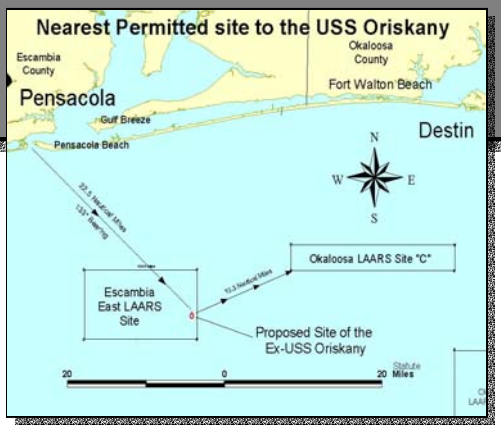
ex-ORISKANY Artificial Reef Project



In June 2005 the Navy requested approval from the United States Environmental Protection Agency (USEPA) to sink the ex-ORISKANY approximately 26 land miles off the coast of Pensacola, Florida. The Navy has been working with USEPA, Florida's Fish and Wildlife Conservation Commission, and the Escambia County Marine Resources Division since 2003 to prepare the ship for use as an artificial reef in these waters. This fact sheet provides information about cleanup conducted on the ex-ORISKANY to prepare the vessel for sinking and studies that the Navy has conducted to ensure that people, plants, and animals can safely use the future ex-ORISKANY artificial reef.

NAVY SHIPS AS ARTIFICIAL REEFS

In recent years, several coastal states have expressed interest in using old U.S. Navy and Maritime Administration vessels to build artificial reefs. The ex-ORISKANY is the first decommissioned Navy vessel that will be sunk intentionally for this purpose. To ensure this is done safely, the USEPA developed Best Management Practice (BMP) guidance for preparing vessels to create artificial reefs.

The BMP guidance identifies materials of concern that may be found aboard vessels, likely areas where they may be found, and cleanup goals. The Navy conducted a comprehensive inventory of materials on board the ex-ORISKANY in accordance with the BMP.

Using the inventory, the Navy removed oil and fuel, asbestos, polychlorinated biphenyls (PCBs), certain paints, and loose debris as recommended by the BMP. Some PCB containing materials still remain onboard the ex-ORISKANY. These materials required additional study and review before the vessel can be sunk.

POLYCHLORINATED BIPHENYLS (PCBs)

PCBs are oil-like compounds that were once used world-wide in many products, especially in electrical equipment such as transformers and capacitors. Congress banned the manufacture of PCBs in the U.S. in 1979 because studies found they stay in the environment for a very long time, and, if ingested, they will build up in the fatty tissues of people and animals. Because of their past widespread use, PCBs are found onboard most Navy vessels built before 1979.

The Navy has removed all liquid PCB materials from the ex-ORISKANY as recommended by the BMP. There are also solid products on the ex-ORISKANY that contain PCBs. The amount of PCBs in these solid products can vary greatly. The BMP allows for solid materials containing small amounts of PCBs, less than 50 parts per million (ppm), to remain on board when the vessel is sunk. Materials containing 50 ppm or greater of PCBs must be removed unless special permission is granted by the USEPA.

There are several solid materials used on old ships that contain PCBs such as certain types of paint, insulation, felt gaskets and cabling. These products vary greatly in their ability to effect the environment because some of these products hold on tightly to the PCBs they contain while others allow the PCBs to easily move or "leach" out of the solid material into the surrounding water.

The Navy studied several types of solid PCB products to determine the amount of PCBs that would leach out of each type of material. The results showed bulkhead insulation has the highest leach rate. Based on these results the Navy has removed more than 70% of the bulkhead insulation and other solid materials on board the ex-ORISKANY to greatly reduce the risks to human health and the environment from the PCBs.

Approximately 700 pounds of PCBs remain throughout the ship in some of the solid materials. The Navy is proposing to leave these materials on board for two major reasons:

1. *Removing all of the electrical cabling and other solid PCB materials without totally dismantling the ex-ORISKANY is virtually impossible and would be extremely costly.*

2. Almost all of the remaining PCBs on the ex-ORISKANY are in electrical cabling (97%). The leach rate study found that the PCBs in the electrical cabling are very stable. Only very small amounts of PCBs moved out of the cabling and into the surrounding water over the 2 year study period.

USEPA APPROVAL

USEPA has the authority to grant a risk-based disposal approval to allow solid PCB containing materials to remain onboard ships scheduled for sinking as artificial reefs, provided the risks from the PCBs are acceptable. In order to receive the risk-based disposal approval for ex-ORISKANY, the Navy must demonstrate that the risks to people using the reef, and plants and animals living and feeding on the reef, will be safe. The Navy conducted studies known as "risk assessments" to estimate potential human health and environmental impacts for the future ex-ORISKANY artificial reef.

ARTIFICIAL REEF RISK ASSESSMENTS

Since the ex-ORISKANY reef is not yet established, sampling the water or fish at the proposed site will not tell us anything about the safety of the future artificial reef. Because of this, the Navy developed computer models to predict conditions on the ex-ORISKANY reef.

These models use information on the amount and types of PCB bulk products remaining on the ship, PCB leach rates observed by Navy scientists, and equations recommended by the USEPA to estimate:

- PCB concentrations in the water around the new reef,
- the amount of PCBs that will likely enter reef fish, and
- the amount of PCBs expected to accumulate in the bodies of reef fish.

The PCB concentrations predicted by the computer models were then used to complete a human health risk assessment and an ecological risk assessment.

Human Health Risk Assessment

Navy risk assessors reviewed the PCB concentrations predicted by the computer models, information on the chemistry of PCBs, and site specific information on whom in the area would likely visit/use the new artificial reef. They concluded that the groups of people that might have potential health risks from using the new reef are recreational scuba divers and people who catch and eat fish from the reef.

The risk assessors reviewed local seafood consumption surveys and other information about seafood eating habits in the area, and found that recreational angler fishermen and their families will likely eat the most fish from the new reef area.

A complete risk assessment was done for these two "highest risk groups" – scuba divers and angler fishermen and their families.

The results showed the water will be safe for scuba diving and both adults and children can safely eat fish caught at the new ex-ORISKANY artificial reef.

Ecological Risk Assessment

An ecological risk assessment was conducted to see if the PCBs left on-board the ex-ORISKANY will harm the environment at the new artificial reef site. The risk assessors used the PCB concentrations predicted by the computer models to assess the potential effects to survival, growth, and reproduction for various fish and other organisms that will live and feed on the new reef. They also assessed the potential for effects in other organisms higher up the food chain that will feed on the reef fish such as sea birds, sea turtles, dolphins, and sharks.

The results showed the new ex-ORISKANY artificial reef will be safe for the surrounding environment and the marine life that lives there.

NEXT STEPS…

The Navy submitted the risk assessments and other project studies and documents to USEPA and requested risk-based PCB disposal approval for ex-ORISKANY in June 2005. Since then, the documents have been through an intensive review process. They were examined by scientists from within the USEPA and outside experts participating in the USEPA's Science Advisory Board (SAB).

In December 2005 the USEPA announced their intent to issue Risk Based Disposal Approval for reefing the ex-ORISKANY. The USEPA is accepting public comments on this proposal until January 19, 2006. These comments will be reviewed before a final decision is made on the Navy's request for approval to sink the ex-ORISKANY.

The ex-ORISKANY is currently in temporary storage in Beaumont, Texas. If US EPA grants approval in early 2006, then the Navy will move the ex-ORISKANY to Pensacola and sink the ship in mid 2006. If approval is delayed, then the ex-ORISKANY will wait out the hurricane season in Texas.

FOR MORE INFORMATION

Copies of the study documents are available on-line for review on the US EPA Region 4 website at: **www.epa.gov/region4/air/lead/PCBWebPage.htm** and on the PCB home page maintained by EPA headquarters at **www.epa.gov/pcb/** .

Additional information on the ex-ORISKANY project is available on the Navy's website at **www.peoships.crane.navy.mil/reefing/oriskany.htm**