

RRT III Fact Sheet

www.dot.gov/dotinfo/uscg/lantarea/rrt/rrtmain.htm

IN-SITU BURNING Perception and Policy

Introduction ...

The USCG, EPA, DOI, NO AA, the states of Delaware and Maryland and the Commonwealth of Virginia agree the primary method of controlling discharged oil shall be the physical removal of the oil from the environment. In certain circumstances the effectiveness of physical containment and removal of the oil is limited and may add to adverse environmental impact. The utilization of in-situ burning, alone or in conjunction with mechanical removal methods and/or chemical countermeasures, may be considered as a better approach to minimize substantial threat to public health or welfare, or minimize serious environmental damages.

What it is...

In-situ burning means the controlled burning of oil "in place." While this technique requires specialized equipment, it requires less labor than most other techniques and can be

applied in areas where other methods can not be used. In-situ burning is subject to some of the same limitations as mechanical removal; since a boom is used to contain the oil, the same wind and sea limitations apply. Burning can quickly remove large quantities of oil, and the **need for recovery and storage** is minimized.

What happens to the oil...

In-situ burning of oil primarily produces carbon dioxide and water vapor. About 90% to 95% of the carbon product is released to the atmosphere as carbon dioxide, while particulates commonly account for about 5% to 10% of the original volume burned. In addition, about half of the particulates are soot. Soot is responsible for the black appearance of the smoke plume. Gaseous pollutants are emitted, such as carbon monoxide, sulfur dioxide, and nitrogen, in minor amounts. Some polynuclear aromatic hydrocarbons (PAHs) are emitted. The amount released is less than the amount in the original oil.

Field experiments have shown that most air pollutants of concern produced by an in-situ burn are concentrated around the area of the fire. Only one pollutant, the fine particles in the smoke, is of concern beyond the immediate area of the fire. These particulates can cause respiratory distress in the elderly or those with impaired lung function if they are inhaled at high levels. Although these small particles from an in-situ burn will typically remain suspended and dilute high above the human breathing zone, monitoring plans have been established so responders can monitor particulate levels to ensure the protection of public health.

Since various products of combustion enter the atmosphere, the decision to use in-situ burning must consider:

- the impact on air quality,
- the ability to remove large amounts of oil in a short period of time,
- the safety of the response workers, and
- the integrity of the spill source.

Effectiveness

Burn efficiencies have consistently been above 90% during numerous experiments and accidental burns of petroleum on water. The small percentage of the original oil volume left unburned is typically a viscous, taffy-like material that floats for a long enough period of time to be manually removed.

Scope of In Situ Burning

RRT III have an approved memorandum of understanding which provides for the preauthorization for use of in-situ burning by the Federal On-Scene Coordinator in response to coastal oil discharges. This document constitutes concurrence for USCG, EPA, DNREC, MDE, VASNR, NOAA, and DOI for the use of in-situ burning in the preapproved area.

The geographic areas and advance approval conditions are as follows:

"A" Zones - Preauthorization for Open-Water Burning.

This zone includes waters under the jurisdiction of RRT III and not classified as "B" or "R" zones, and that lie 3 nautical miles seaward of the Territorial Sea Baseline along the coast of

Delaware, Maryland and Virginia. The decision to use in-situ burning rests solely with the FOSC provided that the requirements listed under the Protocols section of the MOU are followed.

"B" Zones - Waters Requiring Case-by-Case Approval.

This zone includes waters under the jurisdiction of RRT III and not classified as "A" or "R" zones, that 1) lie within state territorial boundaries, 2) are designated as marine reserves, National Marine Sanctuaries, National or State Wildlife Refuges, units of the National Park Service, or proposed or designated Critical Habitats, or 3) are considered coastal wetlands, including submerged algal beds and submerged seagrass beds. The FOSC must request authorization to burn from the RRT. The FOSC is granted authority to conduct in-situ burning only after concurrence is given by EPA, NOAA, DOI, and the affected states/commonwealth.

"R" Zone - Restricted Zones.

This zone includes waters under the jurisdiction of RRT III and not classified as an "A" or "B" zone, that has been designated by the RRT or the Area Committees as a restricted zone. No in-situ burning operations will be conducted in an "R" zone unless 1) in-situ burning is

necessary to prevent a clear, immediate, and extreme risk to human health or safety, or 2) an emergency modification of the MOU is made on an incident-specific basis.

The Potential Benefits?

- Reduces impact of surface oil on shorelines, sensitive habitats, birds, mammals, and other wildlife.
- Rapidly consumes oil in the burn.
- Reduces oil storage and disposal problems.
- Eliminates the air quality impacts of the volatile hydrocarbons that would otherwise evaporate.
- The products of combustion are diluted in the air above and downwind of the burn, dispersing rapidly at ground level to normal concentrations.

The Potential Tradeoffs?

- Use limited to correct atmospheric conditions or offshore areas to protect public health.
- Equipment required for burning may not be readily available.
- Time frame for effective use may be short.

Please contact our RRT Coordinator through the web site or at (757) 398-6620 for more information