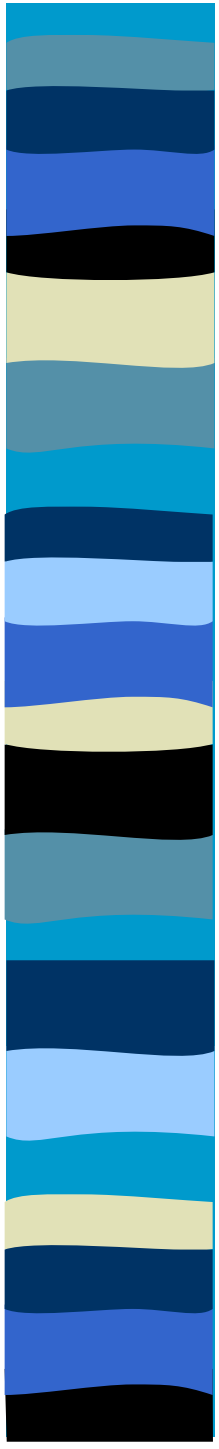

Characterization of Facility Response Planning at Facilities that Handle, Store, or Transport Animal Fats or Vegetable Oils

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Overview

- U.S. Environmental Protection Agency (EPA) and U.S. Coast Guard (USCG) revised their Facility Response Planning regulations in June 2000.
- EPA's regulation applies to non-transportation related facilities that:
  - Transfer oil over water and store more than 42,000 gallons of oil, or
  - Store more than 1 million gallons of oil and meet an additional criterion

Statutory Background

- Oil Pollution Act (OPA90) and Clean Water Act (CWA)
  - Oil spill prevention procedures in place since 1970.
  - OPA90 requires preparedness regulations for facilities.
- Edible Oil Regulatory Reform Act, 1995
  - Requires most Federal agencies to establish separate classes for animal fats, vegetable oils, and other types of oil, based on properties and environmental effects.

Number of Oil Spills by Type

Type of Oil	1987-1994*	1996	1997	1998	1999	2000
Vegetable Oils	36	33	32	45	43	47
Animal Fats	6	3	2	8	5	0
Total	42	36	34	53	49	47

* Annual average number of spills reported to National Response Center.

- Approximately 18,000 to 24,000 oil spills reported per year.
- Actual number of spills of animal fats and vegetable oils probably higher.

Similarities Between Animal Fats and Vegetable Oils and Petroleum Oils

- When spilled, can cause devastating physical effects such as:
  - Smothering
  - Coating birds' feathers or fish scales and skin
  - Egg contamination
  - Destruction of food, breeding animals, and habitat

Similarities, continued

- Undergo similar reactions in the environment and can have toxic components, or form toxic degradation products.
- When spilled, can produce indirect effects, foul shorelines, and interfere with water treatment.
- When spilled, can persist in the environment or degrade rapidly.

Differences Between Animal Fats and Vegetable Oils and Petroleum Oils

- Volatile fraction is usually small in animal fats and vegetable oils, but may be large in some petroleum oils.
- Animal fats and vegetable oils can degrade rapidly or persist for decades; they may present a risk of oxygen depletion if degradation is rapid.
- Degradation of some animal fats and vegetable oils can create rancid odors.

EPA Requires "Substantial Harm" Facilities to Submit an FRP

- Approximately 465,000 facilities regulated under the Spill Prevention, Control, and Countermeasure (SPCC) regulation.
- Approximately 5,465 SPCC-regulated facilities also meet EPA's "substantial harm" criteria.
  - About 87 store animal fats or vegetable oils.
  - About 63 store *primarily* animal fats and vegetable oils.

EPA-Regulated Animal Fat and Vegetable Oil Facilities with FRPs

Type of facility	Number of facilities					
	Region 1 - 3	Region 4	Region 5	Region 6	Region 7	Region 8 - 10
Soybean mills	1	10	12	1	8	1
Other food manufacturers	6	3	3	4	1	2
Other manufacturers	3	0	1	0	0	0
Storage and water transportation	2	3	0	3	1	7
Bulk stations and terminals	3	1	5	4	0	2
Total	**15**	**17**	**21**	**12**	**10**	**12**

New FRP Rule Provisions for Animal Fats and Vegetable Oils

- Definitions added for animal fat and vegetable oil.
- Response planning levels in separate regulatory sections but kept three response planning scenarios.
- New oil groups (A, B, and C); use of persistence eliminated for these oils.

New Rule Provisions, Continued

- New methodology for determining response equipment requirements for a worst case discharge.
    - New tables for emulsification and recovery rates that are more appropriate for estimating on-water and onshore recovery resource needs for animal fats and vegetable oils.

Response Planning Scenarios – EPA and USCG Requirements

- EPA requires response planning for three scenarios (small, medium, and worst case discharges).
- USCG requires response planning for two scenarios (average most probable and worst case discharges).

Potential for Oil Discharges

- Compared to USCG-regulated facilities, EPA-regulated facilities generally have a greater potential for larger discharges because they have:
  - More transfers
  - Greater diversity of structures and processes
  - Wide range of activities and discharges that occur in different ways
  - Worst case discharges that are larger by an order of magnitude or more

Average Size of a Worst Case Discharge

	Worst Case Discharge (gallons)			Number of facilities with animal fats and vegetable oils
	Mean	Median	Largest	
EPA	**2,000,000**	**1,200,000**	**20,000,000**	**87**
USCG	23,000	10,000	153,000	26

Characteristics of Response Resources in FRPs

- Facilities report the type of response resources they plan to use for a small, medium, and worst case discharge.
- EPA analyzed 55 FRPs and found:
  - 13 reported different types or amounts of planned response resources for each of the three planning levels.
  - 19 reported different types or amounts of planned response resources for two of the three planning levels.
  - 23 reported the same planned response resources for each planning level.

Proximity to OSROs

- Oil Spill Removal Organizations (OSROs) may be included in FRPs as part of a facility's planned response resources. First tier response resources must arrive at the spill within 6 or 12 hours, depending on the facility's location.

- EPA estimated the distance from OSROs to facilities with these oils, and found that in every case resources could arrive within 6 or 12 hours.

Recovery Rates

- Recovery rates estimate percentage of spilled oil that can be removed.
- EPA estimated recovery rates based on natural degradation rates and field data showing the percent recovered from actual spills.
- USCG data for 1984 - 1999 show 39.9% of volume of these oils were recovered from water.

Recovery Rates, continued

- EPA's new rule includes recovery rates of 15 to 65 percent.
- EPA's recovery rates for the percent recovery for floating oil in nearshore/ inland/ Great Lakes is 20 percent for animal fats and vegetable oils, and 50 percent for petroleum oils.

Conclusions

- Animal fats and vegetable oils are regulated as oils under the Clean Water Act.
- These oils and petroleum oils share common physical properties and produce similar environmental effects.
- EPA has provided more specific methodology for facilities with animal fats and vegetable oils to plan for responding to a spill.
- EPA is continuing its efforts to publicize rule changes through outreach.