

# **KODIAK MARINE FIREFIGHTING PLAN**

August 2019 adaptations of the Kodiak MFF Plan include updated footers and page numbering. The document content was not changed or augmented.

# KODIAK

## MARINE FIREFIGHTING

### SECTION

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# MARINE FIREFIGHTING: PART ONE – INTRODUCTION

**NOTE: In addition to this plan, please consult the USCG *Western Alaska Marine Firefighting Plan* for additional guidance. Contact USCG Sector Anchorage for copies.**

## A. PURPOSE AND OBJECTIVE

This plan is based on the assumption that a major marine fire, particularly a vessel fire, may require resources beyond those locally available and that effective response will require coordination of resource deployment from a number of organizations. Contingency planning identifies the means and methods necessary to make resources available from federal, state, and local agencies.

Contingency planning is essential for marine fires *in general* because:

- ❑ Marine fires pose unique logistical obstacles;
- ❑ Marine fires are rare occurrences and few firefighters have experience responding to them;
- ❑ With training mandates for shore-based firefighters up, and training budgets down, few fire departments can afford to train personnel for rare events, such as a marine fire;
- ❑ Roles and capabilities among landside firefighters are usually not clearly defined;
- ❑ Different communication frequencies are used by different response organizations.

Marine firefighting contingency planning *specifically* for Kodiak is essential because of:

- ❑ Distances between areas of risk,
- ❑ Tides, currents, ice that frustrate response,
- ❑ Jurisdictional responsibilities overlap and can be confusing,
- ❑ Landside access to vessels, with the possible exception of Port of Kodiak, is difficult,
- ❑ Concern over liability,
- ❑ Lack of accessible resources including qualified marine firefighters.

This document provides for a coordinated response by the U.S. Coast Guard and other federal, state, local, and civilian forces to fires on board vessels or at waterfront facilities. It provides policies, responsibilities, and procedures for coordination of on-scene forces. Response forces for the purposes of this plan include:

- Public Safety Agencies, including land-based fire departments
- Waterfront Facility Owners and Operators
- Vessel Owners and Operators
- United States Coast Guard
- Other Military Departments or Agencies
- Private Companies and Individuals

**B. SCOPE**

This plan applies to the navigable waters and adjacent waterfront facilities of the Kodiak Island Geographic Zone.

**C. DEVELOPMENT OF PLAN AND POLICY – THE WORKGROUP**

The policies and plans within this section were developed and recommended by a workgroup that met between November 2004 and August 2005. Representatives from the following organizations participated:

Bayside Fire Department
City of Kodiak Fire Department and Harbormaster
Horizon Lines Terminal
Kodiak Island Borough
Lazy Bay LLC
North Pacific Fuel
Petro Marine Services
Samson Tug and Barge
Seaport Terminal Services
USCG ISC Kodiak Fire Department
USCG Marine Safety Detachment Kodiak
Womens Bay Fire Department

# MARINE FIREFIGHTING: PART TWO – POLICY AND RESPONSIBILITY

## A. FEDERAL POLICY AND RESPONSIBILITY

The Coast Guard exercises primary federal responsibility for the safety and security of the ports and waterways of the United States. The role of the US Coast Guard Captain of the Port (COTP) in a marine fire event is to ensure firefighting efforts are carried out in a manner that does not threaten the safety of life, the environment, or property.

The Coast Guard will render assistance as available, commensurate with each unit's level of training and the adequacy of equipment. The Commandant of the Coast Guard intends to maintain this traditional "assistance as available" posture **without conveying the impression that the Coast Guard is prepared to relieve local fire departments or vessel owners of their responsibilities**. Paramount in preparing for vessel or waterfront fires is the need to integrate Coast Guard planning and training efforts with those of other responsible agencies, particularly vessel operators or owners, local fire departments and port authorities.

**Request for Federal Resources:** All requests for federal resources or equipment should be made to the Coast Guard COTP Western Alaska through the Unified Command. Significant non-Coast Guard federal resources include U.S. Navy fire tugs, US Navy Supervisor of Salvage (SupSalv), and Military Sealift Command firefighting experts.

**Captain of the Port (COTP) Responsibility:** The USCG COTP exercises primary federal responsibility for the safety and security of the port. This responsibility is discharged by enforcing dangerous cargo regulations, marine terminal safety regulations, port security, and pollution prevention regulations. In emergencies, the COTP may control the movement of ships and boats, establish safety zones, and provide on scene personnel for situation assessment. Responsibilities of the COTP in a major fire aboard a vessel or waterfront facility may include:

- Conduct notifications.
- Assume IC for burning vessel underway or at anchor when:
  - (1) The responsible party does not take appropriate action,
  - (2) The fire department with jurisdiction is unable to respond, and/or
  - (3) No fire department has jurisdiction
- Participate in the Unified Command.
- Assume operational control of all Coast Guard resources on-scene.
- Coordinate information flow or processing of technical data from the vessel for the benefit of the local responders.
- Establish safety or security zones, as necessary.
- Provide information on involved waterfront facilities.
- Provide information on the location of hazardous materials on the vessel, or at the facility, if available.
- Provide technical data on ship's construction, stability, and marine firefighting techniques.
- Respond to oil or hazardous materials discharges.
- Obtain tugs to assist in relocating moored or anchored vessels.
- Alert owners/operators of terminal or vessel at risk.

- Notify and consult with appropriate natural resource trustees when the incident results in a pollution threat or may otherwise affect resources under the trustee management authority.

## **B. STATE POLICY AND RESPONSIBILITY**

### **1. Division of Homeland Security and Emergency Management (DHS&EM)**

The Alaska Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) operates the State Emergency Coordination Center (SECC) and helps coordinate and provide logistic support for the response of state agencies to emergencies and disasters. In addition, DHS&EM, through the SECC, will coordinate with federal government agencies to request assets that are not available from local and State resources, such as the Disaster Mortuary Operational Response Team (DMORT), the Disaster Medical Assistance Team (DMAT), and DOD MEDEVAC resources.

With regard to potential situations associated with marine fires, four general criteria will dictate a response by the State. These are listed below in priority order from a response standpoint:

- Search and rescue, evacuation
- Local Emergency Declaration
- Investigation or response to possible criminal activity
- Firefighting operations
- Oil or hazardous substance release

### **1. Department of Public Safety**

In situations where there may be concurrent emergency issues [e.g., a cruise ship requiring firefighting assistance, search and rescue (SAR) support, and spill response coordination], life saving efforts will take precedence over all other emergency operations. In this situation, the Department of Public Safety through the Alaska State Troopers Office for SAR operations will serve as the SOSC.

**Request for State Resources:** State resources can be requested from the Alaska Department of Public Safety through the Alaska State Trooper's 24-hour dispatcher at 907-486-4121 or 800-478-9300 or 911.

The Alaska State Troopers will be involved when there is the possibility that the cause of the casualty was **due to criminal activity**. They will assist the FBI. They may also provide persons for the Coast Guard Away Team. The Alaska State Trooper Fish and Wildlife Enforcement Division maintains a patrol vessel in Kodiak (M/V Woldstad) that has a fire monitor. This vessel, if in port, may be able to provide waterside cooling water or rescue.

### **2. Alaska Department of Environmental Conservation**

The Alaska Department of Environmental Conservation (ADEC) is the lead State agency with jurisdiction for responding to releases of hazardous material and oil spills. During a ship fire the State On-Scene Coordinator (SOSC) will direct and coordinate the State's response to an actual or potential spill. The Coast Guard will coordinate with ADEC whenever a vessel is in distress and a threat of oil or hazardous materials release exists. ADEC SOSCs can be notified through the Alaska Department of Public Safety through the Alaska State Trooper's 24-hour dispatcher at 800-478-9300.

ADEC has a local response agreement with the City and Borough of Kodiak for oil and hazardous material response.



## **ADEC Responsibilities:**

- Participate in the Unified Command.
- Provide portable communications equipment to response personnel, as needed.
- Assume operational control of all State resources on-scene.
- Respond to oil or hazardous materials discharges. Mitigation, removal and cleanup efforts may be delayed until the firefighting operations are terminated.

## **C. LOCAL RESPONSE AGENCY POLICY AND RESPONSIBILITY**

### **1. Land-based fire departments**

Land-based fire departments are responsible for fire protection within their jurisdictions. Local fire departments will respond to ship board fires within the limits of their capabilities. If the crew cannot control the fire, the local fire chief or designee should take tactical control of the firefighting operations. The master should assist the fire chief in the performance of firefighting operations. However, it should not be assumed that local fire departments are capable of providing on-board suppression and internal entry even if they assume tactical control.

Typical responsibilities of the municipal fire departments may include:

- Participate in the Unified Command.
- Establish and staff a Command Post.
- Provide water, air supply and foam for on board firefighting
- Determine the need for, and request mutual aid.
- Make all requests for Coast Guard/Federal personnel, equipment, and waterside security through the COTP.
- Establish liaison with police department and emergency medical services for land-side traffic and crowd control, scene security, treatment and transport of the injured, and evacuation.

### **2. Local On-Scene Coordinator or Incident Commander**

For all vessel or marine facility emergencies in the Kodiak Geographic Zone in which the Incident Command System is implemented, the Local On-Scene Coordinator (LOSC) or Incident Commander (IC) will sit in the Unified Command with the FOOSC, SOOSC, and RPOOSC, sharing decision-making and oversight responsibilities with the other On-Scene Coordinators. As long as there is an immediate threat to public safety, the LOSC will serve as the ultimate command authority for the public safety issue, while the FOOSC, SOOSC, and RPOOSC will work with the LOSC to ensure mitigation of the situation. So long as the threat to public safety remains, the LOSC will be guided by the Kodiak Emergency Operations Plan developed by the Kodiak Regional Emergency Services Organization and the Kodiak Island Borough Local Emergency Planning Committee. If the FOOSC, SOOSC, or RPOOSC does not assume the lead role for response efforts, the LOSC may request higher authority to assume that responsibility.

Additional policy guidance is provided to the LOSC by the Kodiak Regional Emergency Services Council, which is composed of the Emergency Services Director, the Mayor of the City of Kodiak, the Kodiak Island Borough Mayor and Manager, and the Commanding Officer of the USCG Integrated Support Command (ISC) Kodiak or their designees. Facility and vessel Oil Discharge Prevention and Contingency Plans and other emergency plans for operations in and around the Kodiak Geographic Zone should include a description of the LOSC position, which reflects the unique situation in the Kodiak Geographic Zone.

### 3. Mutual Aid Agreements

All Fire Departments<sup>1</sup>, including the USCG Integrated Support Command, have signed mutual aid agreements with the other area fire departments. Assistance for firefighting or emergency aid are made and rendered between the fire chiefs or their designees.

#### D. COORDINATION AND AGREEMENTS BETWEEN THE USCG AND LOCAL LAND-BASED FIRE DEPARTMENTS AND RESPONSE AGENCIES

It is the goal of local fire departments, port facilities and the Coast Guard to develop and maintain a comprehensive system that ensures fast, well-coordinated, and effective land-based response to vessel fires in Kodiak. Organizational policy and assumed responsibilities for both the Coast Guard and response agencies and organizations have been described in paragraphs A, B, and C of this Part. These *general* policies, responsibilities and capabilities are important for planning. It is essential, however, that each organization agrees in advance to a minimal level of coordination and mutual aid. ***Therefore, in the event of a marine fire the Coast Guard Captain of the Port, the local fire department covering the area in which the marine fire occurs, and the affected industrial port facility agree to the following:***

- ❑ Within one hour after initial notification, establish initial contact and consultation with each other, and begin to establish, direct, and manage a Unified Incident Command System;
- ❑ Within four hours, establish an incident command post for Unified Command that includes at a minimum the Federal Incident Commander (COTP or representative), Local Incident Commander (Local Fire Chief or representative) and the Responsible Party Incident Commander if available;
- ❑ Kodiak City or Borough will call out ICS staffing consistent with a Level II or Level III incident (reference: *Kodiak Emergency Operations Plan, Volume Two – Operations Guide*<sup>2</sup>)
- ❑ Use VHF radios to communicate inter-organizationally; (see Part Four, B.1)
- ❑ Ensure that all marine firefighting resource providers are integrated into Unified Command;
- ❑ Coordinate and request all additional resources through Unified Command, including requests for military (Navy SupSalv, etc) and federal equipment.

The Coast Guard COTP will ensure Unified Command functions efficiently. When response agencies and the responsible party are unable to agree and implement response actions, the COTP will direct the response. The COTP will also ensure that potentially affected natural resource trustees are consulted when the incident results in a pollution threat or may otherwise affect resources under their respective management authority.

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<sup>1</sup> City of Kodiak, Borough of Kodiak, Bayside Volunteer Fire Department, Womens Bay Volunteer Fire Department, and USCG ISC.

<sup>2</sup> <http://www.city.kodiak.ak.us/Emergency/Pages/default.aspx>

## E. RESPONSIBLE PARTY

### 1. Vessel

The vessel master is responsible for planning and directing firefighting efforts aboard the vessel as well as for the safety of the vessel and crew. The presence of local firefighters and/or the Coast Guard does not relieve the master of command of or transfer the master's responsibility for overall safety on the vessel. However, the master should not normally countermand any orders given by the local incident commander in the performance of fire fighting activities on board the vessel, unless the action taken on clearly endangers the safety of the vessel or crew. Actions by the Coast Guard or other response agencies do not relieve the vessel owner, operator, or master of liability. The master should work closely with the incident commander on scene to coordinate firefighting efforts. This will include providing information regarding actions taken by the crew, the vessel's layout, firefighting capabilities, and the location and types of cargo aboard.

If the crew cannot control the fire, the local fire chief or designee should take tactical control of the firefighting operations. The master should assist the fire chief in the performance of firefighting operations. However, it should not be assumed that local fire departments are capable of providing on board suppression and internal entry even if they assume tactical control. The vessel master should immediately bring to the attention of the fire chief and the Unified Command any action taken or planned that threatens the safety of the vessel, crew or nearby people or property.

### 2. Owners/Operators of Waterfront Facilities

Most waterfront facilities in the Kodiak have limited firefighting resources and rely on local fire departments for fire protection. Therefore, in the event of a marine fire, facility operators are responsible for ensuring the safety of facility personnel, as well as for providing the incident commander with information regarding the facility's layout and the location of dangerous materials. In the event of a fire onboard a vessel moored to the facility, the facility operator shall assist the vessel's master, the incident commander, and the COTP to the maximum extent possible.

### 3. Fires on unmanned, moored vessels where the owner, operator or crew is not available.

In this case, the facility owner and the local fire chief should work together in mitigation efforts. The local fire chief or designee should take tactical control of the firefighting operations. However, it should not be assumed that local fire departments are capable of providing on board suppression and internal entry even if they assume tactical control.

## F. OTHER POTENTIAL PARTICIPANTS

For vessel or facility fires in Kodiak, the following organizations have firefighting resources that may be available to respond with equipment and personnel.

- USCG ISC Kodiak
- Navy Supervisor of Salvage
- US Air Force (Elmendorf)
- US Army (Fort Richardson)
- Alaska Department of Natural Resources, Forestry Division
- Private contractors/consultants from outside the area (see **Appendix Two – Marine Firefighting Resource List**)

# MARINE FIREFIGHTING: PART THREE – PLANNING

## A. COMMUNITY PROFILES AND CAPABILITIES

Refer to the *Resources Section, Part One – Community Profiles* of this Kodiak Geographic Zone, above, for a complete list of local contacts and resources for each community within the Kodiak Geographic Zone.

### 1. Mutual Aid for Firefighting

All fire departments<sup>3</sup>, including the USCG Integrated Support Command, have signed mutual aid agreements with the other area fire departments. Assistance for firefighting or emergency aid are made and rendered between the fire chiefs or their designees.

### 2. USCG ISC Kodiak Fire Department

The US Coast Guard Integrated Support Command (ISC) Kodiak maintains a 32-person dedicated (full-time) fire department trained and equipped to conduct firefighting and aircraft casualty rescue for the Coast Guard Air Station. The ISC Fire Department can deploy crash trucks and fire trucks that have more foam application capability than other Kodiak municipal fire departments. Many of the firefighters are former members of the Coast Guard or US Navy and have had training in shipboard damage control and marine firefighting. The ISC Fire Department also conducts weekly drills with one of the three Coast Guard cutters home ported in Kodiak.

The USCG ISC Fire Department can provide mutual aid assistance upon request of the City or Borough of Kodiak.

## B. RESPONSE RESOURCES

A major marine fire, particularly a vessel fire, may require resources beyond those locally available. Effective response will require coordination of resource deployment from a number of organizations.

The following categories of response resources were likely to be limited during a major marine fire in Kodiak:

- ❑ portable fire monitors,
- ❑ vessels with fire monitors,
- ❑ tugs,
- ❑ onboard fire suppression teams,
- ❑ firefighting foam,
- ❑ de-watering pumping equipment,
- ❑ landing craft and
- ❑ marine firefighting consultants/advisors.

The **Appendix Two – Marine Firefighting Resource List**, below, provides information for possible sources and suppliers for each of these needs.

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<sup>3</sup> City of Kodiak, Borough of Kodiak, Bayside Volunteer Fire Department, Womens Bay Volunteer Fire Department, and USCG ISC.

Land-based fire departments may be able to fill SCBA air bottles for ships during extended firefighting operations. Cruise ships and other large vessels should ensure they carry adapters for connecting their shipboard air bottles with landside air compressors.

## C. FIREFIGHTING AREAS

**NOTE: Prior to taking action for any of the scenarios below, responders should consult the *Potential Places of Refuge Section* located elsewhere in this plan.**

### 1. Potential Harbors of Refuge

A ship on fire may present immediate risks to adjacent life or property, and the environment. More than likely there will be substantial logistical firefighting problems. The Unified Command will review the facts of each event and determine if a ship should be moved, and if so, where the ship would best be situated, either to fight the fire or to minimize associated impacts. Ships may be moved to or from piers, to anchor or, possibly in extreme cases, to grounding or sinking sites. In moving a stricken vessel, primary consideration shall always be given to the actions necessary to save lives.

Areas of particular sensitivity to oil spills from damaged vessels are discussed and identified in the *Sensitive Areas Section* of this Kodiak Geographic Zone. These areas should be avoided, if the situation allows Unified Command to choose among several potential places of refuge.

Within each harbor of refuge there are potential firefighting piers, anchorages and grounding sites.

*The Unified Command must consider a number of factors before directing or towing a ship to a specific location. Some of the considerations are listed below.*

### 2. Potential Firefighting Piers

Although piers are not the only sites that can, or should be considered for locating a burning ship, they may offer the greatest potential to maximize the use of shore-based firefighting resources. The following factors should be considered when selecting a pier:

- the severity of the fire
- the proximity of the pier to populated areas
- environmentally sensitive areas
- availability of the pier for an extended period
- availability of water and electricity
- construction of the pier
- prevailing winds
- availability of firefighting staging areas
- presence of hazardous materials at the pier and on the vessel
- availability of special equipment.

The selection of a pier or facility does not mean that the Coast Guard or any other agency will unilaterally direct a burning vessel to that facility. At a minimum, a decision of this nature must be discussed with representatives of:

- the vessel
- the facility
- the appropriate port authority
- the appropriate fire department

- the Coast Guard
- the Southwest Alaska Pilots Association
- appropriate natural resource trustees (if the incident poses a threat to resources under their respective management authority)
- other agencies, depending on the particular situation.

### **3. Potential Firefighting Anchorages**

If a fire is deemed to pose a significant threat to a facility, pier, or port, or the smoke poses a threat to nearby communities, a decision may be made to move the vessel to a temporary anchorage.

For planning purposes the following criteria must be considered when selecting potential firefighting anchorages within the Kodiak Subarea:

- shelter from wind
- type of bottom
- depth of water at mean low tide
- adequate swing room for the largest vessels
- facilities for passengers and crew
- proximity to staging areas
- whether the site can be boomed off to limit environmental impact in the event of a spill.

The Unified Command will have to consider seasonal sensitivities per site prior to making their decision.

### **4. Potential Grounding Sites**

Under certain circumstances, it may become necessary to ground a vessel. Grounding should only be considered if it is determined the vessel may sink or in other ways become derelict.

In choosing grounding sites, several factors must be considered:

- Bottom material: soft enough that the ship's hull will not rupture.
- Water depth: shallow enough that the vessel will not sink below the main deck, yet deep enough that fire boats, salvage barges and tugs can approach; consider depth of water at mean low tide.
- Weather: areas not known to have strong winds or currents that could hamper firefighting or salvage efforts.

Thus, in choosing firefighting grounding sites the following criteria must be considered for planning purposes when selecting these potential locations within the Kodiak Subarea:

- shelter from wind
- type of bottom
- depth of water
- proximity to staging areas
- whether the site can be boomed off to limit environmental impact in the event of a spill.

The Unified Command will have to consider seasonal sensitivities per site prior to making their decision.

### **5. Offshore Locations for Intentionally Sinking Vessels**

When a vessel and cargo are deemed a total constructive loss and intentional sinking of the vessel is being considered, the COTP will consult with the potentially-affected natural resource trustees, the Environmental Protection Agency, and other appropriate stakeholders (e.g., Tribal and State government

and U.S. Army Corps of Engineers representatives) and will obtain any necessary permits. This consultation could be accomplished through an incident-specific activation of the Alaska Regional Response Team.

## **D. CONTROL OVER WATERFRONT AREAS**

### **1. Control of Vessel Movement**

Under 33 CFR 6.04-8, the US Coast Guard Captain of the port may supervise and control the movement of any vessel and shall take full or partial possession or control of any vessel or any part thereof, within the territorial waters of the United States under his/her jurisdiction, whenever it appears to him that such action is necessary in order to secure such vessel from damage or injury, or to prevent damage or injury to any vessel or waterfront facility or waters of the United States, or to secure the observance of rights and obligations of the United States.

### **2. Control of traffic around waterfront facilities**

The COTP may find it helpful to control or restrict traffic in an affected area to provide safety for the waterfront facilities or vessels. The federal **33 CFR 165** sets forth procedures for establishing safety zones for the protection of vessels and shore areas. The COTP has sole authority to establish a safety zone. Implementation and enforcement of the safety zone is a joint effort of MSO Anchorage and any Coast Guard cutter involved in the enforcement of the zone.

# MARINE FIREFIGHTING: PART FOUR – OPERATIONAL RESPONSE ACTIONS

## A. COMMAND AND CONTROL

A major waterfront or shipboard fire in Kodiak will involve response teams from federal, State, and local agencies. The nature and location of the fire will be the deciding element in determining which agency assumes overall command or lead agency<sup>4</sup> in a unified command. Overall command or lead agency must be determined early in the incident to ensure the effective use of personnel and equipment.

### 1. Overall Command and Control

Initially, response organizations, including the crew of the vessel on fire, will act independently, reacting to events as they occur. For serious casualties, responders must soon combine or coordinate their actions. The goal is to quickly establish a Unified Command with the COTP, local fire department incident commander, vessel owner/operator, affected facility operator and the State On-Scene Coordinator. Figure 1, which appears at the end of the *Marine Firefighting Section*, shows a timeline of how responders can combine their efforts into an overall Unified Command. The Coast Guard COTP will ensure that an adequate response is undertaken.

### 2. Unified Command.

In instances when several jurisdictions are involved or several agencies have a significant management interest or responsibility, a Unified Command (UC) with a lead agency designation may be more appropriate for an incident than a single command response organization. Generally, a unified command structure is called for when:

- The incident occurs within one jurisdiction but involves several agencies due to the nature of the incident or the resources needed to respond. Such circumstances would pertain for almost any fire at a facility or vessel at pier side or anchorage located in Kodiak.
- The incident is multi-jurisdictional in nature because it affects or has the potential to affect several jurisdictions. This circumstance could occur in Kodiak if a burning vessel was moved from one jurisdiction to another to better effect response operations.

The Coast Guard COTP will ensure the Unified Command functions efficiently. When response agencies and the responsible party are unable to agree and implement response actions, the COTP will direct the response.

The Coast Guard COTP will consult with appropriate natural resource trustees when the incident is a pollution threat or may otherwise affect resources under their respective management authority. The Coast Guard COTP will also consult with other stakeholders (e.g., Tribal representatives) as appropriate.

## B. COMMUNICATIONS(KODIAK)

An effective, well-coordinated communications plan must cover the areas of designated frequency, usage, responder compatibilities, outside communications support and logistics. When dealing with multiple agencies at a marine incident, such factors must be addressed.

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<sup>4</sup> Usually, the organization that has committed the most resources will assume the role of lead agency.



## 1. Response Communications

It is vital that all responders be able to communicate directly. A shipboard fire incident or emergency creates several unusual communications problems. Because most commercial vessels are constructed of steel, fire service radios are unlikely to work well within a vessel. In Kodiak, commercial vessels, the Coast Guard, and municipal fire departments use very high frequency (VHF) radio systems. Thus, primary communications frequencies will be VHF. Incident command will establish tactical channels or frequencies based on the capabilities of all the involved parties. Most foreign ships will also have limited VHF radio frequencies. As such, a common channel should be used during the initial hours of the response. (Preferred VHF frequencies for use during the initial stages of a response appear below.)

Connecting interagency radio frequencies may require an exchange of radio equipment. If the on-scene fire department does not have VHF radio capability, handheld VHF radios shall be provided to the fire department. Additional handheld VHF radios may be obtained from the Coast Guard, the vessel, the facility, the vessel agent, the harbormaster, or a commercial contractor. The initial communications frequencies will quickly become saturated and thus the Incident Command should move towards establishing a comprehensive communications plan and designating additional working (tactical) frequencies.

A considerable communications capability is also available through various State agencies. The ADNR Division of Forestry and The ADMVA Division of Homeland Security and Emergency Management are both equipped with impressive communications assets. The ADEC also maintains an extensive arsenal of communications equipment. A description of communications capability is listed in the *Resources Section* of this Kodiak Geographic Zone.

## 2. Primary USCG Emergency Radio Frequencies

- Marine Band Channel 81A operates at 157.075 MHz and is the primary Marine Safety operating frequency. Channel 81A is also the national marine pollution response coordination channel. 81A is the primary means of radio communication between marine safety field teams and contractor teams during emergency responses. Channel 81A is the preferred channel to establish initial radio communications between vessel crew, shore responders and Coast Guard personnel.
- Marine Band Channel 83A operates at 157.175 MHz and is the USCG Auxiliary primary operating channel. The COTP may preempt the use of this channel in emergencies. 83A is used as an overflow channel for 81A during emergency case prosecution.
- Marine Band Channel 22A operates at 157.100 MHz and is the primary USCG-public liaison channel. Urgent marine broadcasts are announced on 16 and are broadcast on 22A. During emergency responses, 22A may be used by USCG to inform mariners of hazardous conditions or restrictions on the use of waterways.
- Marine Band Channel 16 operates at 156.800 MHz and is the international hailing and distress frequency. In an emergency, channel 16 may be used by to alert mariners of urgent COTP information broadcast on 22A. *FCC regulations prohibit the use of Channel 16 by land-mobile stations and non-SAR land-fixed stations.*
- Marine Band Channel 12 serves as the working frequency for the City of Kodiak Harbormaster.

### **3. Landline and Cellular Communications**

Cellular communications may be a means of communication between Coast Guard and fire department personnel on scene.

### **4. SSB/Satellite**

Single Sideband radios and the global satellite network are available for short and long-range communications.

### **5. Circuit Discipline**

The following guidelines must be adhered to during a major crisis to keep communications problems to a minimum:

- Do not deviate from assigned working frequencies unless it is for the purpose of re-establishing communications.
- Limit radio traffic to essential communications only.
- Limit length of transmissions in keeping the frequency clear for emergency traffic only. Information containing lengthy operational details should be passed by alternate means whenever possible.

### **6. Communications Security**

Secure communications systems available to Marine Safety Office Anchorage and other Coast Guard units include Secure Telephone Equipment (STE), and data encrypted security (DES) VHF-FM radios. Use of these systems to communicate information will be at the discretion of the COTP.

### **7. Lessons Learned**

Effective communications are always difficult to achieve during multi-agency response efforts. As such, communications procedures should be rehearsed during all marine firefighting drills. Lessons learned from exercises and actual events must be incorporated into this plan.

## **C. INITIAL RESPONSE ACTIONS**

### **1. Priorities**

It is difficult to anticipate every task or activity required to effectively respond when dealing with a major marine fire. There are, however, several basic priorities that must be addressed, particularly in the case of a vessel/facility fire. Figure 1, below, provides an overview and basic checklist for mounting an adequate initial response. This checklist was modified from a graphic prepared during the 2004 Alaska Cruise Ship Exercise in Juneau.

### **2. Checklists**

The response checklist in Appendix One was prepared by the work group to aid the local incident commander.

# **MARINE FIREFIGHTING: PART FIVE – EXERCISES & TRAINING**

## **A. EXERCISES**

Joint exercises and training, which include local fire departments, vessels, facilities, and government agencies, will enhance working relationships and contribute to a more effective response, as well as demonstrate the capabilities of the various organizations involved. These exercises also point out possible conflicts or weaknesses in the plan.

Periodic exercises with selected fire departments, port facilities and government agencies will be conducted. Each fire department or response organization should coordinate with port facilities and marine users in their respective jurisdictions to establish a training and exercise schedule. The workgroup that developed this plan understood that the USCG COTP should take the lead in promoting and organizing area-wide exercises. The Coast Guard should fix the time and frequency of large multi-agency exercises in order to allow fire departments time to designate exercise funds in their annual budgets. Exercise planners should consider conducting at least a portion of the exercise on a weekend to allow volunteer firefighters the opportunity to participate.

All interested parties and stakeholders should be encouraged to participate or observe the exercises.

The USCG should limit the number of exercises (security, pollution, firefighting) but make them comprehensive. For example, area maritime security exercises should incorporate marine firefighting scenarios. The USCG and ADEC should grant appropriate oil spill PREP credit when marine fire response exercises promote and practice inter-agency response tactics, strategies, communications, and organization.

## **B. TRAINING**

Training is the cornerstone of effective response. Local fire departments, port facilities, and government agencies will establish their own training programs and should incorporate into their training programs the contents of this plan, the resources available, the firefighting systems installed on the various vessels, and basic vessel construction. Training programs may be divided into the (1) awareness level, (2) operations level, and (3) technician level. The training guidelines in the National Fire Protection Association (NFPA) #1405 should be consulted in developing training programs.

The training outlined in the International Fire Service Training Association, *Marine Firefighting for Land-Based Firefighters*, (Chapter 11 and Appendix I) provides one appropriate model-training plan.

## MARINE FIREFIGHTING: PART SIX – SCENARIOS

The following scenarios describe possible actions of land-based responders from the City of Kodiak and the Kodiak Island Borough. These scenarios are provided to generate discussion and review of community capability. They should not be viewed as the “textbook” response for marine fires. However, the reviewers should examine their own response organizations capacity, authority and policies in light of the actions described in the following scenarios. Ask the following questions:

- Do I have enough available trained personnel to mount a similar response?
- Do I have the equipment?
- Do existing policies prohibit the types of response described below?
- Is mutual aid needed?
- Is communication between the various response organizations adequate to get the type of inter-agency coordination described here?

### A. Scenario 1: Fishing vessel fire in St. Herman Bay marina (Offensive Tactics)

A 60-ft wooden fishing vessel was reported burning in the marina at 3:00 a.m. One pumper and eight firefighters responded. Upon arrival, the responders observed heavy black smoke coming from the wheelhouse. Concerned that the occupants may still be aboard, the first arriving fire company officer directed two firefighters to don turn-out gear and SCBA and to search the vessel. The remaining crew, with assistance from the Harbormaster, established a water supply using hoselines from the pumper and harbor standpipe. Water was directed into the pilot house through a partially open window. The searchers did not find any occupants. Two additional hoselines were charged and placed on standby to protect the surrounding vessels. To prevent firewater from sinking or capsizing the vessel, the chief directed four members of the fire party to secure the fish-hold hatch forward and the lazarette aft of the pilothouse. Once all openings and hatches were secured, firefighting water was increased and the fire was extinguished within 20 minutes. Responders from the local Coast Guard Marine Safety Detachment worked with the harbormaster to place containment boom around the vessel to capture contaminated debris and oily water runoff. The harbormaster used some of the city’s 1000 feet of 12-inch harbor boom. The Coast Guard obtained assistance and boom from a local marine fuel transfer facility. All containment boom was in place by 6:00 a.m. The occupants of the vessel arrived at 4:00 a.m. The owner of the vessel could not be located or immediately identified. At 8:00 a.m. the fire chief requested the Coast Guard COTP to ensure the vessel was cleaned of oil and hazmat. During the next 5 days, a contractor hired by the Coast Guard pumped the firewater off the vessel and removed three propane tanks and 200 gallons of fuel and lube oil. The cleanup was completed quickly and relatively inexpensively because the fire chief had taken action to ensure that the fire fighting efforts did not sink the vessel. Three months later, when efforts to get the owner to take responsibility for the vessel were unsuccessful, the vessel was towed out of the marina by the harbormaster, beached and burned.

### B. Scenario 2: Deck fire on fuel barge (Offensive Tactics)

*Note: For this scenario, also see Appendix 3: Tank Barge Fire Tactical Guidelines*

A large wake broke the transfer couplings on a fuel barge offloading gasoline and kerosene at a transfer facility and tank farm on the city waterfront. The spilled products pooled and ignited on the barge tank top. Product draining from the transfer hose fed the fire. The city, because of the immediate threat to public safety, assumed command and control of the incident. Personnel from the Coast Guard Marine Safety Detachment and the manager of the marine transfer facility assisted the fire chief (overall incident commander) in size-up. The fire chief ordered a tug to standby to tow the barge from the facility and

away from the Kodiak downtown area. All four area fire departments (City of Kodiak, Womens Bay, Bayside, USCG ISC) responded with equipment and personnel under their respective mutual aid agreements.

After consultation with the Coast Guard, the transfer facility manager and other fire chiefs, the incident commander decided to make one attempt to extinguish the fire while the vessel was moored at the facility. Valves and cargo pumps were secured. The integrity of the barge tank tops, piping, mooring lines and other exposures were protected with water streams. A crash truck with 200 gallons of foam was ordered from the USCG ISC Fire Department. Within one hour of initial response the incident commander determined there was enough foam on scene to extinguish the fuel fire burning on the barge tank top. Backed by water fog monitors, two teams successfully attacked the fire from upwind with the foam. Once the fire was extinguished, a foam blanket was maintained over the pooled fuel to prevent re-ignition. Incident Command decided not to deploy oil containment boom around the barge, preferring that the gasoline spread and dissipate. Response crews used the fire monitor on the M/V Wolstad to break up and dissipate petroleum residue and sheen and keep flammable/combustible liquids from pooling under docks and wharves.

### **C. Scenario 3: Engine room fire on large cruise ship** *(Defensive Tactics and Support Services)*

While underway 30 miles from Kodiak, the cruise ship Sugarland (600' LOA, 1200 passengers and crew) experienced an engine room fire that the crew was unable to extinguish. The master requested that the vessel be allowed to tie up in Kodiak. After extensive consultation with the Coast Guard Away Team on board the C/S Sugarland, which received assurances that the engine room had been isolated with primary and secondary fire boundaries, the city manager, with backing from the mayor and fire chief, agreed to allow the cruise ship to tie up to the west end of Pier #2. (The west end of Pier #2 is steel and further from the neighboring marine fuel transfer facility and tank farm.) Using its bow thrusters and one assist tug, the cruise ship was able to make fast to the pier. All 850 passengers and non-essential crew were removed from the vessel. Prior to passenger and crew evacuation, the Unified Command insisted on a strict accountability system using manifests and disembarkation check-off lists. The passengers and crew were temporarily sheltered in available hotels, restaurants, churches and community centers until they could be flown out of Kodiak. Using the international shore connection, the cruise ship fire mains were re-charged through the city water supply. Fire departments provided a continuous supply of charged air bottles for the ship's crew who concentrated on cooling and monitoring the fire boundaries around the isolated engine room. Fire department aerial trucks were used to cool the main deck above the engine room. Ship stability was constantly monitored and cooling water was pumped off and discharged overboard into the containment boom that now surrounded the vessel. The engine room was re-entered when thermal imaging equipment could no longer detect interior hot spots. The C/S Sugarland was towed from Kodiak nine days after the master originally requested permission to enter.

# Appendix One – INITIAL RESPONSE: Incident Commander Checklist

## A. Size-up and Incident Information

Time of Incident: \_\_\_\_\_ Location: \_\_\_\_\_  
Vessel name: \_\_\_\_\_ Registry: \_\_\_\_\_  
Contact: \_\_\_\_\_ Rank: \_\_\_\_\_

Vessel type:  
 Passenger ship     Ferry     Fishing Vessel     Military     Recreational  
 Processor (ammonia tanks?)  Y  N     Container     Tug  
 Tanker (cargo): \_\_\_\_\_     Barge (cargo): \_\_\_\_\_     other: \_\_\_\_\_

Number of crew and passengers \_\_\_\_\_ Are they all accounted for?  Y  N

Are there any injuries?  Y  N  
If injured, how many and to what extent? \_\_\_\_\_

Vessel is:  Anchored  Moored  Underway    Maneuverability impaired?  Y  N  
Stability Compromised?  Y  N

Fuel onboard: \_\_\_\_\_  
(Type and amount, tank capacities and locations.)

HAZMAT's onboard: \_\_\_\_\_  
(TYPE, AMOUNT, AND LOCATIONS.)

## B. Incident Type

Fire (location): \_\_\_\_\_     Explosion (location): \_\_\_\_\_

Collision     Grounding     Spill / Hazmat     Other: \_\_\_\_\_

Weather conditions: Temp: \_\_\_\_\_ Winds: \_\_\_\_\_ Wave height: \_\_\_\_\_ Tides: \_\_\_\_\_

What is currently being done by the ship's crew to mitigate the incident? What is their plan?  
\_\_\_\_\_  
\_\_\_\_\_

What immediate assistance does the vessel need?  
 Firefighting resources:     Water     Foam     SCBA Air     Firefighters  
 Tug assist.     Search and rescue vessels.     Other: \_\_\_\_\_  
 Nothing

Fire Plans?  Y  N    Cargo Manifest?  Y  N    Dangerous Cargo/Goods Manifest?  Y  N

## Incident Command    Incident Commander: \_\_\_\_\_

Establish unified command and command post    Time: \_\_\_\_\_  
 Establish communications with vessel's Master or designee    Time: \_\_\_\_\_  
 Ensure personnel accountability

## Incident Commander's Checklist, cont.

### C. Initial Notifications

- Coast Guard: 487-5555 or Channel 16 VHF
- Local Public Safety Dispatch: 486-8000 or 911

Time: \_\_\_\_\_  
Time: \_\_\_\_\_

### D. Risk Assessment

#### Consider the following:

- Location of fire / fire behavior
- Condition of the vessel, vessel trim and stability
- Are mooring lines exposed to fire?
- Dangerous cargo / HAZMAT nearby?
- Available resources

### Firefighting Tactical Priorities PROVIDE FOR LIFE & SAFETY FIRST!

- Rescue** – Rescue victims in immediate danger.
  - Primary search.
  - Secondary search.
  - Number and location of victims:
  - Establish secondary means of egress.
  
- Exposures** – Protect other vessel areas, other vessels, and any other structures.
  - Pollution prevention / control.
  - On vessel
  - Other Vessels
  - On dock
  
- Confinement** – Contain the fire and prevent it from spreading.
  - Secure power
  - Secure fuel
  - Secure ventilation unless personnel are trapped in the space
  - Consider fixed suppression systems
  - Primary boundary Location:
  - Secondary boundary Location:
  - Monitor all four sides of compartment, above and below
  
- Extinguishment** – Control and extinguish the fire.
  - Establish water supply
  - Primary attack team
  - Secondary attack team
  - Ventilation
  
- Overhaul/Salvage/Loss Control** – Prevent re-ignition and minimize damage.
  - Dewatering
  - Check for Fire Extension
  - Ventilation/De-smoking
  - Maintain fire watch

## Incident Commander's Checklist, cont.

### Incident Sketch, Map or Chart

Attach PDF \chart \map\sketch for location of incident if necessary.

Incident description:

Latitude/Longitude:

Nearest port or city:

Distance/direction from port:

### Current Response Organization

#### **Unified Command**

Incident Commanders:

FOSC Rep:

SOSC Rep:

IMT IC:

Operations:

Planning:

Logistics:

Admin/Finance:





**Time: Current Actions**

Notifications:

- Coast Guard: 487-5555 or Channel 16 VHF Time:
  - US Coast Guard Rescue Coordination Center
  - US Coast Guard Marine Safety Detachment Kodiak
  - US Coast Guard Integrated Support Command (Fire Department)

Local Public Safety Dispatch: 486-8000 or 911 Time:

- Alaska State Troopers
- Local Fire Department
- Harbormaster
- Borough or City Manager

Alaska Department of Environmental Conservation 800-478-9300

Equipment personnel mobilized:

- Tug, M/V Kodiak King or equivalent 907-225-2200 Cell/907-654-0728
- 
- 
- 

**Time: Current Actions**

## Appendix Two – Marine Firefighting Resource List

A major marine fire, particularly a vessel fire, may require resources beyond those locally available and that effective response will require coordination of resource deployment from a number of organizations. The following categories of response resources were likely to be limited during a major marine fire in the Kodiak Subarea:

- Portable fire monitors,
- Landing craft
- Vessels with fire monitors,
- Tugs,
- Onboard fire suppression teams,
- Firefighting foam,
- De-watering pumping equipment, and
- Marine firefighting consultants/advisors.

This Marine Firefighting Resource List provides possible sources and suppliers for each of the above categories. *Note: This resource information was gathered from a variety of sources. The workgroup that gathered the data cannot validate or verify the accuracy of the information, the capability of the equipment, or the skill/experience of personnel listed. The resources listed below would serve to supplement inventories maintained by Kodiak land-based fire departments.*

### A. Portable fire monitors

Resource	Capabilities	Quantity	POC	Location	Phone #	Comments
Monitor and Pump Set	3000gpm	1	Navy Supervisor of Salvage	Anchorage	Thru USCG 271-6700	3000 gpm pump set in self-contained firefighting system van. Available through USCG Captain of the Port

### B. Landing Craft

The USCG at MSO Anchorage maintains a list of companies capable of providing landing crafts.

Resource	Capabilities	Quantity	POC	Location	Phone #	Comments
M/V Lazy Bay	97-foot	1	Tony Lara	Kodiak	486-4041 654-4303	Marine Transport and salvage
M/V Cape Douglas		1	Doug Pederson		486-6870	

### C. Vessels with fire monitors

This is in addition to tugs that may be available.

Resource	Capabilities	Quantity	POC	Location	Phone #	Comments
M/V Woldstad	Monitor: 280 gpm at 65 psi	1	Alaska State Troopers	Kodiak	486-3975 or 911	121' OSV, 300 Gross Tons

### D. Tugs

The following area companies may provide tugs and towing services. The USCG Sector Anchorage maintains a list of companies capable of providing marine towing resources. Additionally, refer to the *Resources Section, Part Two* of this Kodiak Geographic Zone.

Company	Location	Contact Phone Number
AMAK Towing	Kodiak (M/V Kodiak King or equivalent, 3000 hp)	907-225-2200 Cell 907-654-0728
Bering Marine Corporation	Anchorage	907-248-7646
Crowley Marine Services	Anchorage	907-278-4978

### E. Onboard fire suppression teams

Resource	Capabilities	POC	Location	Phone #	Comments
Marine Hazard Response	Marine firefighting	Scott Vickers	Spring, Texas	281-487-4760 Fx 281-528-6400	The Integrated Response Services of Wild Well Control, Inc. and Williams Fire & Hazard Control, Inc.  Can provide foam, naval engineers and architects, and marine firefighters. <a href="http://www.marinehazard.com/">http://www.marinehazard.com/</a>
Marine Response Alliance	Marine firefighting, equipment, salvage.	Through Marine Hazard Response	Pompano Beach, Florida	Through Marine Hazard Response  (954) 545-7872	Limited liability company formed by Crowley Marine Services, (CMS), Marine Pollution Control (MPC), Titan Maritime (Titan), and Marine Hazard Response (MHR), a joint venture of Wild Well Control and Williams Fire and Hazard Control. Through MRA, clients have access to high horsepower tugs, lightering barges, portable pumping equipment, marine fenders, salvage gear and expertise, specialized firefighting equipment and trained marine firefighters. <a href="http://www.marineresponsealliance.com/">http://www.marineresponsealliance.com/</a>
Boots & Coots	Firefighting & Blowout Specialists		Houston, Texas	(713) 931-8884	<a href="http://www.Bncq.com/">http://www.Bncq.com/</a>

### F. Firefighting foam

Kodiak Fire Departments have significant amounts of foam because of their relative isolation and requirements for aircraft firefighting. However, large 'deep-seated' ship fires will likely exhaust available supplies. The list below is of manufacturers, yet most manufacturers have a limited amount of foam available for immediate shipment. Various refineries and terminals along the West Coast hold large foam caches.

Supplier	Location	Contact Number	Comments
ANSUL	One Stanton St. Marinette, Wisconsin 54143	715-735-7411 or 800-862-6785 <b>(Ext 3338 for emergencies)</b>	May be able to move 20 drums of commercial foam from Milwaukee, Wisconsin to Anchorage within 24 hours by charter aircraft.
National Foam	150 Gordon Dr., Exton, PA 19341	610-363-1400 Fx 610-524-9073	<a href="http://www.nationalfoam.com/">http://www.nationalfoam.com/</a>
Chemguard INC	204 S. Sixth Ave Mansfield, TX 76063	800-222-3710 817-473-0606	<a href="http://www.chemguard.com/index.htm">http://www.chemguard.com/index.htm</a>
Angus Fire	Thame Park Rd Thame, Oxfordshire UK OX9 3RT	011-44-1844-26500 Fx 011-44-1844-26156	World's largest producer of foam.  E-mail: <a href="mailto:general.enquiries@kiddeuk.co.uk">general.enquiries@kiddeuk.co.uk</a> Web: <a href="http://www.angusfire.co.uk">www.angusfire.co.uk</a>

### G. De-watering pumping equipment

Resource	Capabilities	Quantity	POC	Location	Phone #
Portable pumps	300 gpm	4	Kodiak Harbormaster	City of Kodiak	911
Portable pumps	200 gpm	12	Kodiak Harbormaster	City of Kodiak	911
P-250 Portable	250 gpm	several	USCG Air Station Kodiak	AIRSTA	911
POL 6" Submersible	1540 gpm	2	Navy Supervisor Salvage	Anchorage	Through USCG MSO
POL 3" Submersible	350 gpm	2	Navy Supervisor Salvage	Anchorage	Through USCG MSO
Various			USCG National Strike Force	California	Through USCG MSO

### H. Marine firefighting consultants/advisors

Name	Location	Contact Information	Comments
Maritime Fire & Safety Association	200 SW Market Street, Suite 190, Portland, Oregon 97201	503-220-2098 · Fx 503-295-3660 <a href="http://www.mfsa.com/">http://www.mfsa.com/</a>	One of the most comprehensive training plans for land-based marine firefighters in North America.
Kenai Fire Training Center	Kenai, Alaska	<a href="mailto:prism@alaska.net">prism@alaska.net</a>	Provides marine firefighting training.
Hagevig Regional Fire Training Center	2760 Sherwood Lane Juneau, Alaska 99801	907-465-3117 Fx 907-465-4055	Provides marine firefighting training for Coast Guard cutters and large cruise ships.
Marine Firefighting Institute		845-735-7046 <a href="http://www.marinefirefighting.com/">http://www.marinefirefighting.com/</a>	Provides lectures, seminars, and consulting for land-based firefighters (professional or volunteer), with mariners and marina operators.
US Coast Guard Marine Safety Center Salvage Engineering Response Team (SERT)	400 Seventh St. SW Washington, DC 20590 Phone: (202) 366-6480 Fax: (202) 366-3877	202-327-3985 Watchstander cell phone <a href="http://www.uscg.mil/hq/msc">http://www.uscg.mil/hq/msc</a>	8-10 staff engineers who are on call 24 hours a day, 7 days a week to provide immediate salvage engineering support to the Coast Guard Captains of the Port

## Appendix Three – Tank Barge Fires

### A. Tactical Guidelines: Extinguishing Class B (Flammable/Combustible Liquids) Fires on Deck<sup>5</sup>

#### 1. Size-up

Determine fuel type (e.g., gasoline, JP-4, JP-5, diesel)

Determine source or seat of fire

- ❖ Internal tank
- ❖ Ullage/vent fire
- ❖ Overfill
- ❖ Drip pans
- ❖ Transfer pipe system (if product being pumped or gravity fed?)

Evaluate condition of the vessel, vessel trim and stability.

Are mooring lines exposed to fire?

Dangerous cargo / HAZMAT nearby?

What exposures are at risk?

Is there a compelling reason to attack the fire?

Rescue/persons on board

#### 2. Safety Considerations

Establish communication with the tanker man, tug operator or other person familiar with the barge

Evaluate risk of boarding, including risk of falling over board

Are there adequate water supply lines?

Is there an adequate number of firefighters, both for attack AND rescue?

#### 3. Control

Reduce or control fuel source using vessel crew if available

- ❖ Stop cargo pump
- ❖ Secure valves

Protect integrity of tanks and cargo pipe system

Control spilled fuel on product on deck at scuppers.

Set and cool boundaries until sufficient foam is on site for an uninterrupted attack.

#### 4. Attack

If liquids are burning on deck, deploy foam in sufficient quantities to maintain an unbroken blanket over the entire liquid surface. (Example: 0.1 gpm/ft<sup>2</sup> of AFFF for ignited hydrocarbon fires). For a typical fuel barge offloading at Kodiak, this will require a minimum 300 gpm application rate<sup>6</sup>. Use at least two monitors if possible.

Use a foam and dry chemical combination attack for fires burning from spraying liquid AND spills.

Apply foam on run-off collection points.

Cool and maintain a foam blanket over spill to prevent re-ignition. Do not dilute with water.

Consider deploying boom, if safe, to prevent spread of pollutants.

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<sup>5</sup> One reference used in developing these guidelines was *Marine Fire Fighting for Land-Based Firefighters*, International Fire Service Training Association (2001) Published by Oklahoma State University

<sup>6</sup> Assume a surface area of 3000 ft<sup>2</sup> within the confines of the scuppers (100 ft X 30 ft).

**Figure 1:  
Ferry or Cruise Ship Emergency Response Overview**

