VOSS Quick Facts

The VOSS consists of two 14-foot long by 8 foot wide by 7-foot high water tight containers each weighing 11,300 pounds. Temporary storage devices (barge or inflatable raft) must be procured locally until a replacement of the Lancer Barges (removed from inventory after the Deepwater Horizon spill), can be identified and procured.

The entire VOSS can be loaded on a single C-130 military aircraft for transport to distant locations.

The VOSS can skim and pump both light and heavy oil at one-half to one knot depending on sea state and oil thickness. The system can operate in wind-driven, short crested waves up to 4 feet high and swells up to 8 feet high. Maximum skimming output is 190 gallons per minute. It can skim and pump gasoline, oil, emulsions, and other viscous products.

There are 5 VOSS sites located in District 7’s AOR: Charleston, SC; Jacksonville, Miami, and St. Petersburg, FL; and San Juan, Puerto Rico.

District Response Advisory Team

In 1992 the Coast Guard created oil and hazardous substance response advisory and assistance teams to comply with Title IV of the Oil Pollution Act of 1990 (OPA 90) which required the formation of a District Response Advisory Team (DRAT) within each Coast Guard District. As a readily accessible, deployable team, the DRAT provides technical and logistical support at the request of Federal On-Scene Coordinators within their respective District on oil spill and hazardous substance incidents and maintains a close relationship with the Coast Guard’s National Strike Force. The DRAT Equipment Specialist is responsible for ensuring timely and effective deployment of the VOSS with assistance from the National Strike Force.

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What is VOSS?

A standard VOSS load on a 48 foot low bed trailer

Background

Following the 1989 Exxon Valdez oil spill and the Oil Pollution Act of 1990 (OPA-90), the U.S. Congress required that the Coast Guard acquire and maintain prepositioned pollution response equipment to be readily available to address spills that exceed local response capabilities.

A Vessel of Opportunity Skimming System is designed to be quickly transported to an oil spill site and convert any suitable ship available (commercial leased or USCG) into an efficient single ship oil recovery platform.

The USCG 175’ foot coastal buoy tenders were built and strategically placed to meet this mandate while still performing their primary mission of servicing aids to navigation and are the Coast Guard’s primary VOSS deployment platform.

What does a skimming system do?

A skimming system, such as VOSS, has four main functions in cleaning up spilled oil:

**CONCENTRATE:** Oil spilled into a dynamic ocean environment rapidly spreads into thin patchy slicks. Once spilled oil reaches silver or rainbow sheens, it is too thin to effectively skim (a human hair is approximately 200 times thicker than a rainbow sheen). A skimming system is used to concentrate the thickest oil on the water’s surface by moving a U-shaped boom pocket forward through a patch of oil. The oil captured in the boom is concentrated into a thicker layer, greatly improving the ability to skim this oil.

**SKIM:** Skimming is the process used to separate floating oil from the water beneath it. Effective skimming removes as much oil and as little water as possible. Multiple engineering approaches exist to separate these two liquids. The VOSS uses a weir skimmer that allows concentrated oil to flow over an adjustable weir into a pump integral to the skimmer. This weir is adjusted to be just above the oil/water interface to minimize water recovered with the oil.

**PUMP:** The oil skimmed from the water’s surface is pumped from the location of the skimmer using the integral Auger pump (Archimedes Screw pump) to a Temporary Storage Device used to contain the oil.

**CONTAINMENT:** Skimmed oil is captured in some form of tank or storage container to allow the skimmer to operate for a time before the captured oil must be transferred to an appropriate recycling or disposal facility. Decanting, or the process of draining water out of the bottom of the containment after settling may be used, as the minimal oil released back to the ocean is often outweighed by the additional oil that can be skimmed by extending the time period between pumping out of the containment device.