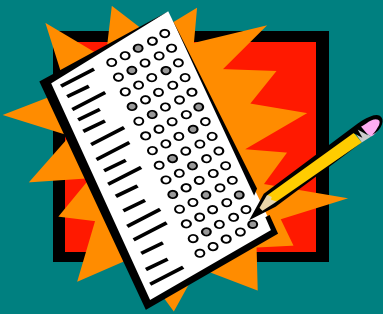


Inspections and Government-Initiated Unannounced Exercises (GIUEs) under the Facility Response Plan (FRP) Rule

NISTM 2014 Colorado
Storage Tank Conference
July 16, 2014
Steven Merritt, EPA FOSC





Objectives

- Provide conference participants with an overview of:
 - FRP-related inspections and exercises
 - Drill and exercise requirements under the FRP regulation [§112.21] and the National Preparedness for Response Exercise Program (PREP) guidelines
 - Purpose of a Government-Initiated Unannounced Exercise (GIUE) and how it relates to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Area Contingency Plan (ACP), and other preparedness activities conducted by industry, U.S. EPA, and U.S. Coast Guard (USCG)
 - GIUE evaluation criteria and implications

Module Agenda

I. Module introduction

- FRP regulation & preparedness framework
- FRP Inspections, including QI interviews
- Why exercise?
- Authority for conducting unannounced exercises

II. FRP training and exercise requirements

III. Implementing a GIUE

IV. Evaluating GIUE performance

EPA's FRP Regulation

- 40 CFR part 112, §§112.20 and 112.21, Appendices C – F
- §112.20 – Requirements to prepare plans to respond to worst case discharge of oil
 - Substantial harm criteria include:
 - 42,000 gallons or more in oil storage capacity and transfers oil over water to/from vessel
 - 1 million gallons or greater in oil storage capacity, and other criteria
 - Other factors as determined by Regional Administrator (RA)
 - EPA must approve the plans for significant and substantial harm facilities

Oil Pollution Act of 1990 and Clean Water Act

- Section **311(j)(5)** of Clean Water Act (CWA), amended by OPA 1990
- A Facility Response Plan shall:
 - (i) be consistent with the requirements of the NCP and ACP(s)
 - (ii) identify the qualified individual having full authority to implement removal actions, and require immediate communications between that individual and the appropriate Federal official and the persons providing personnel and equipment pursuant to clause (iii)

Oil Pollution Act of 1990 and Clean Water Act *(continued)*

- (iii) identify, and ensure by contract or other means approved by the President the availability of, private personnel and equipment necessary to remove to the maximum extent practicable a worst case discharge (including a discharge resulting from fire or explosion), and to mitigate or prevent a substantial threat of such a discharge

Oil Pollution Act of 1990 and Clean Water Act *(continued)*

- (iv) describe the training, equipment testing, *periodic unannounced drills*, and response actions of persons on the vessel or at the facility, to be carried out under the plan to ensure the safety of the vessel or facility and to mitigate or prevent the discharge, or the substantial threat of a discharge
- (v) be updated periodically
- (vi) be resubmitted for approval of each significant change

FRP-related Inspection Activities

- QI Interview
 - Evaluate overall knowledge of the person(s) identified as QI or key personnel in the Plan and who would be charged with directing/performing response actions.
- Field inspection
 - Verify the implementation of the preparedness measures described in the FRP.
- Government-Initiated Unannounced Exercise
 - Verify that facility is able to activate its plan and respond to a simulated discharge incident.



QI Interview

- Verify that QI understands responsibilities and is the person responsible for implementing the facility's FRP.
- Discussion topics, regarding the handling of a worst-case discharge:
 - Discharge discovery and assessment
 - Notifications and mitigation measures
 - Temporary storage of recovered product and contaminated materials
 - Treatment and disposal of contaminated materials
 - Roles and responsibilities of response team and other facility or contractor employees
 - Incident command and control
 - Training, exercise, and evaluation

Field Inspection

DOCUMENTS REVIEWED AT TIME OF INSPECTION

- OSRO / Cleanup contractors' CURRENT contracts.
- Contractor's equipment deployment exercise logs.
- Training / drills exercises logs including:
 - QI Notification exercise
 - Spill Management Tabletop exercise
 - Facility equipment deployment exercise
 - Unannounced exercise
 - Facility Personnel Response training
 - Discharge Prevention Meeting Logs
- Tank and Secondary Containment Inspection Records.
- Facility Response Equipment Inspection & Testing Records.



Field Inspection

- Hazard evaluation and vulnerability analysis
 - Are assumptions reasonable given facility conditions? Review discharge history, areas where discharges could occur, anticipated spill pathway (e.g., storm drains).
 - Are there vulnerable sites not considered in the plan (e.g., water intakes, residential or recreational areas, wetlands)?
- Worst-case discharge scenario and planned response actions
 - Are assumptions regarding volume and failure mode reasonable? Confirm tankage and secondary containment.
 - Have there been changes in the facility characteristics not reflected in the current version of the Plan?

Field Inspection *(continued)*

- Spill response equipment
 - Type and amount available at the facility? Adequate quantities? Readily accessible? In working condition?
 - Contract with Oil Spill Removal Organization? Is it current?
- Discharge detection equipment and procedures
 - Review logs and records of equipment inspection, assess employee knowledge of required procedures
- Security measures
 - Implementation of emergency cut-offs, fencing, locking of valves, and lighting, as required under the SPCC rule.

Why Exercise?

The effectiveness of spill response directly relates to environmental damage and cleanup cost

- 2007 Government Accountability Office (GAO) report on oil spill costs:
 - “The longer it takes to assemble and conduct the spill response, the more likely it is that the oil will move with changing tides and currents and affect a greater area, which can increase costs.”
 - “The level of experience of those involved in the incident command is critical to the effectiveness of spill response, and they can greatly affect spill costs.”

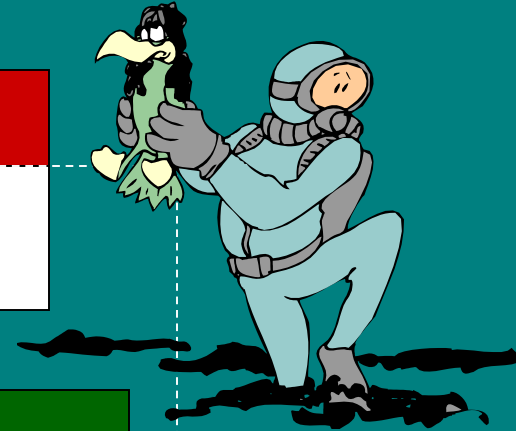


Authority for Conducting Drills/Exercises

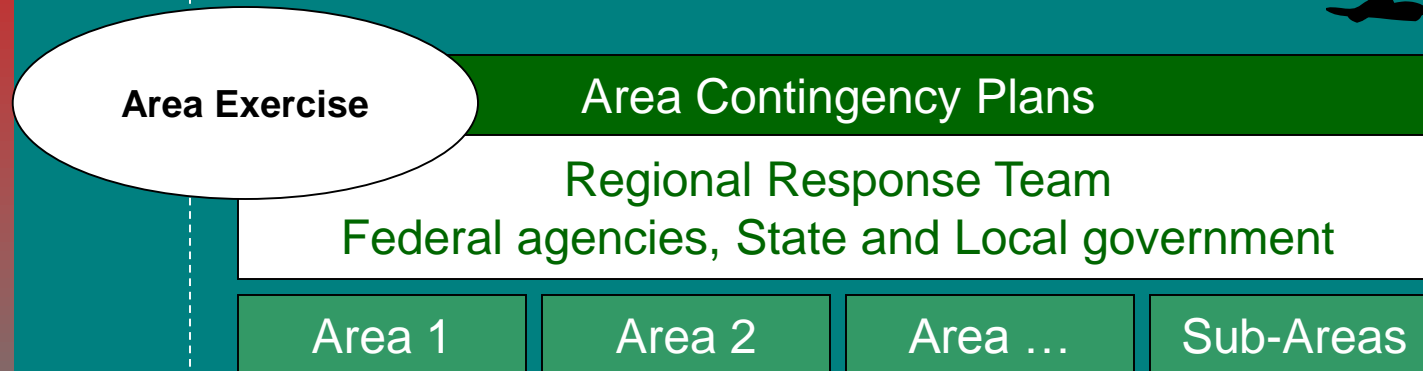
- Oil Pollution Act of 1990 (OPA 90)
 - §311(j)(6)(A): Equipment inspections
 - §311(j)(7): Tests of facility removal capability
- NCP
 - ACP
 - FRP regulation requires facility response drills/exercises
 - Program must follow **PREP** (or alternative format approved by the Regional Administrator) [§112.21(c)]
- National response framework

Spill Contingency Planning Framework

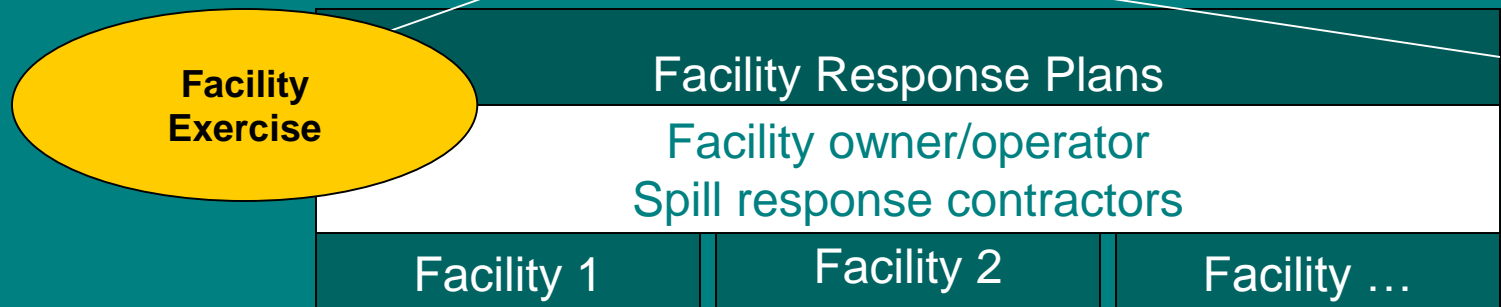
National



Regional



Local / Facility



Module Agenda

I. Module introduction

II. FRP training and exercise requirements

- FRP content relevant to exercise and drills
- Spill response planning levels and scenarios

III. Implementing a GIUE

IV. Evaluating GIUE performance

FRP Training and Exercise Requirements

- §112.21 – Requirements for training and program of drills/exercises
 - Training [§112.21(b)]
 - Train personnel involved in oil spill response activities
 - Recommendation that training program be based on USCG's Training Elements for Oil Spill Response
 - Alternative program is acceptable, subject to approval by the Regional Administrator

FRP Training and Exercise Requirements *(continued)*

- Facility response drills/exercises [*§112.21(c)*]
 - Develop a program of drills/exercises, including evaluation procedures
 - Program that follows PREP will satisfy the requirement
 - Alternative program is acceptable, subject to approval by the Regional Administrator

FRP Training and Exercise Requirements *(continued)*

- Purpose of Exercise: Demonstrate timely, properly conducted response that follows the FRP with adequate equipment for a small discharge
- Exercise Type:
 - Internal Exercise: Initiated by facility owner/operator
 - External Exercise: Government-initiated (e.g., GIUE)

Relevant FRP Content

1. Emergency Response Action Plan (ERAP)
2. Facility information
3. Information about emergency response
4. Hazard evaluation
- 5. *Response planning levels***
6. Discharge detection systems
7. Plan implementation
- 8. *Self-inspection, drills/exercises, & response training***
9. Diagrams
10. Security systems
11. Response plan cover sheet



Facility Drills and Exercises

- Use the **National Preparedness and Response Exercise Program (PREP)** guidelines or equivalent
 - Combination of internal and external exercises
 - Range of exercises covering all aspects of the FRP over a 3-year cycle
 - Satisfies all OPA-mandated Federal Oil Pollution Response Exercise Requirements
 - All alternative programs must be approved by the Regional Administrator prior to implementation
- Facility receives credit for Area or Facility-specific exercises for actual response to a spill if:
 - ✔ Plan was utilized for response
 - ✔ PREP objectives were met
 - ✔ The response was properly evaluated, documented, and self-certified

Self-Inspection, Drills/Exercises, and Response Training

- **PREP** guidelines or equivalent
 - Combination of internal and external exercises
 - Range of exercises covering all aspects of the FRP over a 3-year cycle
 - Satisfies all OPA-mandated federal oil pollution response exercise requirements
 - All alternative programs must be approved by the Regional Administrator prior to implementation

Self-Inspection, Drills/Exercises, and Response Training *(continued)*

- Facility receives credit for area or facility-specific exercises for actual response to a spill if:
 - ✓ Plan was used for response
 - ✓ PREP objectives were met
 - ✓ The response was properly evaluated, documented, and self-certified

PREP

**NATIONAL PREPAREDNESS
FOR
RESPONSE EXERCISE PROGRAM
(PREP)**

GUIDELINES

DEPARTMENT OF TRANSPORTATION
U.S. Coast Guard
Research and Special Programs Administration



ENVIRONMENTAL PROTECTION AGENCY



DEPARTMENT OF THE INTERIOR
Minerals Management Service




August 2002



To the "Response Community":

This is the first revision since August 1994 to the Preparedness for Response Exercise Program (PREP) when we set out together to design an effective and coordinated exercise program under the Oil Pollution Act of 1990. As before, the revisions are the result of an open dialogue and the incorporation of lessons learned over the past 8 years. We considered issues identified in public meetings and in written comments received to the Department of Transportation regulatory docket (2000-7514). The PREP will evolve as the government and industry continue to meet the challenge of protecting the environment, public health and welfare. We look forward to working with all parties as we continue to improve the PREP process.


Captain David Westerholm
Chief, Office of Response
U.S. Coast Guard


Michael B. Cook
Director, Office of Emergency and
Remedial Response
U.S. Environmental Protection Agency


Stacey Stafford
Associate Administrator for
Pipeline Safety
Research and Special
Programs Administration


Elmer P. Danenberger
Chief, Engineering and Operations
Division
Minerals Management Service

PREP document is available electronically at: http://www.au.af.mil/au/awc/awcgate/uscg/prep_gid.pdf

PREP Exercise Components

| Element | Frequency* | Initiating Authority | Notes |
|---|---------------------------------|----------------------------|---|
| QI Notification Exercises | Quarterly | Facility owner or operator | At least one notification has to be conducted during non-business hours |
| Emergency Procedures Exercises | Quarterly | Facility owner or operator | <i>Optional: can be used by facilities as an unannounced exercise</i> |
| Spill Management Team Tabletop Exercise | Annually | Facility owner or operator | At least one exercise every 3 years must involve a worst-case discharge scenario |
| Equipment Deployment Exercises | Semiannually (Every Other Year) | Facility owner or operator | If OSRO-owned equipment is identified in the Plan, the OSRO equipment must also be deployed and operated. OSRO must provide documentation to facility owner or operator |
| Government-Initiated Unannounced Exercises | Triennially | EPA, RSPA, USCG | If successfully completed, the facility can only be subject to a GIUE once every 3 years |

* At least one exercise per year must be unannounced

FRP Spill Response Planning Levels



| Planning scenario | Oil volume |
|-------------------|--|
| Small | 2,100 gallons or less |
| Medium | Greater than 2,100 gallons but less than or equal to 36,000 gallons or 10 percent of largest tank at facility, whichever is less |
| Worst Case | Calculated based on type of facility, number of containers, whether secondary containment is adequate, and capacity of largest aboveground storage tank (AST) Often the capacity of the largest AST |

Scenario Description

- For each scenario, address factors that affect response efforts, including:
 - Spill volume
 - Material discharged
 - Location of discharged material
 - Direction of spill pathway
 - Proximity to wells, waterways, drinking water intakes, fish and wildlife, and sensitive environments

Scenario Description *(continued)*

- Weather or aquatic conditions
- Likelihood that the discharge will travel off site
- Probability of a chain reaction of failures
- Available remediation equipment
- Circumstances and contributing factors (e.g., loading/unloading, facility maintenance, facility piping, pumping stations and pumps, bulk storage containers, vehicle refueling, age and condition of facility and components)

Response Capability: General

- Demonstrate availability of response personnel and equipment necessary to respond within the specified times
- Resources may be ensured by “contract or other approved means”
 - Written contractual agreement with OSRO
 - Written certification by the owner or operator that the necessary personnel and equipment are available to respond to a discharge within appropriate response times
 - Active membership in local or regional cooperative
 - Other arrangement approved by the RA upon request by the owner or operator
- Spill response planning tiers are specified in **Appendix E to 40 CFR part 112**

Response Capability: Small Discharge

Appendix E, Section 3.3:

The response resources shall, *as appropriate*, include:

| Equipment | Capacity | Timeline | Citation |
|----------------------|--|---|---------------------------|
| Containment Boom* | 1,000 feet <u>or</u> Twice the length of the largest vessel that regularly conducts oil transfers to or from the facility (whichever is greater) | <u>Means of deploying within 1 hour</u> of the discovery of an oil discharge | Appendix E, Section 3.3.1 |
| Oil Recovery Devices | Effective daily recovery capacity equal to or greater than the amount of oil discharged in a small discharge | <u>Available at the facility within 2 hours</u> of the discovery of an oil discharge | Appendix E, Section 3.3.2 |
| Oil Storage Capacity | Daily storage capacity equivalent to twice the effective daily recovery capacity , unless the owner/operator can show that a lower capacity is adequate | Available at the facility | Appendix E, Section 12.2 |

* Other means of containment may be appropriate for inland facility (see next slide)

Containment Boom Alternatives

- “As appropriate”
- For example:
 - Alternative strategy may be more appropriate for inland facilities, where spill pathway could be a dry drainage pathway or tributary
 - Alternatives include:
 - Underflow dams
 - Temporary containment dams (soil, etc.)
 - Inflatable diaphragms
 - More on this topic later...

Module Agenda

- I. Module introduction
- II. FRP training and exercise requirements
- III. Implementing a GIUE**
 - Preparing for GIUE
 - During the GIUE
- IV. Evaluating GIUE performance

Preparing for a GIUE

- Selection of target facility
 - EPA already has a list of FRP planholders
 - Significant and substantial harm facilities
 - Substantial harm facilities
 - Candidate facilities:
 - New facilities that have never been drilled/exercised
 - Facilities that have failed an earlier drill/exercise
 - Facilities that have not performed a drill/exercise in the last 3 years

EPA's Planning for a GIUE

- Identify and invite GIUE observers/evaluators
 - Other federal agencies (DOT/PHMSA)
 - Other EPA inspectors
 - State agency representative (DPHE/COGCC)
 - Superfund Technical Assistance and Response Team (START) contractor or other regional contractor support
 - Local Emergency Management
- EPA remains the lead evaluator if they initiated the exercise

EPA's Planning for a GIUE (continued)

- Develop drill/exercise scenario
 - Review plan and identify circumstances of small discharge
 - Review map, location of sensitive environments, drinking water intakes, areas to be protected
 - Review Emergency Response Action Plan (ERAP), pre-designated deployment locations, pre-deployed equipment
 - Determine timing of exercise (review stream/river flow rates, etc.)
 - Be prepared for shift changes at the facility

GIUE Spill Scenario

- Typically taken from the Plan
- Use “small discharge” of 2,100 gallons or less
 - Discharge incident may involve a larger total volume on-site, of which 2,100 gallons escapes to water
- Specify
 - Tank
 - Type of product
 - Volume discharged and volume in water
 - Weather conditions, if assuming different from conditions at time of the exercise

GIUE Spill Scenario (continued)

- Identify
 - Impacted areas based on U.S. Geological Survey (USGS) maps or EPA GIS Viewer
 - Chain reactions information
 - Flow pattern based on site topography
 - Ingress and egress to the facility for evacuation and response

GIUE Safety Considerations

- Follow facility safety procedures
 - Visitor sign in procedures
 - Mandatory safety video on process hazards and facility evacuation plan
 - Proper attire (footwear, helmet, safety glasses, personal flotation device, NOMEX clothing if required by the facility, etc.)
 - Inspector should bring own safety equipment

GIUE Safety Considerations (continued)

- Crucial that drill/exercise be conducted in a safe manner
 - EPA representative can terminate drill at any time
 - Hazardous conditions may include severe adverse weather or emergency situation at the facility or neighboring area
 - Should be addressed in FRP
 - If EPA determines that the drill/exercise is causing hazardous conditions, EPA will call for a “time out” and confer with the facility owner/operator or QI



GIUE Scheduling/Costs

- Exercise is meant to be unannounced
 - Exercise must proceed even if the Qualified Individual (QI) happens to be on vacation (an alternate QI is often identified in the plan)
 - *However*, exercise may be cancelled if existing conditions present a safety concern
- Facility is responsible for costs of performing the drill/exercise, including:
 - Internal costs of facility employees and equipment involved in the response
 - External costs associated with contractor-supplied equipment and resources (OSRO)

Initiate the GIUE

- Inform the QI that you are at the facility to conduct an unannounced exercise
- Provide GIUE drill letter, if used
 - Certain regions send letters in advance to all regional facilities, some do not provide letters
- Go over exercise guidelines with QI
- Start the exercise clock
 - Discharge has just been discovered
 - Oil has already reached water
- Overall exercise duration is **up to 4 hours**



During the GIUE

- Evaluate **command post** and **response activities**
- Intervene only for issues of health or safety
 - Examples: personal flotation devices, imminent harm to personnel or third party
- Only QI should modify scenario exercised when site conditions are inconsistent with scenario described in the Plan
 - Example: new construction which changes path of a waterway
 - QI should identify a probable scenario and exercise that specific scenario

During the GIUE *(continued)*

- Command Post

- Incident control

- Are proper notifications conducted in a timely fashion?
 - Notification to NRC, state, facility management, etc. as outlined in the FRP and ERAP
 - Has the spill response team and/or OSRO been activated?
 - When was response team/OSRO activated? When did they arrive? Can they deploy equipment?
 - Are communications with response personnel and other facility personnel effective?
 - Are the ERAP and/or FRP being used?

- QI

- Is the QI responsible for implementing the FRP?
 - Does the QI understand responsibilities?



Boom Deployment

- Boom Deployment
 - *Sufficient* containment boom and means for deploying it *within one hour* of discovery of the spill
 - *1,000 feet* of boom or twice the length of vessels loading/unloading at the facility
 - Must be *containment boom*, not made of absorbent materials
 - At inland facilities, boom may be deployed in dry ditches



Boom Deployment *(continued)*

- Boom elements
 - Above-water freeboard
 - Flotation device
 - Below-water “skirt”
 - Longitudinal support
- Selection considerations
 - River flow rate and current speed to determine if appropriate boom can hold the pressure and not fail
 - Length of deployment/goal of booming operation
 - Contain, deflect, protect
 - Anchoring method
 - Boat safety operations and capabilities



Boom Deployment *(continued)*

- Commercial boom types
 - Fence boom
 - Curtain boom
 - External tension member boom (uncommon)
- A sorbent boom is not a containment boom
 - Can be used for final polishing, to remove small trace of oil or sheen, or as backup to containment boom



Boom Deployment *(continued)*

- Boom functions
 - Protect (wetlands, water intakes, etc.)
 - Deflect (move oil to a collection point)
 - **Contain (hold oil within collection location)**
- Booming strategies
 - Containment booming (*contain*)
 - Exclusionary booming (*protect*)
 - Diversionary booming (*deflect*)
 - Shore seal booming (*protect*)
- Other strategies
 - Berms, underflow dams (*contain*)

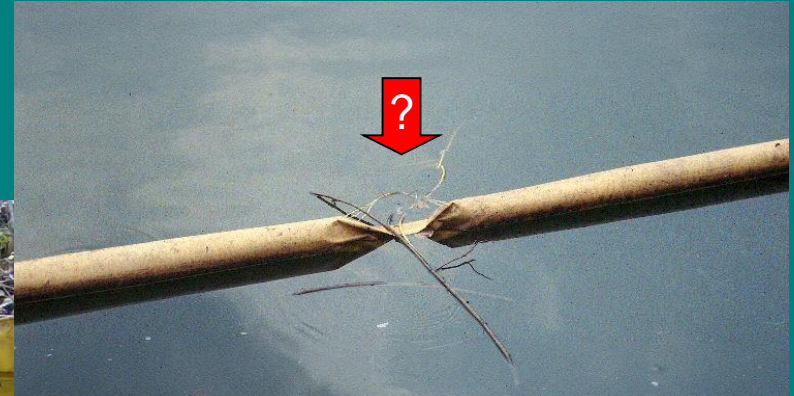


Boom Deployment Problems

- Can facility personnel and/or OSRO deploy the boom?
 - Do they have the required equipment?
 - Do they have access to boom deployment sites and anchor points?
- Is the boom properly deployed?
 - Proper anchoring, proper flotation, proper tension
 - No twists or gaps
- Is the boom properly rated for the stream flow rate?
- Is the boom maintained in a way to allow for rapid deployment?
- Does the facility have the appropriate hardware needed to link boom sections and stake the boom?

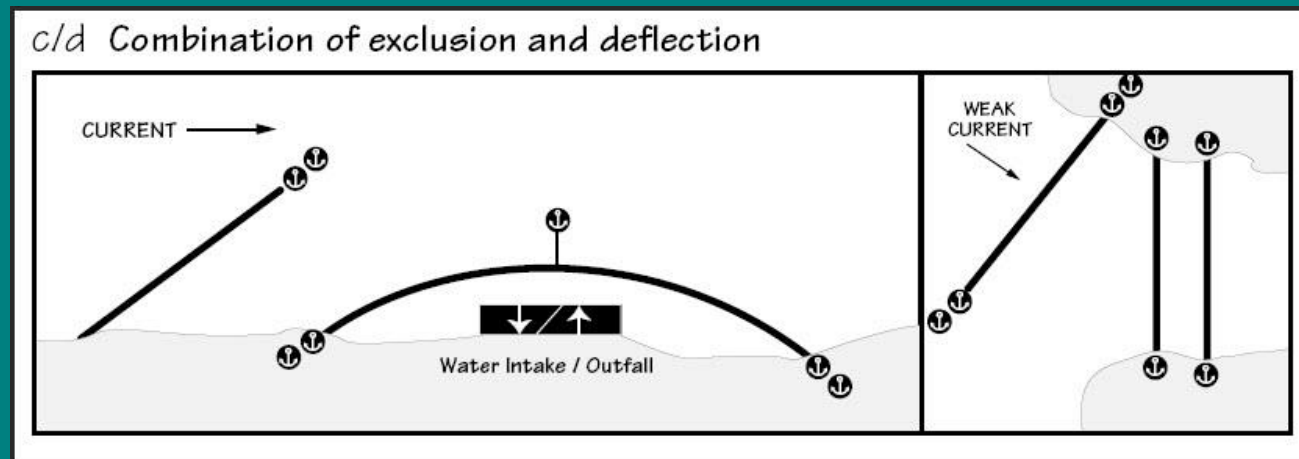


Boom Deployment Problems *(continued)*



Plan Implementation – Mitigation Measures

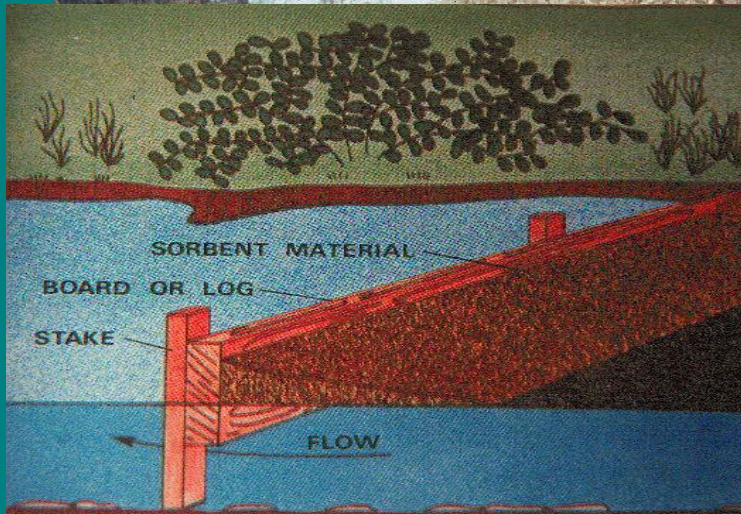
- Make sure to check the ACP to be consistent with protection strategies.
- Make sure to identify these strategies in the plan.
- Tactical plan sheets are good way to illustrate.



Inland “Small Stream” Containment - *Alternatives*

- Containment dams
- Underflow dams
- Inflatable diaphragms
- Spill gates

Berms, Underflow Dams



Spill Gates

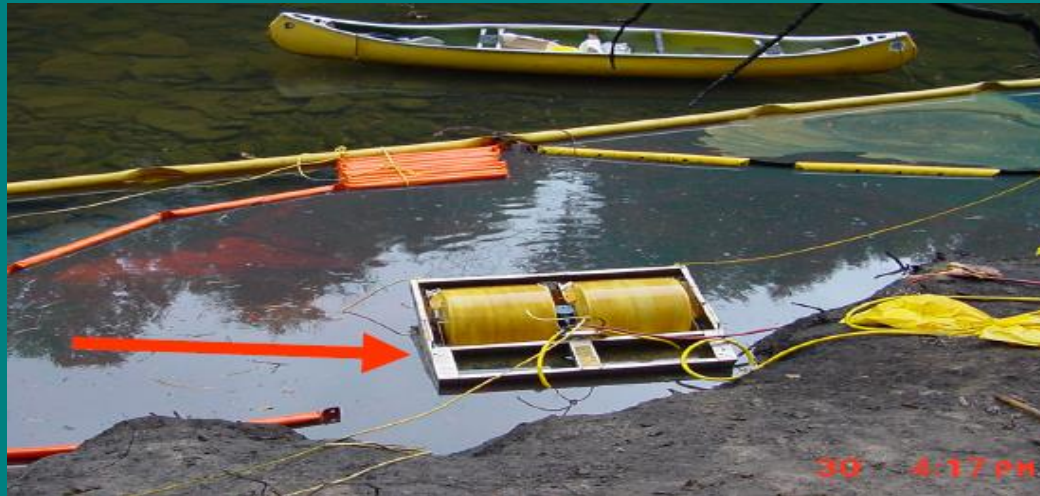


Inland “Small Stream” Containment - *Alternatives*

- How does EPA evaluate these alternatives?
- Use “containment boom” equivalency approach to assess appropriateness of the alternative.
- Use the GIUE to evaluate effectiveness, *demonstrate ability to implement.*
- Containment boom may still be necessary for other response actions downstream.

Oil Recovery Devices

- GIUE performance evaluation criteria:
 - Oil recovery devices available within 2 hours of discovery of the spill
 - Must have **effective daily recovery capability** equal to amount of oil released in a small discharge (i.e., 2,100 gallons)
 - Deployed and **ready to start** oil recovery
 - Actual pumping of water is not required

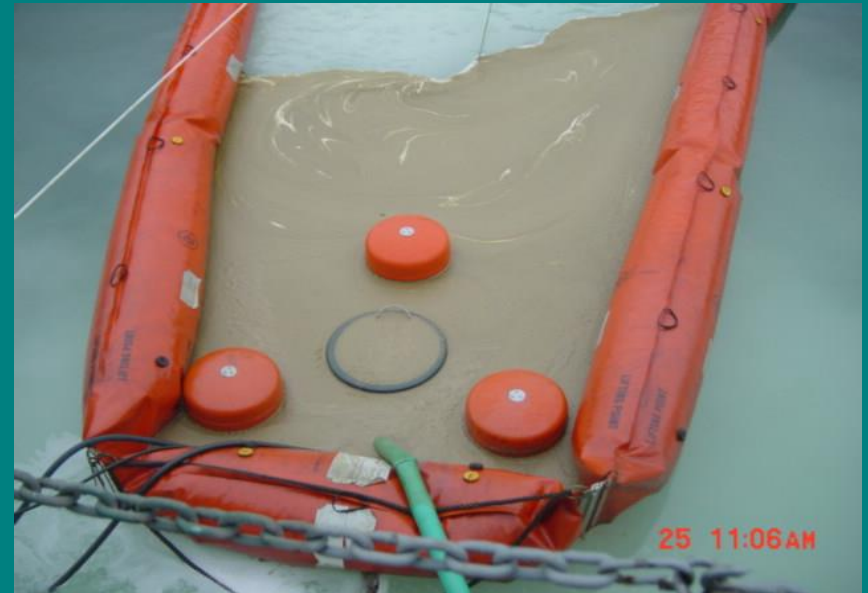


Oil Recovery Devices: Skimmers

- Suction



- Weir



- » Best in calm water
- » Low recovery oil/water ratio
- » Low to medium viscosity oil

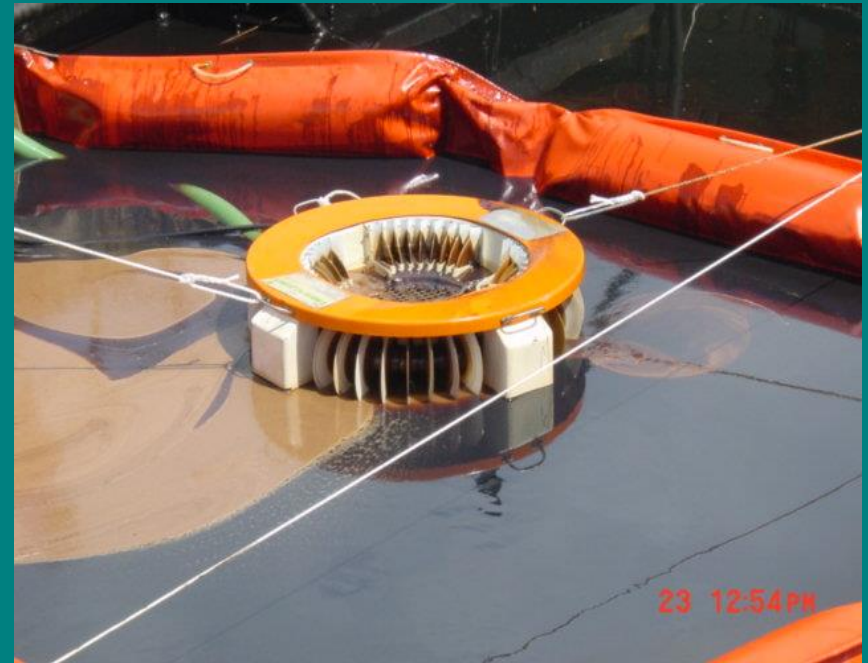
Oil Recovery Devices: Skimmers (continued)

- Rope mop



- Low to medium viscosity oil
- Good in debris and ice conditions and shallow water

- Disc



- Medium viscosity oils
- Higher oil/water ratio
- Calm and shallow waters

Oil Recovery Devices: Skimmers (continued)

- Drum



- Light and medium viscosity oils
- Good debris handling capability
- Calm and shallow waters

- Belt Type Skimmer
(e.g., Chain Brush)



- Medium to heavy oils
- Excellent debris handling
- Fast deployment

Oil Recovery Devices: Others

- Vacuum Truck



Provisions for Storage of Recovered Oil

- GIUE performance evaluation criteria:
 - Oil storage capacity for recovered oily material equivalent to **twice the effective daily recovery capacity** required on-scene, or 4,200 gallons per day



Module Agenda

- I. Module introduction
- II. FRP training and exercise requirements
- III. Implementing a GIUE
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Evaluating GIUE Performance

- PREP evaluation factors:



Conducting proper **notifications**



Arrival of **containment boom** as specified in the FRP within one hour of detection of the discharge and subsequent successful deployment (“boom in the water”)



Arrival of **oil recovery devices** as specified in the approved response plan within two hours of detection of the discharge and the subsequent successful operation/simulated recovery



Demonstrating the availability of adequate **storage capacity** for recovered oil



Properly conducting the exercise considering the size of a small discharge including skill and competency of responders and material readiness of response equipment

Evaluating GIUE Performance

(continued)

- Debrief with QI/facility personnel and OSROs
- Consequences of successful/unsuccessful completion of an exercise:
 - A facility that successfully completes a GIUE cannot be subject to another GIUE for 3 years, per PREP
 - An unsuccessful GIUE may require the planholder to participate in additional unannounced exercises, revise the existing response plan, or both
 - In the event of an unsuccessful GIUE, the region may choose to perform further inspection of the facility
 - In certain instances, EPA may revoke approval of FRP on the basis of GIUE performance until changes are made
 - The FRP coordinator may recommend to upgrade the facility to a significant and substantial harm facility
- Follow-up
 - Verify implementation of recommended improvements

Follow-up from Regions after an Inspection or GIUE

- Immediately following an inspection or exercise, EPA will leave a “Notice of Inspection” form.
- If there are field deficiencies, EPA will follow-up with a letter, typically within 30 days.
- Plan amendment may be required as a result of field deficiencies.
- Successful completion of a GIUE is typically documented in a letter as well.

Questions?

Steven Merritt
On-Scene Coordinator (OSC)
U.S. EPA Region 8
303-312-6146
merritt.steven@epa.gov



National Response Center:

800-424-8802

EPA Region 8 Duty OSC (24/7):

303-293-1788