Oil Spill Drill Incident Command, Planning
or
Dress Rehearsals: Preparing to Attack Spills and Manage Response

by
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Abstract:

Through training and constant monitoring of operations, every effort is made to **prevent** an oil spill from occurring. However, Crisis Managers often preach: it's not a matter of "if," it's a matter of "when." It is therefore prudent to be prepared; with the goal of **preventing** a spill from causing significant environmental injury. DCOR prepares in two ways: we conduct equipment deployment drills to contain the spill as quickly as possible, and our Incident Management Team (IMT) participates in training and drills to efficiently manage a spill response effort in cooperation with the relevant agencies. The IMT has a typical ICS (Incident Command System) organization. In both management and equipment we work closely with our primary OSROs (Oil Spill Response Organizations): Clean Seas in Santa Barbara Channel and MSRC in San Pedro Channel. With the equipment and experienced personnel of these organizations, and DCOR's training in management and at our facilities, we expect to **prevent** any oil spill from reaching sensitive habitats on the shore by containing and removing the oil from the sea as quickly as possible.

History and location of DCOR's platforms

The history of offshore oil and gas development begins in California. In 1897 the world's first offshore oil well was drilled from a pier built off Summerland, downcoast from Santa Barbara. History was made again, in 1932, with the construction of the first oil platform, in 38 ft of water offshore of Rincon, northwest of Ventura. It resembled the end of a pier and was called "Steel Island." California made oil history yet again, with the first man-made drilling island in 1954. It was in 42 ft of water, 1.5 miles offshore of Seal Beach, and was called "Monterey." The island consisted of a circle of interlocking sheet piling driven into the sea floor and filled with rock and sand. Subsequently, additional, similar islands were built, which included DCOR's Platform Esther in 1965. California's first modern offshore oil platform (Platform Hazel) was installed in state waters east of Santa Barbara in 1954 (Love et al. 2003; McCrary et al. 2003).

Esther is one of two DCOR-owned and operated platforms in State waters, i.e., less than 3 miles from shore (see Table 1). While it began its life as an island, after being destroyed by a

storm in 1983 it was re-built as a platform in 1986. Our other state platform is Platform Eva. Constructed in 1964, it is DCOR's oldest platform. The remaining DCOR platforms are in federal OCS waters, and all but Platform Edith are in the Santa Barbara Channel (Table 1) (Figures 1 and 2). DCOR acquired these facilities in late 2004. Several of the platforms in the Santa Barbara Channel are in areas of natural seeps of oil and gas from the sea floor.

Table 1. Characteristics of DCOR platforms

Platform	Year Installed	Original Operator	API Gravity	Rate of Best Free-flowing Oil Well[1] (bbl/day)	Oil Pipeline		Water Depth (ft)	Distance to Land (miles)
					Diameter (inches)	Flow[3] Rate (K BPD)		
San Pedro Channel								
Esther	1965/1986[2]	Chevron	Medium	0	3	3	30	1.4
Eva	1964	Union	Heavy	0	8*	2.3	59	2.1
Edith	1983	Chevron	Heavy	0	6	3	161	8.5
Santa Barbara Channel								
A	1968	Union	Medium	0	8*	4	188	5.8
B	1968	Union	Medium	0	12*	5.5	190	5.7
C	1977	Union	Medium	24	6*	5	192	5.7
Hillhouse	1969	Sun	Medium	0	8	1.5	190	5.5
Henry	1979	Sun	Medium	0	8*	2.4	173	4.3
Habitat	1981	Texaco	Gas	0	n/a	–	290	7.8
Gina	1980	Union	Heavy	0	10*	1-4	95	3.7
Gilda	1981	Union	Heavy	140	12*	4	205	8.8

1. Platform C has one free-flowing well and Platform Gilda has several. All other DCOR platform wells use some form of artificial lift to bring the oil to the surface.
2. Originally built as an island in 1965, destroyed by storm in 1983, rebuilt as a platform in 1986.
3. Flow rates are for response planning. Actual production rates may vary.

* Carry "wet" oil, consisting of 20-90% water. Other pipelines have <5% water.

Through the years there have been several different owner/operators of these platforms (as many as seven). However, the workforce of individuals operating the platforms has remained relatively consistent.

As these facilities have aged, a dichotomy of risk emerges. On one hand, older equipment may be more susceptible to failure. Things wear out—risk goes up. A conscientious program of maintenance and monitoring must be carried out to minimize the chance of, and ideally prevent, spills. On the other hand, because these platforms are producing from mature

fields, few of the wells (on only two platforms, see Table 1) have oil under pressure any longer—risk goes down. Since the wells are not free-flowing, most of them have to be pumped to produce the oil from the reservoir. Loss of control of a well would not result in a blow-out.

The pipelines for DCOR's platforms are relatively small, 12 inches or less in diameter. The fluid carried by most of the pipelines is an oil-water emulsion ("wet" oil), another consequence of producing from mature fields. Flow rate through these pipelines is relatively low: most are 4000 bbl/day, or less, of emulsion (Table 1). These factors would serve to limit the environmental impact should a leak occur. Through the years there have been advances in pipeline surveillance, which includes corrosion control and monitoring, "smart" pigs, pressure monitoring, etc. These provide information to inform the company when addition maintenance or potential repair may be needed on a pipeline, which serve to limit the likelihood of a leak occurring.

Philosophy

Through training and constant monitoring of operations, every effort is made to **prevent** an oil spill from occurring. However, Crisis Managers often preach: it's not a matter of "if," it's a matter of "when." It is therefore prudent to be prepared; with the goal of **preventing** a spill from causing significant environmental injury. DCOR prepares in two ways: we conduct equipment deployment drills to contain the spill as quickly as possible, and our Incident Management Team participates in training and drills to efficiently manage a spill response effort in cooperation with the relevant agencies. This preparation meets two objectives: (1) it satisfies regulatory requirements, and (2) it is a cost-effective way of doing business—the more quickly and efficiently a spill response can be mounted, the less environmental injury will occur and the less the total response effort will cost.

Equipment deployment drills

In the event of a spill, it is important to contain it as quickly as possible. Being able to respond quickly accomplishes two goals: (1) it is easier to corral the spill before a great deal of spreading has occurred; and (2) the chances of the spill reaching critical habits along the shore are greatly reduced. To ensure that all relevant individuals, including those for whom spill response is not an everyday part of their job, can respond efficiently, we conduct equipment deployment drills twice a year at every platform.

Not only is this a reasonable activity for a prudent operator, it is also a regulatory requirement. MMS spill response requirements [30 CFR 254.42(4)] call for semiannual deployment exercises. One of these is an unannounced drill called by MMS at each OCS

platform. California regulations also call for semiannual exercises [CCR, Title 14, Div.1, Subdiv. 4, §817.02(k)].

These equipment deployment exercises involve the active participation of our local, major OSRO (Oil Spill Response Organization) for the area. In the Santa Barbara Channel, this is the spill response cooperative Clean Seas. In the San Pedro Channel, which includes our two platforms in State waters, this is MSRC (Marine Spill Response Corporation). An additional participant is the company crew/work boat.

The primary equipment deployed in these exercises is oil spill boom. The exact process involved varies among the platforms. The differences are primarily functions of distance from the OSRO (i.e., how quickly can help arrive) and of the equipment stored on each platform. The various processes are described in the following paragraphs.

San Pedro Channel

The two platforms in state waters, Eva and Esther, each carry two 750-ft reels of 43-inch Expandi-boom. This is a self-inflating containment boom that is stored in a compact roll. In their role as first-responders, the crew on the platform prepares the boom for deployment by checking the valves in each inflatable section to ensure that air can flow into the boom. The roll of boom is lowered into the water by crane. The company crew/workboat, which had been previously contacted, takes the end and begins to unreel the boom. When freed from the confines of being rolled, the flotation section of the boom expands and fills with air.

In a drill, a few of the on-board oil-tracking buoys are dropped from the platform into the water to represent an oil spill. (In an actual event, the buoys would be used by responding vessels to facilitate locating and following the oil slick.). The crewboat pulls the boom around the leading edge of the "spill." The goal is to achieve a U-shape configuration with the boom to contain the spill and prevent it from spreading.

In the meantime, MSRC, which would have been one of the first entities contacted upon discovery of a spill, is on the way, typically with two of their fast response vessels. Upon their arrival at the scene, the crewboat will "hand off" the boom to the MSRC boats, which continue to maintain containment with the U-shaped boom. Additional MSRC oil spill response vessels would soon follow with additional booming capabilities if needed, and with skimming capabilities to remove the oil from the surface of the sea. The two general types of skimmers are weir skimmers, which pull in the very surface layer of water and oil, and rotating brush skimmers, which physically remove the oil from the water and have the oil "squeegee'd" off, into storage tanks.

A different boom deployment system is employed on Platform Edith, DCOR's OCS platform in San Pedro Channel. This platform carries 1500 ft of Kepner Sea Curtain boom on a hydraulically operated reel. The boom is unreeled at the platform and lowered, straight down, to the water's surface. The crewboat hooks up and pulls the boom away from the platform as it is unreeled. Care, involving constant communication between the platform and the boat, must be

taken to ensure that the boom is allowed to fall straight down from the reel, then the portion of boom lying on the water is pulled away by the boat. If the boat pulls away too rapidly, indicated by the boom being stretched diagonally away from the platform, too much tension is placed on the boom, which could result in tearing. After all the boom is in the water, the process is similar to that described for Eva and Esther: the boom is towed into a "U" configuration to contain the "spill" (the tracking buoys), then handed off to MSRC vessels. If MSRC arrives before the boom has been towed around the spill, they take the boom from the crewboat and do the corralling of the spill.

The key elements of these exercises are: (1) communication—(a) with the OSRO, to mobilize their vessels; (b) with the crewboat, to participate in first response activities, (c) with headquarters, to activate the IMT (Incident Management Team) if necessary, and to notify the relevant agencies of the event; (2) practice by the platform personnel in launching the spill boom; and (3) practice by the company crewboat in the initial handling of the boom in the water. An additional element may be the deployment and demonstration of a skimmer from an MSRC vessel.

Santa Barbara Channel

All of DCOR's platforms in the Santa Barbara Channel are in federal, OCS waters. First response activities vary among these platforms as well. The complement of response equipment ranges from that needed to address minor, on-platform spills to that which enables self-sufficient on-water response.

Platform Gilda is supplied with a 750-ft roll of 43-inch Expandi-boom. Its deployment is as described for Eva and Esther. The roll of boom is lowered into the water by crane, and is unrolled by the company crewboat as it is towed to the "spill" (tracking buoys), and put into a U-shape to contain the spill. Generally the crewboat is in close proximity to the platform and is able to assume these first responder responsibilities. For those occasions when it is not readily available, Gilda has another option: a Boston Whaler with two 70-hp engines that can be lowered to the ocean by crane and used to tow the boom. To supplement the boom stored on the platform, the crewboat has another 750 ft of Expandi-boom on its work deck. Clean Seas, our OSRO for Santa Barbara Channel, would have been called at the outset of incident. When they arrive on scene, they would take over responsibility for containment and recovery of spilled oil.

Platform Gina would use the boom carried by the crewboat for first response to a spill. In addition, if needed, personnel and the Boston Whaler from Gilda would be available for assistance.

Platforms A, B, C, Hillhouse, and Henry are in close proximity to Santa Barbara, where the Clean Seas response vessels are moored. Since Clean Seas' vessels can reach these platforms as quickly as a crewboat and would arrive with boom, it was deemed unnecessary for the platforms to carry their own boom. The vessel would deploy their boom (e.g., *Mr. Clean* carries 4500 ft of open ocean boom) as described above. If platform personnel can be spared from

handling problems on the platform (e.g., controlling the source of the spill), they are available to assist on the Clean Seas' vessels if necessary.

Platform Habitat produces gas, not oil, and therefore has no need to provide equipment for a large oil spill. If they had a spill from the platform, it would likely be fuel or some other small quantity. Clean Seas would be able to respond well before a spill could reach sensitive areas. Therefore, the platform stores only sorbent materials sufficient to address minor spills on the platform.

As with the San Pedro Channel platforms, the key elements of these exercises are: (1) communication, (2) practice, and (3) practice.

Incident Management Team (IMT) drills

DCOR calls its spill response management team the "Incident Management Team" (IMT). As with essentially all the emergency response teams in the U.S., the team structure follows the Incident Management System (ICS). The often stated advantages of ICS are (1) its scalability: the number of people needed to fill the team can be adjusted, depending on the scale of the incident, (2) clearly roles by the various functions within the team, and (3) compatibility with state and federal agencies who will be assisting in the response. While DCOR's Incident Commander is the leader of the company team, he actually works hand-in-hand with federal and state On-Scene Coordinators in what is called Unified Command. This allows appropriate coordination and decision-making by all relevant parties.

The structure of the IMT is shown in Figure 3. The team consists primarily of DCOR's office-based managers, administrators, engineers, and assistants. The level of commitment by the company to support efficient management of a spill response is high—almost every one of the company's "office-based" staff is a member of the team. There are 42 such staff within the company; there are 40 members of the team.

The IMT partakes of annual training and at least one major table-top drill each year. The drill consists of managing a response to a particular scenario without actually deploying any resources in the field. State and Federal agencies are invited to participate in the drill with DCOR. The team meets at a designated Command Center, for example at the Clean Seas Support Yard in Carpinteria. In addition to practicing the interactions with agencies and within and among the various sections of the team, drills afford the opportunity to maintain familiarity with the various tools available to the team. These include the Spill Response Plan, the agency-prepared Regional Contingency Plan and Area Contingency Plan, charts, coastal photographs, and the like. Oil spill trajectories can be predicted by using relevant weather information, especially wind speed and direction, and information on surface currents. Using the information provided by the other tools, resources-at-risk in the projected path of the oil can be determined and appropriate protective measures can be deployed at the appropriate locations.

One advantage of the active participation of agencies in a drill is that the team is able to learn from response professionals. These include the OSROs, Clean Seas and MSRC, Minerals Management Service, and especially OSPR (California Fish and Game Office of Spill Prevention and Response). The sharing of their knowledge, input, and cooperation is greatly appreciated.

Summary

DCOR seeks to prevent oil spill related injury to the environment by preventing a spill in the first place. This is accomplished by monitoring and maintaining operations and equipment. If a spill occurs, environmental injury is minimized by efficient and effective response. To ensure this, DCOR regularly conducts equipment deployment drills in the field and spill response management drills at a Command Center.

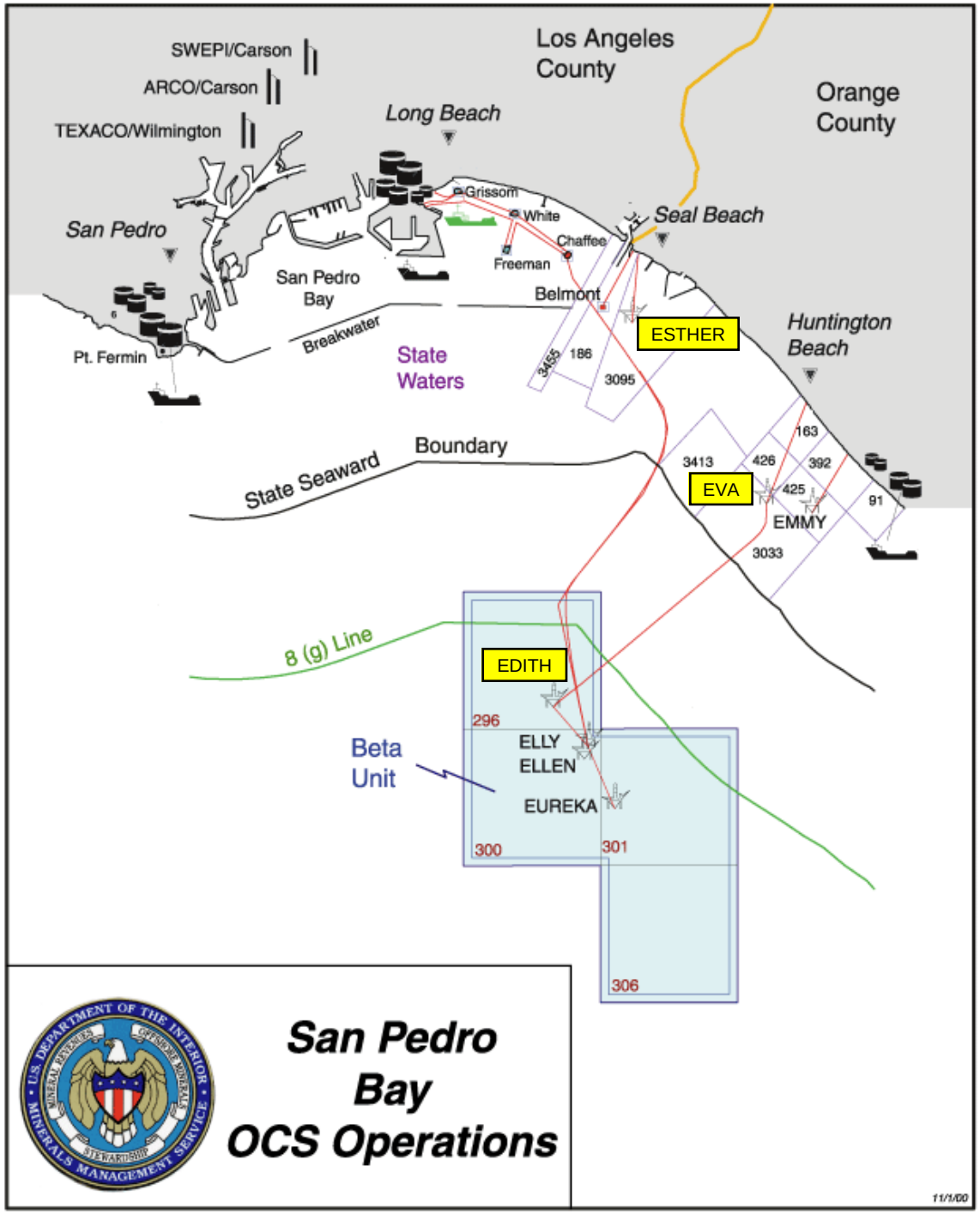

Figure 1. DCOR platforms in San Pedro Channel (from MMS fig).

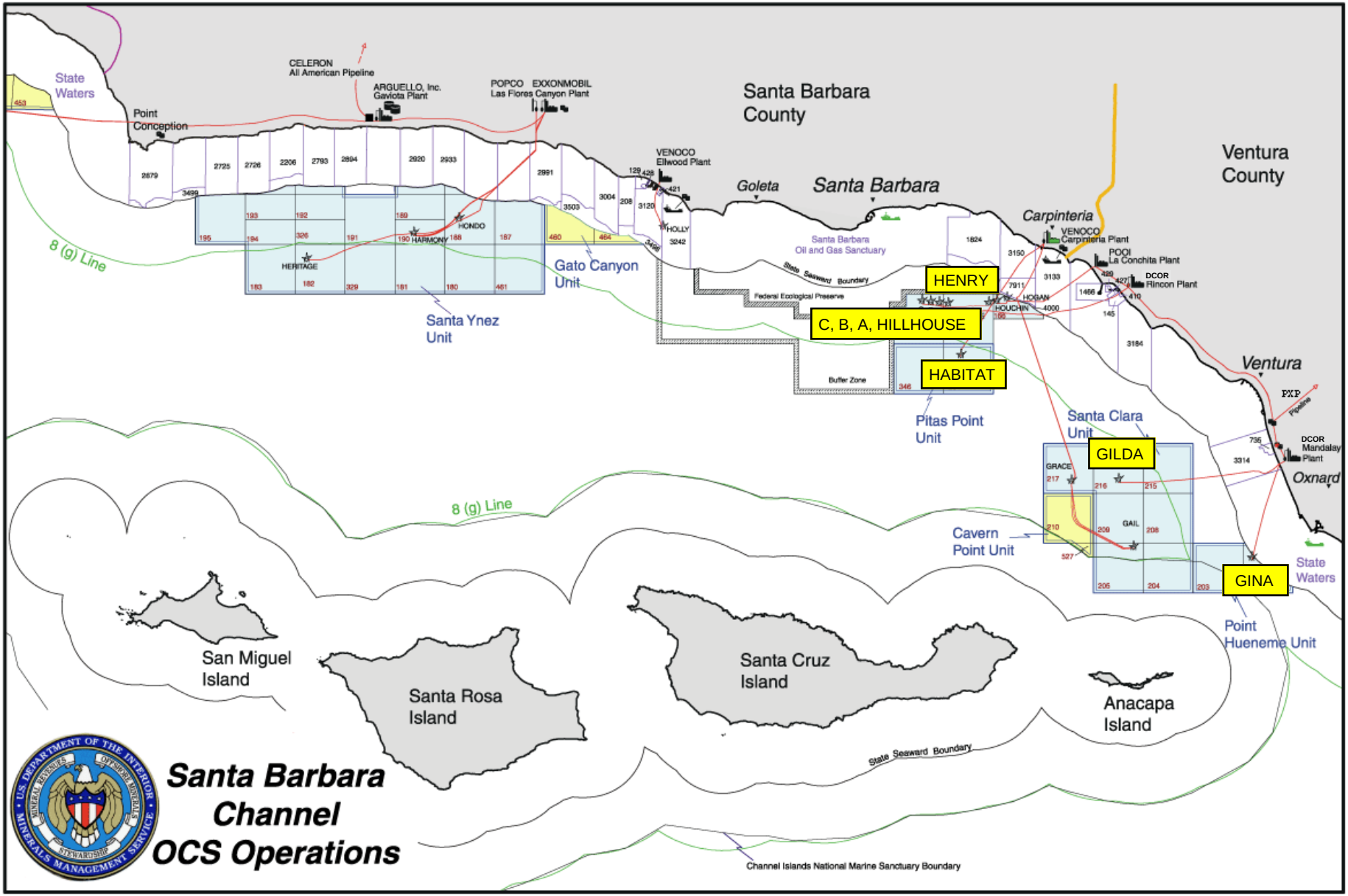

Figure 2. DCOR platforms in Santa Barbara Channel (from MMS fig.).

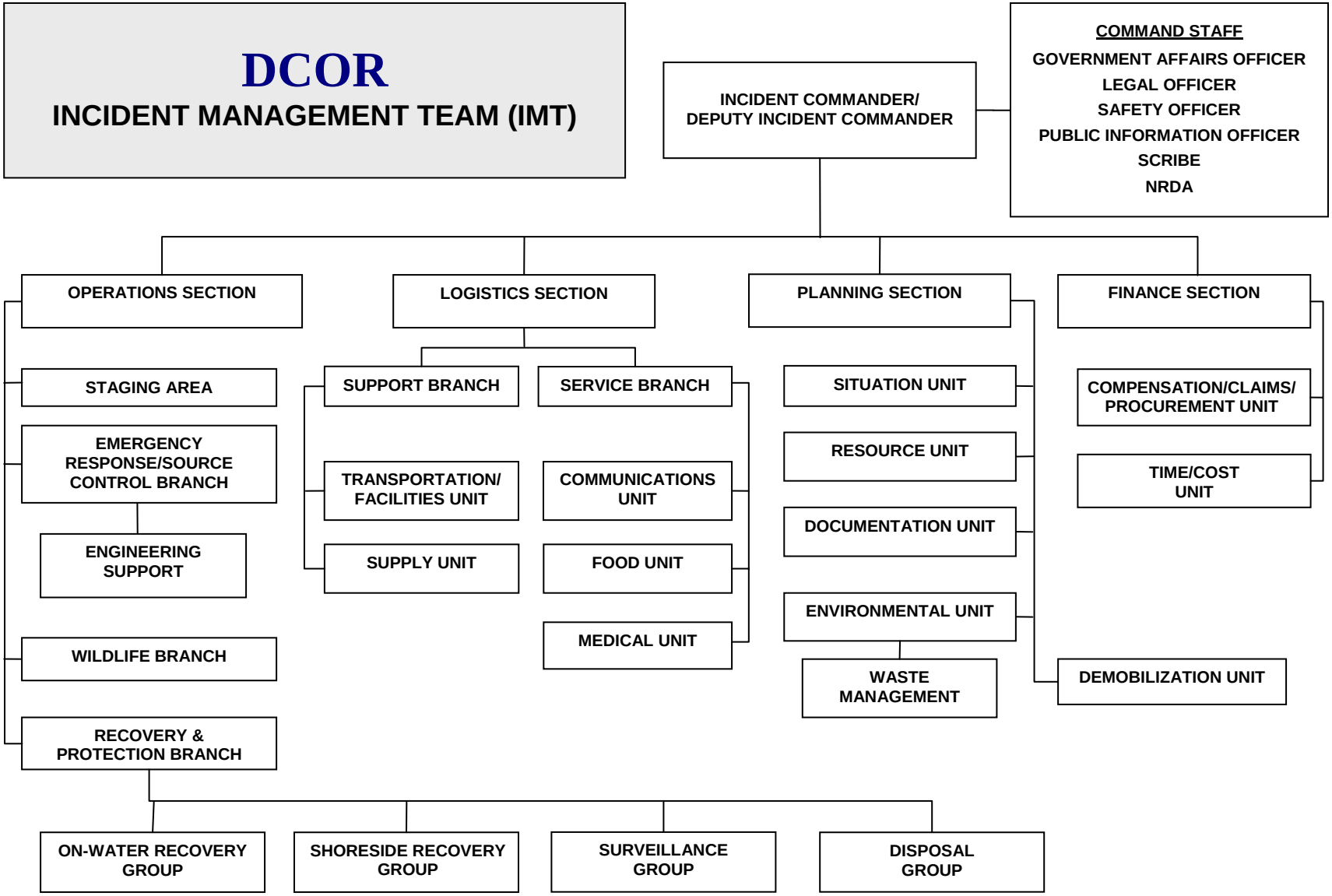

Figure 3. DCOR's Incident Management Team Structure

References

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