

Scenario Development

The following information was used in developing the scenario:

Historical Spill Considerations

There have been no historical catastrophic discharges in the COTP Hawaii Zone since the Japanese attack on Pearl Harbor December 7th, 1941. A Hazard Assessment survey of the two refineries on Oahu, Chevron U.S.A. Inc. and Hawaii Independent Energy (formerly Tesoro Hawaii), shows that the largest vessel that could be received at either offshore moorings is a 1,000 ft, 150,000 DWT tanker, with a cargo carrying capacity of approximately 1,000,000 barrels (or 42,000,000 gallons). This figure represents Hawaii's "Worst case potential discharge" in the event of a catastrophic loss of such a vessel.

Vulnerability Analysis

Refer to the Annex B for identification of the main commercial harbors, and areas in which transfers of high volumes of petroleum products occur.

Risk Assessment

Due to the requirements of the worst case scenario, the area of highest risk is the south and the west coast of Oahu from Ka'ena point to Barbers point and from Barbers point to Diamond Head. This area has been assessed with a high risk because of the potential threat from an accident occurring at one of the offshore moorings.

Seasonal Considerations

Hawaii's climate is dominated by the trade winds resulting in mild weather for such a southern location. The mean daily temperatures range from a high of 81°F during the summer months to a low of 72°F in the winter. The temperature extremes are summer highs of 87°F and winter lows of 65°F. The water temperatures are equally moderate, with the mean summer temperature of 80°F and winter temperature of 72°F. The predominant winds in Hawaii are the northeast trade winds. During the winter months (December and January), the winds will occasionally shift and blow from the south. These winds are referred to as "Kona's", and they usually bring the most severe weather to the leeward side of the islands, possibly resulting in heavy rains and high winds. Electrical storms are very rare, and there may be only 2 or 3 per year. The islands are just out of the range of the east Pacific hurricanes which form off the coast of Mexico, and the west Pacific typhoons. Because the islands are on the outer fringes of the storm activity, they usually receive only heavy rains from these storms. During some years, there may not be any violent weather. The storms which do occur are short lived and infrequent.

Event General Description

Situation Immediate and total loss of a 150,000 DWT tank vessel
Location Vicinity of Barbers Point offshore Moorings
Product Alaska North Slope Crude
Amount 1,000,000 bbls.
Source Pollution source cannot be secured
Areas at risk Shoreline areas from Barbers Pt. to Diamond Head, shoreline impacts will

be heaviest in the Honolulu Harbor, Ala Wai basin and Waikiki areas

Season March (early spring)

Weather Clear, 80°, Kona condition (Kona winds in conjunction with the shoreline contours create wind from the west, south-west at Barbers Point)

Trajectories

The trajectories for the worst case scenario are displayed as overlays on the following pages. There is approximately six to twelve hours elapsed between each overlay. The oil movement shown is approximate based on NOAA trajectories.

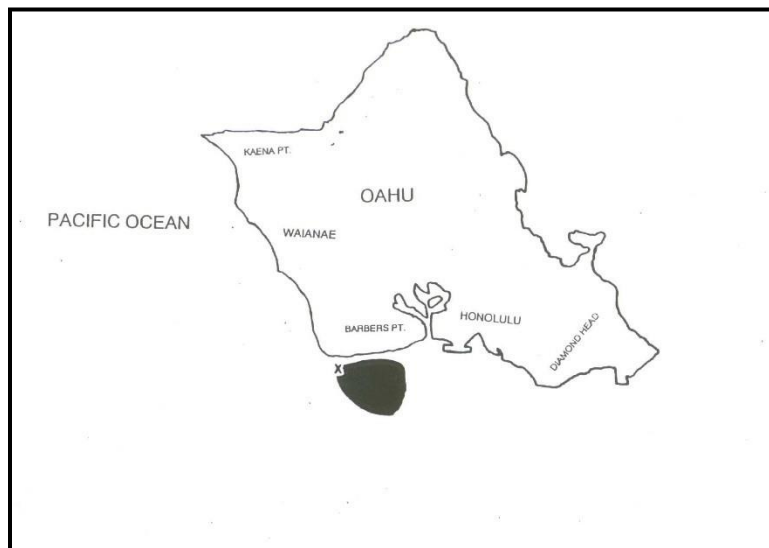


Figure 9000-1, Worst Case Discharge (Oahu view) - plus 06 hours, day 1

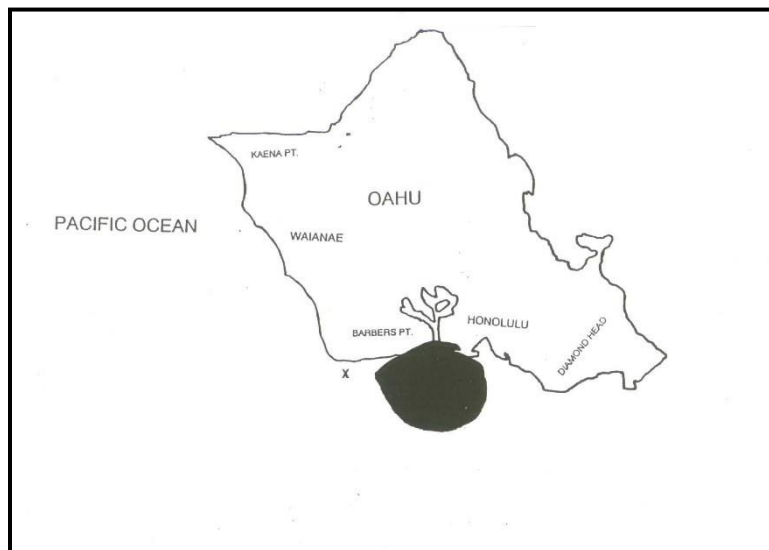


Figure 9000-2, Worst Case Discharge (Oahu view) - plus 12 hours, day 1

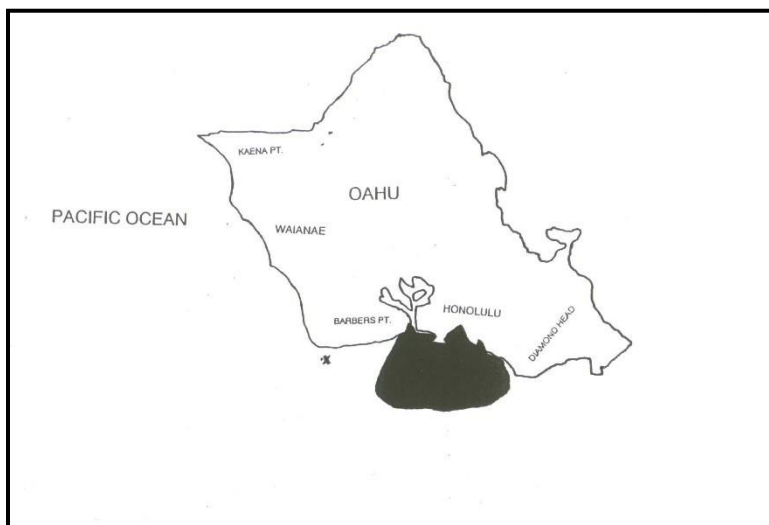


Figure 9000-3, Worst Case Discharge (Oahu view) - plus 18 hours, day 1

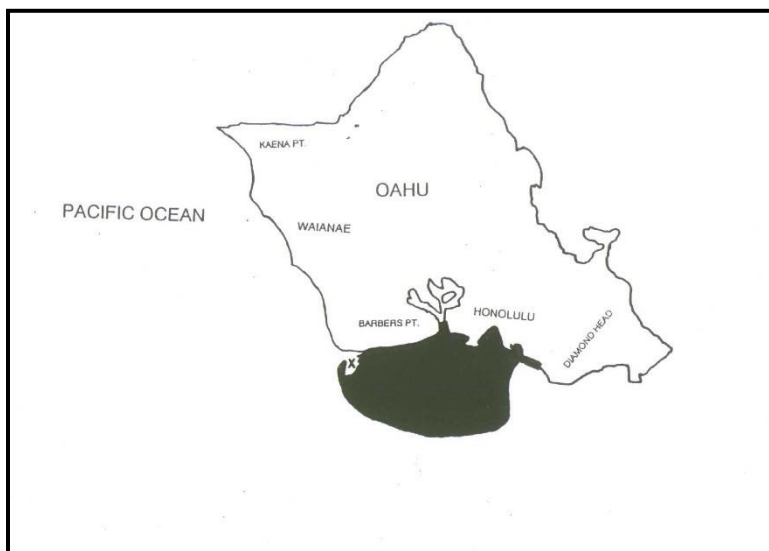


Figure 9000-4, Worst Case Discharge (Oahu view) - plus 24 hours, day 1

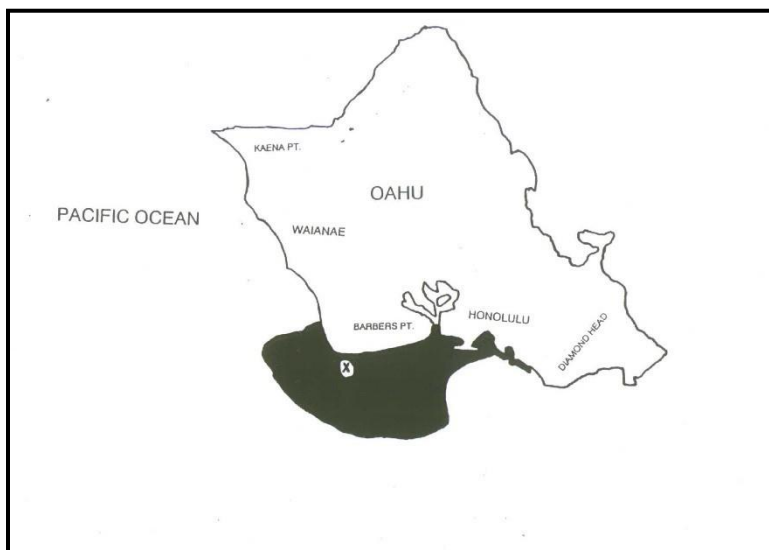


Figure 9000-5, Worst Case Discharge (Oahu view) - plus 30 hours, day 2

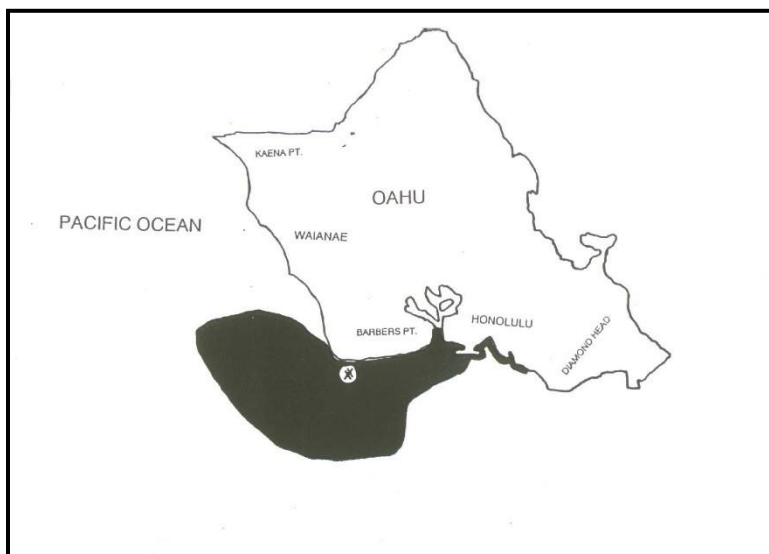


Figure 9000-6, Worst Case Discharge (Oahu view) - plus 36 hours, day 2

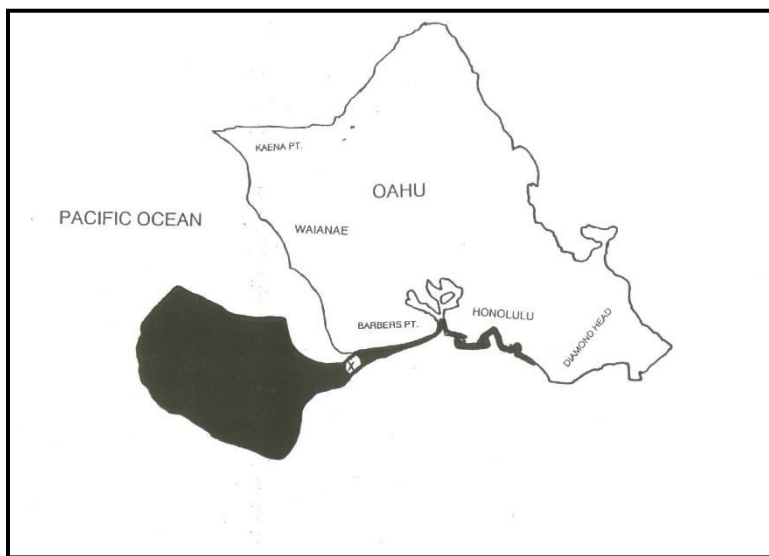


Figure 9000-7, Worst Case Discharge (Oahu view) - plus 48 hours, day 2

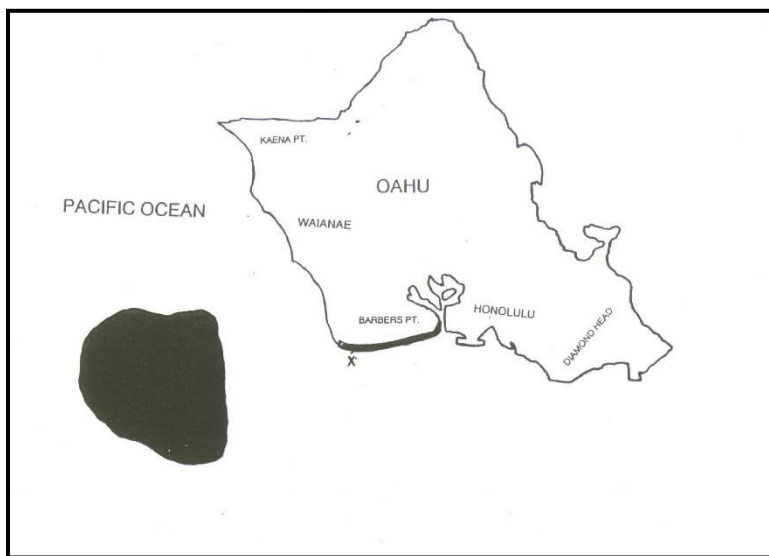


Figure 9000-8, Worst Case Discharge (Oahu view) - plus 60 hours, day 2

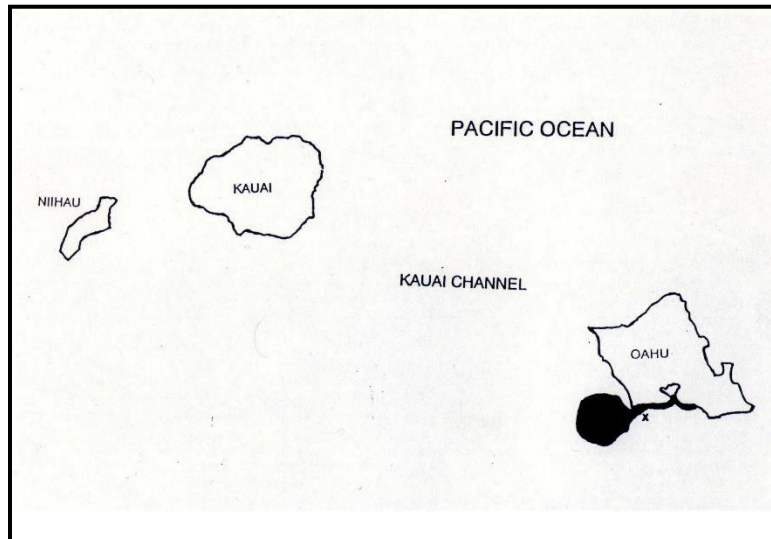


Figure 9000-9, Worst Case Discharge (wide view) - plus 48 hours, day 2

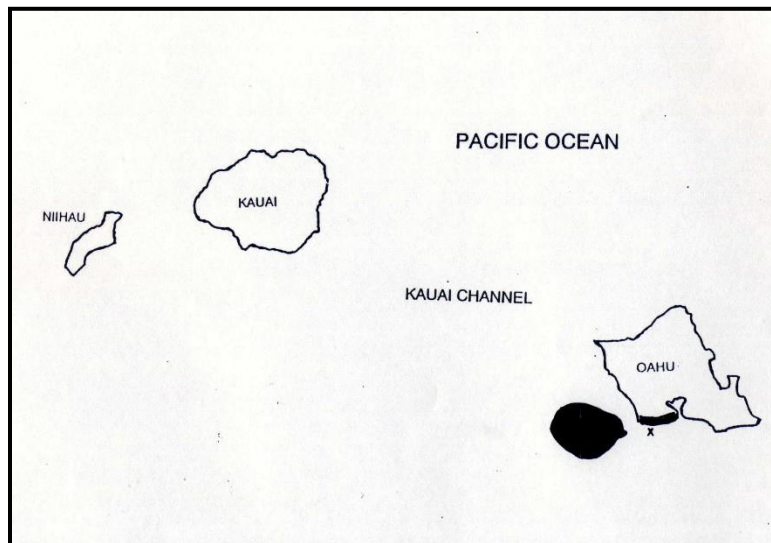


Figure 9000-10, Worst Case Discharge (wide view) - plus 60 hours, day 3

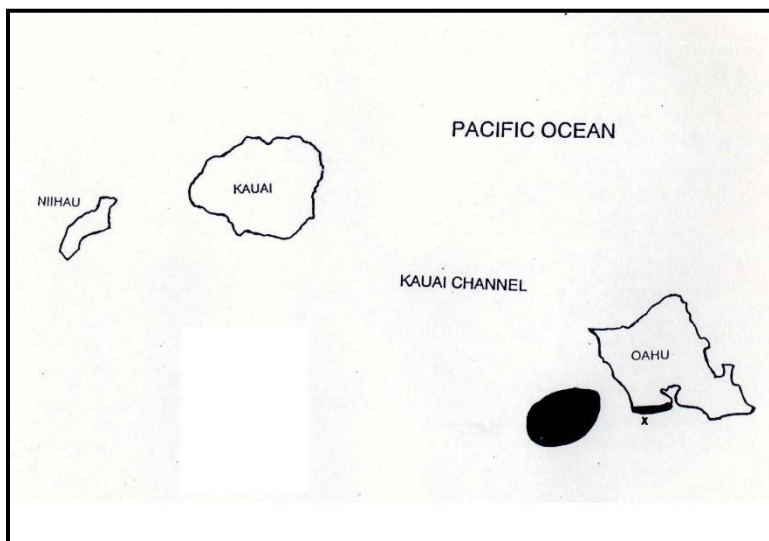


Figure 9000-11, Worst Case Discharge (wide view) - plus 72 hours, day 3

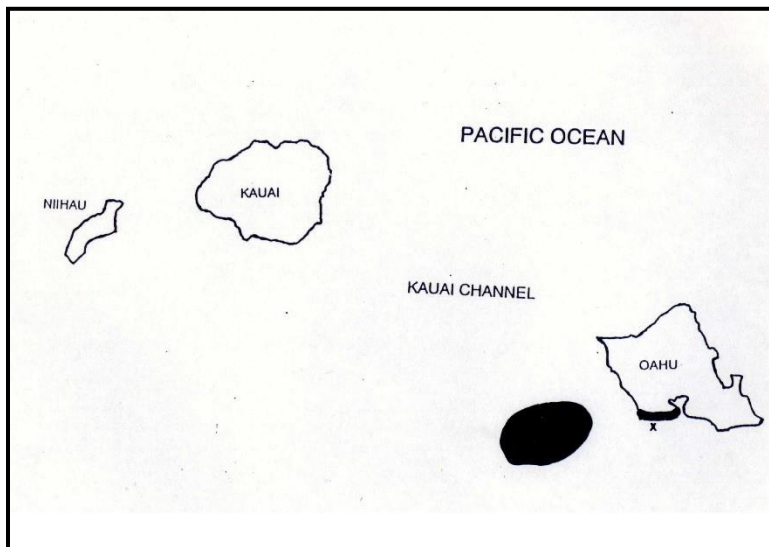


Figure 9000-12, Worst Case Discharge (wide view) - plus 84 hours, day 4

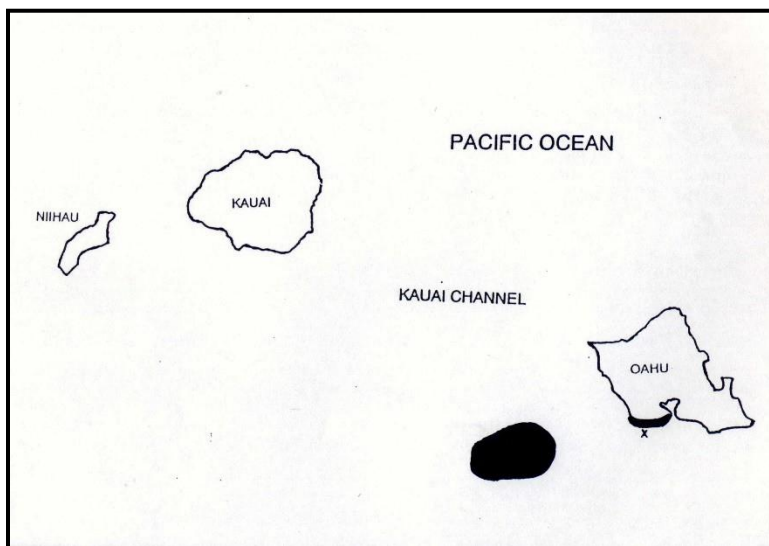


Figure 9000-13, Worst Case Discharge (wide view) - plus 96 hours, day 4

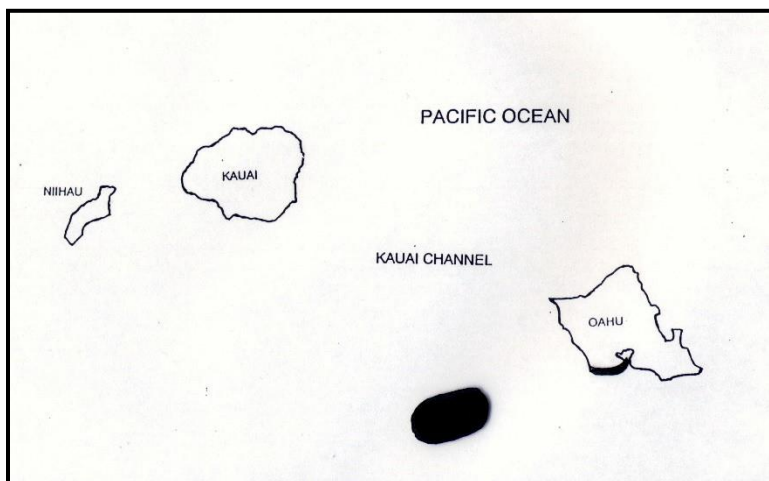


Figure 9000-14, Worst Case Discharge (wide view) - plus 108 hours, day 4

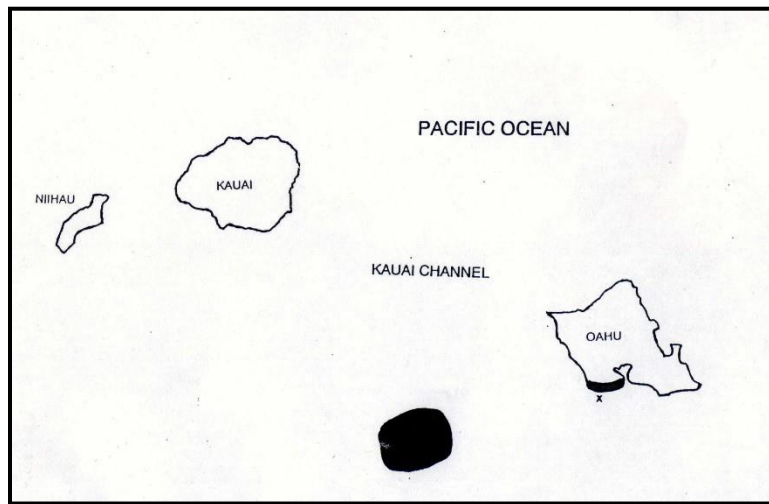


Figure 9000-15, Worst Case Discharge (wide view) - plus 120 hours, day 5

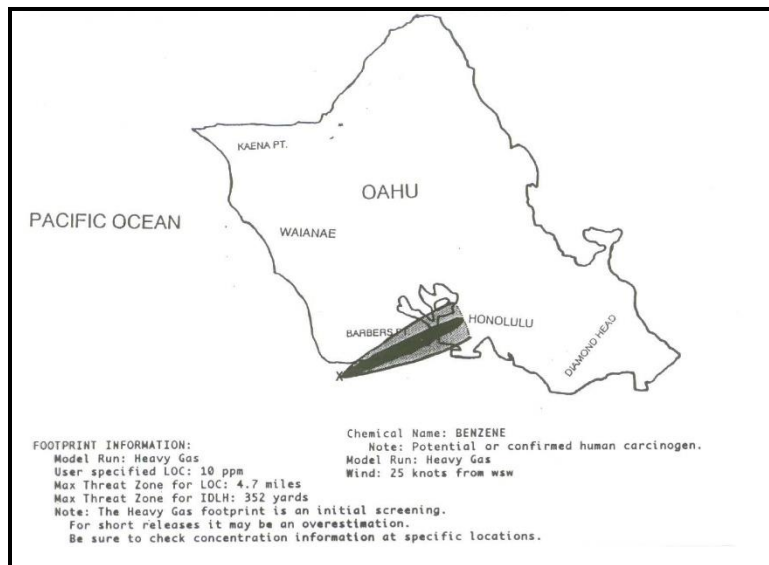


Figure 9000-16, Worst Case Discharge Benzene Plume (Oahu view) - plus 1 hour, day 1

Hazards

A benzene plume is included as an overlay on the oil movement trajectories. The State Department of Health will be notified of the possible area of impact from the benzene plume.

Initial Actions

The USCG Sector Honolulu pollution response team will be recalled as soon as the first notification is received. Standard recall time is 30 minutes. Mitigation and investigation will commence upon recall.

- Notification of the proper authorities and response organizations will be initiated immediately. Initial notification completed within the first 3 hours after receipt of initial report.
- Initiate immediate on site measures to contain and control oil spill at the source.

- Initial response equipment is available for use at each of the two Marine Terminals at Barber's Point.
- Notification of the potential for oil spill impact will be given to responsible government agencies, natural resource trustees and effected industries.
- The USCG Sector Honolulu will commence a general recall, and join the response organization forming at the designated location.
- The FOSC would contact the Chief, Marine Environmental Response, Fourteenth CG District, who is the Co-Chairman of the ORRT, and request activation and assembly of the RRT due to the extraordinary nature and certain impact of the incident. Some of the RRT members reside on the West Coast, generating additional obstacles to this process. The FOSC will request assistance from the National Strike Force, this will include equipment such as boom and skimmers necessary to mount the response.
- An ICS would be assembled, led by a UC. The SOSC and the responsible party representative will join the FOSC in the unified command triangle.
- DOD support would be requested, if necessary. If utilizing the DOD RRT representative to facilitate such a request, the USCG Oceania RRT co-chair should be contacted to coordinate the support. Support could include transportation of equipment to the scene via heavy lift helicopters from MCBH Kaneohe, Air Force logistical aircraft flights from the mainland, etc.
- The NOAA SSC would be requested to provide a daily computer trajectory analysis based on local weather conditions and available information on currents.
- The Oiled Wildlife Section of the UC would set up an oiled wildlife rehabilitation center, and to provide information on wildlife impact.
- If the requirement for its use was deemed necessary, the OSC would initiate actions to use alternate response technologies -- in Situ Burn and Dispersants -- in accordance with Section 1690 - Alternative Response Technologies.

Response Goals

The following response goals are anticipated.

- The primary goal is to mitigate the impact of the oil by conducting containment, recovery and cleanup operations in a safe and efficient manner, recognizing that public health and safety have the highest priority.
- Stop the flow of oil.
- Response and Protection Strategies will be aimed toward protecting the economically sensitive areas of Waikiki.
- Additional actions will be designed to minimize damage to sensitive environmental resources.
- Strategies will be directed to maximize on water recovery by OSRVs. Additional vessels of opportunity will be utilized to collect floating oil and herd it to the OSRV collection booms to maximize skimmers efficiencies. Decanting of collected liquid volumes will be used to maximize limited recovered oil storage.
- Shoreline response strategies will be designed to concentrate oil into pre-designated collection areas. A combination of protection and collection techniques will be used to achieve this goal.

General Response Strategies

These response strategies will be followed.

- Mobilize ready Oil Spill Response Vessels (OSRVs) to begin on water skimming operations.

- Mobilize all pre-identified Vessels of Opportunity Oil Skimming Systems (VOSS).
- Mobilize additional Vessels of Opportunity to support on water containment and recovery operations as possible. Six pack tour fishing vessels are the prime candidates.
- Examine opportunities to use in-situ burning and dispersants early, due to limited window of opportunity.
- Staging areas will include the Barbers Point Deep Draft Harbor, NAVSTA Pearl Harbor Bishop Point piers, USCG Base Sand Island, Honolulu Harbor piers one and two. Smaller staging areas of opportunity will be used depending on circumstances (Hickam Harbor, Keehi Lagoon boat ramp, Fort DeRussy Beach).
- Oil Spill Response Organizations will begin to cascade additional resources from the mainland as required.
- Barges, bladders and any other available on water storage equipment shall be deployed in support of skimming operations. Four (4) 75,000 gallon tank barges are located at NAVSTA Pearl Harbor, MSRC also has response barges within the Honolulu area.
- The State of Hawaii DOT-H will need to approve use of paved areas at the Barbers Point deep draft harbor for temporary storage of solid waste.
- Hawaiian Electric Company Inc., Hawaii Independent Energy and Chevron Hawaiian Refinery and the Naval Supply Center at Pearl Harbor may have tank storage space that can be made available to accommodate the liquid waste from a spill of this size.
- USCG personnel would monitor beach cleanups and assist in investigating reports of oil impacted areas. Additional USCG personnel would be requested from outside Fourteenth USCG District to assist in performing these duties.

Location of Response Equipment

Local response Equipment is stored in the following locations.

- The majority of federal response resources are located at Manana Warehouse (Pearl City), NAVAIRSTA Barber's Point and NAVBASE Pearl Harbor.
- Response contractor's response equipment is generally located in the Honolulu Harbor area.
- Industry resources are largely located within the Honolulu Harbor area.

Pre-designated Collection/Containment Sites

Section 3220 - Disposal, lists areas that can be used as temporary storage for collected materials. In general these sites have the following characteristics.

- Generally these areas can be cleaned easily and have a greater recovery ability with minimal lasting effects.
- Selected areas generally offer natural collection characteristics that if enhanced will enable responders to minimize the environmental and economic impacts to nearby areas of higher sensitivity.
- Additional collection/containment sites may be designated in similar areas of opportunity depending on circumstances.

Public Health and Safety

It is anticipated the public would be exposed to lighter fractions such as benzene within the first

day. Beach areas are generally heavily populated. Little could be done to minimize such exposure other than restricting traffic and evacuation of severely impacted areas.

A press release describing the potential health effects of an oil spill and exposure to benzene should be created. In addition, signs should be posted at all affected beaches.

Site 1 - Barbers Point Moorings

The Marine Terminals located at Barbers Point have been identified as the location of the worst case scenario spill. Two moorings are located off the southern coast within about two miles of the point. The Par Hawaii single point terminal is located about two miles offshore to the west of the Par Hawaii refinery in Kapolei. It is in approximately ninety-five feet of water.

Response Plan

This is the origin of the spill. The response will include:

- Initial actions will be designed to contain the spill at the location of the origin.
- Offshore on-water recovery operations will begin to recover spilled oil. Vessels of Opportunity (VOs) will be used in conjunction with OSRVs and VOSS to maximize recovery efficiencies. VOs will collect and herd oil back toward Barber's Point for release in the collection boom of skimming vessels.
- Evaluate the use of alternate response technologies, refer to Section 1690 - Alternative Response Technologies.

Equipment

The following equipment is anticipated.

- A minimum of 2,000 feet of ocean boom (43" minimum overall height) is kept on location and ready for immediate deployment during transfer operations.
- One OSRV will be on location within one and one half-hours of call out.
- All OSRVs and vessels of opportunity will be employed along the southern coast of Oahu as the oil spreads. Skimming vessels will operate in the thickest areas of the spill while vessels of opportunity will work the leading edge of the spreading oil to collect and herd oil back to the skimming vessels.

Site 2 - Hickam Harbor/Reef Runway Pond

The reef runway pond (Kumumau Pond) has been identified as a possible collection site. The entire pond area is man-made, created by building the reef runway. The reef runway on the south, the Hickam Golf Course to the north, and a taxiway to the west encloses the area. It is a natural collection point that can be enhanced to hold significant quantities of recovered oil that could be contained to minimize further contamination.

Response Plan

Conceptually oil would move along the coastline and naturally gather in Hickam Harbor. Collection efforts should be designed to maximize collection and containment in this area.

- Close Hickam and Pearl Harbor.
- A staggered series of ocean boom lengths could be deployed from the southwest end of the reef

runway in a southwestern direction to act as deflection boom guiding the oil into the harbor area and limiting its continuing spread along the coastline.

- Shallow water skimming systems and vacuum trucks could be deployed to recover oil.
- Access to the area will be better via the Hickam Air Force Base rather than Honolulu Airport due to FAA security regulations.
- OSRVs and vessels of opportunity will be employed along the southern coast of Oahu as the oil spreads. Skimming vessels will operate in the thickest areas of the spill while vessels of opportunity will work the leading edge of the spreading oil to collect and herd oil back to the skimming vessels or deposit their collected oil within the Hickam Harbor collection area.
- The USN will boom off the entrance to Pearl Harbor. The exclusionary technique will have three to four chevrons across the channel depending on the tides, wind and vessel traffic. The Naval Base has incorporated this strategy into its response plan.
- The entrance to Hickam Harbor may have to be blocked off with boom to contain the oil in the event the weather changes and oil starts to escape containment.

Equipment

The following equipment will be required for this response.

- Between 3,000 and 5,000 feet of ocean boom (43" minimum overall height) with anchoring systems would be required for the deflection boom off the reef runway.
- All OSRVs and vessels of opportunity will be employed along the southern coast of Oahu as the oil spreads. Skimming vessels will operate in the thickest areas of the spill while vessels of opportunity will work the leading edge of the spreading oil to collect and herd oil back to the skimming vessels.
- Approximately 6,000 feet of boom for protective booming of the Pearl Harbor entrance (Naval Station resources).
- Additional harbor boom (18 inches overall) may be required to enhance the collection possibilities in Hickam Harbor.

Site 3 - Keehi Lagoon

Keehi Lagoon is defined by the original dredged sea plane runways located on the west side of Sand Island/Honolulu Harbor. The outer coast side has shallow reef flat areas with resulting surf zone action. Within the lagoon are several small islands. Some of these islands offer bird habitats as well as culturally significant sites. Interior portions of the lagoon contain nesting sites for several species of birds. The State of Hawaii has a large yacht harbor with both finger piers and mooring buoys. Recreational fishing, boating and jet skiing occur within the sea plane runways. A boat ramp is located within the state harbor area. The western channel (Kalihi) for Honolulu Harbor terminates in the sea plane runways.

Response Plan

For this location the response is to:

- Close harbor to traffic.
- Harbor size protection boom (18 inches overall height) should be deployed between the northwestern tip of Sand Island and the northeastern tip of the reef runway. Deployment would be within the east-west sea plane runway. Remains of fixed aids to navigation remain along the edge of the seaplane runway and can be used to anchor the boom. The goal is to protect the inner lagoon

area.

- OSRVs and vessels of opportunity will be employed along the southern coast of Oahu as the oil spreads. Skimming vessels will operate in the thickest areas of the spill while vessels of opportunity will work the leading edge of the spreading oil to collect and herd oil back to the skimming vessels
- It is anticipated that the western shore of Sand Island will become a collection and recovery site for the spilled oil.
- Containment boom may have to be deployed at the south-east end of the seaplane runway to hold the oil in the collection area.

Equipment

The following response equipment will be needed.

- Approximately 5,280 feet of harbor boom with associated anchoring systems will be needed to protect the inner lagoon area.
- Shallow water skimming systems and vacuum trucks could be deployed to recover the oil.

Site 4 - Ala Moana Beach Park

Ala Moana Beach Park is a man-made recreational area comprised of the former dredged channel for the Ala Wai boat harbor, which runs along the beach, and the filled land area known as Magic Island. The beach area has been enhanced with sand additions. The offshore coastal area includes shallow reef flats with breaking surf. The western side of Magic Island has a large boulder breakwater shoreline.

This area is a natural collection and recovery point that can be enhanced to hold significant quantities of recovered oil that could be contained to minimize contamination of economically sensitive Waikiki Beach.

Response Plan

For this location the response will include.

- Close beaches and harbors.
- Beach protection strategies such as sand berming along the high water mark should be used to minimize beach contamination along the length of the beach. Oil snare can also be deployed along the beach at the water/beach interface.
- The northeast corner of the beach would be used as a collection site for the herded oil.
- Small boat herding along the length of the beach area could be used to protect the beach as well as aid the movement of spilled oil toward the collection site.
- Boom should be used to create deflection barriers outside the reef surf area and off the eastern point of Magic Island to direct the oil into Ala Moana Beach Park and Magic Island Lagoon.
- Vessels of opportunity should be used to collect oil offshore and herd it to within the collection booms.

Equipment

The following equipment will be needed.

- Approximately 3,000 feet of boom will be needed to deflect the oil and enhance the area as a collection site.

- Boom could be either harbor or ocean boom depending upon availability and weather conditions.
- Small boats will be required for herding along the beach face.
- Earth moving equipment will be required to build the protective sand beach berm.
- Shallow water skimming systems and vacuum trucks could be deployed to recover the oil.

Site 5 - Kahanamoku Beach/FT DeRussy Beach Park

This area includes several beaches starting at the east side of the Ala Wai Boat Harbor breakwater/sea wall including Kahanamoku Beach (ocean side of the Hilton Hawaiian Village) and the Ft DeRussy Beach complex. There are several access points to the property including; Ala Wai Yacht Harbor parking lot, Paoa Place, and Randolph Street which terminates in the parking lot for the Ft DeRussy Military Museum (several concrete barricades will have to be moved for beach access). There is what appears to have been a boat ramp near a concrete abutment (storm drain casement) which extends approximately 100 feet into Mamala bay.

This area is the last natural collection point before the main part of Waikiki Beach that could be enhanced to collect significant quantities of spilled oil. If this area was not utilized, the oil could possibly travel down the length of Waikiki beach impacting and contaminating a greater length of this economically sensitive area.

Response Plan

The response to this location will include the following.

- Close beach and Hilton pier.
- Limited and well planned beach protection strategies such as sand berming along the high water mark could be used to protect the beach and minimize contamination. Oil snare could also be deployed at the water/beach interface.
- Great care must be given to the archaeologically sensitive buried sites within this entire area of coastline, a representative of the Historic Preservation Office of the Department of Land and Natural Resources should be on hand to review strategies and give advice on the historic sensitivities of these sites.
- The center of the beach could be used as a collection site for the oil. The area will be easily accessible to heavy equipment (vacuum trucks etc.) via Paoa Place paved access road.
- Harbor or ocean boom should be used to deflect the oil into the collection area.
- Vessels of opportunity should be used to collect oil offshore and herd it to within the collection boom as well as aid the movement of spilled oil toward the collection site.
- OSRVs and vessels of opportunity will be employed along the southern coast of Oahu as the oil spreads. Skimming vessels will operate in the thickest areas of the spill while vessels of opportunity will work the leading edge of the spreading oil to collect and herd oil back to the skimming vessels

Equipment

The following equipment will be needed for this location.

- Approximately 3,000 feet of boom will be needed to create containment/deflection barriers to enhance the area as a collection site. Boom could be either harbor or ocean boom depending upon availability and weather conditions.
- Small boats will be required for herding oil along the beach face and at sea.
- Earth moving equipment will be required to build the protective sand beach berms when and if they are required.
- Shallow water skimming systems and vacuum trucks could be deployed to recover the oil.

Resource Requirements

The following response equipment will be needed for this response.

Skimmers

An estimated 4 OSRVs would be on scene within the first 24 hours. Twenty additional skimmers would be needed by the second week for a total of 24. There are also approximately 25 lower volume skimmers of different varieties available within several hours of notification. A large number of these skimmers can be air freighted within 12 hours of notification from various points on the mainland.

Boom

On Oahu alone, there is approximately 227 miles of coastline. This includes marine refuges, sanctuaries, and entrances to all major harbors and beaches frequented by tourists. The worst case scenario trajectory impacts approximately 23 miles of coastline from Barbers Point to Diamond Head. Sources on island could provide approximately 30,000 feet of containment boom in 24 hours, and 20,000 feet of additional boom in 48 hours. This totals to 50,000 feet of boom which would be sufficient for initial protection strategies. Additionally, DOD commands can provide an additional 40,000 feet of boom. More boom would be needed on a constant basis to deal with weather shifts and equipment deterioration due to operational conditions. All additional boom needed would have to be brought in from the mainland or foreign sources.

Dispersants

Approximately 37,900 gallons of EPA approved COREXIT 9500 and/or 9527 dispersant are available on Oahu. Even with this significant stockpile another 20,000 gallons may be required to sustain extended operations for a worst-case scenario. Dispersant aircraft from the mainland would require 24 to 48 hours of travel time. MSRC has a Tier 1 capability of two Simplex helicopter spraying buckets and approximately 8,000 gallons of dispersant. In addition, both the OSRV Clean Islands and the OSRV Hawaii Responder carry approximately 350 gallons of COREXIT 9500 on board and have application systems. MSRC also has a 737 Aircraft staged out of Moses Lake, WA. The State of Hawaii has an ADDS Pack and 30,000 gallons of COREXIT 9500 stored at Kalaeloa Airport on Oahu. The USCG District 14 has agreed to the use of its C-130 airframe and aircrews based out of Air Station Barbers Point to fly the ADDS and the State of Hawaii maintains to operate the system. In addition, NRC maintains 104 IBC Totes with a total of 27,560 gallons of Finasol. The Finasol and a dedicated DC-6 Aircraft is staged at the Air Field at Barber's Point. Both NRC and MSRC meet NPC for dispersants in the main Hawaiian Islands.

Fire Boom

Approximately 500 feet of fire boom is owned by MSRC. It is speculated that the boom should last through 2 or 3 burn cycles, the durability of the boom is effected by the duration of the burn, the maneuvering of the boom prior and after the burn and, ocean surface conditions (wind, current, etc.).

Contracted Personnel

On the first day alone, there would be a need for 90-100 people for initial response by contractors.

Jointly, island contractors, can respond with 90 people on the first day of the spill. The personnel requirement would likely increase to 1,000 laborers within days.

Work Boat/Vessels of Opportunity (VOO)

It is estimated that on the first day of the spill, 15 workboats (tending booms, carrying equipment, etc.) would be needed on scene. Contractors would probably have 15 available on the first day. The need for work boats/VOOs would double by the second day; and by end of the second week, 60 work boats/VOOs would be required (most likely contracted from recreational, fishing, and charter boats located in the state).

Barges

At a minimum, an additional five - 25,000 barrel barges or an empty tank ship would be needed to assist the number of local barges that would be available for lightering and receiving oily wastes. Another option is to use an empty tank ship as was done previously with the EXXON HOUSTON and EXXON VALDEZ.

USCG Personnel

USCG manning level would increase; 110 additional personnel would be needed in days to augment Sector Honolulu.

Berthing and Messing

Berthing and messing arrangements would be made locally for USCG personnel not from Honolulu area. Berthing can be accommodated at Naval Station Pearl Harbor, Hickam Air Force Base and local hotels/motels. The messing could be accommodated at USCG Base Honolulu and box lunches could be made available for field personnel.

Workforce

Because Oahu is heavily populated, there would likely be an adequate work force available on the island to perform beach and shoreline cleanup operations. This could be effectively coordinated so that most of them could commute from home, minimizing considerably the berthing complications experienced during other incidents. All response labor will have to be HAZWOPER qualified, this may require that several training sessions be conducted to meet the needs of the response.

Because of the severe economic impact from contaminated beaches such as Waikiki, it is anticipated there would be a ready source of volunteers. Volunteers could be mobilized by the HI-EMA to assist and include organizations like the American Red Cross, Salvation Army, Radio Amateur Civil Emergency Service, and others.

Available Resources and Sources of Procurement

Primary response resources for the worst case scenario would be provided by the OSRO on behalf of the RP.

The RP will establish its spill management team, and execute its vessel response plan for procuring the necessary resources. The UC will request additional assistance and equipment through the D14

DRAT, the D14 DRG, and the NSF. Additionally, the FOSC will request support and expertise through the Oceania RRT.

Response time for all resources needed to respond for a worst case spill scenario varies. Equipment airlifted from the mainland would be available in 24-48 hours, equipment brought in by boat would be one to two weeks, allowing for transit from the mainland.

Shortfalls

Equipment shortfalls and options for alleviating them are outlined below. The challenge for a spill response in this area is the geographic isolation from the mainland. This adds an additional logistics burden and time constraint to the response.

Time Frame

The length of time needed to respond and cleanup a spill of this magnitude would be on the order of 10-16 months using all methods available, 14-16 month only using mechanical means.

Normal Hawaiian Island weather conditions would aid in cleanup efforts since predominant trade winds blow from the northeast. While trade winds blow less frequent in the winter than summer, they are often the strongest and could help push surface oil offshore to the southwest of the Island chain, significantly reducing the impact to the islands when compared to Kona conditions.

In most cases the winds and currents would combine to move the oil in a westerly direction. Seas created by the trades usually range from 4 to 14 feet. They are highest in the late fall, winter, and early spring. Hence, choppy seas combined with normally warm temperatures would contribute to the weathering of surface oil and speed evaporation.

(NOTE: THESE TIMES ARE FOR PLANNING PURPOSES ONLY AND DO NOT REFLECT PERFORMANCE STANDARDS)

Disposal

Disposal Options are outlined in Section 3220 - Disposal, of this plan. The options include the refinery for processing of collected oil, and the Waipahu incinerator and/or H-Power Plant for oiled debris. Should the volume of product and oil soaked debris recovered exceed the capacity on Oahu, shipping to the mainland for disposal