added).
[3] *Id.* (emphasis added).
[4] Government Code § 8670.3(b)(2).
[5] Government Code § 8670.13; *see also* Government Code § 8670.37.

whether this standard has been met, and again preparedness came up short of the Best Achievable Protection standard. DFG is behind on required drills, and there is only one part-time staffer to run the entire OSRO program (certification, rating, drills, etc.). DFG for example, generally does not plan drills for inclement weather scenarios. Priorities in drills, as was the case in the M/V *Cosco Busan*, are usually set with overflights; without a plan for low visibility situations, unnecessary delays such as determining the quantity of the spill for the M/V *Cosco Busan* response will occur again. And there is no contingency for fog in the usually-foggy San Francisco ACP.

Lessons Learned

Constant vigilance and oversight is needed to implement California's Best Achievable Protection standard, one of the strongest in the country.

Recommendations

Drill regularly for scenarios that occurred in this spill that are not normally the subject of drills – e.g., where an ICP is not set up, or for a 10 barrel (or unknown quantity) spill, or for a spill in inclement whether, or for a spill where protection priorities are at issue.

OSPR needs to develop a process to affirmatively ensure that its BAP standard for technology is constantly being implemented; they cannot continue to rely on the OSROs. Identified equipment that reflects BAP should be implemented into OSRO plans immediately.

OSPR regulations should be revised as needed to reflect the BAP standard for OSRO equipment.

CA OSRO Certification Program: Dedicated Response Personnel

Sources

Lempert-Keene-Seastrand Act (LKS) regulations at 14 CCR § 827.02; OES Hotwash Notes, 12/6/07; LCDR Arex Avanni, Sector SF IMD Chief; Kathleen Jennings, OSPR; Randy Imai, OSPR; CDR Mike Day, Pacific Strike Team

Observation

LKS sets a high standard for oil spill preparedness and response, requiring the "highest level of protection that can be achieved" from equipment, manpower levels, and training methods. OSPR regulations at 14 CCR § 827.02 require that nontank vessels that transit SF Bay "shall have the on-water recovery capability to address the nontank vessel's reasonable worst case spill volume at the scene of the spill within six hours." (As an aside, this is an exception to the general rule in all other areas of the state except L.A./Long Beach, Sacramento and Stockton, where the general rule allows for on-water capability within 12 hours of "notification").

Discussion

By and large local jurisdictions, National Parks, National Recreation Areas, the National Marine Sanctuary, and the general public were extremely frustrated with what they viewed as a low number of contractors on the ground and in the water. Local government closely involved with the response reported that they felt the contractor mobilized personnel based on cost, as opposed to need.

Lessons Learned

Better information about available personnel will help the State measure compliance with the Best Achievable Protection standard.

Recommendations

All rated OSRO dedicated personnel should be placed in a database by position that can be sorted on a number of variables, including location and skill sets, and personnel locations should be mapped. This should be regularly updated and widely distributed.

OSROs should report on their capability for working at night.

Communications staff and biologists should be hired by DFG/Coast Guard and/or contracted through the OSROs and should be trained to specifically respond to oil spills.

Drills of rated OSROs should include personnel readiness as an inject, and the Coast Guard and other effected local agencies should participate in a fixed percentage of these drills.

Comments

ISPR will look, in Phase II, about cascading personnel under 14 CCR § 827.02. ISPR will look at the need for a database for dedicated response personnel in the Spill Management Team in Phase II.

Training: OSRO

Sources

MSRC and NRCES logs; Steve Ricks, MSRC; Lt. Rob Roberts, OSPR IC SOSC; CAPT Uberti, Sector SF/ COTP/FOSC; Barry McFarland, TOG SMT; Ted Mar, OSPR; Chris Klumpp, OSPR

Observation

MSRC and NRCES are the two largest OSROs in the San Francisco Bay area. They have extensive experience and training with ICS and spill response. By law all of their responders are required to be HAZWOPER certified. Both are approved OSROs under the State certification process. Both companies drill extensively with industry and OSPR to maintain proficiency and to meet the State's legal requirements under LKS. In addition, both companies participate in the ACP process and other planning efforts.

Discussion

The OSROs that responded to the Cosco Busan were highly trained and have extensive experience with drills, and actual spill response. Both companies are active with the ACP process and know the local area. The two OSROs that responded to this incident possess the training to respond to a spill of this size and complexity.

Lessons Learned

OSRO training and drill programs have kept them prepared to safely and efficiently respond to oil spills in San Francisco Bay.

Recommendations

Training efforts will always need to be continued. Efforts should be made to train with stakeholders at all levels whenever possible.

Training: Spill Management Team (With Emphasis on the Liaison)

Sources

CA State Emergency Management System requirements; SF ACP/RCP; Lt. Rob Roberts, OSPR IC SOSC; CAPT William Uberti, Sector SF/COTP/FOSC; Barry McFarland, TOG SMT

Observation

Overall the spill management team was well prepared for an incident of this size and complexity. The one exception was the liaison position, which in California is normally filled by OSPR. The inability of the liaison to gain the trust of local stakeholders hindered the entire response for many days if not weeks.

The Obrien's Group has trained with the State and the USCG at least several times in the past year. All three groups are well trained and know how to work together to manage a spill response.

The local stakeholders have trained technical experts that appear to have been underutilized for this response.

Discussion

Without exception, anyone asked about the function of the UC eventually comments that the liaison function did not work. The failure can be attributed to multiple factors, but the ISPR group has not interviewed anyone that thought the liaison position was functioning as it should have been. Unfortunately, the problems with the liaison led to distrust of the entire UC by local agencies.

All of the representatives from the Unified Command made comments that overall the ICS structure was efficient and effective.

Lessons Learned

Liaison Officers need to be pre-trained and very familiar with the local issues as well as the ACP.

Failure in the Liaison position caused a lot of extra effort to be spent responding problems and complaints, rather than planning for response.

Overall the legal requirements to have trained responders and to utilize ICS, has been a benefit to oil spill response.

Local trained experts need to be identified before an incident. Training and drills need to include the use of these assets when it is appropriate.

Recommendations

An intensive effort must start immediately to train effective Liaison Officers. These officers need to be assigned to geographic areas and need to work closely with the ACP. In areas where stakeholders are not active in the ACP process, they must be sought out and educated about the importance of prior planning. OSPR is the logical agency to fulfill this function. The Liaison Officer must participate in drills and exercises as part of necessary training for that position.

For incidents in California, the SMT needs to meet the California OES incident command qualifications.

Comments

The ISPR Team will continue to address SMT (private and government) qualifications and report further findings in Phase II.

Training: All Others Including Pollution Investigator (PI), Federal On-Scene Coordinator Representative (FOSCR) and Command Duty Officer (CDO)

Sources

USCG PI/FOSC/CDO Performance Quality Standard (PQS); Steve Ricks, MSRC; Barry McFarland, TOG SMT; Sector SF IMD; OSPR initial responders

Observation

The initial Coast Guard response personnel apparently lacked the training necessary and the experience needed to scale the magnitude of the incident given the amount of fuel spilled. This was also complicated by low visibility, initial concerns about public safety, and critical information that did not reach the team during the response.

Discussion

When the initial report of the M/V *Cosco Busan* incident was passed to the VTS, there was no delay in the USCG taking action to deal with the bridge situation. Review of audio tapes and transcripts show that VTS and Sector worked well together to quickly assess the seriousness of the bridge situation. Calls to CALTRANS showed they had immediate concerns about public safety and the integrity of the Bay Bridge. USCG personnel were aware that other agencies were present at Yerba Buena Island and made contact with appropriate representatives to start making decisions with input from outside the USCG.

Attempts to document the slick size and ship damage showed the initial pollution investigators were familiar with common investigative techniques, however, their failure to accurately quantify the lost fuel was linked directly to a lack of training or experience with scaling the spill. The ISPR Team received testimony that acknowledges that quantification was difficult for responders without proper training and experience. A similar observation was noted in the ISPR report for the Cape Mohican. As moderate and large oil spills become increasingly rare, real life oil spill experience also becomes difficult to find. If a large spill occurs every ten years in one geographic area, the typical USCG responder would have less than a 30% chance of responding to a large spill in their typical 3 year assignment to a Sector Command.

Lessons Learned

Critical positions such as spill scaling should involve fully trained and seasoned personnel; however, personal experiences with response to large oil spills are difficult to obtain.

USCG Pollution Investigators typically do not have the extensive technical training required to deal with complex ship systems. They also lack the experience to speak the technical language that is sometimes required to understand the situation on board a ship.

Recommendations

These positions should cross-train with the Strike Teams and participate in Spills-of-Opportunity outside of their area of responsibility and other opportunities to enhance their development.

Continue to require qualifications to fill certain positions.

Establish mentorship programs that include interagency opportunities to train new USCG pollution investigators with state and local responders that tend to be permanently assigned to a geographic area.

Recognize the training level limitations that exist, and make arrangements to get immediate help to investigators when they are in a situation that exceeds their training.

Train responders to recognize their limitations and to request assistance with situations that exceed their training. The ACP should maintain a contact list of state and local responders with pollution investigation expertise.

Responder Training: Local

Sources

SF ACP/RCP; Sector SF IMD; Lt. Rob Roberts, OSPR IC SOSC; CAPT Uberti, Sector SF/COTP/FOSC

Observation

Pre-trained spill responders at the local level represent an important spill response asset, but local assets are largely underutilized by state and federal responders. This should be addressed with suggestions listed in Preparedness Drills: federal, state and local.

Discussion

This area needs to be researched extensively to determine what the actual spill response training exists within the local governments, volunteer groups, and NGOs. The fact that there is no database of all the local agency training indicates there is a planning deficiency. This issue can be addressed in phase two of this ISPR process.

Lessons Learned

The capabilities of local entities are not fully understood by the federal and state response organizations that have a legal mandate to respond to oil spills. A clear understanding and inventory of all assets is essential when planning the best response actions.

Recommendations

Updates to local plans and the ACP should include local responder training information. As changes occur, they need to be reflected in plans. In some cases joint training can be planned to keep certifications current.

ACP and basic oil spill response training should be offered by the ACP chair agencies.

Comments

This issue needs to be investigated further. Training records are not with any one entity, even locally, and the actual date may be very difficult to obtain. This will be addressed in Phase II.

Volunteers: Convergent Non-Wildlife Responder Training

Sources

Lempert-Keene-Seastrand Act (LKS)
http://sfoilspill.blogspot.com/

SF ACP/RCP Manual Section 9730.2; Yvonne Addassi, OSPR, Wildlife Branch Director; Al Storm, OSPR; Steve Sawyer, OSPR Staff Counsel; Bill Robberson, US EPA

Observation

The San Francisco Bay area public is interested in volunteering for oil spill cleanup but there is not an active pre-training program for oil spill response. CALOSHA and EPA regulations require minimum training before responders can enter the oil spill collection areas to avoid exposure to hazards.

Both Coast Guard publications and the ACP discourage the use of convergent volunteers for cleaning up oil.

The UC was taken by surprise with the outpouring of convergent volunteers willing to help pick up oil off of beaches. With no volunteer training protocols or materials in place, agencies were forced to pull together training materials and protocols during the spill response itself, taking time away from other duties.

There are more environmental hazards involved with oil spill response than exposure to oil.

Discussion

This section addresses training of convergent volunteers for use in spill response other than for oiled wildlife. Preparedness training for oiled wildlife volunteers is addressed separately in this review. The Area Contingency Plan, Section 9730.2, "Health and Safety" states that "Volunteers will not be utilized to work directly in the recovery of oil. Volunteers will not be assigned to work in areas where there is a known or a potential health hazard due to chemical exposure such as oil recovery, etc." (ACP Page 9000-204, 10/1/05.) However, the ACP at 9730.2 does say that trained volunteers may pick up tarballs. It was reported and confirmed by several interviewees that the issue of convergent volunteers wishing to clean up oil (as opposed to oiled wildlife) had never arisen in the 17 years since OPA 90 and LKS were enacted.

Accordingly, there was no program in place to conduct required HAZCOM training of volunteers for this purpose in advance of the spill, other than the separately-addressed training with respect to oiled wildlife. The Unified Command was playing "catch-up" trying to find training protocols and address a difficult situation on the spot.

Lessons Learned

A lack of planning for a convergent volunteer program, and a general lack of attention to convergent volunteers, resulted in long and frustrating delays that impacted the response overall specifically management was pulled off other duties to address this issue, and the professional response organizations were directed to change strategies.

Establishing a training program for volunteers during an incident is challenging and impacts the ability for the UC to adequately assess available resources and conduct normal operations.

Recommendations

Use the OWCN volunteer program and other available models for developing an organized volunteer program in San Francisco Bay Area.

Planners should develop a uniform approach to the use of convergent volunteers for oil spill response, consistent with local needs, to reflect the use of these volunteers in response operations.

The NRT should develop generic guidance for ACP committees to develop convergent volunteer sections in local ACPs.

Integrate trained, experienced organizations into the ACP and drills to assist with volunteer coordination and to be an outlet for volunteer interest. One good example is the Gulf of the Farallones National Marine Sanctuary Beach Watch Volunteer Program, which was involved in Safe Seas drill in 2006.

Cosco Busan Oil Spill Cleanup (for release)

San Francisco -- San Francisco -- Crews work on Muir Beach California clean up oil from the Cosco Dusan Oil Spill . Coast Guard Photo by CWO Scott Epperson. Coast Guard Photo by CWO Scott Epperson

Volunteers: Responder Training for Wildlife Care

Sources

Cindy Murphy, OSPR, Volunteer Coordinator, Wildlife Recovery; Mike Ziccardi, Director of OWCN; Jay Holcomb, International Bird Rescue Research Center

Observation

The Oiled Wildlife Care Network (OWCN) manages oiled wildlife collection and recovery on behalf of OSPR, though the network often contracts directly with the Responsible Party (RP).

The Oiled Wildlife Care Network is effective at managing volunteers to provide medical care to oiled wildlife in the Bay Area.

There are ample skilled volunteers for responding to an oil spill.

The system for tracking, training, mobilizing, and orienting pre-trained volunteers for wildlife care and processing appears to be effective and efficient.

A dedicated hotline is usually available for oiled wildlife reports from the public; in this case the public hotline had to be suspended because of an unexpected problem in phone line infrastructure.

Discussion

OSPR is charged with managing wildlife recovery in response to oil spills in the California. The agency contracts with the Oiled Wildlife Care Network (OWCN) to provide all wildlife-related services, including hazing, search and collection, processing and care, tracking and release. In response to Bay Area oil spills, OWCN has effectively used pre-trained volunteers in the care of oiled birds. Other types of oiled wildlife (except otters, which are covered by separate regulations) are cared for at other Bay Area wildlife care facilities managed by the Marine Mammal Center, Lindsey Wildlife Museum and other NGOs.

The Wildlife Center is housed in and managed by the International Bird Rescue Research Center in Cordelia, CA, and can accommodate approximately 200 volunteers to care for birds. An additional wildlife care facility exists in Santa Cruz to treat wildlife and to augment Bay Area capacity for treating oiled birds. The Marine Mammal Center, an NGO, has additional space that can be used as a wildlife care facility.

The Oiled Wildlife Care Network maintains a database containing more than 1,600 volunteers and update the database annually. About 400 people in the database are highly skilled volunteers who are trained in wildlife care, and many either are staff or volunteers with other wildlife care-centered NGOs or vet students at UC Davis.

Three experienced Bay Area NGOs – Marine Mammal Center, Lindsey Wildlife Museum and International Bird Rescue Research Center – have typically provided skilled staff to manage recovery operations and trained convergent volunteers. During the spill response several additional NGOs participated and have expressed an interest in engaging in the planning process and future wildlife recovery efforts.

Convergent volunteers require additional training and management, and stressed the capacity of existing OWCN staff. Media interest also caused additional stress on the capacity of the VC to effectively manage volunteers. Additional management staff appear to be needed to ensure safe and effective operations at the wildlife care facility.

The OWCN and OSPR plan to resurrect the Volunteer Subcommittee of the Area Committee to prepare for managing increased volunteer resources, including convergent volunteers.

Lessons Learned

It is very helpful to have an updated database of pre-registered volunteers, with fields indicating contact information, skills and previous experience.

Management capacity may need to be increased to prevent burnout and protect human health and safety.

Additional wildlife-centered NGOs are interested and available and engaging them will help increase capacity both in terms of physical care facilities and trained volunteers.

Recommendations

The volunteer coordinator staffing should be re evaluated.

Ensure that an industrial hygienist is assigned as the safety officer is assigned to wildlife care facilities.

Aggressively pursue engagement by local officials and NGOs in Volunteer Subcommittee of Area Committee.

Place the hotlines in a condition where they could be easily activated, and staffed with volunteers as soon as possible.

Bird Rescue

Sources

Phone Interviews; Beach Search Effort Logs; Area Contingency Plan; Cindy Murphy, OSPR, OWCN Volunteer Coordinator; Mike Ziccardi, U.C. Davis, OWCN Director; Jay Holcomb, Director, International Bird Rescue Research; Rebecca Dmytryk, Search and Collection team member; Steve Hampton, OSPR Natural Resources Damages Assessment team

Observation

There was agreement among interviewees additional trained and experienced search and collection personnel should be available for recovering oiled wildlife.

Discussion

Many interviewees expressed concern that additional personnel should be available for immediate deployment in search and collection efforts in response to an oil spill. The adequacy of the pool of personnel will be further investigated in Phase II of the ISPR and is currently being addressed by OWCN as well.

Initial Notification: California Oil Spill Preparedness and Response (OSPR)

Sources

SF SCC logs; SF VTS SF logs; OES RIMS; National Response Center (NRC); OSPR Logs; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR SOSC; Roy Mathur, OSPR OSPS; Barry McFarland TOG SMT; Bud Leland, OSPR Deputy Administrator; Bud Leland, OSPR; T. Curry, OES

Observation

The initial incident of the vessel alliding with the bridge tower was reported by Capt. John Cota, the ship's pilot via VHF Ch 14 to the SF VTS at **0830** Nov. 7. At **0837**, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relayed reports that fuel was leaking from the vessel. The master of the vessel contacted the O'Brien's Group command center, their plan designated QI, at **0915**. CA OES logged their initial report from TOG at **0942**, generating OES Hazardous Materials Spill Report Control #07-6859. Information reported included, the allision with the Bay Bridge at 0830, that an unknown amount of petroleum type fuel oil was released in the San Francisco Bay. Geographical coordinates in lat & long were given for the location. The City of Oakland, Alameda County is listed as City/County.

The O'Brien's Group (TOG), VRP designated QI, notified the National Response Center (NRC) at **0951**, generating NRC Incident Report #853865. Information reported included, the allision with the Bay Bridge, that an unknown amount of unknown oil was released in the San Francisco Bay, with Oakland, Alameda County listed as incident location. TOG also reported that the release had been secured.

The second update from CA OES, which was last modified and released at **1005** on Nov. 7 listed CA DFG, OSPR, RWQCB, CA SLC, Coastal Commission, Parks and Recreation agencies as parties notified.

On the morning of the incident, Lt. Rob Roberts of OSPR was at USCG Sector SF on Yerba Buena Island (YBI) attending a scheduled meeting of the Neptune Coalition, a post-9/11 group of local, state and federal law enforcement agencies coordinating safety and security efforts in Sector SF's area of responsibility. Lt. Roberts learned of the incident through an informal conversation with a couple of USCG PO's at approximately **0900**. Lt. Roberts proceeded to Sector SF IMD office and received confirmation at **0925** and immediately informed IMD that he would assume the SOSC role.

Lt. Roberts was informed by the IMD of the initial quantity reports of either 142 gallons or 400 gallons; he could not remember which number but stated that the quantity seemed unbelievable as a breach such as reported should generate a greater quantity and could be off by a factor of 1000X. At **0945** Lt. Roberts convened a UC with LTJG J. Snyder as she was the senior pollution response officer on location that day and requested full Field Response Team activation from DFG at that time.

Because of his suspicion with the low reported quantity, Lt. Roberts made arrangements to dispatch Mr. Mathur, OSPR OSPS to the vessel for quantification. (There is a conflict in the information available to the ISPR team as to whether or not Mr. Mathur had personal communications with the returning CG pollution investigation team prior to his departure for the ship.) Lt. Roberts also alerted the OWCN. This occurred around **1100** and he personally notified the GFNMS. The Marine Mammal Center was also notified by OSPR early in the day.

Lt. Roberts also opined that the lack of notification from CA OES to local counties and cities potentially affected by the spill may be related to the incident location listed as Oakland, Alameda County, which may have precluded other counties and cities receiving warning. He also commented that the liaison officer will often reach out to local government contacts, however the person normally assuming that duty was unavailable due to a death in the family, leaving a less experienced person in that role. (The liaison officer did not physically report to the UC until the second day.)

Mr. Mathur returned to YBI from the *Cosco Busan* with his quantification calculations at approximately **1530.** Between that time and **1600**, when Mr. Mathur addressed the UC, Mr. Mathur was discussing the new calculated spill volume with Sector San Francisco IMD personnel. Mr. Mathur explained his calculations to the UC sometime during the **1600** UC tactical brief.

The UC contacted DFG dispatch and Administrator's office at **0951** to notify the Governor's office. Internal communication from OSPR to DFG and the Resources Agency with updates to the incident were provided by Mr. B. Leland, OSPR Deputy Administrator. These updates were sent at approximately **1455** and **1741**. The understanding is that the Resources Agency as well as CA OES provided updates directly to the Governor's Office. The first update reports the quantity of the spill as "around 400 gallons (about 10 barrels)". The second update provides the revised quantity as 1,840 barrels. Lt. Roberts also contacted Mr. A. Storm, OSPR Sacramento Liaison at **1358** and instructed Mr. Storm to contact local CA State Senate and Assembly members of the spill.

Discussion

California regulations require notification of the QI, CA OES and the NRC, "immediately, but not longer than 30 minutes, after discovery of a discharge of oil or threatened discharge of oil." The allision was reported at 0830, after which the vessel proceeded to anchorage 7. At **0837**, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relayed reports that fuel was leaking from the vessel. Formal notification to State OES was accomplished 72 minutes after the event. OSPR and other affected state agencies are alerted by the CA OES office in the event of a spill; however it is common for the vessel, QI or other RP representative to contact OSPR directly. The coincidence of having Lt. Roberts of OSPR on site at YBI the morning of the event allowed him to receive notification approximately 30 minutes prior to official notification being recorded and posted by CA OES. This also allowed the initial UC between the FOSC and SOSC to stand up at 0945 and commence joint ICS response activities at that time. As with other aspects of initial notification of the M/V *Cosco Busan* spill, the initial quantity likely impacted the response activities during the first day. Combined with the lower initial quantity being reported in the media, this may have resulted in reduced urgency in some sectors of state government.

Lessons Learned

From the evidence presented to ISPR Team, OSPR's initial notifications were performed in a timely manner, consistent with established procedure, state regulations and expectations.

The information provided in reports to both CA OES and the NRC was the best available information at the time, with spill quantity reported as "unknown".

Recommendations

An annual full notification (at all governmental levels) exercise within DFG-OSPR and all other relevant state agencies should be part at least one of the annual unannounced drills that the state rated OSROs are subjected to. This can help ensure that expected communications protocols are familiar to the respective agency personnel.

Comments

The timeline developed by the ISPR team is a compilation of personal accounts and logs required by key players in the first 24 hours in response. As to be expected there exists discrepancies between the timing of events as reported by different interviewees. The ISPR Team has attempted to the maximum extent possible to resolve these discrepancies consistent with the record of actions taken and reports and other sources.

Initial Notification: Responsible Party

Sources

Sector SF SCC logs; Sector SF VTS logs; OES RIMS; National Response Center (NRC); NRCES logs; MSRC logs; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC; Barry McFarland TOG SMT; Capt. P. McIsaac, SF Bar Pilots; T. Curry, OES

Observation

The initial incident of the vessel alliding with the bridge tower was reported by Capt. John Cota, the ship's pilot via VHF FM Ch 14 to the SF VTS at **0830** Nov. 7. At **0837**, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relayed reports that fuel was leaking from the vessel. The master of the vessel contacted The O'Brien's Group command center, their plan designated QI, at **0915**. CA OES logged their initial report from TOG at **0942**, generating OES Hazardous Materials Spill Report Control #07-6859. Information reported included, the allision with the Bay Bridge at 0830 , that an unknown amount of petroleum type fuel oil was released in the San Francisco Bay. Geographical coordinates in lat & long were given for the location. The City of Oakland, Alameda County is listed in the City/County fields. TOG notified the National Response Center (NRC) at **0951**, generating NRC Incident Report #853865. Information reported included, the allision with the Bay Bridge, that unknown amount oil was released in the San Francisco Bay, with Oakland, Alameda County listed as incident location. TOG also reported that the release had been secured.

Discussion

Federal statutes require the responsible party to notify the appropriate federal agency "as soon as he has knowledge of any discharge of oil or hazardous substances" (CWA sec 311(b)(5); USC sec 1321(b)(5)). This notification is to be made through the NRC. California regulations require notification of the QI, CA OES and the NRC, "immediately, but not longer than 30 minutes, after discovery of a discharge of oil or threatened discharge of oil." The allision was reported at 0830, after which the vessel proceeded to anchorage 7. At 0837, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relays reports that fuel is leaking from the vessel. Under strict interpretation of state law, notifications should have been made within 30 minutes, or by 0907, however the vessel could be viewed as in extremis, attempting to safely proceed to safe anchorage and secure the vessel and discharge. Notification to the QI occurred 38 minutes after awareness of oil in the water and subsequent formal notification to State OES and the NRC was accomplished 72 minutes and 81 minutes respectively after the event. It is important to note that both OSROs listed in the vessel's Vessel Response Plan, the USCG and CA OSPR was either aware or notified of the incident prior to formal notification and acted accordingly. See separate reports on Initial Notification – OSRO, USCG and OSPR.

Lessons Learned

The formal notifications by the Responsible Party (RP) to the CA OES was made in what should be considered a reasonable period of time following knowledge of the hazardous spill when one considers issues of limited visibility and securing the safety of the vessel and crew.

The ship's master depended on his identified QI to make subsequent notifications directly to the plan OSROs, the CA OES and the NRC. The information provided in reports to both CA OES and the NRC was the best available information at the time, with spill quantity reported as "unknown".

Recommendations

California State regulations requires that non-tank vessel response plan include "onboard emergency procedures and Qualified Individual notification drills…conducted quarterly, or 72 hours prior to entering marine waters, whichever is less often;" and that records of such drills and exercises shall be kept for a period of at least three years (CCR, Title 14, Division 1, Subdivision 4, Chapter 3, Subchapter 4 section 820.01 (a)(2)(B)). In addition, non-tank vessel plans "shall provide for post-spill review, including methods to review both the effectiveness of the plan and the need for plan amendments" (section 827.02 (f)). State OSPR should follow up if they have not already done so to ensure that the Cosco Busan performed

necessary notification drills prior to entry in state waters and review the vessel's post-spill review for verification.

Comments

The timeline developed by the ISPR team is a compilation of personal accounts and logs required by key players in the first 24 hours in response. As to be expected there exists discrepancies between the timing of events as reported by different interviewees. The ISPR Team has attempted to the maximum extent possible to resolve these discrepancies consistent with the record of actions taken, reports and other sources.

M/V Cosco Busan Allides With San Francisco Bay Bridge (For Release)

SAN FRANCISCO (Nov. 7, 2007)- The motor vessel Cosco Busan, a 900-foot container carrier, allided with one of the towers of the San Francisco Bay Bridge Wednesday morning, prompting a response from the Coast Guard, CALTRANS, the city of San Francisco and several other state and local agencies. Coast Guard photo.

Initial Notification: USCG

Sources

Sector SF SCC logs; Sector SF VTS logs; OES RIMS; National Response Center (NRC); NRCES logs; MSRC logs; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC; Roy Mathur, OSPR OSPS; Barry McFarland, TOG SMT; Sean Kelley, Sector Vessel Traffic Service; LCDR Kevin Mohr, Sector SF Waterways Management Chief; Capt. P. McIsaac, SF Bar Pilots; Sector SF IMD

Observation

The initial incident of the vessel alliding with the bridge tower was reported by Capt. John Cota, the ship's pilot via VHF FM Ch 14 to the SF VTS at **0830** Nov. 7. This prompted VTS to notify Sector SF Command Center and CALTRANS of the allision with the bridge. Capt. Cota followed his VHF report with a cell phone call to VTS at **0833** stating that he would direct the vessel to anchorage 7. VTS immediately issued NTM broadcast via VHF-FM 16.

COTP W. Uberti, present at his office on YBI the morning of the incident, received a telephone call from Capt. P. McIsaac, Port Agent for the San Francisco Bar Pilots (SFBP), at **0837** to inform him of the allision and that he was en route to the vessel. Capt. McIsaac also relayed reports of fuel leaking from the vessel.

Over the next 13 minutes, SCC notified Sector Marine Casualty Investigator, D11 Bridge Section, Port State Control Inspector, briefed Incident Management Division and dispatched Pollution Investigators to the M/V *Cosco Busan*.

The *Cosco Busan* dropped anchor **0850** at anchorage 7.

At **0859** VTS issued a SECURITE broadcast for wide berth and minimum wake around *Cosco Busan* at anchorage 7. At **0905** VTS notified USACOE to report debris field south of the Bay Bridge. USACOE responded back to VTS at **0922** confirming assets deployed for debris clean up.

CG Station SF boat with PI team was deployed and arrived at the bridge tower at **0913** and observed damage and approximately 3-foot wide ribbon of oil. Visibility at that point was reported as approximately 100 yards.

The master of the vessel notified The O'Brien's Group (TOG) command center, their designated QI, at **0915**.

SCC contacted the vessel agent at **0922**, who stated that the vessel's OSRO had been notified. Based on OSRO records, this would be MSRC as the other named OSRO (NRCES) had not received formal notification at that time.

At **0923**, the first reports of the allision were broadcast by the media.

COTP convenes first conference call with IMD personnel at **0927**.

The PI team on scene followed the spill from the bridge tower to the vessel at anchorage 7, arriving on scene at **0930**. The PI team observed oil still discharging from vessel at a seep rate. They report damage to hull as approximately 100 feet long by 12 feet tall, about 2-10 feet above water line.

CA OES logged their initial report from TOG at **0942**, generating OES Hazardous Materials Spill Report Control #07-6859. Information reported included, the allision with the Bay Bridge at 0830, that an unknown amount of petroleum type fuel oil was released in the San Francisco Bay. Geographical coordinates in lat/long were given for the location. The City of Oakland, Alameda County is listed as City/County.

A UC with FOSC and SOSC was established on YBI at **0945**. Mr. R. Roberts, the OSPR SOSC, happened to be on YBI that morning for a scheduled meeting of the Neptune Coalition (a post-9/11 group of local, state and federal law enforcement agencies coordinating safety and security efforts in Sector SF's AOR), which enabled his prompt response and interaction with the USCG. Several actions were taken at this time:

- Get underway and inspect Delta tower pier of Bay Bridge

- COTP directs over flight when weather permitted.
- USCG Investigating Officers and Marine Inspectors were dispatched to the vessel to determine quantification and vessel status.
- SCC initiated CIC transmission to HQ and others. Representatives are briefed on vessel location, extent of sheen observed by PI team, establishment of safety zone around vessel.
- NOAA was directed to complete a spill trajectory.

Headquarters determined that the incident did not require Critical Incident Communication (CIC) and that normal information protocols should be used between Sector SF and D11.

TOG notified the National Response Center (NRC) at **0949**, generating NRC Incident Report #853865 at **0951**. Information reported included, the allision with the Bay Bridge, that an unknown amount of unknown oil type was released in the San Francisco Bay, with Oakland, Alameda County listed as incident location. TOG also reported that the release had been secured.

Due to limited underkeel clearance and a projected ebb, vessel requested, and COTP authorized replacement pilot Capt. Hoberg to move vessel from anchorage 7 to anchorage 9 at **0954**.

The PI team boarded the vessel at **0950** and proceeded to interview the ship's officers. The CE was questioned regarding the fuel properties and quantity discharged. The vessel weighed anchor and proceeded to anchorage 9 at **1007**.

The O'Brien's Group (TOG) notified SCC at **1012** that a Spill Management Team with OSRO is being assembled. This was followed by a second call at **1030** confirming TOG as the designated QI and both MSRC and NRCES as OSROs already underway.

At **1030** the PI team on board the *Cosco Busan* received the initial estimate of 0.4 metric tons of fuel discharged. The damage to the vessel's sounding tubes, lack of visibility, the necessity of estimating volume based on calculations together with language issues between the PI team and the CE are cited as reason to assume the initial quantity as a rough estimate.

The PI team continued interviews of ship's officers, receives confirmation of OSRO notification from Master and issues a Notice of Federal Interest to the vessel Master at **1045**.

At **1055** the UC is notified that two skimmers are on scene and have commenced skimming operations. OSRO internal logs indicate skimming operations commenced at **1000** for NRCES and **1030** for MSRC (NRCES had self-deployed).

The PI team departed the M/V *Cosco Busan* at **1138** and received information that the discharge was IFO 380.

At **1130** MSRC reported boom deployed at Pier 39 and Aquatic Park in San Francisco.

At **1200**, the CALTRANS crew reports that their inspection showed the bridge to be structurally sound. At this time the first UC Field Observer team departs to SF waterfront for assessment.

SCC and IMD plan to send out second team with CA DFG Incident Investigator and OSPS to take samples and confirm quantity. This team leaves YBI at **1205** en route to the M/V *Cosco Busan*. (There is uncertainty from the information available to the ISPR team as to whether or not Mr. Mathur had personal communications with the returning CG pollution investigation team prior to his departure for the ship.)

Between **1229** and **1244**, Field Observer team reports SF piers south of the Bay Bridge clear of oil but piers north of the Bay Bridge have oil globules and sheen. Oiled birds and wildlife reported at Pier 1.

The first trajectory was briefed to the FOSCR by the NOAA SSC at approximately **1130** then the written trajectory forwarded to UC with which the UC set objectives and coordination of response at **1244**. The QI (TOG) reported at **1300** that they are setting up an ICP for the incident.

At **1310**, oil is reported observed on Alcatraz Island. USCG notified East Bay Regional Parks at **1340** and completed a conference call incident briefing with SF Mayor's office, SF City and other city stakeholders at **1348**.

Coast Guard aerial reconnaissance assets requested by the UC were still grounded at **1430** due to fog. USCG helo reported mechanical failure at **1455** and returned to base. Separate aerial recon asset from OSRO MSRC was able to perform first overflight from deck of OSRV *Pacific Responder* at **1336** however patchy fog offered only limited visibility. A subsequent helo flight from the Pacific Responder at **1506** provided better recon. USCG aerial asset went aloft at **1640** to conduct pollution assessment.

At **1600** the CA OSPR OSPS briefed the UC with updated quantity of 58,000 gallons of fuel discharged. This updated quantity was provided to the public through a press release at **2100**.

The Pacific Strike Team was requested by the UC following inquires by PST.

Discussion

Federal statutes require the responsible party to notify the appropriate federal agency "as soon as he has knowledge of any discharge of oil or hazardous substances" (CWA sec 311(b)(5); USC sec 1321(b)(5)). This notification is to be made through the NRC. The allision was reported to USCG VTS at 0830, who immediately notified Sector SF of the incident. This was followed by a telephone call from the Bar Pilot Port Agent directly to the COTP at 0837. Although the notification by the RP to the NRC was made at 0949, local Coast Guard resources were notified and activated immediately after the incident occurred. Subsequent dialogue between VTS and SCC/IMD provided some initial intelligence to the Sector.

VTS attempted to offered additional information to USCG SCC. (See the SCC/VTS Focus Issue)

Several circumstances worked to the advantage of the initial USCG response to this incident:

- The incident occurred in a VTS zone, with real time tracking and regular notification of vessel movements. Unfortunately this resource was not used to its capacity.
- The allision and discharge occurred in close proximity to Sector Command Center.
- A scheduled meeting of the Neptune Coalition with associated state and federal agencies provided experienced personnel available on site to take immediate action.
- The incident occurred in a high volume port, with extensive oil spill containment and recovery assets available nearby.

These advantages were offset by the dense fog the morning of the incident that made it very difficult to gauge the extent of the spill and the location of the oil.

The actions undertaken by the USCG were consistent with established procedure. Efforts were immediately made to secure the safety of the vessel, surrounding vessel traffic and the Bay Bridge. Oil spill response procedures were activated in a timely manner, including pollution and safety investigations. The UC between the FOSC and SOSC was activated less than 90 minutes after the allision and state, federal and private resources were deployed in a timely manner.

The fundamental question in regards to the CG initial notification and response is the initial findings of the PI team. The team arrived first at the Delta tower of the Bay Bridge at 0913 and spotted oil in the water with a ribbon 3 feet wide extending to the north toward anchorage 7. Slack water occurred at YBI almost that exact same time on that day, which should lead an experienced investigator to either proceed themselves, or dispatch additional resources to south of the bridge to look for oil and debris following the tide. There was also communication to SF VTS from the ferry *Encinal* early that morning, reporting significant oil and debris in the water near anchorage 8, located south of the bridge. Interpreting the location of a quantity of initial discharge as being south of the bridge may have provided better intelligence as to the estimated quantity of fuel discharged as well as provide better direction to the OSRVs en route to the incident.

Lessons Learned

The Coast Guard personnel engaged in the initial notification and response performed their duties as directed. The questionable decisions made in the initial actions taken seem to be a result of a lack of experienced pollution investigators on scene the first hours after the incident and also at SCC that morning. The Commander of the IMD at YBI was on travel status the date of the incident, with his duties assumed by more junior officers. It seems from the evidence provided that they took decisive action as needed. A

more experienced field officer on the PI team may have resulted in a more accurate initial quantity report. Statements made by Lt. Roberts and Mr. Mathur of OSPR underscore the importance of having experienced personnel available to develop essential data on hazardous material type and quantity.

The ability of VTS in ports such as San Francisco to provide eyes and ears on the water 24/7 is an asset that should be used in a response to the greatest extent possible. The report of the *Encinal* of oil and debris at anchorage 8 may have been of benefit to the UC and OSROs in assessing the scope of the spill and directing recovery operations. Also, better communication between SCC and VTS would provide additional benefits.

Recommendations

Further evaluation should be done to determine whether formal notification or alerting PST, NOAA SCC and other special teams is necessary.

The USCG should ensure that at least one experienced PI officer be on duty or on recall status to the IMD. It is difficult to expect a junior officer with little or no direct experience with commercial ship operations to understand the complexities of oil spill scaling under such circumstances, especially when also confronted with language difficulties.

The USCG should adopt protocols using all available resources within a particular command (VTS) to receive both initial notifications and continual updates as to the position of oil sightings.

Initial Notification: State OES & Local Government

Sources

Sector SF IMD logs; VTS SF logs; CA State OES RIMS; State OES Hazardous Materials Tool Kit; National Response Center (NRC); SF ACP/RCP; ISPR interview with Capt. W. Uberti – USCG COTP Sector SF; ISPR interview with Mr. R. Roberts – CA OSPR SOSC; Marin County Draft AAR; State OES, Coastal Region – Hotwash; San Francisco – Hotwash

Mr. C. Boyer – Emergency Services Manager, Contra Costa County; Ms. J. McClellan – OES, Alameda County; Mr. B. O'Callahan – OES, San Mateo County; Ms. V. Hennessy – Dept. of Emergency Management, San Francisco; Mr. R. Dudgeon - Dept. of Emergency Management, San Francisco; Mr. C. Godley – Marin County Sheriff's Office of Emergency Services; Mr. T. Roloff – NRCES

Observation

The initial incident of the vessel alliding with the bridge tower was reported by Capt. John Cota, the ship's pilot via VHF Ch 14 to the SF VTS at **0830** Nov. 7. At **0837**, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relayed reports that fuel was leaking from the vessel. The master of the vessel contacted The O'Brien's Group command center, their plan-designated QI, at **0915**. CA OES logged their initial report from TOG at **0942**, generating OES Hazardous Materials Spill Report Control #07-6859. Information reported included, the allision with the Bay Bridge at 0830, that an unknown amount of petroleum type fuel oil was released in the San Francisco Bay. Geographical coordinates in lat & long were given for the location. The City of Oakland, Alameda County is listed in the City/County field. TOG notified the National Response Center (NRC) at **0951**, generating NRC Incident Report #853865. Information reported included, the allision with the Bay Bridge, that an unknown amount of unknown oil was released in the San Francisco Bay, with Oakland, Alameda County listed as incident location. TOG also reported that the release had been secured.

It is not clear what information was disseminated from State OES to the Regional Emergency Operation Center (REOC) or local county OESs during the period immediately following the OES RIMS posting at 0942. Queries have been sent to the State OES and county OES offices in the Bay Area affected by the spill, but with very limited response. Any responses received will be incorporated in ISPR Phase II. The initial CA OES report states that the City of Oakland Fire Department and the Alameda County Environmental Health Department were listed for notification. The CA OES second update to the incident, which was last modified on Nov. 7 at 1005 includes a fax notification list to the following parties:

- AA/CUPA
- DFG-OSPR
- DTSC
- RWQCB
- US EPA
- USFWS
- COASTAL COM
- LANDS
- PARKS & REC
- USCG

Alameda County OES representative stated she learned of the incident from a State OES Coastal Region staff person attending a regional transportation meeting with her on the morning of the 7th. At that time the incident was relayed to her as minor in nature.

A City of San Francisco employee was in attendance at USCG Sector SF on Yerba Buena Island the morning of the event to attend a scheduled meeting of the Neptune Coalition, a post-9/11 group of local, state and federal law enforcement agencies coordinating safety and security efforts in Sector SF's area of responsibility. The San Francisco Police Marine Unit also was in contact with the Command Center and provided assistance in patrolling the security zone established around M/V *Cosco Busan* on day one. A City

of San Francisco fireboat was in communication with Sector within minutes following the allision to offer assistance, however that offer was declined.

Marin County After Action Report (AAR) states that they received notification through media reports and noted that neither the initial incident notification nor the subsequent updates came through the State OES Warning Center as outlined in the ACP.

San Mateo County advised that they received no formal notification until about **2030**, when they received a page from the Coastal OES duty officer advising him of a conference call to be convened at about **2100**.

Discussion

Formal notification to State OES and the NRC was accomplished 72 minutes and 81 minutes respectively after the allision.

Under the terms of the Memorandum of Understanding between the State of California and the USCG, the state is responsible for the dissemination of initial notification received at the OES Warning Center, and subsequent related information, to state agencies, counties and cities. The State of California uses the OES Warning Center, either directly or through the Regional Emergency Operations Center, to notify via RIMS, fax, phone and/or page at least the following entities:

- Certified Unified Program Agency/Administering Agency/Participation Agency (CUPA/AA/PA)
- Regional/County OES

Each County OES is responsible for notification to local cities, offices and agencies within their jurisdiction.

Information from the State and/or regional OES offices did not reach all of the affected counties surrounding the Bay Area, as is required under state regulations and policies. Although the incident was posted on the OES RIMS system, RIMS alone is a passive system that requires the recipient to monitor for postings and updates. Beyond RIMS, the State OES has the ability to deploy active warning to the affected parties. This is normally accomplished through a technical platform called “Dialogics” that can send out page, fax, e-mail and phone warnings to programmed notification parties. The fax notification list from State OES indicates such warning was intended to be disseminated. It was also suggested that the listing of the incident location as Oakland, therefore Alameda County, may have precluded the dissemination of information to other counties in the region (see Notification – OSPR and State Agencies).

One other consideration is whether the initial quantity of oil reported in the media affected how the information transmitted or received by any of the affected parties was acted upon. Although the initial NRC and OES RIMS report listed the quantity of fuel as “unknown”, information was circulating through the media citing an estimated amount of between 140 gallons and 400 gallons of fuel. This number was also referenced by the USCG in their mid-day press conference. The level of response from County and City governments were affected by the perceived scope of the emergency based on the low quantity first reported. From information received to date, the cities and counties did not learn of the revised quantity of 58,000 gallons until the Coastal OES conference call at **2100** November 7th.

Lessons Learned

Although there is a non-passive warning system, the existing systems should have been engaged to alert local governments and agencies in affected operational areas.

In discussion with one of the OSRO contractors, NRCES, the ISPR Team learned about a system they have developed through simple internet web-based tools available to anyone that actively monitors various emergency resource systems for postings relevant to their business (see Notification – OSRO). Such systems may be of value to emergency response offices at the county and city level.

Recommendations

A comprehensive review of the notification protocols between the CA OES, the Regional OES areas and County OES departments should be completed, both in terms of protocols within the ACP as well as other local plans.

RESPONSE

The County of Marin recommends an annual unannounced oil spill notification communications exercise in concert with the required unannounced oil spill drills for oil spill response contractors.

Initial Notification: OSROs

Sources

Sector SF SCC logs; VTS SF logs; NRCES logs; MSRC logs; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC; Barry McFarland, TOG SMT; Steve Ricks, MSRC Capt. Peter McIsaac, SF Bar Pilots; T. Roloff, NRCES

Observation

The initial incident of the vessel alliding with the bridge tower was reported by Capt. John Cota, the ship's pilot via VHF Ch 14 to the SF VTS at **0830** Nov. 7. At **0837**, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relayed reports that fuel was leaking from the vessel. Internal logs from National Response Corporation Environmental Services (NRCES), a named OSRO in the vessel response plan, indicate that a third party report was heard at **0905** reporting the allision incident, moving NRCES to dispatch a fast response vessel and a Marco skimmer to the incident location at **0910**. NRCES internal communications confirmed that the Cosco Busan was a client vessel however no formal report had been received at that time. The second OSRO named in the VRP, Marine Spill Response Corporation (MSRC) received a telephone call at **0917** directly from Capt. Hoberg, the SF Bar Pilot who relieved Capt. Cota at anchorage 7, where the vessel proceeded after the incident. MSRC learned that the spill amount was approximately 10 bbls or 420 gallons and that the discharge had been secured. At **0935**, NRCES crew on site at the incident reported to their dispatch that they smelled oil and sighted "heavy sheen" in spite of dense fog and low visibility. NRCES subsequently dispatched additional boats at **0940**. At this same time MSRC deployed a fast skimmer to anchorage 7, and also prepared deployment of 2 other skimmers and 4 boom boats; this in spite of the low quantity of discharge reported by the ship's pilot. At **0945** NRCES received an e-mail alert generated by an internet monitoring program fed from CA OES with control number 07-6859 and the O'Brien's Group (TOG) as the person reporting. NRCES's on-site vessel crews reported to their dispatch that they were in oil and received the order to commence skimming at **1000**. At **1007**, MSRC received first contact from TOG advising them that TOG is the spill manager on behalf of the ship owner. MSRC provided TOG with a briefing of assets at that time. At **1010** NRCES received formal direction from their internal operations center for the spill with TOG as spill manager.

Both NRCES and MSRC internal logs provide continuous records of additional assets deployed throughout the first day, including first deployment of a helicopter for aerial assessment at approximately **1336** after fog had sufficiently lifted to allow aerial operations. Continued aerial reconnaissance continued throughout the day.

Discussion

Federal statutes require the responsible party to notify the appropriate federal agency "as soon as he has knowledge of any discharge of oil or hazardous substances" (CWA sec 311(b)(5); USC sec 1321(b)(5)). This notification is to be made through the National Response Center. California regulations require notification of the QI, CA OES and the NRC," immediately, but not longer than 30 minutes, after discovery of a discharge of oil or threatened discharge of oil." The allision was reported at **0830**, after which the vessel proceeded to anchorage 7. At **0837**, Captain Peter McIsaac, President of the San Francisco Bar Pilots, called the COTP regarding the allision and relayed reports that fuel was leaking from the vessel. Under strict interpretation of state law, notifications should have been made to the QI within 30 minutes or by **0907** with the either the RP or the QI expected to subsequently notify the OSROs listed in the ship's VRP.

Notification to the QI (TOG) occurred at **0915** or 38 minutes after awareness of oil in the water. The QI subsequently notified MSRC at **1007** and communicated with NRCES at **1010**. In advance of formal notification procedure, one OSRO reacted to reporting of the incident through the media within 28 minutes of oil reported in the water and the second OSRO received a telephone call from the ship pilot 40 minutes after that report.

The 6 hour benchmark established by California regulation for non-tank vessel response assets on site are 5,874 bbls skimming capacity, 11,748 bbls storage capacity and 11,400 feet of boom. By **1000** there was

32,189 bbls of EDRC skimming capacity; 3,400 bbls storage capacity and 2,500 feet of boom on scene. By **1445**, a total of 57,292 bbls EDRC skimming; 3,532 bbls storage and 15, 825 feet of boom was deployed on scene.

In spite of the abundance of assets deployed, of concern is the original communication of 10 bbls as the quantity of oil discharged that, when combined with the low visibility due to fog, may have influenced the OSROs containment, skimming and protection strategies. Internal OSRO logs indicate that because there was uncertainty regarding the correct quantity, the OSROs responded as if it was a larger spill. However it was not until **1300** MSRC received notification from TOG that the spill size was significantly larger than previously reported.

Lessons Learned

The incident highlights the proactive performance of both OSROs listed in the plan as well as the benefits of the abundance of response resources available in a high volume oil port such as San Francisco Bay. In spite of the lack of earlier formal notification and the inclement weather conditions, significant resources were deployed in a very short time period after the incident.

Of particular interest to this observer is the use of an internet monitoring system employed by NRCES to actively scan CA OES and other internet based resources, which provides active alerts when incidents are logged. This results in early knowledge of incidents and hazardous material spills without requiring formal notification by QI, the USCG or state agencies.

Recommendations

The proactive response of the two OSROs leaves little to recommend for improvement. The incident does highlight the importance of accurate information such as oil spill scale.

The early activities of NRCES prompted by their active monitoring of State OES and other resources can serve as a model to be looked at by other response groups, agencies, counties and cities.

Media

Sources

San Francisco Chronicle; San Jose Mercury News; Contra Costa Times; Los Angeles Times; Marin Independent Journal; Port of Oakland Media Release; Associated Press; Oakland Tribune; ABC; NBC; CBS Network Affiliates; Navy Times; Sacramento Bee; Cosco Busan, Sector SF, and Pacific Environmental Websites; LTJG Anya Hunter, Sector SF PAO; LT John Oney, PARAREA Public Affairs Officer; Mr. Dan Dewell, D11 Public Affairs Officer; Cosco Busan incident Joint Information Center staff

Observation

Media interest in the Cosco Busan incident was intense and quickly overwhelmed local resources prior to establishment of UC. Coast Guard personnel involved in initial press events had inaccurate information, which was released to the press.

Coast Guard personnel who initially dealt with the media had only minimal media relations training.

Move to first ICP (Fort Mason) was disruptive, did not allow for effective media/press relations. JIC had limited effectiveness. PIAT activated late into response. Media had uncontrolled access to Unified Command both at the Sector and at Ft. Mason ICP.

OSPR PAOs were recently transferred to and are under the supervision of DFG. The JIC was not fully established until day two and included representatives from OSPR and the RP.

The City of San Francisco provided resources in the JIC from day two; these resources were used throughout the remainder of the response.

Discussion

The most critical element of this response that affected the public's reaction and the reaction of elected officials was the Coast Guard's interaction with the media. The Public Information Officer for Sector San Francisco is a Lieutenant Junior Grade, and Public Affairs is a collateral duty for her. She attended the five-day session of DINFO designed for Coast Guard personnel. Her training did not allow her to know that PIAT existed, and was an available resource. She reports that press events, especially the initial press conference, were hastily arranged at the direction of the Command, without proper discussion of talking points prior to the event (this was the event where the Coast Guard announced an "initial estimate" of 142 gallons spilled). Surge efforts to support her from other commands came late, given the amount of media representatives present, and the fact that the media had easy access to Sector offices (gate guard merely let media pass).

The amount of media representatives aboard Sector quickly overwhelmed the PAO and other Command staff. There appeared to be a rush to conduct a press conference, perhaps as a result of the number of media people onsite. There was also pressure to provide individual interviews with the Sector Commander, and the PAO, as well as the State SOSC, who was already aboard. In an attempt to provide answers to persistent questioning, errors were made in information provided, e.g. the "delay" in drug/alcohol testing of the pilot. This, coupled with the intense coverage given the revised spill amount, served to undercut the PAO's credibility with the press, and also made the Coast Guard appear not to have a firm handle on the response. It also left the appearance that the Coast Guard was responding to a relatively small spill, in spite of comments to the contrary by Sector Commander.

There is a pool of highly trained public information specialists, officers and enlisted, in the immediate area under separate commands. These include PACAREA and D11. The initial surge of trained personnel arrived at YBI approximately 1030, involving one Petty Officer from D11, and one Petty Officer from PACAREA. One of these remained over night to respond to media inquiries. PIAT support was not requested until several days later, the first PIAT personnel arriving on day six.

Although there was a "joint" press release at 1210 (first day), with the Coast Guard, the State, and the City of San Francisco, the JIC was not fully functional until day two, in San Francisco. The physical setting greatly impaired responding to and dealing with request from the media and press. For example, cell phone

coverage was spotty, and there were no land lines available to the JIC. It was not until the move to Treasure Island that the JIC became fully functional. The JIC was supported by D11 and PACAREA personnel.

In interviews with the Sector Commander, he stated that he had attended a Contingency Planning course in the past that incorporates, as part of the course curriculum, media training. However, he estimated that it was a single session of approximately one half day in duration. None of the individuals interviewed from Sector had attended the training provided by the Media Relations TRATEAM which provides onsite training through the Media Relations Course (2 days in duration).

History and experience in oil spill response information in the first few hours of response operations is very limited, often inaccurate. For example, most seasoned OSCs know that initial reports of amount spilled are usually under estimated, sometimes grossly under estimated. While there is a strong desire to be responsive to questioning by the media, lack of adequate preparation, inadequate research of the information released, and a rush to release information allowed the portray the Coast Guard and other responders in a very negative light. Early missteps were difficult or impossible to remedy. It was virtually impossible to overcome early misstatements, and when the final adjusted spill amount was determined to be 53,569 gallons and not 58,000 gallons, the UC made a tactical decision not to release this lower number for fear that the media would portray this as yet another "error" in Coast Guard reporting.

Lessons Learned

Media relations training is critical to all who speak for the Coast Guard or agencies or organizations represented in the UC, at any level.

The media want access to principal players, not merely the PAO.

There will be demands for information from the media prior to the establishment of a UC/JIC in the first critical hours of response. Historically, accurate information in the first few hours of spill response is scarce, no exception in *Cosco Busan* event. Errors occur in reporting, and the media often uses information selectively. There should be a written plan for surge operations to support commands needing immediate public information assistance.

Recommendations

The Coast Guard can and should expect senior response personnel to interact with the media, aided by personnel fully trained in media relations. Attendant to this expectation is the requirement that such personnel have adequate training. The Coast Guard should establish minimum requirements for public affairs training for its senior personnel, consistent with assigned duties, and all personnel expected to interact with the media.

The Coast Guard should consider at least one FT billet at each Sector in a major media market. Consistent with the DOG concept, PIAT should be "leaning forward", and resident PAOs at local commands should have a thorough working knowledge of PIAT resources, and availability.

Where the amount of the spill is still under investigation, or simply unknown, the Coast Guard should adopt a policy of stating that the information will become available as soon as the preliminary investigation is completed, or the scale of the spill or potential spill is known with some certainty.

The Coast Guard should consider the cross training of personnel, providing a short TDY period at different commands to allow PAOs a better understanding of public affairs resources in their District.

OSPR response personnel need access to trained media relations personnel with knowledge of oil spill operations in the very early hours of the response.

ICP should be pre-designated to provide for JIC and all UC functions.

Consider the preparation of generic information packets for the media.

FOSC and UC should consider having press representative handle the press conferences when response actions are still dynamic.

Comments

After the Unified Command was established at Treasure Island the JIC became an effective tool to handle media needs of the Unified Command, and functioned in accordance with ICS/NIMS. During the first two week period, District Eleven, PIAT and PACAREA assisted in staffing the JIC. Crews were rotated as appropriate.

November 9th Press Briefing at Fort Mason, San Francisco
Photo courtesy of NOAA Office of Response and Restoration

Volunteers: Incident Specific Training

Sources

Lempert-Keene-Seastrand Act (LKS)
http://sfoilspill.blogspot.com/
Governor's State of Emergency Proclamation, Friday 11-9-07
http://gov.ca.gov/index.php?/press-release/8061/
Governor's 11-14-07 remarks
http://gov.ca.gov/index.php?/press-release/8097/
Governor's 11-15-07 call for a state investigation into spill
http://gov.ca.gov/index.php?/press-release/8121/
Search "CPL 02-02-051" for link to OSHA training materials
http://www.osha.gov,

Marin County Draft AAR, "Regional and State Coordination" Section; SF ACP/RCP Manual Section 9730.2; San Francisco Hotwash Meeting Minutes – 11/28/07; OES Hotwash Meeting Minutes – 12/6/07; Yvonne Addassi, DFG Wildlife Coordinator; Al Storm, OSPR; Steve Sawyer, OSPR Staff Counsel; Bill Robberson, US EPA; Barry McFarland, TOG SMT; Cindy Murphy, Volunteer Coordinator, OSPR; Jeff Westervelt, OSPR Industrial Hygienist; Zeke Grader, Executive Director, PCFFA

Observation

The UC was completely unprepared and ill-equipped to deal with the thousands of potential volunteers who wanted to clean oil from beaches, and the local government entities who supported them.

Convergent volunteers who sought to clean oiled beaches was one of the key challenges faced as a result of the Cosco Busan spill.

ACP does not allow use of volunteers to recover oil.

Discussion

Convergent volunteers who sought to clean oiled beaches was one of the key challenges faced as a result of the Cosco Busan spill. The Area Contingency Plan, Section 9730.2, "Health and Safety" states that "Volunteers will not be utilized to work directly in the recovery of oil. Volunteers will not be assigned to work in areas where there is known a potential health hazard due to chemical exposure such as oil recovery, etc." (ACP Page 9000-204, 10/1/05.) However, the ACP at 9730.2 does say that trained volunteers may pick up tarballs that occur seasonally and not related to a specific spill. It was reported and confirmed by several interviewees that the issue of convergent volunteers wishing to clean up oil (as opposed to oiled wildlife) had never arisen in the 17 years since OPA 90 and LKS were enacted. Accordingly, there had been no preparedness training of volunteers for this purpose in advance of the spill, other than the separately-addressed training with respect to oiled wildlife.

No Volunteer Coordinator was appointed in the Planning Section as outlined in the ACP. Moreover, the critical Liaison function was understaffed with rotating personnel, increasing local governments' frustrations further. The UC struggled to deal with thousands of frustrated potential volunteers under pressure from the Governor's office and concerned cities, counties and lawmakers. As discussed below, on Day 5 the State relegated the duty of managing convergent volunteers for cleaning up beaches primarily to the cities and counties accepting that responsibility.

The Governor issued his State of Emergency Proclamation on November 9th, which ordered that, among others, group California Volunteers "shall proactively work to ensure all resources are available to clean-up the ecosystem and restore the shore environment." He also stated that "volunteers will be coming in very handy on this whole thing" and that "The beaches have to be taken care of." On November 14th the Governor publicly remarked at the Sen. Boxer briefing that "Lastly, California has some of the most public-spirited citizens anywhere, and we must do everything we can to utilize that spirit by making sure our volunteers are adequately trained and prepared to assist after such accidents occur." On November 15th the Governor called for a comprehensive investigation into the spill, stating that one of the key questions to

examine is "How can we promptly utilize volunteers, while also ensuring the safety of these individuals?" DFG indicated that there accordingly was significant pressure from the Governor's office for the "informational meetings" that occurred Saturday morning the 10th.

The public and local government were already upset with the lag in the correct reporting of the size of the spill, and the lack of phone numbers available for them to get information and to try to assist. (For the first several days, the public either was directed to an oiled wildlife number that was constantly busy, or the RP's claims department in New Jersey.) There was also regularly-changing messages and faces in general on the TV and print news. The Internet and tools such as Youtube and Craigslist made it relatively easy for like-minded people to organize ad hoc cleanup groups and to pressure lawmakers for training and equipment.

As a result of pressure from the public, local government and the Governor's office, DFG decided to hold three "informational meetings" Saturday morning the 10th. The purpose of the meetings was not communicated well, and hundreds of people showed up expecting to be trained to clean beaches that day, resulting in significant backlash from the public and local response agencies.

During the first weekend, the Coast Guard ordered the RP to develop a plan to actually use convergent volunteers on the beaches contrary to guidance provided in the SF ACP and the associated hierarchy of oil spill response plans. A training plan was put together using a four-hour CalOSHA HAZWOPER course. For liability reasons, The O'Brien's Group provided equipment but refused to have its crews on the beaches where the volunteers planned to be used. A number of training sessions in San Francisco and Berkeley were accomplished with U.S. EPA coordinating starting Monday the 12th. State and local agency trainers were provided to assist in this effort. It was generally agreed that they went smoothly and the volunteers were satisfied with cleaning sandy beaches. San Francisco registered and credentialed 1500 volunteers out of EPA four-hour training. Marin County, however, felt the risk to public safety was "too great to be overcome by simply offering 4 hours of a lecture and a protective suit" and they knew it was contrary to the guidance provided in the ACP. Marin later did accept the option of four hours training plus a trained supervisor for every 10 volunteers and appointed safety officers at each location, and started training convergent volunteers on the 17th.

At a later Hotwash some local government representatives questioned whether volunteers were actually needed to clean up oil, but perceived that the RP was not cleaning beaches fast enough and that disallowing the volunteer cleanups was not using an available resource.

Lessons Learned

Once training sessions were decided on, assistance from the cities (Berkeley, San Francisco) in obtaining training locations, signing in and certifying trainees, and taking them out expeditiously (often immediately) to work location was extremely valuable, and the four-hour training sessions went smoothly.

Early and accurate communication is essential to build immediate, essential trust with the public and affected local government about the extent of the oil spill and the cleanup plans. Clear and substantiated information provided expeditiously is necessary to ensure public trust.

The provision in the ACP prohibiting the use of convergent volunteers in oil spill recovery operations resulted in the general lack of attention to convergent volunteers initially and diverted the attention away from other response activities.

Recommendations

Update ACP Section 9730.2 (and other state and federal safety policies/regulations accordingly) to provide a process and protocols for convergent volunteers to assist with some beach cleanup (e.g., who's responsible for volunteer coordination, how the volunteers can and cannot be used, liability, training venues, etc.). Volunteer management should be staffed at UC in accordance with the ACP and address the issue of convergent volunteers.

Integrate trained, experienced organizations into the ACP planning process and oil spill drills to assist with volunteer coordination and to be an outlet for volunteer interest. See AAR of Gulf of the Farallones National Marine Sanctuary Beach Watch Volunteer Program, which was involved in Safe Seas drill in 2006.

Develop a mechanism to allow the public to use current communication technologies to provide input to the UC to make oil and oiled wildlife observations.

Consider updating the ACP to include activities such as the use of volunteers for reporting the status of areas already addressed by oil spill responders.

Also need to get Liaisons out in the field to build relationships and trust with local communities.

Develop consistent policies across all local jurisdictions to provide consistent health and safety messages (i.e., as opposed to Marin and Berkeley/SF taking different positions on volunteer safety).

Cosco Busan oil spill (For Release)

SAN FRANCISCO -- Adm. Craig Bone shakes hands with fishermen who helped cleanup oil from the Cosco Busan oil spill in the Bay Area. The Admiral personally thanked each person for their efforts. Photo by PA2 Matthew Schofield.

Volunteers: Responder Training Wildlife Care

Sources

Cindy Murphy, OSPR Volunteer Coordinator, Wildlife Recovery; Mike Ziccardi, University of California Davis, Director of OWCN; Jay Holcomb, International Bird Rescue Research Center

Observations

The Oiled Wildlife Care Network (OWCN) was alerted that there was a 140 gallon spill in the morning of November 7. The director activated two reconnaissance teams to scale the potential impact to wildlife. Early reports from reconnaissance teams indicated the spill was much larger and would require the recovery center to be ramped up and trained volunteers to be mobilized.

OWCN was able to notify, mobilize and train an adequate number of volunteers to quickly ramp up the wildlife recovery center.

A large number of convergent volunteers were directed to the OWCN hotline, which had to be shut down because of technical capacity issues. Volunteers were then directed to sign up on the network's website.

OWCN was able to use its database to contact pre-trained volunteers but also had to integrate convergent volunteers into its usual process.

Wildlife care and processing by volunteers was managed with effectiveness and efficiency.

Discussion

OSPR is charged with managing wildlife recovery in response to oil spills in the California. The agency contracts with the Oiled Wildlife Care Network (OWCN) to provide all wildlife-related services, including hazing, search and collection, processing and care, tracking and release. In response to Bay Area oil spills, OWCN has effectively used pre-trained volunteers in the care of oiled birds. Other types of oiled wildlife (except otters, which are covered by separate regulations) are cared for at other Bay Area wildlife care facilities managed by the Marine Mammal Center, Lindsey Wildlife Museum and other NGOs.

Experienced NGOs provided with the wildlife care center with skilled staff to assist in recovery operations and pre-trained volunteers. Additional NGOs contacted the OWCN to participate in wildlife recovery efforts and provided staff and volunteers.

Washing, feeding and treating birds went very well. Birds were implanted with a transmitter to aid in tracking long-term viability. The success of that effort may have been somewhat impeded by the lack of intake records.

Convergent volunteers require additional training and management, and stressed the capacity of existing OWCN staff. Media interest also caused additional stress on the capacity of the VC to effectively manage volunteers. Additional management staff appear to be needed to ensure safe and effective operations at the wildlife care facility.

Lessons Learned

The Oiled Wildlife Care Network is effective at managing volunteers to provide medical care to oiled wildlife in the Bay Area.

Management capacity may need to be increased to prevent burnout and protect human health and safety.

Additional wildlife-centered NGOs are interested and available and engaging the will help increase capacity both in terms of physical care facilities and trained volunteers.

Recommendations

Evaluate volunteer coordinator staffing capacity.

Ensure that an industrial hygienist as safety officer is assigned to wildlife care facilities.

Aggressively pursue engagement by local officials and NGOs in Volunteer Subcommittee of Area Committee.

Comments

There was a reported need to document daily treatment and blood work. There is some debate over how skilled the data entry personnel need to be and whether volunteers should be used. This can be investigated in the OWCN hot wash and reported by ISPR in Phase II.

Cosco Busan oil Spill Response (For Release)

SAN FRANCISCO -- (Nov. 16, 2007) Tom Rusert, a volunteer with the International Bird Rescue Association, releases a rehabilitated shorebird today at Half Moon Bay, Calif. Cosco Busan Incident Unified Command members, gave a press conference before the release of 28 rehabilitated birds that had been affected by the November 7 oil spill in San Francisco Bay. U.S. Coast Guard Photo by Petty Officer 2nd Class Mariana O'Leary.

Response: Bird Rescue

Sources

Cosco Busan incident Beach Search Effort Logs; SF ACP/RCP; Cindy Murphy, OSPR, OWCN Volunteer Coordinator; Mike Ziccardi, U.C. Davis, OWCN Director; Jay Holcomb, Director, International Bird Rescue Research; Rebecca Dmytryk, Search and Collection team member; Steve Hampton, OSPR Natural Resources Damages Assessment team

Observation

More search and collection personnel were mobilized in response to this spill than in any previous California oil spill.

There was agreement among interviewees that insufficient resources were available for the search and collection effort for oiled wildlife.

There appear to have been significant problems in keeping accurate records during the intake process.

Discussion

On the afternoon of November 7th, IBRRC and OWCN staff joined staff from the OSRO NRC in a reconnaissance patrol. Rather than receiving updated information from the UC, they overheard independent reports indicating a larger spill than initial notifications and where oil was sighted. The team went to Point Bonita, reported by fishermen to be a heavily impacted area, and found numerous completely oiled birds, including brown pelicans diving through the oil. Because of the delay in reporting the actual scale by 12 hours, efforts to mobilize of the teams were delayed until day two.

There was agreement that more people with training (including HAZWOPER) and bird search and rescue experience were needed. Though many areas were visited at least once daily, it appears that some heavily impacted priority sites were not covered by search and collection teams until several days after the spill, and many sites were not visited twice daily as is desired. Incomplete records may have resulted in an incorrect impression of which shoreline areas were covered. This issue will be further investigated in Phase II of the ISPR.

There is debate about the effectiveness of the search and collection effort and the timeliness of approval for proactive collection strategies. There also seems to be a lack of agreement on the priorities for search and collection and what strategies are warranted by the Best Achievable Protection standard. These issues will be further investigated in Phase II of the ISPR.

There may have been significant problems in keeping systematic records for wildlife intake, which may have resulted in problems of tracking medical treatment. This issue will be investigated further in Phase II of the ISPR.

Lessons Learned

More trained and experienced Search and Collection teams should be available for responding to future oil spills.

Recommendations

Additional teams should be recruited and trained for oiled wildlife collection and recovery operations.

Initial Response Actions: Oil Spill Response Organizations (OSROs)

Sources

CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC; Barry McFarland, TOG SMT; Steve Ricks, MSRC; Kathleen Jennings, OSPR; Randy Imai; OSPR

Observation

The OSROs mounted a quick and robust response early in the morning. In some instances they were anticipating events taking action without waiting for direction.

Fog severely impacted the cleanup efforts throughout the first hours of the spill.

The quick response led to a large volume of on water recovery, despite the extremely poor visibility.

Communications with the UC and with the RP were a problem.

See Event Chronology for specific initial actions.

Discussion

The OSROs arrived on scene quickly and began to work at on-water recovery early in the incident. They relied on their first responders to confirm the need for additional equipment despite the initial low reported spill volume. As the day progressed, information from the OSROs was not making it back to the USCG and the State. Discussions were taking place with O'Brien's Group, but interaction with the government agencies was limited until mid afternoon when OSRO representatives arrived at the ICP. The fact that about 8,000 gallons of oil was recovered on the first day, indicates the OSROs knew that the 10bbl or 142 gallon estimates were grossly underestimated. Ultimately the UC should have made sure that they were getting this information. In the absence of direction, or when receiving bad information, the operations section could have requested clarification based on what they were seeing in the field.

The O'Brien's Group stated they mobilized 800 people in 72 hours, but they were not visible to the public, and since communications were problematic due a lack of communications staff trained for oil spills, satisfactory explanations could not be given in a timely manner. For example, beaches typically are not cleaned until the water was cleaned due to re-oiling, but the public only saw an oiled beach with no cleanup and no explanation. Certainly more staff could have been dedicated and ready to communicate about health and safety issues, the cleanup process, and cleanup priorities.

There is no scripted response for OSROs to follow in the event they do not receive immediate direction upon mobilization. This leaves OSROs in position to freelance early in a response; they find oil and commence recovery operations.

Lessons Learned

OSROs in San Francisco Bay can respond quickly and safely to a report of oil in the water.

If visibility is a problem, there needs to be a plan for response based on a worst case scenario until an accurate volume can be determined.

Skimming even in heavy currents can be effective.

Two-way communications between the field responders and the UC need to be established quickly.

OSROs were confused about what strategies should be used first because the plan does not specify an order that sites should be protected.

Recommendations

OSROs should work with USCG and OSPR to develop strategies for low visibility responses.

If the RP is not present at a response, the USCG and/or OSPR should make contact with OSROs to get updates about what is happening in the field. If OSROs have concerns about what needs to be done, they should initiate the contact.

OSROs, USCG and OSPR should explore the use of "scripted responses" to certain scenarios. For example a moderate spill in a particular area would trigger a series of shoreline protection strategies. The pre-planning of initial response would give responders time to plan for the activities that would take place after the initial strategy was complete. This was described in discussion as putting the OSROs on "auto pilot" for the first hours of a spill. This would ensure that in the absence of UC direction or enough spill detail, some protective action could take place. The UC would always have the ability to alter that plan if it was determined that it would be ineffective. (See ISPR Paper on Priority Protection Area Identification)

Cosco Busan Oil Spill Cleanup (FOR RELEASE)

San Francisco -- The Cleanup Vessel Pacific Responder cleans oil in the waters around San Francisco. Coast Guard Photo by CWO Scott Epperson

Initial Response Actions: Sector San Francisco / COTP

Sources

Cosco Busan POLREPs; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC; Jordan Stout, NOAA SSC; Sector SF Incident Management Division, OSPR First Responder Team

Observation

The initial actions of the Sector, COTP and VTS were generally appropriate for the incident. VTS did a good job of communicating with CALTRANS, Sector and others once the incident occurred. Sector reacted to the potential bridge problem, ship problems, and an oil spill simultaneously. Sector also confirmed that oil spill cleanup assets were on the way shortly after notification.

Initial size of spill was grossly underestimated and reported. It took many hours for the actual spill volume to be calculated.

There was minimal control of vessel traffic in the initial response to the incident, possibly complicating spill response operations.

Unified Command was formed early, but without RP SMT IC physically present. This may have caused problems with directions and communications with the OSROs on the first day.

Discussion

The initial actions of the USCG seemed to be heading the response in a successful direction despite the weather conditions that existed. The delay in calculating spill volume became a problem as the spill response progressed. USCG pollution investigators were on scene quickly, and attempted to complete their investigation accurately and professionally. Given the complexity of the factors on board the *Cosco Busan* they did not have the training or experience to quickly calculate what had occurred with the fuel. When the first team was having trouble with tank soundings, there was a delay in sending out a second team to assist. The second team was also delayed in their return to report their findings to the Unified Command. In hindsight there were many indicators throughout the day that the initial reported volumes were not close to reality. While it is not certain how much the early response would have changed knowing the true volume spilled, certainly it would have helped alert stakeholders in the San Francisco Bay area realize this was going to be a large scale response.

The lack of RP presence caused confusion about who was directing the early operations actions of the OSROs. This confusion kept the USCG and OSPR out of the loop on conversations and observations that would have brought serious doubt to the initial spill estimate.

It is not clear if restricting or rerouting vessel traffic would have changed the outcome of this spill response.

Lessons Learned

The initial pollution investigation team did not accurately scale the volume of fuel oil lost from the tanks of the *Cosco Busan*. When spill volume can not be estimated visually, efforts must be concentrated on calculating total volume lost so appropriate response actions can be planned.

The communications between VTS, Sector Command Center and the COTP/FOSC were effective early. VTS communications with Sector to pass oil sighting reports the second day were rerouted to National Response Center (NRC).

In accordance with the NCP, first responders did address, as a priority, public health and safety issues in advance of concerns for pollution or economic damage. Because of the concern of structural damage to the bridge, the early calls to CALTRANS were critical and appropriate. The importance of qualified watch standers can not be overstated.

Recommendations

In instances where complicated analysis of ship systems is needed, a highly trained and experienced boarding team must be formed quickly. They should have access to transportation and any other support

that they need to obtain initial investigative information. A list of these experts should be compiled so that they can be called out as soon as possible. It was noted that in reviews of the Cape Mohican response, that it is difficult for USCG pollution responders to obtain experience in complex investigations. Frequently when they have gained experience, they are rotated to another area or duty. It is recommended that the USCG take advantage of civilian, state and local government experts to fill in gaps that exist in training and experience.

Ensure key oil spill response factors are listed in quick response sheets in SCCs. (i.e., supply assets for OSPS deployment)

Early in response, investigators and responders should be given priorities from the IC or UC. The IC or UC must also make sure that they are sending the right workers to complete the job they have assigned. This needs to occur even if the RP or other member of the UC is not available to give input. The response must start quickly and aggressively. When all parties arrive at the command post, decisions can be made together.

Sector Command Center (SCC) Information Coordination / VTS as a Resource

Sources

Sector SF Vessel Traffic Service radio and telephone recordings of 07 Nov 07; MISLE Case 381733; LCDR Kevin Mohr, Sector SF Waterways Management Chief ; Sean Kelley, Sector SF Vessel Traffic Service Operations Director ; Mark Perez, Sector SF Vessel Traffic Service Watch Supervisor ; CDR Pat DeQuattro, Sector SF Response Chief

Observations

Sector SF Vessel Traffic Service (VTS) facilitated the flow of critical information between vessel operators in San Francisco Bay and the SCC regarding the allision, M/V *Cosco Busan* and the oil spill.

Communications between VTS and SCC were almost exclusively one way, from VTS to SCC.

VTS did not issue a request via radio broadcast for mariners to report oil sightings to the Coast Guard, and VTS was not asked to do so by SCC.

Phone lines were overwhelmed in the Sector San Francisco Command Center (SCC). The CDO is under the impression that all calls got through that morning but is not sure what the experiences were as far as wait times and busy signals.

The CDO handled the calls using extra personnel who happened to be in the SCC that morning.

There was not a dedicated effort to track oil sightings coming from VTS and the public in the SCC before the ICP was established.

Discussion

The VTS Branch of Sector SF is situated several hundred feet above Sector SF headquarters on Yerba Buena Island. The VTS uses technologies such as radar, VHF radio, Automatic Identification System (AIS), and closed circuit television cameras to facilitate the safe, secure and efficient navigation of San Francisco Bay, its Pacific approaches and the Sacramento-San Joaquin River Delta. VTS primarily uses VHF FM channels 12, 13 and 14 to communicate with mariners, and generally uses landline telephone and email to communicate with the SCC down the hill to Sector SF headquarters. As usual, 3 watchstanders and one supervisor were on duty in the VTS Operations Center at the time of the allision.

Beginning with the bar pilot's report that M/V *Cosco Busan* had "touched" the Delta tower of the Bay Bridge, the tempo of VTS communications increased dramatically. After immediately notifying SCC of this report from the vessel's pilot, VTS quickly notified CALTRANS of the allision to allow for a structural inspection of the Bay Bridge. In the ensuing minutes, VTS notified SCC of all communications with the M/V *Cosco Busan* regarding its navigational intentions – first to Anchorage 7 and later to Anchorage 9 -- and the pilot's report of oil in the water. The VTS watchstanders continued to monitor and communicate with vessel traffic, mainly commuter ferries at that time, throughout the AOR. In addition to suggesting to SCC the establishment of a safety zone around M/V *Cosco Busan*, the VTS issued a SECURITE broadcast to inform vessels to restrict their wake to a minimum wake and to give the *Cosco Busan* wide berth when passing.

Within an hour of the allision, VTS received several reports of oil and debris in the Bay and passed this information generally to the SCC, which indicated that it was aware of the oil and that response vessels were underway. VTS did not brief SCC with specifics such as the oil and debris reported to be in Anchorage 8 (south of the Bay Bridge) by a passing ferry. Apparently, this is due to the SCC's professed awareness of the oil and the initiated response, the perceived deluge of communications and activity in the SCC, and the fact that the VTS was unaware that the scale of the spill was not a major issue. VTS did

report the debris to USACOE to prompt removal operations. The limited visibility obscured the view of the VTS closed circuit television cameras atop YBI.

VTS attempted to communicate with SCC using real-time internet "chat" connection, a system that has been used for in various Sector SF drills and exercises in the past. Apparently SCC declined to communicate with VTS in this manner due to being overwhelmed by other communications.

As the response progressed that day and into the next, VTS did relay to SCC the reports of specific locations of oil. VTS continued relaying these reported locations until the SCC informed VTS to call the National Response Center vice the SCC with this information.

Communications between VTS and SCC were almost exclusively one-way, from VTS to SCC, during the first days of the response. Virtually no direction or requests for operational information (except to verify the initial allision report) emanated from the SCC. Throughout the response as a whole, the communications from the SCC or ICP have been almost exclusively calls for data or background on the allision vice operational information for the response.

Despite the fact that Sector SF was information-starved regarding the scale of the oil spill in the early hours of the response, the SCC apparently did not recognize VTS as a resource for collecting oil sightings. VTS could have issued a radio broadcast to mariners requesting that all sightings of oil be reported to Sector SF. This resulting in-flow of information could have been used to more readily gauge the scale of the spill.

At no time during the entire response were the Incident Action Plans (IAPs), or portions of them, provided to VTS. Such information (i.e. the ICS 204) could have been used to de-conflict vessel traffic – especially ferries – with the tactically deployed OSRO vessels, thereby enhancing the success and safety of cleanup operations.

During Search and Rescue (SAR) cases, debris found in the water is tracked and incorporated into the situational picture at the SCC to help clarify the picture. Often this leads to a more precise search pattern and greater likelihood for finding the people in the water. It is important to take advantage of all resources available to better define the area impacted for oil spill responses.

VTS personnel indicated that co-location might have solved some of the issues stated above.

Lessons Learned

VTS is a valuable response resource and was underutilized during the critical early stages of the response.

Information from the public into the SCC about where oil is sighted can help in the quantification process and in trajectory feedback and ultimately provide a more accurate situational awareness to the UC early in response operations.

Recommendations

Enhance training, cross-training and familiarization programs between SCC and VTS personnel, both watch standers and supervisors, as it relates to oil spill response.

Emphasize VTS involvement in spill response planning and exercises where that capability exists.

The Coast Guard should explore a requirement for all OSRVs operating in San Francisco Bay to be AIS equipped. A similar requirement for emergency vessels should be evaluated.

Initial Response Actions: California State

Sources

Lt. Rob Roberts, OSPR IC SOSC; Kathleen Jennings, OSPR; Roy Mathur, OSPR OSPS; Randy Imai, OSPR; Captain Steve Edinger, DFG OSPR Assistant Chief; Bud Leland, OSPR

Observation

The initial notification and response time was greatly reduced due to the fact that state responders were present at Yerba Buena Island for a prescheduled meeting with the USCG.

Early efforts were made to make decisions in conjunction with the USCG, but not with the RP, because the RP was not physically in the UC at the time. Some protection strategies were used from the ACP.

Shortly after notification, OSPR recognized that this incident would require a full Field Response Team.

There were delays in notification to key local stakeholders this was due to confusion with OES and the problems with the liaison position.

A technical quantification expert was available early in the day. Accurate quantification was not reported to the UC until late afternoon. (See Event Chronology for specific times)

Discussion

A lot of great response actions took place in the first few hours of the incident. Despite these actions, the failure to communicate effectively with the local stakeholders caused a great deal of problems as the response progressed. The assigned liaison officer must be familiar with the local stakeholders as well as the plans for response, and was not present.

Early in the response decisions were made in conjunction with the USCG. This shows that OSPR and the USCG are familiar with their respective missions, and drills have been effective in training them to work together. The one exception to this cooperation was the formation of an investigation team that did not include a state representative.

Initially the RP lacked a presence at the command post, however they were in contact by phone. This caused communication problems that were not resolved until they arrived late in the day. In the absence of an RP representative, the USCG and/or the State must take control of the early response to ensure it is coordinated and effective.

Weather conditions did not allow an early estimate of the spill size. When this occurred, other methods of quickly determining a spill volume and scale should have been employed.

State does not have resources to provide its own responders access to spill sites on water. The OSPS relied on Coast Guard assets for transportation.

Lessons Learned

The liaison position is critical to the early phases of a response. The liaison must be familiar with the local issues and quickly gain the trust of the local stakeholders and be available for immediate mobilization.

When spill size is difficult to estimate due to weather conditions, efforts must be made to estimate it in another way. If in doubt the UC should base response on a realistic worst case scenario.

In the absence of an RP representative, decisions need to be made without them as was done in this case.

Information must be shared early with local stakeholders. The liaison must confirm that notifications are made, and arrangements are in place to give updates if significant changes occur.

Recommendations

Potential liaison officers should take part in ACP meetings and planning process. They should meet with the locals and work on contingencies before an emergency occurs.

RESPONSE

Technical experts need to be inserted into investigations as soon as possible. They need to have specific goals that are consistent with the needs of the UC. If the UC needs to know the spill volume or scale, they must tell the technical expert to get the volume and pass the information as soon as available.

If transportation is an issue, the state should keep a transport vessel available solely for spill response in each large harbor.

Initial Response Actions: Responsible Party

Sources

Interview notes, written statements. Steve Ricks, Barry McFarland

Observation

Initial reports to VTS from *Cosco Busan* occurred within minutes of incident. NRCES and MSRC are both listed as oil spill cleanup companies in the spill plan for the *Cosco Busan*. Both of these companies were on scene very quickly with on-water recovery equipment.

The RP IC who has the responsibility for directing OSRO resources consistent with UC decisions was not present in the command post until mid-afternoon. This caused a communication gap between the UC and the OSROs.

On-water recovery in the early phases of the spill greatly exceeded the initial spill estimates.

Discussion

Fog was a big problem for responders throughout the morning. The inability to see the size and scale of the spill made it hard to get optimal utilization of resources on scene. In many cases they were searching for oil, rather than setting up ahead of large concentrations of oil.

As the cleanup companies arrived on scene and began to work, they began to question the validity of the 10bbl estimate they were given initially. The lack of clear communications with the UC did not allow the free sharing of this information with the UC. Initial estimates of the amount recovered should have created some dialogue on a spill that was estimated at 420 gallons or even 142 gallons.

Group reported that the underwriter told the auditing company to oversee their work based on what was "reasonable and necessary," an international financial standard that is inconsistent with the BAP standard in LKS. The auditing company was reported to be distracting to the cleanup, disrupting some of the field responses, issuing contrary "orders" which may or may not have been properly ignored, citing old ACPs, and often second guessing the SMT/QI's work. The responses may have changed because of those contacts, contrary to LKS. Affected local agencies reported that they felt the contractor was in fact making decisions based on cost.

Lessons Learned

OSRO staff is some of the most experienced oil responders in the state and country. Their input is essential to formulating response plans, especially early in an incident. They must have representatives in or be in constant communication with the incident command post very early in a response.

In situations that require a long period of travel for an incident commander, the RP should assign someone to fulfill the role until the desired person arrives.

Drills with industry have created some common understanding of roles and have made the ability to work together an easier process. The O'Brien's Group commented that overall the spill management was professional and efficient, with the exception of a few key components, such as the lack of an effective local government liaison and media relations.

Recommendations

OSROs should always establish communications with the command post as soon as possible. The person should have the ability to discuss the initial response strategies, and what is being observed in the field.

As soon as practical, the RP needs a physical presence in the command post to interact with the UC. If this does not occur, the USCG or the remaining members of UC must start directing actions without RP input.

The UC needs to make sure that any auditors are out of the way of the response, so that response decisions are not inappropriately based on cost. This should be reflected in the ACP/RRP.

RESPONSE

Comments

Many aspects of the initial actions of the RP will be covered in other investigations. These investigations are ongoing and are not available for review by the ISPR team.

Spill Volume Quantification

Supporting Sources

MST2 Peter Anderson statement; MST3 Michael Eaton statement; LTJG Snyder statement; LTJG Bor statement; LTJG Hunter's notes from the UC quantification meeting

Observation

Initial Quantification

The first quantification amount was calculated by the M/V *Cosco Busan* Chief Engineer at about .4 metric tons (equaling about 146 gallons). The Chief Engineer knew the sounding tubes were damaged. Further information on how this number was determined is not available to the ISPR.

The FOSCR remembers the Sector Command Center passed information that the vessel pilot reported 10 barrel quantification based on an unknown process.

CAPT Uberti requested the PI team to determine what was spilled, how much product had been transferred internally, and the tank's capacity.

First CG Pollution Investigation Team Boarding Quantification

The first PI team made visual observations from the water while enroute to anchorage 7. They observed superficial damage to the concrete tower pier, oil splashed on the concrete pier corner and a trail of black oil starting at the bridge going north. The oil trail consisted of thick black product, was an estimated 3-4 feet wide, and fairly consistent. At the vessel they observed a gash and estimated: starting about 20 ft forward of the midline it was about 80-100 feet long, starting about 10 feet above the waterline the gash was about 10ft in height. Initially they also observed a stream of leaking from the ship which turned into a seep, and then within five minutes stopped leaking altogether.

Once on board, the PI team was having difficulties getting the information verbally from the Chief Engineer and M/V *Cosco Busan* crew. It was apparent to the PI that there were language difficulties complicating their assessment. The CG PI team used drawings, visual aids, and hand signals to help communicate.

The Chief Engineer communicated the 0.4 MT estimate to the Lead PI while on board the M/V *Cosco Busan*. The Chief Engineer told the PI that they did not know if both the no. 3 and no. 4 tanks had been punctured. The PI looked at the oil record book and noted that before the allision, tank no. 4 was 742.5 MT of RMG 380, no. 3 was 80.4 MT of MF 380. The Chief Engineer stated that tank no. 4 levels had 550 MT, they had transferred approximately 192 MT, and tank no. 3 had 50 MT and they transferred approximately 30 MT. The Chief Engineer was getting his numbers from vessel gauge readings. The PI team agreed that the rupture was most likely contained to the No. 3 tank by:

- Looking at the ship's diagrams and the tank placement
- Comparing to the leak
- Considering the product level in each tank

If the No. 4 thank had ruptured then its 550 MT would put its level above the rupture line and it would have still been leaking. The PI calculated the total capacity for each tank at 879.2 MT and the net loss they could see was the .4 MT as a rough figure because the sounding tubes were bent. The lead PI passed this number to the Sector Command Center (SCC) and Incident Management Division (IMD).

To verify, the PI team also determined a spill estimate based on the 3-4 feet wide, 2 mile long, and thick black product description.

The Chief Engineer showed the PI team the tank gauges which were in increments of 10 MT and did not have hash marks making it hard to get a reading. Due to a language barrier, only No. 3 tank was read at about 50MT. The lead PI was unable to read the gauges because they were written in Chinese and had duplicated numbers.

The Incident Management Division (IMD) made their calculations based on the following information from the PI Team on board the M/V.

The vessel is not discharging.

- The crew of the vessel is heating the product to speed the transfer to another tank.
- 80 metric tons was originally in the tank.
- 50 metric tons remains in the tank, but below the waterline.
- Close to 30 metric tons has been transferred so far.

The IMD MSTC agreed with the calculated 0.4 metric tons discharge estimate. He was aware of the uncertainty from the language barrier and that the sounding tubes were damaged.

Other Informal Quantifications

Throughout the morning, all responders questioned the original 140 gallon quantification. Field responders on the water and the Sector Command Center continued gathering more information about where oil is spotted through reports of oil spotted in different locations. IMD sent personnel to do a shoreline assessment starting at Red's Java House to Crissy Field enroute by 12:02.

Information coming in from all responders and assessment teams reported that there was oil in the vicinity of the following by not limited to:

- San Francisco Ferry Terminal
- San Francisco Piers
- Treasure Island
- North of the Bay Bridge
- Alcatraz Island

This information was gathered from many different sources on land and water but not put together in one big picture by a central representative focused on quantification. Responders were waiting for the official quantification from the OSPS and meanwhile formulating qualifications on there own based on industry known standard error factors. NOAA uses a factor of 10x the initial estimate. OSPR SOSC thought that at least 2-3 tanks ruptured (when hearing the initial estimate early on) and thought the PI meant to say 142,000 gals instead of 142.

NOAA trajectory experts discussed the validity of the 142 gallon estimate and decided to use an unknown quantity for the initial trajectories. NOAA later used a quantity of 77,000 gallons for spill trajectory projections.

Official Quantification Team with OSPS

The next person who quantified the spill amount was the Duty California Department of Fish and Game Oil Spill Pollution Specialist (OSPS). In an interview with OSPS they described their process during this event. While on board the M/V *Cosco Busan*, the OSPS talked to the Chief Mate, Boatswain Mate, Third Officer and Chief Engineer and learned they had data on the last gauge reading. They also had the starting point and together they established a finish point. The calculations took 15-20 minutes.

The OSPS decided there was no point in gauging the ballast but they decided tanks 2, 3, and 4 were worth gauging. They then went to the engine room. This is where they met up with a Coast Guard Petty Officer who was taking oil samples. The OSPS realized the PO did not know how to quantify as he took the opportunity to train him. There was also an independent agent from Holland Insurance present. They served as the third party and stayed through the whole quantification process along with the ship's oilers. Together, they calculated 219 MT (about 58,000 gal) as the final quantification of oil spill amount at 1313.

They could not conduct sounding activities to gauge the tanks for verification. When the ship was sliced opened, everything in tank 3 was released quickly and tank 4 drained quickly at first then "down to a seep", which is why, in part, it listed. The ship crew started transferring oil prior to the arrival of the OSPS.

General Observations

From experience, most responders assume the original estimated spill amount is inaccurate.

The OSPS believed that every competent Chief Engineer could perform the same calculation to come up with the 58,000 gallons. The OSPS felt that the Chief Engineer knew the calculation before the first PI team arrival.

The OSPS has a "100 questions to ask" sheet that is meant to help them accurately quantify the spilled amount during incidents.

At the time of the impact the vessel was still using diesel. M/V oil heating system was not on because in port the vessel only uses diesel. California law requires them to use low emission fuel within 24 nm. The discharged oil was very thick.

The FOSC was reluctant to accept the 58,000 gallon quantification estimate from the OSPS without scrutiny and validation. It appears that the FOSC was not aware nor made aware of deductions others were making about a possible larger spill volume.

Discussion

When looking at the quantification process during this incident, many people were doing formal and informal calculations. The observations section breaks down the different types of calculations that were occurring the first day, and lead to the final determination at 58,000 gallons.

Communicating with foreign vessel Chief Engineers is a common practice that does not always need an interpreter. In this case, the PI team considered bringing an interpreter after they were having problems communicating but did not see it as necessary once they knew the OSPS was going to do an official quantification. (OSPS stated that his discussions with the CE were understandable although the CE was not proficient in English)

Another method the FOSC could have used to quantify the spill amount is to use the potential spill amount based on ship specifics. This was done by the PI team on scene but did not communicate this as a quantification factor to the Command Center.

The Oil Spill Prevention Specialist (OSPS) is a highly trained and experienced surveyor that works for State of California Oil Spill Prevention and Response (OSPR). Although some accounts say the OSPS knew about the initial 142 gallon estimate before boarding the vessel, they normally do not listen to current estimates before doing their own calculation. The OSPS also stated in their interview that they never ask the Chief Engineer about other calculated figures because they do not want anything to steer them in a direction. This allows for unbiased process.

The FOSC should not have to conduct his own calculations but instead rely on their staff and other on-scene responders to provide this information.

Lessons Learned

The Chief Engineer was not helpful to the initial pollution investigation team in the calculation of the amount of fuel spilled. It was not until the OSPS, who had sailed as a Chief Engineer, arrived and established a good communications to determine the amount spilled.

Using an interpreter may have helped the initial PI Team calculate spill volume earlier.

The pollution investigators followed standard quantification practices according to their training level to arrive at the initial spill volume but did not arrive at the correct result.

Initial spill volume estimates do not have much credibility with seasoned responders. Most responders use an experience-based error factor to adjust the initial quantification or may simply discount any initial quantification when making initial response decisions.

The faster a fully qualified expert, trained in spill quantification, gets to the scene, the sooner an accurate estimate is obtained.

RESPONSE

Responses to requests for information on the amount spilled should be addressed in terms of potential amounts subject to revision.

Recommendations

All responders, especially in Coast Guard IMD and Command Centers, need training about the complexities of spill quantification. This should be done by experienced quantification experts.

Ensure the professional quantification personnel can be on scene during an incident as soon as possible. Include this on the Quick Response Sheets in all Command Centers so that they are considered high priority for resource allocation.

Practice quantification validation in future oil spill response exercises by including injects to the PIs that are very low volumes for the spill scenario. Measure their ability to handle that information and validate it in the observations for that exercise.

UC, CDO, and IMD should ensure the FOSC is aware of the most current quantification information including an estimate of its variability and reliability.

Include injects in future exercises that test the FOSC's ability to give credibility to new quantification estimates.

Remote Sensing

Sources

Louis Armstrong, Transport Canada (presentation at the Regional Environmental Emergencies Team's annual meeting, Oct. 2007 on the National Aerial Surveillance Program); Glen Watabayashi, NOAA ERD, Debra Simecek-Beatty, NOAA ERD; John Hodges, FLIR Systems, Inc.

Observations

1. Remote sensing was used for the response in several areas
    a. Prediction
        i. NOAA High Frequency Radar
        ii. The NOAA Physical Oceanographic Real-Time System (PORTS)
    b. Operational Picture
        i. Helicopter Overflights

Discussion

Remote sensing is a catch-all phrase for intelligence supplied from the field with the aid of some technology. Most commonly at an oil spill response, remote sensing is done by the use of an experienced oil observer in an aircraft (helicopters are preferred) reporting to both operational units (skimmers, Section Chiefs, Unified Command, etc.) and modelers. The product of these overflights is usually so-called "overflight maps" which are graphic representations done under standardized methodology, of the extent and character of the oil on the water or on the shoreline. Generally the use of these calibrated observers provides the most detailed and useful information on the spill that can be obtained. However, there are times when such flights are impossible or unsafe. This was the case in the *Cosco Busan* response for the first 24 hours, due to heavy fog and, later, night conditions. Had qualified observers been in the air sooner and good observation conditions, both the magnitude of the spill and the initial on-water recovery efforts would have been better informed.

Technological Remedies

A number of technologies designed to augment the human eye have been tried during response. These include Side-Looking Airborne Radar (SLAR), Infrared and satellite telemetry. All these technologies hold both promise and problems for the responder. In the case of the *Cosco Busan* during the first day, it is unlikely any of these would have helped due to the fog.

SLAR: This device (used historically at spills by the USCG* and the NOAA Science Team) looks at the small capillary waves on the surface of the water and takes advantage of the dampening effect oil has on these waves. For large slicks this can be useful in defining the outer edge of the heavy sheens, but does not tell the analyst anything about the thickness of the oil and therefore is of limited use to on-water assets such as skimmers. Given the behavior of the CB oil, SLAR would have had little impact on the response.

> * The USCG had an HU-25 Falcon jet equipped with a surveillance package known as "Air Eye" which included SLAR. This aircraft was used at a variety of spills in the past. Its current operational status is unknown. In addition, both the Canadian government and the Norwegian government have surveillance aircraft designed to detect and track oil at sea.

Infrared: IR technology takes advantage of thermal differences. As oil will often have a different thermal signature than the receiving water, this equipment has proved useful in guiding on-water response efforts at night. This device is particularly useful when heavy oil is released heated (heavy bunkers must be heated to be pumped in order to lower the viscosity). For a short time, until the released liquid reaches the temperature of the water, ribbons of oil are obvious to the operator of an IR device. However, according to technical experts in the field, heavy fog and the fact that the oil was not hot may have made this device much less effective.

Satellites: Even with today's high resolution images beamed back from space, with the possible exception classified technologies, the images do not provide operationally significant information. This is partly because they cannot resolve meter wide ribbons of oil and because the processing time required is too great

(responders need close to real time information). In addition, these images need to be ground-truthed by observers in order to eliminate the large number of "false positives" inherent in them. It is technology with promise, however, and while it is being used in other areas of response (areas less time critical) both NOAA and the USCG R&D Center have in the past and continue to investigate its uses.

Lessons Learned

Visual (human) observations would have been useful in the early hours.

Dense fog is unusual at most spills and confounds remote sensing efforts.

There appears no ready technological remedy to fog obscured oil.

Recommendations

NOAA to develop a training program for OSPR personnel for training aerial observers using the Santa Barbara oil seeps for real field experience.

Continue to evaluate remote sensing technologies for real time intelligence at oil spills.

Continue to evaluate remote sensing technologies for non-real time information.

Examine the status of both the USCG Air Eye system and similar systems on other countries.

On-Water Recovery

Supporting Sources

SF ACP/RCP; M/V *Cosco Busan* NT-VRP; ICS 209 forms; NOAA ResponseLink (POLREPs and NOAA reports from the Bouchard 120 spill); Barry McFarland, TOG SMT; Lt. Rob Roberts, OSPR IC SOSC; Steve Ricks, MSRC.

Observation

The two OSROs identified in the M/V *Cosco Busan*'s Vessel Response Plan responded to the release (one getting underway even before being requested). As a result, the vessel's OSROs fulfilled its 6 hour requirement for skimming capacity by almost a factor of 10 (required on-water recovery capabilities on-scene within 6 hours of notification is 5,874 barrels EDRC (effective daily recovery capacity)). The combined (MSRC & NRCES) capacity on-scene by 1445 local time was 57,292 barrels EDRC, representing 7 separate skimmers. Initial recovery operations were, however, hampered by the lack of aerial observations support (typically via helicopter) due to the heavy fog conditions. In addition to difficulties with observations, the on-water recovery was hampered by vessel traffic that continued to transit the impacted area, moving quantities of oil, breaking up continuous ribbons and causing safety concerns.

Discussion

The on-water recovery capacity brought to bear on this release within the required 6 hours of notification greatly exceeded planning volume requirements. This is supported by the first day's recovery numbers, in spite of adverse conditions limiting essential helicopter support (as floating oil is very difficult to see from the deck of a boat beyond a few meters, aerial support used to "vector" in the skimming assets is essential to keep the OSROs in the thickest oil). The ICS 209 form (a record of the previous "operational period" - in this case the previous 24 hours) indicates a recovery of 7,140 gallons of oil. While these numbers are rarely exact and often include water skimmed with the oil, the OSRO reports and the State has verified that these numbers were fairly accurate and that little water was skimmed with the oil due to the type of skimmer used. Assuming, however, that this number is as accurate as the volume projected to have been released at the time (58,000 gallons), another figure equally prone to change, then the OSROs recovered more than 12 percent of the released oil without the benefit of helicopters. This can be compared to other spills where conditions were better and the productivity less. For example, the Barge Bouchard-120 spilled approximately 98,000 gallons of heavy fuel oil, similar to the oil on the *Cosco Busan*, into Buzzards Bay, Massachusetts. Responders reported a recovery of approximately 3,200 gallons at the end of the fifth day, which is less than 4 percent. Obviously, conditions were not identical: for example, while the Bouchard 120 spill had the benefit of aerial surveillance, it had the relative disadvantage of many fewer skimmers than the San Francisco Bay Area.

Large vessels transiting in the vicinity of an oil spill can move oil, particularly heavy oil, for miles in relatively small, but not insignificant quantities, depending on the shape of the hull. Barges, because of the flatter bottoms, tend to move more oil than conventional ships. Moreover, the wakes caused by these vessels can disrupt skimming operations, making them less efficient. The COTP issued a "minimum wake" order for the area although there were no direct reports that wake interfered with the recovery operation. Finally, the safety consideration should not be over-emphasized, but neither should it be ignored. Well over a dozen response vessels were working the spill the first day in reduced visibility. Although the ferries have radar, it is perhaps better to have a greater margin of safety.

Lessons Learned

The on-water recovery assets in the San Francisco Bay area appear to be more than adequate for this size spill (and much larger) and are responsive to an emergency.

Managing on-water recovery operations without the assistance of aerial observation is quite difficult.

Ferry and other vessel traffic should be controlled, curtailed or suspended in an operation of this sort when visibility is restricted.

Recommendations

The USCG Sector San Francisco should examine the impacts of vessel movement in oiled waters and consider traffic control policies during oil spill responses, particularly in poor visibility.

Shoreline Cleanup Assessment Teams (SCATs)

Sources

SF ACP/RCP; NCP; Shoreline Assessment Manual (NOAA) SCAT database; Jordan Stout, NOAA SSC; Heather Parker-Hall, Polaris Applied Sciences; Ed Owens, Polaris Applied Sciences; Randy Imai, OSPR; Kathleen Jennings, OSPR; Lt. Rob Roberts OSPR IC SOSC

Observation

SCAT was deployed quickly and to effect, initially working with Operations to recover gross oil from the beaches. There was a demand from the state to have more SCAT teams than the RP/SCAT Coordinator recommended. These teams were ultimately deployed by the state, but worked somewhat independent of the main four teams. This may have caused some initial problems as two separate maps were being maintained in the Command Post. There was a difference in the skill and experience of SCAT leaders on the four initial teams versus the additional teams.

Ultimately the data collected by SCAT was detailed, thorough and useful for long term cleanup and assessment.

NOAA modelers requested SCAT data from the SCAT coordinator and did not receive it for several days. The modelers indicated that receipt of this information might have been helpful.

Discussion

SCAT, like the Incident Command System, is designed to have a specific methodology for the assessment of data relative to oiled beaches, while maintaining the flexibility to adapt to the specific needs of the individual spill response.

The SCAT Coordinator and the SCAT Data Manager both complained about the quality of the data returning with the new SCAT teams (referred to as "Recon. Teams"). Because the data collected did not always follow the specific SOS (Shoreline Oiling Survey) form prescribed by the SCAT Coordinator. While the Environmental Unit Leader agrees that data were in different formats and displayed separately, he felt communications between SCAT and the EU were good.

NOAA's "Shoreline Assessment Job Aid" sited in the Sector San Francisco's 2005 ACP states that:

A shoreline assessment program is:

- *a systematic approach that uses standard terminology to collect data on shoreline oiling conditions and support decision-making for shoreline cleanup;*
- *flexible in terms of the scale of the survey and detail of the data sets collected;*
- *multi-agency, including trained representatives from all interested parties who have authority to make decisions.*

The degree to which this flexibility is exercised depends greatly on the individual SCAT Coordinator, the Environmental Unit Leader and the demands of state and others. Some states (e.g.: Alaska) use SCAT data as the basis for fines to the spillers, while other organizations involved in Natural Resources Damage Assessment use SCAT data to augment their injury assessments. In both of these cases, detailed documentation of the degree and extent of oiling (mostly a qualitative rather than quantitative assessment), before and after cleanup operations, is required. In smaller, less complex spills, often a simplified form is used. Here the objective is more operations-based and less a matter of strict documentation.

SCAT is always consensus driven, from design to implementation. Because the data collected is ultimately qualitative (it is virtually impossible to calculate exactly how much oil is on a particular segment of beach), agreement among the SCAT team members in the field is necessary. Equally, how the data are collected and managed should be consensus driven. Teams collecting different data or data of different quality means that they cannot be compared in the larger picture; one beach segment cannot be compared with another. This is far more critical, however, in the formal, systematic application of SCAT than in the initial

reconnaissance of oiled shoreline where the objective to recover heavy concentrations of oil in order to prevent re-floatation and re-oiling of un-oiled shoreline. Shoreline reconnaissance is often done by air with experienced operational (cleanup) workers along with environmental personnel. The objective is less assessment than it is rapid removal of pooled oil.

Regardless, the objective of SCAT is always a consensus driven assessment designed to move the injured shoreline from active cleanup to the desired cleanup termination point as quickly and as practically as possible and to understand the level of oil remaining in the environment when the cleanup is terminated.

As oil is almost always left in the environment following the termination of cleanup the ultimate goal of cleanup is not to remove all the oil (a virtual impossibility) but rather to suspend active cleaning at a point where further cleanup is either impractical or additional cleanup may do more injury to the resource than the oil itself. Naturally, this point varies with different shorelines, resource users and governmental regulations. Again, the cleanup termination endpoint is frequently a consensus decision proposed by the Environmental Unit and accepted by the Unified Command. Following termination of active cleanup, the oil is left to naturally attenuate over weeks or months. Often SCAT is send to look at these shorelines many months following the termination of cleanup.

In the case of the Cosco Busan there appears to be a level of disagreement in number of teams needed to the survey the impacted area. In addition, there seems some disagreement in the design of these teams and the level of detail required to be collected. The level of detail collected may have been more a function of differences in training and experience. The four teams initially deployed by the RP were lead by very experienced geologists accustomed to using the Shoreline Oiling Survey form during spills. The additional state teams, while trained in the SCAT process, had had far less field experience and may not have fully understood the data management need of filling the form out completely.

Whatever the reason, the result was that the data collected by the additional so-called “Recon.” teams could not be added to the SCAT Data Manager’s geographic information system (GIS) and thus could not be displayed on the master shoreline map. This caused two separate maps to be produced, one by the SCAT Coordinator (RP) and one by the state teams. Unfortunately, there were some differences in the information displayed.

Adding to this, the SCAT Coordinator’s map was displayed in the Environmental Unit, while the “Recon. Team’s” map was displayed at the Situation Unit. Maps, charts, data, and all information displayed by the Situation Unit are considered to be the definitive products. The Situation Status Board, operated by the Situation Unit, should display the most up-to-date and accurate information available at the response. The maps managed and produced by the SCAT Coordinator may have been more accurate, but they were not “official.” This difference in mapping and map display was corrected after a few days and appears to have little direct impact on the field cleanup teams, but it highlights a disconnect within the Environmental Unit.

The SCAT operation is normally a branch within the Environmental Unit (EU) and this was the case on the *Cosco Busan* response. However, the SCAT branch appeared to operate independent from the EU. Not only were they physically separated in the Command Post, but apparently there were few, if any, EU meetings that incorporated all of the EU players. The EU Leader felt there was good communications between SCAT and the EU, although never comments on the EU meetings.

While the EU Leader does not, necessarily, “manage” the SCAT branch’s day-to-day operations, he/she does facilitate information flow to the Planning Section and the Unified Command. This disconnect may have been caused by differences in opinion as to which organization should coordinate shoreline assessment. Often state or federal organizations have a desire to manage the SCAT operation and the SCAT data. There remains an historic mistrust of the responsible party with regard to assessing necessary response operations and the cost of those operations. For this reason, teams assembled for the purpose of SCAT have always included state and federal representation and frequently that of the land manager, local community or non-governmental environmental organizations. All of these members have equal voice in cleanup recommendations and the qualitative assessment of the oiling, consensus driven reporting. The data collection, management and coordination, however, are now being managed by professional spill responders more of the time.

Having a representative of the RP coordinate SCAT does not subjugate state or federal agencies and does not violate any of the tenets of ICS. In this case, having the RP coordinate SCAT actually follows the

mandates of ICS, where the most qualified person is installed in a position. Here, the SCAT Coordinator is recognized as one of the leading experts on SCAT and, indeed, the inventor of the method during the Exxon Valdez response in 1989.

DFG indicated that they could have benefited from trained communications staff, and that they definitely "needed more biologists." At the peak of the response there were over 20 DFG biologists present and more could have been used, but that was almost all (if not all) of the DFG biologists available in the entire state. This is a gap that clearly should be addressed. Coast Guard staff on oil drills and preparedness is also low.

Finally, the availability of staff around the clock is an important consideration. OSPR has only two teams of three people each – one north and one south – that are compensated to be on call around the clock in the event of a spill. Other than those staff, there is no guarantee of any kind of state response activity at night, which means the critical first few hours of a large spill could be lost.

Lessons Learned

SCAT coordination is often recognized as the domain of the RP, as long as the RP hires an experienced coordinator. However, this is not explicitly recognized in the ACP or the NOAA Shoreline Assessment Manual. SCAT as a key element in the assessment of a release is under the authority of the OSC via the NCP.

Regardless of which organization assumes the reigns of SCAT, it is incumbent on each organization to work as part of that team and provide support and oversight as required by the situation and their particular guiding regulations. In the case of the *Cosco Busan*, SCAT was coordinated entirely by the RP contractor and though eminently qualified for the position, not having state or federal participation in this coordination may have caused some confusion and friction.

Strong leadership and experience, whether government or private, is needed in the Environmental Unit Leader in order to recognize communication issues within the EU. The fact that there is disagreement in the level of coordination regarding SCAT within the EU indicates that there may have been too little interface within the Unit.

Additional teams were deemed necessary by the SOSC. While additional teams were fielded, they were not staffed with personnel as experienced as the RP's four primary teams. Thus the data quality may have suffered. If data being received the SCAT Coordinator posed difficulties with the SCAT database, then either the mission expectations should have been changed (the additional teams would act as field observers for reconnaissance for teams with less stringent data requirements) or the RP should have supplied qualified SCAT leaders with more experience following the detailed data protocols.

Initial shoreline oiling data did not get distributed as quickly and as widely as might have been helpful in earliest days of the response. This may have been a function of two separate maps being maintained, the Situation Unit being somewhat out of the information flow, or individual agencies not briefing their own organizations adequately. Initial oiling conditions did make it to the proper operational personnel so that cleanup was initiated quickly.

Recommendations

The ACP should formally recognize a SCAT method (it is implied by reference in the ACP, but not explicit), including the data collection, management and sharing methodologies. Provisions should be made in the plan for the flexibility of accepting other, recognized methods, as well.

The ACP should recognize the difference between shoreline field observers (sometimes referred to as "reconnaissance teams") and SCAT as the expectation for level of detail and the urgency of the data are different. Reconnaissance Teams should be adequately trained and equipped appropriately with digital cameras and GPS devices so that the limited data collected for the rapid removal of pooled oil can be as useful as possible to the larger SCAT database and future users. Where practical, reconnaissance teams should include trained OSPR personnel with knowledge of area, the local circulation patterns and natural/historic collection areas.

The effort to segment shorelines as part of the planning process can be helpful in reducing confusion between observers, SCAT and operations. This is mostly complete for SF Bay and should be adopted into the ACP.

RESPONSE

Shoreline oiling maps should reconciled daily and display as a single agreed output on the Situation Status Board.

Establish better communication between the situation board and the offsite scientific support.

Unified Command: Booming Strategies

Sources

MSRC timeline; SF ACP/RCP Sensitive Site Information and Site Response Strategies; IAPs (232s and 204s); 209s; 11/16 Boom Matrix; Barry McFarland TOG SMT; Steve Ricks, MSRC; CAPT William Uberti, Sector SF/COTP/FOSC; Randy Imai, OSPR; Carl Jochums, OSPR; Kathleen Jennings, OSPR; MSTC Mosley statement

Observation

On *November 7, 2007* Booming actions and related decisions were as follows:
10:30 NRCES reports 2500 Ft. of boom placed around oil near ship and skimmer on scene
10:40 NRCES vessel crews report that they need to deploy boom as there are pockets of oil on west side of Bay Bridge
11:25 MSRC boom boats deploy 500' of boom in support of skimming operations
11:30 NRCES reports 2500'of boom around Pier 39 and Aquatic Park in San Francisco
12:50 NRCES asks QI if they need to boom the *Cosco Busan*
13:00 QI tells NRCES that they do not need to boom *Cosco Busan*, but standby for when the vessel gets to Anchorage 9 (no further mention of this issue in these sources)
13:27 Entrance to Seal Cove boomed at Pier 39 (unclear which OSRO is responsible)
14:37 MSRC on scene at Crissy Field
15:00 MSRC directed by QI to boom Aquatic Park and Crissy Field
15:15 QI requested NRCES to boom Crissy Field with 3000-3500' of boom; NRCES dispatched personnel and trailers to site
16:00 Aquatic Park and Crissy Field boomed by Raider I & III (MSRC)
17:15 Aquatic Park booming complete

The Area Contingency Plan Sensitive Site Information and Site Response Strategies (SISRS) include:

Crissy Field Tidal Marsh (SISRS #2-403-A).

A restored tidal marsh with "A" sensitivity and protection priority year-round; its important resting and foraging habitat for bay birds. The primary objective is to exclude oil from entering the mouth. Secondary objective is to capture any oil which gets past primary protection. 3rd objective is to exclude by berming with sand/soil

San Francisco Waterfront Collection/Protection - Aquatic Park (SISRS #2-400-X)

This site includes the shoreline of San Francisco from Fort Mason to the Bay Bridge. Resources of concern include herring spawn in the winter, water diversions, aquatic vegetation, invertebrates, and sea birds. Objective is to deflect to collection at shoreline and recover oil at seawalls, or deflect oil to where current is slowest and recover on-water

Pier 39 (SISRS #2-401-B)

This is an abandoned marina where up to 600 California sea lions haul out; it is a "B" priority August – March and a "C" priority the rest of the year. The primary objective is to exclude oil by booming from the entering breakwater. (However, the boom has to be tended to permit ferry traffic in/out of the area). The secondary objective is use of sorbent boom to intercept any seepage. The 3rd objective is to skim any oil that gets into the area.

November 8 – 21, 2007

Booming actions recommended in the 11/8/07 – 11/11/07 Resources at Risk Summaries (ICS 232-CG) are shown in the table below:

Date	SISRS recommended	Priority (if shown on ICS-232)	Included in 11/16 Boom Deployment Matrix*
11/8-11/9	**Sites inside the San Francisco Bay:**		
	Horseshoe Cove		
	Richardson Bay Marshes (420-A)		
	Kiel Cove (422-A)		
	Paradise Cove (421-B)		
	Brooks Island (453-A)		x
	Hoffman Marsh (454-A)		x
	Castro Rocks (451-A)		
	Albany Marsh (480-A)		x
	Sites outside the San Francisco Bay:		
	Rodeo Lagoon (228.1)		x
	Pt. Diablo/Kirby Cove (236.1)		
	Pt. Bonita/Bonita Cove (234.1)		
	Bird Island (231.1)		
	Redwood Creek/Big Lagoon (225.1)		x
	Bolinas Lagoon (222-A)		x
	Duxbury Reef (219-B)		
	Double Point/Storm Stack (216-A)		
	Limantour Point (207-A)		
	Drakes Estero (205-A)		x
	Drakes Beach (west) (203-A)		
	Point Reyes Headlands (201)		
11/9-11/10	**Sites ranked inside San Francisco Bay:**		
	Castro Creek Marsh (501)	4	
	San Pablo Bay Eelgrass bed (506)	10	
	San Pablo Creek Marsh (502)	5	
	Pinole Point Marshes (504)	6	x
	Pinole Creek & wetlands (505)	7	
	Paradise Cove Tiburon Peninsula (421)	3	
	Keil Cove (422)	9	
	Albany Marsh (480)	1	
	Hoffman Marsh (454)	2	x
	Horseshoe Cove	8	
	Sites ranked outside San Francisco Bay:		
	Bolinas Lagoon (222)	1	x
	Drakes Estero (205)	2	x
	Tomales Bay (166)	3	
	Dillon Rocks (161)	10	
	Estero de San Antonio (158)	5	
	Estero Americano (155)	6	
	Pinnacle Rocks (152)	9	
	Bodega harbor (150)	4	
	Bodega Rocks (146)	7	
	Bodega Head (143)	8	
11/10-11/11	**(No distinction between inside/outside SF Bay)**		
	Pinole Creek & wetlands (505A)	1	
	Castro Creek/marsh (501A)	1	
	Corte Madera marshes (425A)	1	
	San Pablo Creek marsh (502A)	1	

	China Camp Marsh (552A)	1	
	Richardson Bay marshes (420A)	1	
	Gallinas Creek marshes (553A)	1	
	Emeryville Lagoon/Mudflats (495A)	1	x
	Islais Creek (354A)	1	
	Brooks Island (453A)	1	x
	Herons Head Park (353A)	1	
	Bay Farm Eelgrass beds (310A)	1	
	San Pablo Bay Eelgrass beds (506A)	1	
	San Leandro Bay (309A)	1	x
	Oyster Bay marshes (312A)	1	
	Paradise Cove Tiburon Peninsula (424B)	2	
	Keil Cove (422B)	2	
	Mono Marsh	2	
	Horseshoe Cove	2	
11/10-11/11	**Continued:**		
	Oakland outer harbor (301X)	3	x
	Castro Rocks (415C)	3	
	San Leandro Marina (313C)	3	
	Oakland Estuary Economic sites (300C)		
	Aquatic Park (complete booming of mouth)	4	
	Mission Creek (economic site)	4	
	San Rafael yacht harbor (economic site)	4	x
	Lowrie yacht harbor(economic site)	4	
	Marin yacht harbor (economic site)	4	
	Loch Lomond harbor (economic site)	4	x
	Hoffman Marsh (454)	(0) Strategy Instituted	x
	Albany Marsh (480)	(0) Strategy Instituted	
	Alameda Eelgrass Beds (307A)	Ranked 1, but marked “done”	x
	San Rafael Creek marsh (426A)	Ranked 1, but marked “done”	x
	Pinole Pt. marshes (503A)	Ranked 1, but marked “done”	x
	Bolinas Lagoon (222A)	Ranked 1, but marked “done”	x

* ISPR Team is still seeking information concerning actual booming activities on specific sites listed above and will revisit this issue in phase two as necessary.

No 232s were included in the IAPs after 11/11. The 204s included in the IAPs from 11/12 through 11/24 provided directions to the Protection Groups of the San Francisco, Marin, Contra Costa, and Alameda Branches. On 11/12 those directions were primarily to “protect sites as directed by Operations” and to “continue working down the priority lists from the EU’s ICS 232s”. On 11/12, the San Francisco Branch Protection Group was also directed to deploy sorbent boom at Ft. Mason and snare at Fisherman’s Grotto. On 11/13, the Marin Branch Protection Group was also directed to boom Horseshoe Cove. The 204s also directed the Protection Groups to “determine boom effectiveness”; this continued through 11/21, with additional direction being added to “remove contaminated boom” for decontamination. In general, the 204s from 11/11 through 11/21 show a shift in operations from booming to shoreline cleanup, with the booming emphasis on maintenance.

That shift is reflected in the 209s, which indicate how much boom was deployed 11/8-11/21/07 (information on boom type or locations is not provided):

- The 209 for 11/8/07 indicates that 11,400 feet of boom was deployed.
- The 209 for 11/9/07 indicates that 38,200 feet of boom was deployed.
- The 209s for 11/10 through 11/13 indicate that 27,500 feet of boom was deployed on each of those days.
- On 11/14, total boom deployed drops to 21,800 feet.
- On 11/15, it drops further to 20,500 feet.
- On 11/16, 18,240 feet are shown deployed
- On 11/17, 12,300 feet are shown deployed.
- On 11/18 and 11/19, only 2,300 feet are shown deployed.
- On 11/20-11/21, only 1,600 feet are shown deployed.

The Environmental Unit produced a matrix on 11/16 of all boom deployment locations. At that point, they needed to know what boom was where and who owned it, as decon was beginning. That matrix (available on Homeport) includes booming of a number of economic sites not included in the 232 table above. It does show boom remaining at Crissy Field, Aquatic Park, and Pier 39.

The 232 table above shows in the left-hand column which sites had boom showing up in the 11/16 matrix. If there is no "x" in the left-hand column this could mean that the Site Protection Strategy was never implemented. Or it might mean that the boom had been removed prior to the overflight info collected for the 11/16 matrix.

Discussion

November 7, 2007

On the first day, all booming directions were verbal from Unified Command (UC) (as it was forming) to NRCES and MSRC (as they were deploying equipment). The ISPR team found no documentation regarding whether the protective boom strategies at Crissy Field, Pier 39, or Aquatic Park were implemented according to the ACP SISRSs, but verbal reports and news coverage suggest that these areas were adequately protected.

During his ISPR Team interview, Barry McFarland of the O'Brien's Group stated that he did not know how the decision was made to boom Crissy Field and Aquatic Park, since he did not arrive at the UC until after that decision.

In a statement made by MSTC Mosley, he notes that a report was received around 1230 that black oil was "all over the place next to the Ferry Terminal." He asked if the Harbor Masters could use any containment boom. He further notes that at around 1250 the Sector Commander met with the ICS team and set objectives, including identifying and booming sensitive areas.

Steve Ricks of MSRC noted in his ISPR interview that they did not get direction to do shoreline until 2pm. If it were a drill, he noted, shoreline boom would usually be deployed in the first two hours. Note, however, that the Chronology shows that NRCES boomed Pier 39 and Aquatic Park at 1130.

As the Unified Command was forming, decisions to boom sensitive sites were made difficult by the lack of overflight information, since flights were grounded by the fog. Although NOAA provided narrative trajectory information on 11/7, it was essentially based on tidal and other meteorological data, since the actual volume of the spill was unknown until late afternoon. As CAPT Uberti noted in his ISPR interview, the tidal trajectory indicated that the oil would be passing in/out of the Bay, which was why they decided to boom Crissy Field and Aquatic Park.

As NRCES and MSRC deployed response resources on their own initiative, they initially concentrated on finding and skimming the spilled oil on the water, a task which was complicated by the dense fog. As noted by Kathleen Jennings during her interview with the ISPR Team, on-water skimming – and any associated booming to corral the oil – is a high priority immediately after a release on water.

The 11/7 Chronology information indicates that NRCES inquired about booming the *Cosco Busan*, but that action was not ordered by the QI either at Anchorage 7 or 9. During his interview with the ISPR Team, Barry McFarland stated that they did not boom the ship because the "the source was secured and there was no leaking or sheen." In addition, Steve Ricks explained to the San Francisco Harbor Safety Committee on 11/29/07 that booming the vessel would not have been effective in the strong tidal currents that day.

November 8 - 21, 2007

As overflight information and reports of oiled beaches came in, the list of sites expanded. The 11/8-11/9 ICS-232 covered Geographic Response Area (GRA) 4 (Central San Francisco Bay) and GRA 2 (Marin, San Francisco, and San Mateo Counties). On 11/9-11/10, GRA 5 (San Pablo Bay) and GRA 1 (Sonoma and North Marin Counties) were added. On 11/10-11/11, sites from GRA 3 (South Bay) were added.

Sensitive sites in the Area Contingency Plan (ACP) are ranked according to priority. Human Health and Safety is the top priority, but further designations are ranked A, B, or C, with ecological risk factors receiving more weight than economic risk factors. When an actual spill event occurs, however, the priorities will be determined by where the oil is predicted to impact sensitive sites. Not every "A" site would get protected unless it is in the path of the oil. The Environmental Unit was asked to rank sites 1-10 on the 11/18-11/9 ICS-232. Barry McFarland noted that "he was directed by the CG to do all ten strategies immediately without any priority." The following day the EU listed more sites, but ranked them 1-4, which was their preferred approach.

Randy Imai and Kathleen Jennings explained in their ISPR interview that sensitive sites are identified by stakeholders working through the Area Committee. There are 262 sensitive sites in the San Francisco Area Contingency Plan, and not all of the Site Response Strategies have been tested. Steve Ricks of MSRC explained to the ISPR team that two major local OSROs (MSRC and NRCES) work with the California Office of Spill Prevention and Response to test four site strategies on a quarterly basis as part of their drill program.

In his ISPR interview, Steve Ricks stated that there many areas that are not able to be protected. He said that some are noted in the ACP as such, e.g., high energy rocky shorelines or mudflats that prevent access to marshes.

Barry McFarland of the O'Brien's Group said the ACP contains strategies not tactically sound. Bolinas Lagoon; for example, in that location responders cannot put boom in a 4 knot current in the surf. This has been tested and never accomplished.

Deb Self, an ISPR team alternate, noted that she had received anecdotal reports stating that "Marin officials report NRCES showing up at Bolinas Lagoon on November 8 at 5:30pm with an inappropriate small boat, one supervisor and three workers who apparently had no boating or booming experience. They brought much less boom than was required and brought no anchors, which would have been essential and are required by the ACP. Their badly deployed boom predictably snapped after about 5 minutes, according to the officials. They did not return until Sunday 11/11 and would not share anchors they had with Marin officials who were trying to get their own boom up." It is clear that booming the mouth of Bolinas Lagoon is extremely difficult; it is not clear whether any attempts were made at a later date to do deflection booming and collection inside the lagoon. These are also part of the strategies listed in the ACP for Bolinas Lagoon.

Another example was provided by Randy Imai and Kathleen Jennings, who explained in their ISPR interview that "when the Brooks Island strategy was deployed, they could not get close" (due to low tides).

Lessons Learned

More protective booming of sensitive sites might have occurred on 11/7 if the volume of oil spilled had been known sooner. As explained by Carl Jochums of OSPR during the ISPR interviews, not every "A" site will be boomed just because it's an "A" site. The trajectory of the oil determines where response resources are assigned.

Likewise, the dense fog on 11/7 complicated both trajectory calculations and on-water recovery, since no early overflights were possible.

The 204s indicate that the Protection Groups were to implement the 232s, but there does not seem to be one ICS reporting form that actually documents what actions were taken pursuant to the 232s. As noted in the Observations above, the 209s only tell how many feet of boom were deployed, but not where. The 11/16 matrix also did not provide comprehensive information on all protective booming that had occurred during the first two weeks of the spill response, since it was only intended to inventory what was still deployed on 11/15. Randy Imai and Kathleen Jennings noted in their ISPR interview that "not all sites were done; we do

not know why they were not done." They did have the advantage of being able to get information from the Situation Unit at the ICP, but comprehensive documentation for this ISPR analysis seems to be lacking. Randy Imai and Kathleen Jennings also noted that some boom was put out by local agencies or marina operators which were not reflected in the 232s.

Ranking sensitive site protection according to the oil trajectories is reasonable; however, recommendations must be made with a clear understanding of the modeling's uncertainty, but it is also prudent to implement aggressive implementation as soon as feasible.

Recommendations

There needs to be a process by which booming activities can be verified and reported back to the UC and displayed and evaluated. Develop procedures to document spill response actions to implement Site Response Strategies listed in the ACP. Include information on the success of such strategies as well as recommendations for changes. Such information gathered from an actual spill response can supplement the current program where OSROs voluntarily test Sensitive Site Response Strategies in coordination with OSPR.

Continue and accelerate this OSRO testing program, and include strategy testing in bad weather conditions or extreme tidal current conditions (Spring Tides) to the extent that safety allows.

State and federal research into technologies for spotting oil in dense fog or other low-visibility situations would be warranted. Such technology should be made available for real-time applications to direct spill response vessels on-water.

The SF ACP committee should work with local governments in the Bay area to address their concerns and desires to respond locally.

Unified Command: Trajectory Models

Sources

NOAA ResponseLink (Trajectory Folder); Jordan Stout, NOAA SSC; NOAA/ORR/ERD Oceanography & Modeling Staff: Glen Watabayashi, Chris Barker, Debbie Payton, Debra Simecek-Beatty; Barry McFarland, TOG SMT; Lt. Rob Roberts, OSPR IC SOSC

Observation

Given the limitations with the input data to the NOAA Science Team, vastly different amount of the release, instantaneous versus prolonged release, vessel movement within the spill zone and visibility obscured by dense fog, the initial written prediction of oil impacts in the first 24 hours were quite accurate. Subsequent predictions based on better intelligence from the field, including experienced NOAA oil observers conducting overflights, continued to be within acceptable margins for such predictive modeling, in general.

The NOAA SSC was notified at 0950 by the USCG Sector San Francisco's Incident Management Division. The first verbal trajectory was posted at 1130 and briefed to the RP and CG (by the modeling team) at roughly the same time.

Specific areas, outside of better on-site intelligence, could have been performed better:

- Pre-spill understanding of how to use NOAA oil spill models tactically
- Better briefings of the model outputs to Planning and the Unified Command and FOSC.

Early results from shoreline reconnaissance teams and other creditable observations should have been conveyed to the oil spill modelers as soon as possible.

Discussion

Predicting the movement of oil on the surface of the water is a difficult task under perfect conditions. As those conditions deteriorate and as the on-site information becomes less reliable, the output of the model becomes less precise. In the case of the M/V *Cosco Busan*, modelers were told that the oil released between the point of allision and Anchorage Number 7 and that the amount released was 10 barrels.

NOAA/ERD modelers work 100 to 200 releases per year, in the US and internationally. They are some of the most experienced oil spill modelers in the world. The modelers based their initial mental models and verbal/written trajectories on 100 barrels, however, due to the nature of the release. In the first 24 hours, oil spill modeling is not necessarily sensitive to the amount of oil in the water, within reason, as the modeled oil will impact the same places regardless of the amount released, only the concentrations of the impacts will vary. Over time, the discrepancy between the model and reality would manifest in the geographic scale of the impact, but such major discrepancies in volume, while not infrequent, are typically discovered and corrected within 24 hours of the release. Typically in a spill the model is re-initiated after new information is obtained from overflights and other remote sensing.

The most critical missing data to the modelers (and many other resources) were the overflights. Had dense fog not obscured the surface of the bay, trained observers would have known almost immediately that the release estimate was wrong. While precise estimation of volume is extremely difficult from the air and thus highly unreliable, an experienced observed would have been able to "scale" the problem in a general way. In addition, these observers could have informed the oceanographers of subtle anomalies in the wind or the bay circulation not accounted for in the scale of the NOAA models or oil trajectory models, in general.

The FOSC and RP had trajectory information within 2 hours of notifying the NOAA Scientific Support Coordinator. Despite problems with the initial information, the written or so-called "verbal" trajectory described the area of potential impact within the next couple tide cycles remarkably well, but arguably in a general way. The NOAA modelers used both local expertise and technology (HF Radar, PORTS) to augment in-house oil models (GNOME, ADIOS and others) for the development of output to the NOAA Science Team (and subsequently to the FOSC & Unified Command).

What may have been missed or misunderstood is how these predictions are intended to be used in response to a release. In the early hours of a spill, experienced responders, including the NOAA modelers, expect information to be less reliable. Such inputs as the amount released, the location of the release and the type of product released are frequently changed many times in the course of the first 24 hours. Therefore, initial confidence in such data is often low. The verbal trajectory (NOAA's first formal product to the FOSC) accounts for this level of confidence and is designed to give responders a sense of what resources are at risk, not a precise targeting of the oil's path and intensity.

Indeed, all NOAA trajectory products, including graphical output, indicate the level of confidence the modelers have in the data and describe the area of possible impact along with more specific predictions. Experienced users of these products will make protection decisions based both on NOAA's specific estimates and on the relative sensitivity of key resources within the larger footprint, but outside of the more defined plumes. In the case of the Cosco Busan, the extent of the impact area for the first 12-24 hours was accurately described.

Resources (natural or otherwise) of extreme sensitivity to oil or of great importance are often protected even if the likelihood of significant oiling is predicted to be low. This is a strategic concept referred to as "minimum regret" where one adopts a protection strategy that weighs the low probability of impact, against the high consequence of being impacted. Parents use child restraints in their cars because even though the probability of a significant accident is relatively low, the resource being protected (the child) is too precious to risk injury.

Historically, SSCs have acted as more than a science advisor to the FOSC or the FOSC representative. The SSCs and the NOAA Scientific Support Team typically bring many more years of spill experience to a response than any other governmental organization and, as such, help FOSCs with a variety of issues based largely on other spills to which they have responded, not merely those that are science-related. This can also be said of senior USCG National Strike Force personnel. FOSCs must have a cadre of trusted and experienced response advisors to which to turn. The IMH does not recognize a command staff for the individual UC members, but rather a command staff for the UC itself. As the lead federal authority for the response with specific federal responsibilities, a personal command staff that includes science, legal and other seems important.

Lessons Learned

A better briefing to the FOSC and others might have made the full extent of the prediction more tangible. The NOAA SSC was in route and could not personally brief the FOSC and Unified Command, as is the preferred method. More training of first response personnel, particularly the USCG and OSPR might have helped them understand the types of decision that must be made in the early hours.

A qualified oil observer could have been in the air faster had one been available. The NOAA oceanographer dispatched from Seattle to map the oil (a veteran of hundreds of spills) arrived 24 hours after the release. More local expertise could have acted for initial intelligence.

During incidents where immediate spill data is unreliable or suspect, NOAA's verbal trajectories could have included more than one scenario (e.g. instant release and prolonged release).

Recommendations

NOAA/ERD should develop a training program for a team of OSPR overflight observers. For many years, NOAA/ERD has trained its own personnel in mapping oil from the air by using the natural oil seeps off the coast of Santa Barbara, California. At any given time, there is a "spill" of many thousands of gallons on the water as result of these seeps. Having trained and calibrated observers at the state level will provide better and faster inputs into the command and the modelers.

Improve understanding of near-surface circulation of floating heavy oils. Heavy, floating oils (oils with densities near that of the receiving water, but not exceeding it) often are driven sub-surface temporarily in wind-driven near-surface circulation patterns. (A process best visualized by leaves being lifted into the air on a windy day.) As the wind increases, a greater percentage of the oil will become obscured by the water at any given time. Were overflight observers to better understand the relationship between (among other things) specific gravity and wind speed as it relates to heavy oil, they could better estimate the size of a given release from the air.

RESPONSE

Increase the level of training for key decision-makers (USCG FOSC's and FOSC representatives, SOSC) in the use of trajectory analysis output and in trade-off decision making.

Re-establish the concept of the NOAA Scientific Support Team, described in the National Contingency Plan 40 CFR 300.145(c) (1-4) and the SF ACP[6], as a part the Incident Command System (ICS) model currently being used by the USCG and others. Currently, the Incident Management Handbook (IMH) conflicts with the NCP on this matter, in effect removing the SSC as the FOSC's personal advisor and scattering the Scientific Support Team (SST). While the SSC (and the SST) is a resource to the UC and command, as a whole, his/her first responsibility is to support the FOSC directly as a staff advisor.

During a response, the SSC serves on the FOSC's/RPM's staff and may, at the request of the OSC/RPM, lead the scientific team and be responsible for providing scientific support for operational decisions and for coordinating on-scene scientific activity. Depending on the nature and location of the incident, the SSC integrates expertise from governmental agencies, universities, community representatives, and industry to assist the OSC/RPM in evaluating the hazards and potential effects of releases and in developing response strategies. – 40 CFR 300.145 (c) (2)

[6] ***4720.1 Scientific Support Coordinator***
The Scientific Support Coordinator (SSC), in accordance with the National Contingency Plan, will provide the federal On Scene Coordinator (OSC) scientific advice with regard to the best course of action during a spill response. The SSC will obtain consensus from the Federal Natural Resource Trustee Agencies and provide spill trajectory analysis data, information on the resources at risk, weather information, tidal and current information, etc. The SSC will be the point of contact for the Scientific Support Team from National Oceanic and Atmospheric Administration's (NOAA) Hazardous Material Response and Assessment Division. – SF ACP/RCP

Weather as a Factor for Response

Sources

NOAA Weather Reports to the FOSC; Cosco Busan incident overflight maps; Barry McFarland, TOG SMT; Lt. Rob Roberts, OSPR IC SOSC; Mark Dix, NOAA ERD Deputy Chief; Debra Simecek-Beatty, NOAA ERD; Jordan Stout, NOAA SSC.

Observation

Weather, in the form of low and heavy fog, was a significant factor in the response for the first day and a half. It was reported by the VTS that visibility in the vicinity of *Cosco Busan* was restricted to 220 yards at the time of impact. Fog density changed throughout the day according to the region of the bay being observed.

This incident occurred during astronomically high tides (Spring Tide).

Discussion

Not mentioning the allision, the fog played an important role in the ability of responders to:

- Understand the magnitude of the release
- Verify and correct if necessary trajectory analysis
- Direct skimming operation on water
- Identify initial oiling on shorelines

Without good aerial observations a spill response is effectively blind. There are few, if any, technologies that can substitute for a training observer in a helicopter or fixed wing aircraft. It appears that attempts were made to obtain overflight data in the first hours, but that understandable safety considerations made them impossible.

Lessons Learned

Dense fog or obscured visibility has a significant negative impact on response and assessment. On-water estimations of quantity are notoriously inaccurate, proving true in the case of *Cosco Busan*.

Recommendations

The ACP should be updated to include different weather conditions specific to San Francisco in the already designated section.

Resource Management: Available Assets Not Used

Sources

Sector SF SCC logs; Cosco Busan IAPs; Cosco Busan ICS 209; UC EU/OPS Boom Matrix; MSRC equipment specifications; NRCES equipment specifications; SF ACP/RCP; Barry McFarland, TOG SMT; CAPT William Uberti, Sector SF/COTP/FOSC; Steve Ricks, MSRC; Lt. Rob Roberts, OSPR IC SOSC; Randy Imai, OSPR; Kathleen Jennings, OSPR; Ted Mar, OSPR; Chris Klumpp, OSPR; LTJG Anya Hunter, Sector SF PAO; City of SF Hotwash minutes; Marin County AAR; OES Hotwash; Sean Kelley, Sector SF Vessel Traffic Services (VTS) Operations Director; LCDR Kevin Mohr, Sector SF Waterways Management Chief; Melanie Jarrell, Environmental Strategies, Cosco Busan incident Documentation Chief; NRCES equipment specifications

Observation

The incident of the allision and oil spill occurred at approximately 0830 on Nov. 7. The initial response activities and resource deployed is documented in other areas of the ISPR report. In addition to the federal, state and contracted RP resources deployed, there were several offers of assistance to the USCG as well as the UC in the first few days after the incident that were not taken advantage of.

The first instance occurred immediately after the incident, when the City of San Francisco Fire Boat 1 contacted the USCG Sector San Francisco to offer assistance. This offer was made based on the report of the allision and not necessarily for spill response. The Coast Guard responded to the Fire Boat telling them that their assistance was not needed. Later that morning there was communication between the SF Police Marine Unit and the SCC. The SCC enlisted the help of the Police Marine Unit to patrol the security zone established around the Bay Bridge on day one.

The most discussed aspect of assets offered and not accepted in the initial days of the response were the many volunteers from around the Bay Area offering to assist in cleaning up beaches and wildlife. This topic is discussed in greater depth in a separate focus issue paper.

The USCG VTS provided information to the USCG SCC in the early minutes and hours after the incident, however much of the information that the VTS was in possession of, such as reports on oil locations from vessels reporting in, was not acted upon or incorporated into the response. In subsequent days the UC did not seek information from the VTS, nor did they provide information such as deployment locations for on-water assets to the VTS.

Resources from PST were not requested until late in the first day, after recovery operations had been suspended.

Discussion

The Fire Boat offered by the City of San Francisco is not equipped to respond to oil in the water with either boom or oil recovery equipment. The Fire Boat could have performed reconnaissance duties as well as assistance in enforcing the security area established around the vessel and the bridge tower. This could have provided an additional communication link between the response agencies and one of the key stakeholders in the area. The USCG did employ the City of San Francisco's assistance from their Marine Police Unit to patrol the Bridge security zone later that morning, so the earlier decision not to engage the Fire Boat may have been a result of the hectic conditions in the first hour of the incident.

There was a lack of coordination between USCG SCC and the VTS in the initial hours after the incident, This was followed by the lack of involvement of the VTS in Ops planning of the UC. The VTS is a valuable tool providing eyes and ears on the water. VTS can assist in ensuring that skimmers are not interfered with by other commercial or recreational vessels. In cases of low visibility, VTS can assist in coordinating information between response assets and vessels outside of the response.

Lessons Learned

In the event of a spill in a location such as San Francisco, with the abundance of sensitive sites and nationally recognized environmental, historical and cultural assets, it is natural to expect extensive public and media attention. Along with that attention will be the desire for stakeholders in the area to offer assistance in terms of equipment, manpower and expertise. The RP has the discretion to provide resources as necessary by using those on site, cascading in their resources from other areas or contracting for third party resources. If sufficient resources are available in the eyes of the FOSC and the SOSC, the RP should not be obligated to contract with or take advantage of offers of assistance.

It is, however, in the interest of the overall response to ensure that the concerns of affected stakeholders are addressed, and incorporating their services into the response should be evaluated by the UC on a case by case basis. This consideration shall be made even if those resources could be provided in other ways. The example of the San Francisco Fire Boat is one where benefits could be derived by involving a local stakeholder resource regardless of their immediate benefit to the response activities. The issue of volunteers is another example of the need to address local stakeholder concerns and is dealt with in detail in a separate section. A better utilization of VTS resources can also help in coordination of spill response.

Recommendations

The question of incorporating outside assets must be made on a case by case basis. It is in the interest of all parties to ensure that stakeholder concerns are addressed. The UC should weigh these aspects in future responses when deciding whether to accept offers of assistance from outside the UC.

Better coordination between USCG SCC and VTS could be accomplished by physically co-locating them, providing an environment more conducive to seamless communications.

The ACP Committee should evaluate the need to update the ACP to include protocols for requesting the use of all NCP special teams including PST and NOAA.

Resource Management: Assets Used

Sources

Cosco Busan IAPs; Cosco Busan ICS 209; UC EU/OPS Boom Matrix; MSRC equipment specifications; NRCES equipment specifications; SF ACP/RCP; Barry McFarland, TOG SMT; CAPT William Uberti, Sector SF/COTP/FOSC; Steve Ricks, MSRC; Lt. Rob Roberts, OSPR IC SOSC; Randy Imai, OSPR; Kathleen Jennings, OSPR; Ted Mar, OSPR; Chris Klumpp, OSPR; LTJG Anya Hunter, Sector SF PAO; City of SF Hotwash minutes; Marin County AAR; OES Hotwash; Sean Kelley, Sector SF Vessel Traffic Services (VTS) Operations Director; LCDR Kevin Mohr, Sector SF Waterways Management Chief; Melanie Jarrell, Environmental Strategies, Cosco Busan incident Documentation Chief

Observation

The M/V *Cosco Busan* reported the allision with the Bay Bridge at 0830 to SF VTS via VHF and first reported oil in the water to the USCG via Capt. McIsaac at approximately 0837. The UC was established between Mr. R. Roberts SOSC and LTJG J. Snyder, the initial FOSC at 0945 on Yerba Buena Island (YBI), Coast Guard Sector San Francisco. Lt. Roberts was coincidentally at Sector SF that morning for a scheduled meeting of the Neptune Coalition, a post-9/11 group of local, state and federal law enforcement agencies coordinating safety and security efforts in Sector SF's area of responsibility. By the time the UC fist stood up, both OSROs named in the VRP has activated response activities (see Response / Initial Notification – OSROs).

The initial asset allocations of the UC included:

- Dispatch of over flights when weather permitted
- Dispatch of Investigative Officers, Marine Inspectors and CA OSPS to vessel. Quantification and specifications of hazardous material spilled.
- Full state and federal response activation
- Dispatch of USACE to address debris in water.
- Inspection of Bay Bridge
- Activation of NTVRP QI and OSROs – request physical presence of RP.
- Activation of Oiled Wildlife Care Network and Marine Mammal Center
- Requesting NOAA/ERD spill trajectories
- Involvement of a PAO to assist in media outreach
- Involvement of a liaison officer in Sacramento and at the UC.
- Documentation of response activities

Equipment Resource Deployment

The assets dispatched by the UC for on water containments and removal for the first six hours after the incident include 7 skimmers with a recovery capacity of 57,292 bbls EDRC, 3,532 bbls storage and 15,825 feet of boom. For the first day that number increased to 10 skimmers and additional boom to provide at least 67,859 bbls EDRC, 16,433 bbls storage and 25,805 feet of boom. Three sites received deployment of boom on day one; Pier 39, Aquatic Park and Crissy Field, all located in San Francisco.

Subsequent response days provided deployment of equipment for on water containment, recovery and site protection through day 7 (Nov. 13). A minimum of 5 and a maximum of 13 skimmers were deployed throughout this period. Mr. S. Ricks indicated that by the end of day 4 there was no longer sufficient suspended oil to recover by skimming. However, the UC determined to continue deployment of skimmers for 3 additional days.

Three helicopters were assigned for days 1 through 8 (4 on day 5) and 1 fixed wing aircraft on day 3. Only one helo was assigned for days 9 through 14. Low visibility due to fog kept aerial recon grounded on day one until about six hours after spill notification.

A low of 25 and a high of 41 support vessels were assigned from day one through day 7, dropping to 14 on days 8 and 9 and 12 vessels on days 10 through 14.

The personnel resources assigned by the UC started with 168 persons on day one and ramped up to a high of 1,399 persons on day 7. The number of personnel assigned on days 8 through 14 ranged from 1,048 to 1,154. These personnel included federal, state, RP, local agencies and contractors.

UC Establishment and Composition

Although the SOSC and the FOSC convened jointly at 0945 and established the Unified Command; the QI/RP was not present. They coordinated their actions via telephone throughout the morning and early afternoon of day one. The SOSC formally requested that the QI be identified and present at the UC at 1415. The QI did not physically arrive at the ICP and integrate into the UC until 1600 on day one.

Scientific Resources

State EU representatives were notified about **0930-1000** on day one and first EU representative Ms. K. Jennings, was on site at the ICP at **1100** day one followed by Mr. R. Imai at **1400**. The EU unit called for trajectories from NOAA and overflight when weather allowed. The first trajectory was provided to the UC at **1244**. It is unclear what boom deployment for day one was directed by the UC or deployed on the initiative of the OSROs or the QI. Booming of Pier 39 and Aquatic Park appears to have been done on the initiative of the OSROs and the booming of Crissy Field on the initiative of the QI, who was coordinating by telephone between the parties at the UC and the OSROs.

ICS 232 forms were prepared by the EU for days 2 through 5, using ranking and strategy recommendations from the ACP. The EU provided Environmental Concerns and Constraint direction to the UC for days 6 through 10.

Based on the initial ICS 232 forms, not every site protection strategy listed was achieved each day. The EU noted which sites strategies were completed either through notes or a listing of priority ZERO as opposed to 1, 2, 3 for decreasing environmental concern and 4 for economic concern.

A comment was made by Mr. R. Roberts (SOSC) that he would have preferred to have additional biologists available to the UC.

The NOAA SSC was activated and acted as the science liaison to the FOSC including providing trajectories as requested by the UC throughout the early days of the response while oil was still in the water. The initial trajectory was based on the low initial quantity reported however NOAA states this did not impact the effectiveness of the initial trajectory.

Liaison Officer

The liaison officer duties changed hands several times during the first few days of the UC. The person normally tasked with handling these duties from CA OSPR was unavailable. The job changed hands primarily because of UC's dissatisfaction with the job performance. The initial concerns voiced by county and city officials were influenced by the actions of the liaison officers in the first few days of the response.

Physical ICP Location and Resources

The ICP changed locations twice in the first three days of the response. The initial location (USCG Sector SF, YBI) was recognized as a temporary but convenient location. The second location, the Firehouse building at Fort Mason in San Francisco was restrictive in terms of space available, physical resources available and lack of good communications. The third and final location chosen on Treasure Island provided needed resources but also required substantial retrofit prior to its use, as the building was out of use at the time.

The PST resources were not requested until late in the evening on the first day after oil recovery operations had been suspended. Their assistance and resources were requested by the UC in the evening of Day 1 after the larger quantity was formally disclosed. The PST assets were integrated into the UC starting on the morning of Day 2, providing ICS technical and SCAT personnel. The number of personnel provided by the PST increased in subsequent days. The PST also provided equipment to the UC, including ICS kits, laptops, cameras, GPS maps, a vehicle, a 48 foot Hazmat trailer and a 21 foot command post.

Other Impacts on UC Resources

The QI/RP representative on the UC commented on interference observed at the UC from representatives on scene contracted by the RP underwriters. The inclusion of a second RP audit team was of concern to TOG for second guessing decisions being made and actually interfering with decisions both in the UC and at field operation sites. The FOSC and SOSC did not register this complaint nor observed such interference, although their line of communication with RP contractors would normally go through the QI/RP representative to the UC.

Discussion

On-water recovery equipment and personnel the first day of the response was in excess of regulatory requirements. There was a lack of visibility and misleading initial quantification of the spill somewhat impacted their effectiveness. On-water equipment deployment during subsequent days of the response appear to be adequate and in accordance with the ACP. In fact some on water recovery deployment as well as the duration of boom deployment requested by the UC was beyond what the situation required and could be viewed as providing more of a public relations benefit as opposed to real response benefits.

The O'Brien's Group stated they mobilized 800 people in 72 hours, but they were not visible to the public, and since communications were problematic due a lack of communications staff trained for oil spills, satisfactory explanations could not be given in a timely manner. For example, beaches typically are not cleaned until the water was cleaned due to re-oiling, but the public only saw an oiled beach with no cleanup and no explanation. Certainly more staff could have been dedicated and ready to communicate about health and safety issues, the cleanup process, and cleanup priorities.

Although the QI communicated early on with the SOSC, FOSC and OSROs either directly or through TOG command center in Louisiana, they did not physically integrate into the UC until 1600 on day one, nearly eight hours after the incident. The OSRO MSRC stated that much of their early direction came via the OSRO representing the QI at the UC. Consequently they felt that they were not getting integrated communication with the UC through much of the first day, leaving them to follow their professional judgment and internal practices and procedures in the early response hours.

When the question was raised to the FOSC, SOSC and QI whether there was any impediment to the response due to resource restrictions, all three of the UC representatives stated NO. This appears to be supported by the records of equipment and personnel assigned over the first two weeks of the response. However, one issue which seems to contradict their statements came from the EU scientists indicating that not all sensitive sites listed for protection strategies, based on the ACP, received attention for days two through five. When questioned as to why this might occur, the EU stated that several factors can come into play during a typical response. One such factor would be the lack of daylight coinciding with seasonal low tides necessary to adequately deploy boom in certain sites. The month of November provides limited daylight and often the low tide cycle occurred near the end of the daylight hours, precluding safe booming operations. This issue is discussed in the separate booming strategy comments in the ISPR report.

Perhaps the most pronounced area of concern with the UC during the first few days was the perceived lack of expertise in the liaison officer role. The frustration voiced by local counties, cities, state policy makers, agencies and the general public can be traced back to failures in adequately performing this function. There was confusion expressed over the lack of involvement of local government into the UC, the concern voiced over involvement of the RP in UC decision making, and a perceived lack of adequate information between the UC and local government in both directions. Although the UC performed in accordance with ICS procedures and protocols and consistent with the ACP, RCP and NRP, it is the job of the liaison officer to develop relationships and trust with those interested stakeholders and act as a conduit between them and the UC. When combined with the initial error in quantification, together with some other misstatements such as the error in reporting when drug testing was performed on the vessel crew, mistrust between the UC and media and other stakeholders developed that set the stage for a contentious media and local government relationship perspective.

Lessons Learned

Although the UC was established with two of the three components early in the response, the lack of integration of the QI may have hampered coordination between the UC and the OSROs on day one. It

should be noted that even in the absence of close UC/RP coordination, a remarkable recovery was accomplished, especially given the lack of visibility on that day.

Substantial equipment resources were available in the vicinity of the incident due to San Francisco being a high volume oil port requiring response resources to be located nearby. Additional resources were cascaded in by the RP as deemed necessary by the UC.

Liaison officer duties suffered due to a lack of experienced personnel for the job.

Recommendations

The State of California should ensure that there are trained personnel available in sufficient depth to handle the task of liaison officer in those locations susceptible to marine hazardous material.

In future incidents, the FOSC and, if relevant, the SOSC should ensure that the QI/RP is integrated physically into the UC at the earliest possible time. If physical integration is not immediately possible, the UC must ensure that they are kept advised of communications between the QI/RP and their contractors in order to adequately coordinate resources from the UC in the initial hours of response.

Communications between Field and UC

Sources

Cosco Busan Incident Action Plans; Steve Ricks, MSRC; CAPT William Uberti, Sector SF/COTP/FOSC; CAPT Paul Gugg, Current Cosco Busan incident FOSC; CDR Pat DeQuattro, Sector SF Response Chief

Observation

During the first hours of the response, on-water OSRO assets communicated almost exclusively with their respective supervisors at company dispatch centers. The UC, located at USCG Sector SF, received only sporadic reports of on-scene conditions telephonically from the OSRO supervisors. After the OSRO representatives arrived at Sector SF at approximately 1400, the communications between OSRO response assets and the UC were efficient and satisfactory. There were no other problems with communications between the field (including government vessels) and the UC.

OSROs would report the day's activities to the Situation Unit leader. This information was reliable and timely. Planning Section incorporated this information into the next day's IAP. IAPs were completed in the evening by the Planning Department and signed by the UC. The 204s were separated from the IAP and distributed to the field unit via the OSRO representatives at each regional worksite morning safety brief.

Typically, operations would change throughout the day as the clean up progressed and new information was obtained.

Discussion

The on-water assets of MSRC and NRCES were acting independent of UC direction during the first hours of the response. The first responding OSRO vessels communicated with their supervisors in their respective dispatch centers, relaying the general location of the spill bodies they were encountering on the foggy Bay. The OSRO vessels were finding and skimming many sizeable spill bodies, yet the UC received virtually none of this information until mid-afternoon of 07 Nov 07 when the OSRO representatives arrived at Sector SF. Prior to that time the OSROs did not regularly relay these reports to the UC, nor did the UC seek such information from the OSROs. Currently, there is no protocol for communicating spill body information between OSRO assets and the UC in the earliest stages of a spill response and perhaps some confusion on the part of at least one OSRO regarding who was taking charge of the incident. Such on-scene reconnaissance could have been very helpful in determining the spill's dimensions and drift rate hours earlier than they were.

Other than the above shortcoming, there were no other indications of significant technical problems with communications between the field and the UC on day one. The expansion of UC staffing and the development of the Incident Radio Communications Plan (ICS 205-CG) and Communications List (ICS 205a-CG) seem to have prevented further problems. Of note, however, is the omission of these forms on one or two of the IAPs during the initial two weeks of the response. All established communications protocols (e.g., between USCG vessels and Sector SF Command Center) functioned properly.

The ICS process was followed when the field units briefed the situation unit. IAPs have a set operational period based on information change rate and planning cycle timelines. The IAP for this incident was on a 24 hour operation period even though information changed hourly. This did not effect operations because the responders modified actions based on the most current information.

Lessons Learned

It cannot be assumed that OSROs will relay their on-scene information regarding the spill body to the UC during the first hours of the response.

Field units know the ICS process for reporting activities to the Situation Unit. A 24-hour operational time period for IAPs served operations effectively with the understanding that tactical operational decisions would occur more frequently than every 24 hours.

Recommendations

Establish protocols in the ACP for OSROs to promptly communicate their on-scene observations to the UC or FOSC. If this information is not readily forthcoming, the UC or FOSC staff should request such information from the OSROs by all appropriate means. Such communication practices should be emphasized in regular spill response drills and exercises.

Continue emphasizing the current ICS training and exercise program that resulted in proper effective communications between field units and the Situation Unit. Make note in the ACP that a 24 hour operational period has proved effective. Review documentation made available by the UC during the *Cosco Busan* incident for possible inclusion into the SF ACP.

Cosco Busan oil spill (For Release)

Coast Guard Pacific Area Strike Team members SK1 Kevin Graf and EM1 Brian Atkison search the shoreline at Baker Beach for oil spilled from the Cosco Busan.

Beach & Fishery Closure and Re-Opening

Sources

http://gov.ca.gov/index.php?/press-release/8085/ - Governor's Executive Order suspending fishing as of 11-15 (S-14-07), issued in press release dated 11-13-07.
http://www.dfg.ca.gov/news/news07/07082.html - DFG's news release of fishing closures, containing map of closure area (dated 11-14-07).
http://www.dfg.ca.gov/ospr/spill/incidents/cosco_busan/sfbay_fish_open.pdf - DFG's lifting of the fisheries closure.
http://skytruth.mediatools.org/content/images/photo.acs?photo_id=15048&object_id=11286&size=lg

Radar satellite image taken at 6 a.m. on November 12, 2007. (Clean water is medium-gray; dark gray streaks and patches are consistent with the appearance of oil slicks.); San Francisco Hotwash Meeting Minutes – 11/28/07; Zeke Grader, PCFFA to U.S. House of Representatives Subcommittee on Coast Guard & Marine Transportation, 11-19-07; Bud Leland, OSPR Deputy Administrator; Maria Voikovich, Manager of Marine Region; Zeke Grader, PCFFA Executive Director

Observation

The UC does not have the authority to close beaches or regulate fisheries.

Closure decisions are made by land managers and agencies regulating fisheries.

Fishery closure is a significant issue to the local communities.

During response operations crab fisheries were closed by The Governor at the request of the crab fishing industry. The ISPR Team is exploring whether there is a nexus between information made available by the UC and the State of California used in deciding the scope of the fishery closure. This is a high interest item that received considerable press and political attention during the first two weeks of oil spill response.

Discussion

Lessons Learned

Recommendations

Comments

Phase II will address this further.

Relocating the Incident Command Post

Sources

Barry McFarland, TOG SMT; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC

Observation

The Incident Command Post started out at Yerba Buena Island. As response quickly outgrew the command post, it was relocated to Fort Mason on day two. Fort Mason was not adequate for a large command post and a final move was made to Treasure Island on day four.

Discussion

The ACP for San Francisco does not pre-identify a command post location. This requires the UC to seek out a command post location during the spill response. The *Cosco Busan* incident occurred at the same time a large corporate event was taking place in the San Francisco area. Hotel rooms were very difficult to obtain and rooms suitable for an ICP were not available. The Fort Mason location was not set up to support the telecommunication and computer requirements that exist in a modern command post. In addition, the physical space was not large enough. Above all, Fort Mason was only available for the first few days of the response.

The Treasure Island location required a lot of initial preparation to make it a suitable facility for a command post. Based on interviews and site visits, the Treasure Island facility was appropriate for the *Cosco Busan* response.

It is not clear how distracting the move of the command post was. In interviews, everyone agreed that it was at least a minor inconvenience, and some felt it was a major distraction. Typically it takes a time to set up a functional Command Post. If at all possible, the initial command post should be suitable to carry out the entire response. The Yerba Buena Island temporary command post made sense because many first responders were already together and there were no other readily available options.

Lessons Learned

Large scale oil spill drills often use hotel ballrooms for a command post. In an emergency there is no guarantee that they will be available. Even if they are available for a short period of time, it is doubtful that any facility would be ready to rent for 30+ days. Given the geographic and political complexities of the San Francisco Bay area, a relatively moderate spill will require a large command post. Moving a command post after several days was distracting to some degree for most responders and significantly disruptive to others.

Recommendations

A search for pre-designated command post[s] should be undertaken and plotted on a map[s]. Once a site is located it should be prepared for spill response. Drills should take place at the facility to confirm that it can support a large scale response. The facility should be listed in the ACP. The area planning committee should determine the minimum requirements for an incident command post based on the complexity of the spill. This designation would not rule out the use of another facility, it would merely confirm that there is always at least one place to use in the event of an emergency.

Unified Command: Liaison Officer

Sources

Barry McFarland, TOG SMT; CAPT William Uberti, Sector SF/COTP/FOSC; Lt. Rob Roberts, OSPR IC SOSC

Observation

The Liaison Officers early in the spill response had limited success interacting with local governments and stakeholders.

Personnel at the liaison position were replaced to solve this problem but this did not immediately resolve the local agencies issues.

The gaps and problems with liaison issues caused distractions with the spill response and created a negative image of the UC with local agencies and the public. This overshadowed the operational successes.

Discussion

The liaison position is critical in any response. In the San Francisco Bay it is even more important due to the large number of stakeholders impacted by even a moderate oil spill. The liaison efforts were hindered by two factors. Initially, the spill volume was underreported. There were also gaps in the notification of the local governments by the State OES warning center. When the more accurate spill size was released, the liaison officer was bombarded with inquires about what was going on, including plans for convergent volunteers. In addition many stakeholders were upset about not being notified about the scale of the incident. The demands placed on the liaison position far exceeded the abilities for one individual to adequately address.

The liaison officers had not worked extensively with the local stakeholders in advance of the spill and in general did not have a rapport with them from prior meetings. The stakeholders did not feel represented and felt frustration with the response. This sentiment was difficult if not impossible to reverse.

Lessons Learned

A competent liaison officer is critical to an effective response in the San Francisco Bay Area. In order to be effective, potential liaison officers need to be involved with the planning process. In addition, they need to make contacts with local stakeholders before a spill to build trust and to identify critical local issues.

When local stakeholders feel like they are not being represented through the liaison officer, they will find another way to get their point across. In the *Cosco Busan* response, the result was heavy political pressure at all levels. This had an impact on the ability of the UC to carry out spill response operations.

Recommendations

The liaison function must be recognized as one of the most important positions in an oil spill response unified command structure. The effort to properly prepare and train them must be a high priority.

Ideally, the liaison efforts should begin during the planning process. The ACP is a logical place for this activity. If stakeholders are absent during the planning process, efforts must be initiated to engage them.

Liaisons should be familiar with the local area that they are expected to work in. The state should explore the possibility of assigning liaison officers to the first responder teams.

Unified Command: Non Government Organizations (NGO)

Sources

Yvonne Addassi, OSPR, Wildlife Branch Director; Al Storm, OSPR; Steve Sawyer, OSPR Staff Counsel; Bill Robberson, US EPA; Randy Imai, OSPR

Observation

Trained NGOs offering expert and needed services were an important element of the oil spill response.

Discussion

NGOs were involved only to a limited extent in the response of the UC to the spill, and primarily in the area of oiled wildlife (see separate discussion of oiled wildlife care). Those NGOs that were active in the response, however, appeared to have played valuable roles. In particular, it was noted that the scientists at San Francisco Estuary Institute were useful in assisting with shoreline assessments, and the Farallones Marine Sanctuary Association's Beach Watch Program (which had participated in the Safe Seas 2006 exercise) provided trained eyes on the ground along the Pacific shoreline, looking for oil and oiled birds and assisting with volunteer coordination. The NOAA SSC also noted that they made significant use of the surface current patterns collected through HF radar by CeNCOOS (the Central Coast Ocean Observing System, with Toby Garfield and Jeff Paduan as contacts), particularly outside the Bay. CeNCOOS had been added to GNOME as a result of Safe Seas 2006 drill, and helped NOAA SCC understand how surface currents would change as the wind changed (thereby providing improved trajectories).

Lessons Learned

Involving NGOs in drills, such as the Safe Seas 2006 drill, provided an increased number of readily available partners in the event of an oil spill. Previously established relationships were those that were most useful during the spill response.

Recommendations

Include interested NGOs in regular drills as appropriate.

Evaluate the value of providing additional CeNCOOS coverage inside San Francisco Bay proper, as well as investigate coordination with the other California ocean observing systems; *see* www.cocmp.org.

The ACP committee should pursue relationships with pertinent NGOs.

VI. ACRONYM LIST

AC – Area Committee
ACP – Area Contingency Plan
AIS – Automatic Identification System
ANT – Aids to Navigation Team (USCG)
AOR – Area Of Responsibility
API – American Petroleum Institute
ART – Applied Response Technology
ASSF – Air Station San Francisco (USCG)
BAP – Best Achievable Protection
bbl – barrel (42 gallons)
BCDC – (San Francisco) Bay Conservation & Development Commission
BNTM – Broadcast Notice To Mariners
CAC – Common Access Card (DOD)
CALTRANS – California Department of Transportation
CB – Cosco Busan
CDFG – California Department of Fish & Game
CDPR – California Department of Parks & Recreation
CDO – Command Duty Officer
CeNCOOS – Central & Northern California Ocean Observing System
CFR – Code of Federal Regulations
CG – Coast Guard
CGAAP – Coast Guard After Action Program
CIC – Critical Incident Communications
COCMP – Coastal Ocean Current Monitoring Program (CA)
CODAR – COastal raDAR
COFR – Certificate Of Financial Responsibility
COTP – Captain Of The Port (USCG)
CPS – Contingency Planning System (USCG)
DHS – Department of Homeland Security
DUP – Dispersant Use Plan
EDRC – Effective Daily Recovery Rate
EOP – Emergency Operations Plan
ERD – Emergency Response Department (NOAA)
ESI – Environmental Sensitivity Index
EU – Environmental Unit
FOSC – Federal On-Scene Coordinator
FOSCR – Federal On-Scene Coordinator Representative
FRT – Field Response Team (OSPR) *or* First Response Team (FEMA)
GIS – Geographic Information System
GNOME – General NOAA Oil Modeling Environment
GPS – Geographic Positioning System
GRA – Geographic Response Area
HAZCOM – Hazard Communication
HAZWOPER – Hazardous Waste Operations & Emergency Response
HSEEP – Homeland Security Exercise and Evaluation Program
IAP – Incident Action Plan
IBRRC – International Bird Rescue Research Center
IC – Incident Command; also Incident Commander
ICP – Incident Command Post
ICS – Incident Command System
ICS 204-CG – Assignment List form
ICS 204a-CG – Assignment List Attachments form

ICS 209-CG – Incident Status Summary form
ICS 215-CG – Operational Planning Worksheet form
ICS 215a-CG – Hazard/Risk Analysis Worksheet form
ICS 232-CG – Resources at Risk Summary form
ISPR – Incident Specific Preparedness Review (USCG)
JIC – Joint Information Center
LIDAR – Light Detection and Ranging
LKS – Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California)
MRC – Media Relations Course (USCG)
MSRC – Marine Spill Response Corporation
MT – Metric Ton
NCP – National Contingency Plan
NIMS – National Incident Management System
NOAA – National Oceanic & Atmospheric Administration *or* National Organization of
NPREP – National Preparedness for Response Exercise Program
NRC – National Response Center
NRCES – National Response Corporation Environmental Services
NRDA – Natural Resource Damage Assessment
NRP – National Response Plan
NRT – Navigation Response Teams (NOAA)
NSFCC – National Strike Force Coordination Center (USCG)
NTVRP – Nontank Vessel Response Plan
OES – Office of Emergency Services
OPA – Oil Pollution Act
OSC – On-Scene Coordinator
OSHA – Occupational Safety & Health Administration
OSLTF – Oil Spill Liability Trust Fund (USCG)
OSPR – Office of Spill Prevention & Response (CA)
OSPS – Oil Spill Prevention Specialist
OSRO – Oil Spill Response Organization
OSRV—Oil Spill Response Vessel
OWCN – Oiled Wildlife Care Network
PFO – Principal Federal Official
PI – Pollution Investigator (USCG)
PIAT – Public Information Assist Team
PIO – Public Information Officer
PQS – Position Qualification Standards (USCG)
PRFA – Pollution Response Funding Authorization (USCG)
PSGP – Port Security Grant Program
PST – Pacific Strike Team (USCG)
QI – Qualified Individual
RCP – Regional Contingency Plan
RECP – Regional Emergency Coordination Plan
RP – Responsible Party *or* Responding Party
RPM – Remedial Project Manager
RRI – Response Resources Inventory
RRT – Regional Response Team
RWQCB – Regional Water Quality Control Board
SCAT – Shoreline Cleanup & Assessment Team
SDO – Sector Duty Officer
SERC – State Emergency Response Commission (state level LEPCs)
SEMS – Standardized Emergency Management System (California)
SF – San Francisco
SMT – Spill Management Team
SOSC – State On-Scene Coordinator
SSC – Scientific Support Coordinator (NOAA)

SSEP – Sensitive Site Exercise Program (OSPR)
STA – Station (USCG)
SUC – Situation Unit Controller (USCG Operations Controller)
TAD – Temporary Assigned Duty (military)
TAMS – Template And Management System (USCG)
TOG – The O'Brien's Group
TOPOFF – TOP OFFicials (DHS)
TRATEAM – Training Team (USCG)
TTX – Table Top eXercise
UC – Unified Command
VOSS – Vessel of Opportunity Skimming System
VRP – Vessel Response Plan
VTS – Vessel Traffic Service (USCG)
YBI – Yerba Buena Island

Incident Specific Preparedness Review
M/V *Cosco Busan* Oil Spill in San Francisco Bay

REPORT ON INITIAL RESPONSE PHASE
11 January 2008

The following individuals participated in completing this Incident Specific Preparedness Review (ISPR) report and have fully reviewed its contents:

RADM Carlton Moore, USCGR (Retired)
ISPR Chairman

Rob Dudgeon
City of San Francisco
Department of Emergency Management

John Berge
Pacific Merchant Shipping Association
San Francisco

Linda Sheehan
California Coastkeeper Alliance

Jean R. Cameron
Pacific States/British Columbia Oil Spill
Task Force

LCDR Ross Sargent, USCG
CG MLCPAC (l)
ISPR Executive Assistant/Legal Advisor

FOR L. CURTIS

Lisa Curtis
State of California
Office of Spill Prevention and Response

LT Kelly Dietrich, USCGR
COMDT (CG-533-2)
ISPR Recorder/Custodian of Records

Steve Lehmann
National Oceanographic and
Atmospheric Administration
Office of Response & Restoration

Charter Team Members

ISPR Chairman
RADM Carlton Moore, USCGR (Ret)

Rear Admiral, U.S. Coast Guard Reserve, retired. Emphasis in Port Security and Expeditionary Warfare, which involved three overseas deployments, three unit commands and two Group commands. During the recall to active duty in response to events of September 11, 2001, assumed the position of Deputy Commander, Coast Guard Atlantic Area, one of two operational commands in the Coast Guard. Awards include the Legion of Merit, Coast Guard Distinguished Service, among others. In civilian employment, Governor Schwarzenegger appointed him as Administrator, California Office of Spill Prevention and Response, responsible for a comprehensive environmental protection and response organization, 188 employees, $22.5 million operating budget, four operational programs (enforcement, scientific, planning and administration). He administered various maritime programs at State level, including Harbor Safety Committees in all California major ports, cooperative programs with Coast Guard and other federal counterparts, safety/compliance programs for the shipping industry, maritime towing companies and port authorities, and responded to oil spills or other hazardous materials on State waters. He is now retired. He is past President of the Sacramento Chapter of the Navy League (400 members) and served as Vice President, Sacramento Optimist Club, supporting programs for disadvantaged youth. He is an active member of the California State Bar.

NOAA SSC Representative
Steve Lehmann, NOAA OR&R

Mr. Lehmann has the served as the NOAA Scientific Support Coordinator (SSC) for the New England region since 1990, proving training, contingency planning support and coordinating scientific advice to the US Coast Guard, state agencies and others. He has acted as the SSC for every notable marine pollution emergency in the region during that time. In addition, Mr. Lehmann has coordinated on-scene scientific support on major spills around the country and internationally including; the Exxon Valdez, the Persian Gulf War Spills, TWA 800 crash, Bouchard-120, Selendang Ayu, and the spills associated with hurricane Katrina. Mr. Lehmann is currently the NOAA representative to Regional Response Teams for regions 1, 5 and 7, the Joint US/Canada Response Team and is the chairman of the National Response Team's Science and Technology Committee.

State of California Representative
Lisa Curtis, Administrator, California Office of Spill Prevention and Response

Governor Arnold Schwarzenegger appointed Ms. Lisa Curtis as the Administrator of the Office of Spill Prevention and Response (OSPR) on July 10, 2006. Prior to Ms. Curtis' appointment as Administrator, she was appointed as Deputy Administrator on November 9, 2004 and served as "Acting" Administrator from September 22, 2005 until her appointment as Administrator. Curtis held the position of Chief of the Office of Spill Prevention and Response's Enforcement Branch from October of 2001 to November 2004. In this capacity, she oversaw the Department's statewide pollution response and enforcement efforts. She served in different management capacities with the Department of Fish and Game from 1997 to 2001. This included managing the sport and commercial fishing enforcement efforts, public outreach, and hunter education in southern California. From 1991-1996, she was responsible for being the Incident Commander for moderate and large marine oil spills. She also was responsible for reviewing and enforcing regulations affecting oil spill response organizations, tug escorts, oil transfers, oils spill contingency plans, and financial responsibility requirements. Additionally, she worked directly with the United State Coast Guard's Eleventh District in a one year assignment in 1993 where she developed the protocols to implement the Memorandum of Agreement. The protocols define how the Department and the United State Coast Guard

work together for marine oil spill response and preventions efforts to minimize duplication and protect California's resources and interests.

Lisa Curtis was one of the founding members of the Standardized Oil Spill Response Management System (STORMS) Task Force that created and produced a spill response field operations guide in 1995. The field operations guide is still currently used by federal, state, local and oil industry personnel. In 1995, she was awarded a United States Coast Guard Public Service Commendation and a Department of Fish and Game letter of Commendation for this effort. She also earned the Office of Spill Prevention and Response's Officer of the Year award in 1995. She has a variety of experience related to California's coastal oil spill prevention and response efforts.

Lisa Curtis possesses a B.S. degree in Criminal Justice and a M.A. degree in Organizational Management. She is a graduate of the F.B.I. National Academy. She has been with the California Department of Fish and Game since 1987.

State of California Alternate
Capt. Paul Hamdorf, Patrol Captain OSPR

Paul Hamdorf is currently assigned to the Office of Spill Prevention and Response (OSPR) in Southern California. His area of responsibility spans the coastline from San Luis Obispo to the Mexican Border. Hamdorf is responsible for supervising and directing all OSPR enforcement and investigations in Southern California. He represents the OSPR Administrator as the pre-designated state on scene coordinator for all moderate and large marine spill responses in Southern California. Hamdorf has worked for the State of California since 1982 and has extensive experience with resource crime investigation, public safety issues, and oil spill response duties. He received his Bachelor of Arts degree from the University of California, Santa Barbara. Hamdorf has participated in a variety of oil spill response planning activities, is currently the Co-chair for the Los Angeles ACP Committee, and was the Los Angeles area representative for OSPR during the planning process for SONS 2004. He holds a USCG Master's License and is a current member of the Department of Fish and Game Dive Team. Hamdorf has been recognized for his service to the Department of Fish and Game and has received awards including: Lifesaving, Director's Superior Achievement, and Officer of the Year (Marine Region).

Oil Spill Policy Representative
Jean R. Cameron, Executive Coordinator, Pacific States/British Columbia Oil Spill Task Force

Jean Cameron has served as the Executive Coordinator for the Pacific States/British Columbia Oil Spill Task Force since 1993. Jean's responsibilities include project management, annual and strategic planning, meeting planning and facilitation, stakeholder outreach, and overall administration. More information on Task Force projects and products is available at http://www.oilspilltaskforce.org. Jean served as a member of the Navigation Safety Advisory Council to the US Coast Guard from 1999 to 2006. Jean has presented papers on Oil Spill Task Force projects at the 1995 Marine Log Tanker Legislation Conference, to the Oceans '96 Conference, the 1997 Clean Gulf Conference, the 1998 International Pilotage Conference, API's 2004 Tanker Conference, 2004 Prevention First, the 2007 American Salvage Association conference, and the International Oil Spill Conferences of 1993, 1997, 1999, 2001, and 2003. Jean received the Oregon Environmental Council's Distinguished Service Award in 1993, the US Coast Guard's Meritorious Public Service Award in 2000, and both a Certificate of Merit and a Public Service Commendation from the US Coast Guard in 2002. Jean's Bachelor of Science degree in Resource Development and Environmental Management was received summa cum laude from the Department of Planning, Public Policy, and Management at the University of Oregon.

Environmental Coalition

Linda Sheehan, Executive Director, California Coastkeeper Alliance (CCKA)

As Executive Director of CCKA, Ms. Sheehan works statewide to preserve and expand upon the advances made by California's 12 Waterkeeper groups in protecting water quality and coastal ecosystems. Ms. Sheehan brings to CCKA almost 20 years of experience in environmental law and policy matters. She has achieved notable success in protecting the health of coastal and marine waters off California by passing landmark legislation to control polluted runoff, improve water quality monitoring, increase oversight fees on pollution dischargers, and limit the introduction of harmful invasive species from ships into coastal waters. Ms. Sheehan has been involved in litigation over the release of invasive species in ships' ballast water, restoration of needed flows in coastal rivers and streams, and regulation of once-through cooling systems in coastal power plants. She is also active in working on statewide policy and permits before the State Water Resources Control Board. Ms. Sheehan is a Senate appointee to the Technical Advisory Committee of the Office of Oil Spill Prevention and Response, and serves on the Alameda County Local Agency Formation Commission, a regional planning agency. Past appointments include terms as a Vice-Chair of the Global Ocean Observing System Steering Committee and as a member of the National Invasive Species Advisory Committee. Ms. Sheehan holds a B.S. in chemical engineering from the Massachusetts Institute of Technology; an M.P.P. from the University of California, Berkeley's Graduate School of Public Policy, where she was a Berkeley Policy Fellow; and a J.D. from the University of California's Boalt Hall School of Law.

Environmental Coalition Alternate

Deb Self, Executive Director, San Francisco Baykeeper

Deb Self is Executive Director of San Francisco Baykeeper, founded in 1989 to protect the water quality of the San Francisco Bay's watershed and near shore coastal waters. In addition to on-the-water patrolling of the Bay, her work for Baykeeper has included regulatory advocacy and enforcement actions on all of the Bay's major pollution problems, including invasive species released from ship ballast water, urban storm water pollution, sewage overflows, agricultural runoff from the Central Valley, pollution from historic industrial and mining operations, and discharges to the water and air from active Bay Area industries, including oil refineries. Ms. Self has over 25 years of experience in environmental regulatory and policy analysis, including environmental compliance auditing at Oak Ridge National Laboratory, research for ORNL on the efficacy of various chemical accident notification protocols, and assisting numerous community groups with permit review and compliance monitoring under federal environmental laws. She holds a B.S. in Geology and an M.A. in Environmental Sociology, both from the University of Tennessee.

Industry Representative

John Berge, Vice President, Pacific Merchant Shipping Association

John Berge is Vice President of the Pacific Merchant Shipping Association (PMSA), a regional maritime industry trade association headquartered in San Francisco. Joining PMSA in 2000, John has over 27 years experience working in the maritime industry. PMSA is active in many aspects of maritime trade and has been involved in the development of navigational risk reduction and response programs, regulations and best practices. John sits on the Harbor Safety Committee of the San Francisco Bay Region as an appointee of the Governor, representing dry cargo ocean carriers.

San Francisco City Representative

Ms. Laura Phillips, Executive Director, Department of Emergency Management, Division of Emergency Services

Laura Phillips is the Executive Director of the Department of Emergency Management for the City & County of San Francisco providing leadership and oversight of the Division of Emergency Communications and Division of Emergency Services (formerly OES). Her 30 year career includes both public and private sector leadership in Public Safety Communications, 911 Operations, technical services management and emergency preparedness/homeland security programs. Laura Phillips serves as the Chair of the SUASI (Super Urban Area Security Initiative), which along with leaders from the super urban areas, oversees homeland security and emergency preparedness/response programs for the Bay Area. She is an active member of the Communications Interoperability Working Group for the SUASI which is collaborating on numerous projects that promote communications interoperability initiatives within the SUASI area; this includes a multi-county effort for voice/data interoperability connecting East Bay, West Bay, and South Bay Areas (SVRCS). She is currently serving as a Director for the Northern California Chapter of the Association of Public Safety Communications Officials (APCO) and has held numerous posts within APCO and other professional organizations, including President, over the last 16 years. She has served as the Co-Project Director for the Silicon Valley Regional Interoperability Project from 1998-2003 including chair of the Technical Subcommittee for Radio Interoperability. Ms. Phillips holds a Bachelor of Science in Criminal Justice with a concentration in management. She has earned executive management certifications in Emergency Medical Dispatch (EMD) and Earthquake Management. Nationally she has presented numerous presentations on communications interoperability, grants, governance issues and regional collaboration.

City of San Francisco Alternate

Mr. Rob Dudgeon, EMT-P Manager of Plans and Operations

Rob Dudgeon is the Manager of Plans & Operations for the City of San Francisco's Department of Emergency Management. Mr. Dudgeon holds a BA in Management and is a licensed paramedic with experience ranging from first response to managing the City's emergency operations center. Since he began his career in 1987 he has continually expanded his horizons in emergency services through education, teaching and serving on a wide variety of workgroups and committees. Currently he serves on a FEMA workgroup rewriting plan development guidance for local and state government.

Since the mid-1990's he has conducted incident investigations following quality improvement doctrine. Responsible for clinical quality, he investigated and analyzed prehospital care incidents in three northern California counties as well as managed the subsequent improvement plans and licensure actions. In 2005 he joined the Department of Emergency Management and assumed leadership of the Plans & Operations staff. This group of emergency managers and first responders is responsible for coordinating the City's multi-disciplinary response to emergencies, developing emergency plans, managing the City's exercise program and public education campaigns.

Executive Assistant/Legal Advisor

LCDR Ross Sargent, USCG, CG MLCPAC (l)

LCDR Sargent is Assistant Chief of the Operations Law Branch at the USCG Maintenance and Logistics Command, Pacific. He has served in the Coast Guard since 1995 (mainly in the Bay Area) in a variety of operational and staff positions such as marine casualty and violation investigator, chief of port safety and security, chief of waterways management, and executive officer of a vessel traffic service. LCDR Sargent earned a B.A. in History and a J.D. from the University of California, Davis.

Recorder

LT Kelly Dietrich, **USCGR**, COMDT (CG-533)

LT Dietrich has a background as a civilian Environmental Health and Safety Specialist and Marine Safety Professional Officer in the United States Coast Guard. She obtained a B.S. in Environmental Health / Industrial Hygiene (1998) from Bowling Green State University in Ohio and Master's in Environmental Science (2001) from the Medical University of South Carolina. Her civilian profession focused on environmental hazard assessment, mitigation, and control including occupational safety and health, exposure assessment, training, and program maintenance. While on active duty almost 5 of the last 7 years, she qualified as a FOSCR, Pollution Investigator, Contingency Planner, Harbor Safety Officer and nearly Port State Control Boarding Officer. She served as Sector San Diego Area Contingency Plan Coordinator and Command Duty Officer for the last two years. She was the lead designer for the 2007 PREP Table Top Exercise in San Diego which help facilitate CA Places of Refuge Pre-planning, hazardous substance preparedness, communications, wildlife response, and applied technologies. She has been an active member in the RRT 9 subcommittees and quarterly meetings.

NOTIFICATIONS

08:33
VTS notifies CALTRANS dispatch of allision.

08:35
SCC notifies VTS that they will be conducting a SECURITE broadcast on CH 16.

08:36
Sector SF issues Safety Marine Information Bulletin (SMIB) about the allision; warned all vessels to stay 100 yards from CB & to transit area with caution.

08:37
Bar Pilot President calls COTP/FOSC reporting allision and fuel leak. SCC Notifies Sector Prevention Investigators.

08:45
SCC directed Station to pick up and transport Pollution Investigators to CB.

SCC briefed duty Port State Control Inspector.

08:48
Bar Pilot President called VTS to inform them there was pier debris and oil in the water and recommended that Army Corps of Engineers be notified.

08:50
SCC briefs Sector IMD. USCG notified by NRC (Report No. 853865) that there was oil in the water from the allision.

08:59
VTS issues SECURITE broadcast for minimum wake in Anchorage 7.

09:10
Tug Lynn Marie reports oil and debris in the vicinity of the Bay Bridge. SFFD contacted SCC, inquires if any SAR assistance is required. SCC advised no SAR assistance required. SFFD then called their Marine dispatch.

09:15
CB vessel Master contacts QI. NRCES called IOC (internal acronym) and Marine Exchange confirming allision.

09:17
Vessel pilot contacts MSRC and left a message regarding the spill.

09:18
MSRC duty officer returned CB pilot's call and was told approximately 10 bbls spilled and that leak was secured.

09:20
NRCES called to IOC to confirm that CB is a client. They confirmed, but had not received a report. NRCES stated they will have crews on site any minute.

09:22
SCC contacts Vsl Agent confirming OSRO Notified.

09:23
Relief pilot on CB inquires of VTS if oil response vessel had checked in. None had. VTS questions pilot on fuel discharge. Pilot reports source secure.

09:25
OSPR SOSC was notified of the spill.

09:27
Conference call btwn COTP and IMD at Sector S

Unified
Reques
SCC re
NRCES
about C

MSRC conta
Pilot again s
and leak is s
and visibility
SOSC sends
Bridge west

08:30
Pilot of M/V COSCO BUSAN (CB) notifies VTS that vessel "touched" Delta span of Bay Bridge. VTS notifies SCC of the allision. SCC notifies Incident Management Division (IMD).

08:40
SCC notifies D11 Bridge Section.

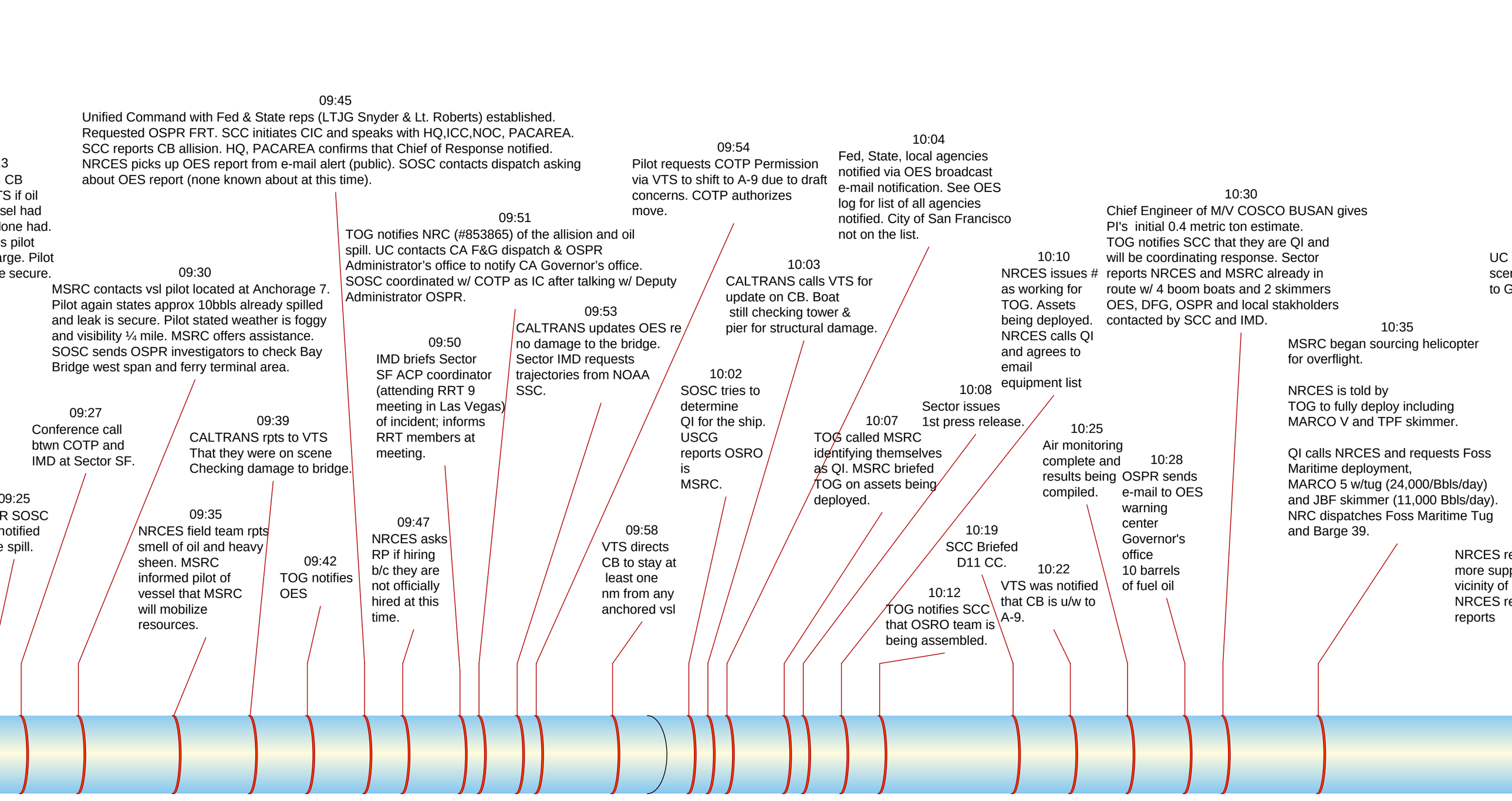
08:44
VTS gives SCC Pilot Cota's Cell phone number.

08:54
Pilot calls VTS to report CB is discharging fuel.

09:05
VTS contacts USACOE and reports debris south of Bay Bridge. NRCES learns of vessel hitting Bay Bridge.

09:00

08:20


09:45
Unified Command with Fed & State reps (LTJG Snyder & Lt. Roberts) established. Requested OSPR FRT. SCC initiates CIC and speaks with HQ,ICC,NOC, PACAREA. SCC reports CB allision. HQ, PACAREA confirms that Chief of Response notified. NRCES picks up OES report from e-mail alert (public). SOSC contacts dispatch asking about OES report (none known about at this time).
09:54
Pilot requests COTP Permission via VTS to shift to A-9 due to draft concerns. COTP authorizes move.
10:04
Fed, State, local agencies notified via OES broadcast e-mail notification. See OES log for list of all agencies notified. City of San Francisco not on the list.
10:30
Chief Engineer of M/V COSCO BUSAN gives PI's initial 0.4 metric ton estimate. TOG notifies SCC that they are QI and will be coordinating response. Sector reports NRCES and MSRC already in route w/ 4 boom boats and 2 skimmers OES, DFG, OSPR and local stakholders contacted by SCC and IMD.
09:51
TOG notifies NRC (#853865) of the allision and oil spill. UC contacts CA F&G dispatch & OSPR Administrator's office to notify CA Governor's office. SOSC coordinated w/ COTP as IC after talking w/ Deputy Administrator OSPR.
10:03
CALTRANS calls VTS for update on CB. Boat still checking tower & pier for structural damage.
10:10
NRCES issues # as working for TOG. Assets being deployed. NRCES calls QI and agrees to email equipment list
10:35
MSRC began sourcing helicopter for overflight.
NRCES is told by TOG to fully deploy including MARCO V and TPF skimmer.
QI calls NRCES and requests Foss Maritime deployment, MARCO 5 w/tug (24,000/Bbls/day) and JBF skimmer (11,000 Bbls/day). NRC dispatches Foss Maritime Tug and Barge 39.
09:30
MSRC contacts vsl pilot located at Anchorage 7. Pilot again states approx 10bbls already spilled and leak is secure. Pilot stated weather is foggy and visibility ¼ mile. MSRC offers assistance. SOSC sends OSPR investigators to check Bay Bridge west span and ferry terminal area.
09:53
CALTRANS updates OES re no damage to the bridge. Sector IMD requests trajectories from NOAA SSC.
09:50
IMD briefs Sector SF ACP coordinator (attending RRT 9 meeting in Las Vegas) of incident; informs RRT members at meeting.
10:02
SOSC tries to determine QI for the ship. USCG reports OSRO is MSRC.
10:08
Sector issues 1st press release.
10:07
TOG called MSRC identifying themselves as QI. MSRC briefed TOG on assets being deployed.
10:25
Air monitoring complete and results being compiled.
10:28
OSPR sends e-mail to OES warning center Governor's office 10 barrels of fuel oil
09:27
Conference call btwn COTP and IMD at Sector SF.
09:39
CALTRANS rpts to VTS That they were on scene Checking damage to bridge.
09:35
NRCES field team rpts smell of oil and heavy sheen. MSRC informed pilot of vessel that MSRC will mobilize resources.
09:42
TOG notifies OES
09:47
NRCES asks RP if hiring b/c they are not officially hired at this time.
09:58
VTS directs CB to stay at least one nm from any anchored vsl
10:19
SCC Briefed D11 CC.
10:22
VTS was notified that CB is u/w to A-9.
10:12
TOG notifies SCC that OSRO team is being assembled.
10:00

0:35
rcing helicopter

oy including
PF skimmer.

and requests Foss
nent,
(24,000/Bbls/day)
(11,000 Bbls/day).
Foss Maritime Tug

10:50
NRCES reports internally they need more support. OSPR reports oil In vicinity of the SF Ferry Terminal. NRCES receives additional OES reports

10:55
UC notified of 2 skimming vessels on scene. OES sent initial flash report to Governor's Office.

10:58
Press release to 125 Contacts:
Coast Guard Responds to Container Vessel Allision with San Francisco Bay Bridge.

11:00
SOSC requests Oiled Wildlife Care Network (OWCN) be placed on standby.

11:02
Vessel Master was issued a NOFI.

11:15
Press release, Update 1 to 334 contacts:
Coast Guard Responds to Container Vsl Allision with San Francisco Bay Bridge.

11:26
Discharge reported as IFO 380.
OSPR reports heavy black sheening on piers North of Bay Bridge.

11:30
MSRC contract Helo mobilized but unable to fly due to limited visibility.

11:31
SOSC requests documentation for response activities from OSPR.

11:32
IMD and SCC plan for original PI team to RTB and send out another team with OSPR Investigators and PI's to take samples and determine amount spilled.

11:43
OSPR biologist contacts the Gulf of the Farrallones NMS and the California Oiled Wildlife Care Network with the initial spill information.

11:45
OSPR contacts trustees, ferry services, sanctuaries & interested parties re spill.

12:0
CALTRANS confirm
structurally sound.

IMD dispatches SC
teams for shoreline

MSST boats dispat
security zone aroun

11:00

12:00
CALTRANS confirms Bay Bridge structurally sound.

IMD dispatches SCAT teams for shoreline assessment.

MSST boats dispatched to enforce security zone around bridge.

12:10
Press conference by FOSC, SOSC, and CALTRANS.

12:17
MSRC alerts MSRC Pac NorWest need for additional people.

12:20
MSRC alerts Southern Region regarding potential need for additional Personnel.

12:29
SCAT rpts piers 28-30 clear. Piers North of Bay Bridge oiled.

12:30
Coast Guard and San Francisco Department of Public Health issue joint press release.
CG ANT Team reports all ATON in the vicinity of the Allision are watching properly.

12:44
UC receives trajectory from NOAA.

12:46
Sheen seen at Alcatraz island.

12:48
UC set objectives and coordinated response efforts.

12:50
NRCES reports situation to QI and asked if they need to boom the vessel.

13:00
TOG informs MSRC that spill now appears to be larger than originally thought.

QI reported that they are setting up a command post for the incident.

13:04
ASSF helo 6516 crew briefed for launch.

13:05
SCAT reports oil at piers 1-3.

NRC
comm
that
and
on C
Oil
Alca

12:00

13:00

M/V COSCO BUSAN INC

13:15
NRCES and MSRC confirms appropriate channel for comms and confirms assets each had o/s. Confirms that MSRC helo will conduct overflight when able and NRCES rep would also be o/b. First landing of helo on OSRV PACIFIC RESPONDER.

04
5516 crew
unch.

13:10
Oil observed at Alcatraz Island

13:05
SCAT reports oil at piers 1-3.

13:40
CG notified East Bay Regional Parks

13:48
Sector Deputy Commander completes conference call incident briefing with SF Mayor's Office, SF City and port stakeholders.

13:58
SOSC contacts OSPR Sacramento
Liaison to notify local California State Senate and Assembly members of the oil spill in the Bay.

13:59
SCAT teams rpt people asking the local sheriffs/police about making claims. IMD began drafting a Letter of Designation for the COSCO BUSAN.

13:55
State Parks notifies SOSC that there is oil on Angel Island.

14:06
SOSC relays to UC that Alcatraz Island is requesting air monitoring. SOSC contacts OSPR Industrial Hygienist

14:04
NRCES arrives at ICP.

14:15
SOSC requests that QI be identified and present in the command post.

14:17
MSRC contacts QI to mobilize additional personnel.

14:00

INCIDENT SPECIFIC PREPAREDNESS REVIEW (I

that QI
d present
post.

14:17
RC contacts
o mobilize
itional personnel.

14:30
Sector SF IMD
began drafting
SITREP/POL.

14:34
MSRC instructs Southern
Region to send people

14:38
TOG notifies Oiled Wildlife Care Network.

14:43
IMD receives rpt that USACOE has
recovered 2 tons of debris
from the bridge abutment.

14:55
OSPR sends e-mail update
to Governor estimating still
10 barrels and preplanned
Strategies being implemented.

15:15
QI requests NRCES to boom Crissy
Field with 3000-3500 ft boom.
NRCES dispatches personnel
and boom trailers to site.

OES reports slick extends
from Tennessee Cove to
Junction Buoy at Pt. Bonita
slick is about 1 mile long.

15:20
QI asks NRCES to
complete air
monitoring at
Alcatraz Island. NRCES
dispatches boats
to site to take a look.

15:30
NRCES per phone call:
TOG SMT will
arrive between 1800-1900.
NRCES personnel on overflight.

15:37
SCC updated SMIB advising
mariners to keep a lookout
for oil and debris in the water.

Press
Coa
to C
with

15:00

EW (ISPR) EVENT CHRONOLOGY (Initial Notificati

15:37
l SMIB advising
keep a lookout
ebris in the water.

30
he call:

800-1900.
el on overflight.

15:39
Press Release, Update 2:
Coast Guard Responding
to Container Vessel Allision
with Bay Bridge.

15:40
OES notified by OSPR
estimating about 10 barrels
and Crissy field is being boomed
site strategies are being
implemented.

16:00
OSPS reports quantity
spilled as 58,020 gals
during UC meeting.

COTP order #07-074
issued to detain CB until
Salvage Plan received.

16:10
SOSC updates OES
regarding spill quantity
(58K gals)

16:13
Press Release to 223 contacts:
Coast Guard Responds
to Container Vessel Allision
with San Francisco Bay Bridge.

16:21
SCC notified D11 of NPS
plans to close beaches.

16:
Press Release to
United States C
Department of
Issue Updates o
Container Ship

16:00

fications)

16:52
Press Release to 228 contacts:
United States Coast Guard and
Department of Public Health
Issue Updates on Bay Bridge
Container Ship Accident.

17:00
UC meets to discuss and varify
new estimate
of 58,000 gallons.

17:15
SOSC updates
OSPR of new spill quantity estimate.

17:30
Press Release to 228 contacts:
Coast Guard Responds to Container
Vessel Allision with San Francisco
Bay Bridge.

17:40
CSWQRB notified by
OSPR re new spill
amount estimate.

18:00
NRCES and and MSRC
communicating.
MSRC will bring boats to NRCES
for offloading with vac trucks.

17:00

18:00

18:00
l and MSRC
ting.
oring boats to NRCES
g with vac trucks.

18:20
Legislative Flash Report sent
to legislators representing
Alameda Contra Costa, Marin,
Napa, San Mateo, Santa Cruz,
Sokro, and Sonoma Counties.

UC briefed that approximately
8,000 gals of
product was recovered by
skimmers. Recovery operations
ceased during nighttime hours.

18:49
OSPR e-mails
notification group and
warning center re revised
spill volume.

19:00
IMD recommends to FOSC to
request Pacific Strike Team. FOSC
concurs and IMD calls Strike
Team Ops for support beginning
on 08 Nov.

19:15
Press Release to 2
M/V COSCO BUSA
with San Francisc

18:00

19:00

19:15
Press Release to 228 contacts:
M/V COSCO BUSAN Allides
with San Francisco Bay Bridge.

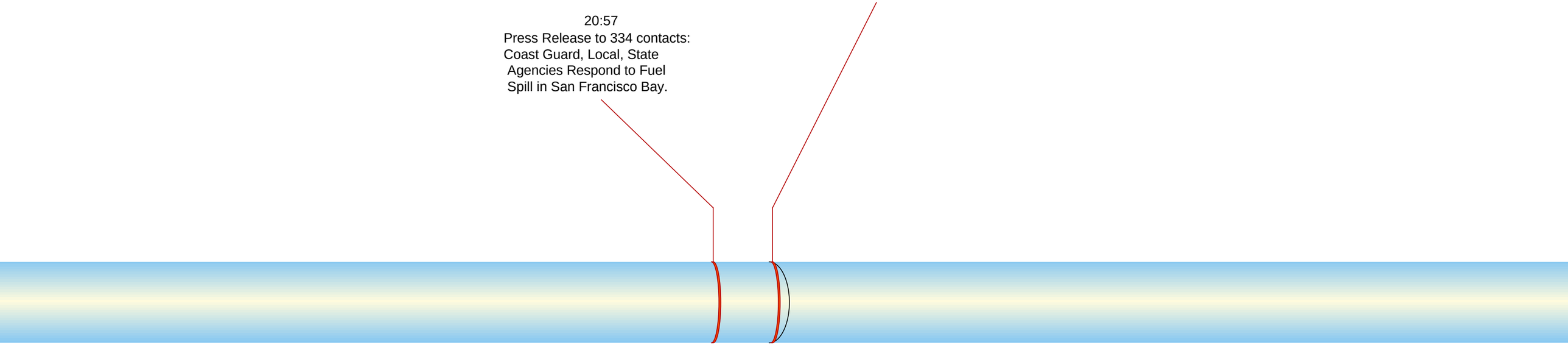
20:00
Sector Deputy Commander
conducts phone conference
with Cal OES and surrounding
counties reps, passing updated
oil spill quantity.

20:00

21:00
Press release was issued
using the new estimate of
58,000 gallons spilled.

Released SITREP/POL #1
P080357Z NOV 07 and distributed new
revised estimate to all members of UC
and Regional Response Team.

20:57
Press Release to 334 contacts:
Coast Guard, Local, State
Agencies Respond to Fuel
Spill in San Francisco Bay.



21:00

22:05

RESPONSE ACTIONS

08:30
COSCO BUSAN Allision

08:45
SCC briefed STA SF UTB-41392 for launch to transport PIs and to investigate damage to bridge and vessel.

08:50
COSCO BUSAN anchored at Anchorage 7

08:54
Pilot on CB radios VTS to report they might have punctured a hole in a fuel tank and a slick is forming around the ship.

VTS replies that USCG was responding for the fuel and debris, and was contacting USACOE.

08:55
New SF Bar Pilot relieves mishap pilot. Pilot involved in allision departs via SF Bar pilot vsl.

08:58
Assist tug released.

09:03
CG 41' UTB underway with Sector Pollution Team to the incident.

09:10
NRC dispatched the 32ft Fast Response Vessel (FRV) and MARCO Skimmer (3588 Bbls/day) to Bay Bridge.

09:13
Station SF 41' UTB on scene SFOBB Delta piling. Observed damage and approximate 3ft wide oil slick. Vis about 100 yards.

09:22
USACOE notified SCC that they would send Assets for debris clean-up

09:23
COSCO BUSAN Pilot contacted VTS to see if any oil response boats had checked in; none had checked in yet. VTS asked Pilot Hoberg about fuel leakage situation; he said ships's crew secured fuel spill.

09:25
Sector Pollution team and Station SF followed spill, 3ft wide, from SFOBB to Anchorage 7

09:27
USACOE calle
for another
brief; USACOE
Grizzly underw
in 10 minutes.

MSRC contacts COSCO BUSAN Pilot,
bbls bunker spilled, leak is secured. Pil
as foggy with 1/4 mile visibility. NRCES
initiated a 100 yard Safety zone around
to check West Span ofSFOBB and SF

09:00

08:20

09:30
OSCO BUSAN Pilot, who again tells MSRC that approximately 10
d, leak is secured. Pilot reports current location as Anchorage 7, weather
mile visibility. NRCES reports that crewis on site; heavy fog and no sign of oilas yet. Sector SF
d Safety zone around the vessel. Sta SF UTB-41329 o/s with C.B. CA DFG sends investigators
an ofSFOBB and SF FerryTerminal area.

09:25
tion team and Station
spill, 3ft wide, from
nchorage 7

09:27
USACOE called VTS
for another
brief; USACOE
Grizzly underway
in 10 minutes.

09:40
NRCES dispatched additional resources,
including 22ft FRV (Fast Response Vessel).
NRCES requested additional boat w/ radar.
MSRC mobilized two Skimming vsls and the
Spill Chaser departed Pier 50. Spill Spoiler II
departed Richmond. Four boom boats mobilized:
Raider I, Raider III,Pop Can, James Dean.

09:35
PI's o/b UTB observe
oil release from CB
reduced to a seepage
rate. Report
damage to hull as
100ft by 12ft gash,
2-10ft above the
waterline.

09:45
FOSC directs overflight
when weather permits.

09:47
PI Team authorized
to board CB.

09:50
Pilot called VTS with
concern of COSCO BUSAN
remaining at Anchorage 7;
requested movement to
Anchorage 9. PI team on board vessel.
Spill Chaser begins conducting
Safety site assessment/air
monitoring. MSRC 5000 bbls per day
skimmer o/s (Spill Chaser).

09:57
USCGC TERN patrol boat
briefed for launch.

10:00
SFPD contacts SCC and
offers to assist. Sector requests
assistance w/ safety zone
enforcement. NRCES gets a report
from response vessels that "they are
in oil." NRCES gave permission
to begin skimming.
CGC TERN, at anchorage near
Sausalito, directed to get
u/w enroute COSCO BUSAN.

10:07
M/V COSCO BUSAN
enroute Anchorage 9.

10:10
CGC TERN u/w enroute C.B.

10:15
Boom boat Raider III
underway.

10:17
STA SF 25ft response small-
boat u/w enroute COSCO BUSAN.

10:18
Spill Spoiler II
underway.

10:20
Boom boats Pop
Can and James
Dean u/w for CB
were redirected
by QI.

10:24
CGC TERN o/s
with CB, assumes
OSC, enforces
Safety Zone.

10:25
Sta SF small-boat
o/s C.B.

10:30
SCC dispatched Port State Control (PSC), Investigation
Officer (IO), and IMD team to vessel to conduct
survey & investigation. MSRC determined it safe to deploy
gear and began deployment from Spill Chaser. Boom boat
Raider I underway. MSRC rpt 2500 ft of boom and one
skimmer o/s and available.

10:35
MSRC looking for contract helo.
PIs interview CB master to
confirm OSRO contacted.
Issued NOFI. PI told Chief
Engineer to sound tanks.
PI began interview with the
Master.

10:36
CGC TERN
observed
large sheen
in position
37-47.66N/122-23.16W.

10:39
Another skimming vessel,
Clean Bay II, is mobilized
from Pier 50. MSRC was
reported to be u/w to vessel
with 4 boats and 1 skimmer.
Safety zone will move with
vessel as it moves.

10:40
NRCES rpts need to deploy boom. Spotted oil west of BB
USACOE Grizzly at bridge; reports large amounts of heav
crews report that they need to deploy boom for pockets
of oil on West side of the Bay Bridge.

MSRC CL
no rpts of
w/ 1,250' b
COSCO B

10:4
PI team confirms
is no longer disch
that vessel is listi
after fuel was shi
starboard tanks.
had heated produ
to another tank; c
sounding due to
sounding tubes.

10:00

10:40
Spotted oil west of BB. STA SF 25501 o/s.
arge amounts of heavy oil. NRCES vessel
y boom for pockets
e.

10:45
MSRC CLEAN BAY II mobilized from Pier 50 although no rpts of more oil. MSRC POP CAN and JAMES DEAN w/ 1,250' boom each o/s. PIs interviewed Master of COSCO BUSAN to confirm that OSRO had been contracted.

10:44
PI team confirms that vessel is no longer discharging and that vessel is listing 3 degrees after fuel was shifted to starboard tanks. Engineers had heated product to transfer to another tank; cannot get sounding due to bent sounding tubes.

10:57
Sector Investigation Officers & vsl inspectors aboard C.B. STA SF 25ft boats, 255098 and 255096, o/s photographing hull damage.

11:00
SOSC activates OWCN. STA-255098 transfered 2 personnel to UTB-41392.

10:55
TOG is identified as SMT but there is not a TOG rep at ICP.

10:54
DFG received rpt from USCG pollution team that the ship engineers report approximately 0.4 MT (146 gallons) of product discharged into the bay.

11:04
STA - 255098, 255096 released from duties.

11:10
MSRC CLEAN BAY II u/w. Boom boats RAIDER I & III o/s w/ 600' boom each.

11:14
M/V COSCO BUSAN anchored in A-9.

11:18
MSRC requested helo from South Bay Helicopters.

11:25
MSRC boom boats RAIDER I and III deploy 500' boom to support skimming operations. Clean Bay II arrives with skimmer 3,208 bbls/day capacity & 3,000' boom.

11:26
TOG reports 4 boats and 1 skimmer are dispatched and will be onscene in a few minutes.

11:30
NRCES rptd 2,500' boom at pier 39 and Aquatic Park and 4,200 bbl skimmer on scene. MSRC rptd an additional 1500' ft of boom an additional skimmer o/s and available. Contractor helo mobilized but unable to fly due to low visibility. Boom boat Raider II mobilized.

11:40
Pollution team disembarks C.B. MSRC SPILL SPOILER skimming w/12,300 bbls/day Capacity. Pilot Boat Golden Gate embarked Master of CB to observe hull damage.

11:42
USACOE survey boat o/s at Bay Bridge Delta Span.

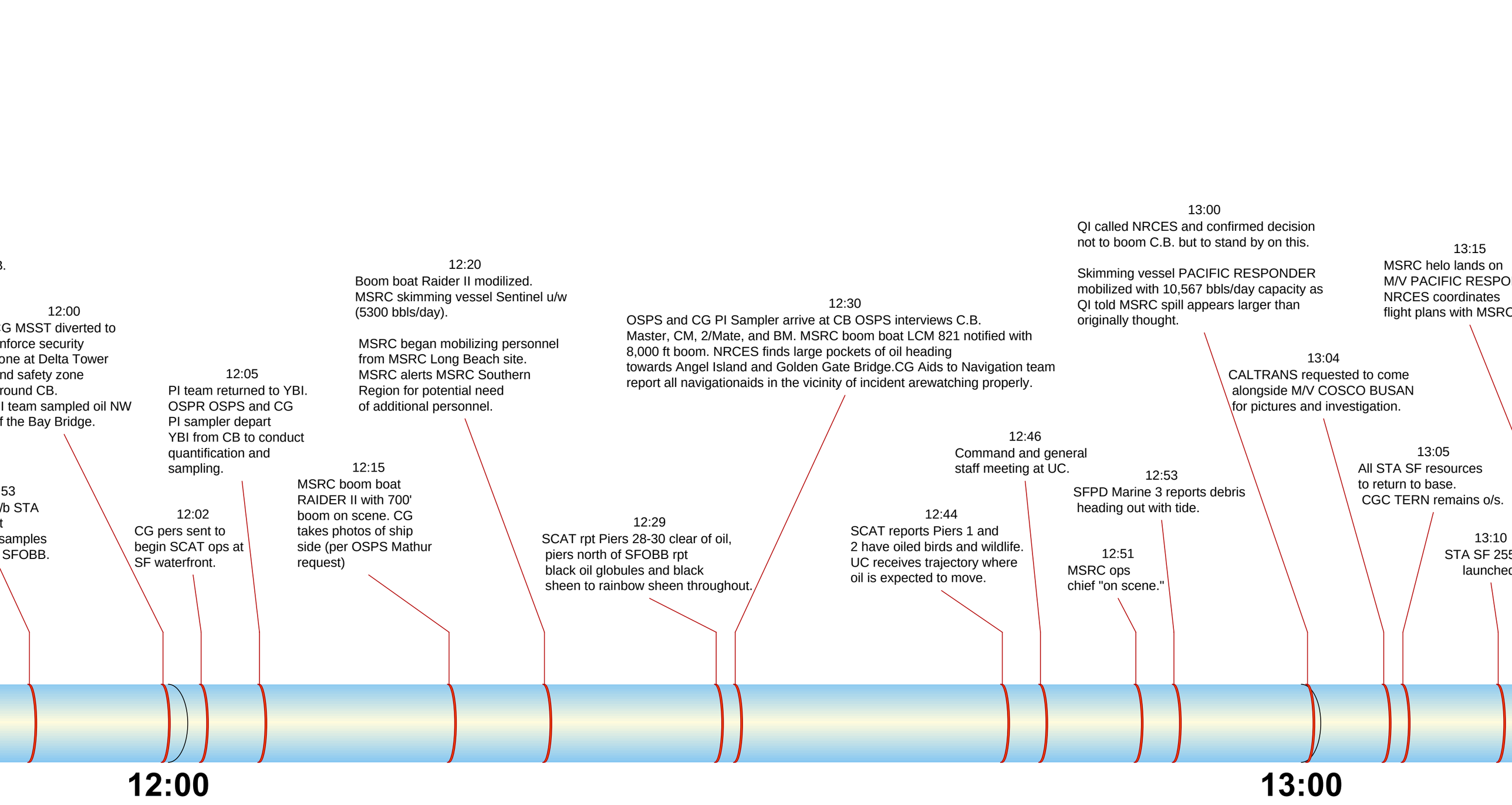
11:46
Pilot Boat Golden Gate returned vessel master to CB.

11:47
Pilot Boat Golden Gate retrieved Pilot 37 from CB.

11:53
PI team o/b STA small boat taking oil samples under the SFOBB.

12:00
CG MSST diverted to enforce security zone at Delta Tower and safety zone around CB.
PI team sampled oil NW of the Bay Bridge.

11:00


3.
12:00
G MSST diverted to
nforce security
one at Delta Tower
nd safety zone
round CB.
I team sampled oil NW
f the Bay Bridge.
53
/b STA
t
samples
SFOBB.
12:05
PI team returned to YBI.
OSPR OSPS and CG
PI sampler depart
YBI from CB to conduct
quantification and
sampling.
12:02
CG pers sent to
begin SCAT ops at
SF waterfront.
12:15
MSRC boom boat
RAIDER II with 700'
boom on scene. CG
takes photos of ship
side (per OSPS Mathur
request)
12:20
Boom boat Raider II modilized.
MSRC skimming vessel Sentinel u/w
(5300 bbls/day).
MSRC began mobilizing personnel
from MSRC Long Beach site.
MSRC alerts MSRC Southern
Region for potential need
of additional personnel.
12:29
SCAT rpt Piers 28-30 clear of oil,
piers north of SFOBB rpt
black oil globules and black
sheen to rainbow sheen throughout.
12:30
OSPS and CG PI Sampler arrive at CB OSPS interviews C.B.
Master, CM, 2/Mate, and BM. MSRC boom boat LCM 821 notified with
8,000 ft boom. NRCES finds large pockets of oil heading
towards Angel Island and Golden Gate Bridge.CG Aids to Navigation team
report all navigationaids in the vicinity of incident arewatching properly.
12:44
SCAT reports Piers 1 and
2 have oiled birds and wildlife.
UC receives trajectory where
oil is expected to move.
12:46
Command and general
staff meeting at UC.
12:51
MSRC ops
chief "on scene."
12:53
SFPD Marine 3 reports debris
heading out with tide.
13:00
QI called NRCES and confirmed decision
not to boom C.B. but to stand by on this.
Skimming vessel PACIFIC RESPONDER
mobilized with 10,567 bbls/day capacity as
QI told MSRC spill appears larger than
originally thought.
13:04
CALTRANS requested to come
alongside M/V COSCO BUSAN
for pictures and investigation.
13:05
All STA SF resources
to return to base.
CGC TERN remains o/s.
13:15
MSRC helo lands on
M/V PACIFIC RESPO
NRCES coordinates
flight plans with MSRC
13:10
STA SF 255
launched
12:00
13:00

M/V COSCO BUSAN INCID

13:15
MSRC helo lands on
M/V PACIFIC RESPONDER
NRCES coordinates
light plans with MSRC.

ome
SAN
n.

13:05
TA SF resources
urn to base.
TERN remains o/s.

13:10
STA SF 255099
launched.

13:19
Port of SF harbor
patrol o/s
taking pictures
of hull damage.

13:20
IMD prepared
PI for upcoming
overflight with ASSF.
STA SF RBS
o/s with CB

13:25
STA SF 255099
o/s to
embark 2
personnel o/b CB

13:27
Entrance to Seal
Cove, Pier 39
boomed.

13:30
MSRC personnel leave Long Beach for
Bay Area. Oil quantification complete and
initial sampling complete. OSPS and CG PI
sampler awaiting return transportation. NRC
dispatched additional crews. CG 25406
departed scene.

13:36
Helo leaves
M/V PACIFIC
RESPONDER
for 1st overflight.

13:38
STA SF RBS-25406 mission ended.

14:00
NRCES prepared gear
and additional
crews for response.

14:02
San Francisco Fireboat
Phoenix o/s

14:04
CG 25501
departed scene.

14:07
Tug AMERICAN RIVER o/s
with NRCES personnel o/b.

14:15
CG ASSF HH65 tasked
with pollution overflight.

14:16
SCAT team reports that SF Police
Marine Unit went to Alcatraz
and that the south side of
Alcatraz was impacted with oil.

14:17
MSRC contacts TOG
w/ approval to cascade
from PAC Northwest and
Southern Regions

MSRC i
Northwe
personn

14:18
MSRC M/V PAC
RESPONDER
underway

14:00

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ice

14:17
ontacts TOG
val to cascade
C Northwest and
Regions

14:18
MSRC M/V PACIFIC
RESPONDER
underway

14:26
MSRC instructs PAC
Northwest to send
personnel

14:30
UC waiting for
overflight.
Not available
due to
weather

14:33
IMD received report that
bridge abutment
is structurally sound
from D11
Bridge Section.

14:34
MSRC instructs
Southern Region to
send people.

14:35
5th MSRC boom boat
o/s (700ft boom).
Raider II o/s at
Crissy Field.

14:38
Second landing of helo on M/V
PACIFIC RESPONDER. Weather
still patch fog.

14:41
STA SF
UTB-41392
launched.

14:45
MSRC SENTINEL
o/s skimming 6,150
bbls/day

14:55
COTP/FOSC underway to
assess damage to vessel
bridge pier and more
further pollution assessment.
SCAT team dispatched to
Sausalito.
ASSF HH65 experienced
an in-flight casualty and RTB.

15:00
OSPS and CG
PI sampler depart
ship for YBI via
MSST vsl.
MSRC directed by
TOG directs
MSRC to boom
Aquatic Park and
Crissy Field.

15:06
Helo leaves M/V PACIFIC
RESPONDER for overflight.
ASSF HH65 on deck at ASSF.

15:07
USACOE at dock
Sausalito.

15:17
CGC TERN
enforcing security
zone around the
Delta Tower of the
SFOBB as
well as the
already-established
100yd safety zone
around the vessel.

15:20
NRCES tasked with sending
air monitoring equipment
to Alcatraz-heavy
smells noted.

15:30
OSPS and CG PI sampler arrive at YBI.
Boom Boat LCM824 on scene with
8,000 ft of boom

15:33
STA SF UTB-41392 o/s.

CGC TER
u/w for pe
to COSCO

15:00

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at YBI.
ith

15:33
F UTB-41392 o/s.

15:40
CGC TERN small boat
u/w for personnel transfer
to COSCO BUSAN

15:45
SCAT teams return
to Sector SF.

15:47
Contract helo
returns and lands
on PACIFIC
RESPONDER.

15:50
CGC TERN small boat embarked
4 people o/b from COSCO BUSAN
enroute YBI.

16:00
COTP Order 07-074 issued
requiring salvage plan. Raider I
and Raider III and boomed
Aquatic Park and Crissy Field.

NRCES crews skimming
and chasing oil.

16:03
STA Golden Gate rpt to SCC
that NPS was closing the
affected beaches.

16:12
Helo departs from MSRC
M/V PACIFIC RESPONDER.

16:36
USACOE rpt that
they recovered 95%
of bridge piling fender
and tied two large pieces of
oily debris to Pier 39 because
of limited removal capabilities.

16:40
CG AirSTA SF HH65 airborne
to incident to conduct pollution
assessment.

16:44
CG Investigation Officer reports th
pilot refused to provide statement
without attorney present.

16:00

nse Actions)

16:44
ation Officer reports that
l to provide statement
rney present.

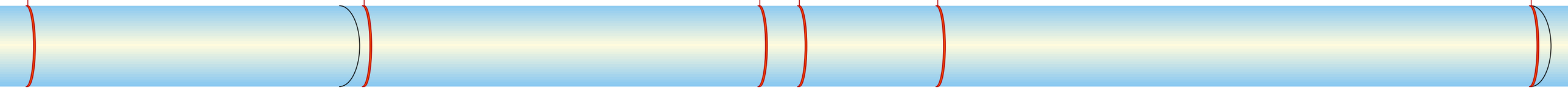
17:01
5th MSRC skimming vessel M/V PACIFIC RESPONDER (10,567 bbls/day) arrives on scene.

17:21
STA SF UTB-41392 depart scene, mission ended.

17:23
UC notified of oily debris and SF piers. USACOE will not remove debris tonight, but NRCES will place boom around it.

17:30
UC suspends on-water recovery operations due to night fall.

18:00
NRCES inspecting bridge span and accident site sends 50' boat and supplies. NRCES spe
MSRC re offloading w/ Vac truc



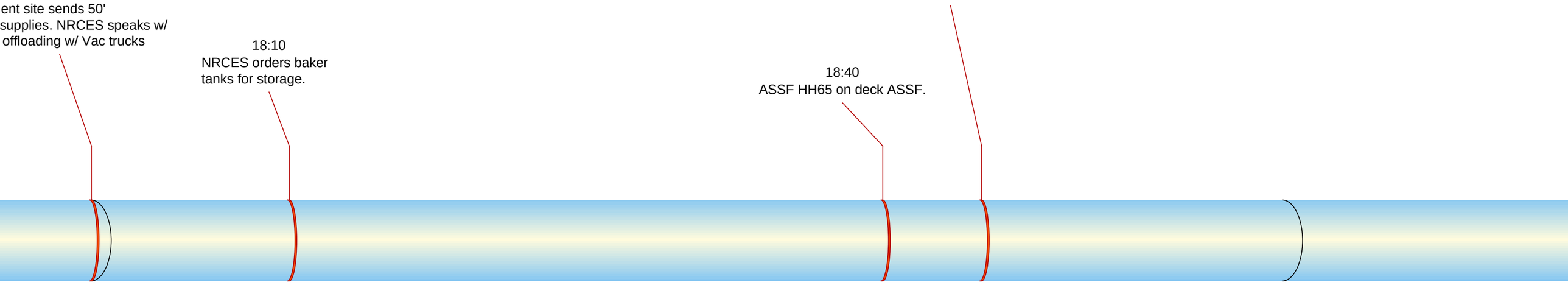
17:00 **18:00**

18:00
nspecting bridge span
ent site sends 50'
supplies. NRCES speaks w/
offloading w/ Vac trucks

18:10
NRCES orders baker
tanks for storage.

18:40
ASSF HH65 on deck ASSF.

18:45
TOG confirms skimming equipment
availability and placement at Richmond
and Angel Island for next morning
operations.



19:45
QI requests Foss Maritime w/skimmer be on site and Angel Island at 0700 with full crew.

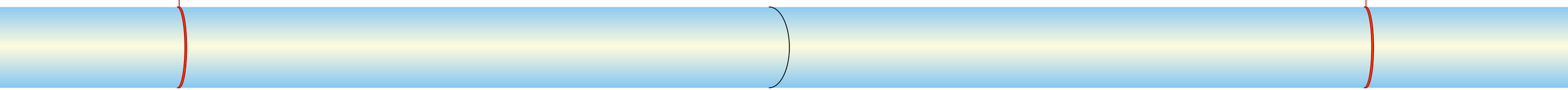
20:00
NRCES looks to operations needed at accident site Delta Tower.
NRCES requested to inspect/recon oil from incident site. 50ft "MIKE" boat with barge and supplies sent to location.

NRCES s
personne
operation
to resum
long as s

20:00

20:30
NRCES surveys additional personnel for morning operations. All crews are to resume skimming as long as safe to do so.

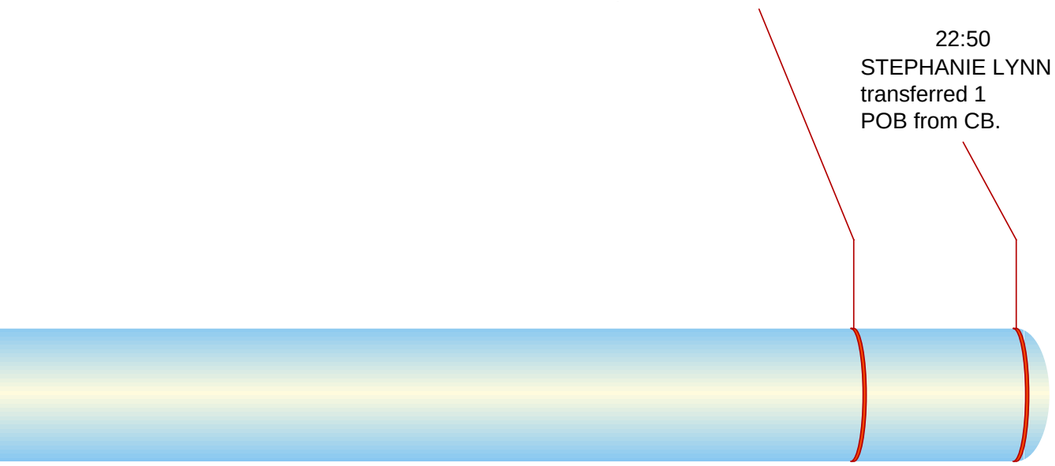
21:30
IAP developed for next operation period (24 hours) 0700-0700



21:00

22:00
NRCES and MSRC cross talk concerning skimmers, startup and vac truck for next morning operations. NRCES to set up decon area.

22:50
STEPHANIE LYNN transferred 1 POB from CB.



22:05