

Eighth Coast Guard District

News

# United States Coast Guard

Public Affairs Office, 500 Camp Street, New Orleans, LA 70130-3396 (504) 589-6198

Release #: 35-88

Date: June 3, 1988

Contact: Petty Officer Chuck Kalnbach

Time of Release: Immediate

## COAST GUARD LORAN-C STATION GRANGEVILLE

Away from the resounding and frequent search and rescue alarms of the Coast Guard stations in New Orleans, the 700-foot red and white tower rises above the tops of the evergreen trees sending out a silent, but needed signal.

Located in a logging area 60 miles northwest of New Orleans, Loran-C (Long Range Navigation) Station Grangeville, La., provides Loran-C service in a 1.4 million square mile area to sailors and aviators.

Grangeville is part of the Southeast U.S. Loran Chain, along with Loran Stations Malone, and Jupiter, Fla., Raymondville, Texas, and Carolina Beach, N.C. The chain covers an area that encompasses the Gulf of Mexico, part of the Caribbean, the East coast from North Carolina to Florida and inland to St. Louis and the Great Lakes.

The 6-man team at Grangeville monitors the transmitting equipment to ensure the signal is being sent is within the tolerance limits. If the signal gets out of tolerance, just a nano-second (one-billionth of a second) off, the position that the mariner receives is not correct, endangering the vessel's safety.

more

"The LORAN system is only an Aid to Navigation, but there are so many people that use it as the only means of navigating that we have to keep the signal we send out within tolerance as much as possible," Chief Electronics Technician John Dungy, Officer-In-Charge said. "In January we received an award for being on air and within tolerance 99.992 percent of the time. We are close to completing a full year at almost 100 percent."

Loran-A, the early Loran system, was developed during World War II at the Radiation Laboratory at the Massachusetts Institute of Technology. It was operated by the Coast Guard during the war. After World War II, there were 70 transmitting stations providing service to more than 70,000 receivers aboard military and commercial boats and planes.

The Department of Defense initiated the development of Loran-C during the 1950's and '60s. Loran-C has a greater range and more accuracy than the older Loran-A. The development also lowered the cost of the receivers so that commercial and recreational boat owners could afford them.

In each area of LORAN coverage, there are three to five transmitting stations separated by hundreds of miles. One of the stations is designated the master station (M) and the other stations are the secondary stations named Whiskey (W), X-ray (X), Yankee (Y) and Zulu (Z).

"Loran Station Malone is the master station for the Southeast U.S. Chain. The Coordinator Of Chain Operations (COCO), located at Malone, oversees the operations of the other stations in the chain," said Electronics Technician 2nd Class Ray Gitrau. "Since we aren't at the station 24 hours a day, the watchstanders at Malone monitor our equipment and they call us if anything happens while we aren't there."

more

The signals transmitted from the secondary stations are synchronized with the master station. The navigator of a vessel has to program his Loran receiver to a certain signal depending on the area in which the vessel is operating. The time difference between signals reached from the master station and the secondary stations is measured in milliseconds, or millionths of a second and is displayed on the receiver as coordinates to give a position to the navigator. "If our signal gets out of tolerance, we have to start blinking the number that is displayed on the receiver so the user knows that the signal is not correct," Gitrau said. "Our motto is "To protect the user."

Protecting the user means that the crew at Grangeville have to be prepared for any emergency. The most frequent problem they encounter is lightning striking the transmitting tower. "Since it's the tallest structure around here, it is always being hit," Gitrau said. "Every time a thunderstorm rolls into the area, if we're not at the station, we're on our way. I'm at the point now after being at three Loran Stations that even when the lights flicker, I think something is wrong with the equipment."

The 54 half-cycle generators in the station produce the 800,000 watts of power to transmit the signal. The generators all lead to one transmitter connected to the tower by a copper tube. To keep electrical charges caused by lightning hits from coming back into the generators, a Z-shaped bar connects the copper tubes to the antenna. "Lightning will always travel the shortest distance to a grounding point," Gitrau said. "This Z-shaped bar creates a distance between the copper relay that is further than the distance to the ground. This protects our generators from being zapped by the lightning and creating a serious problem with our signal."

more

When there are no problems with the equipment and the signal is within tolerance, a green smiling face is showing on the monitor. "When we arrive in the morning and we see that smiling face, we know everything is working," Gitrau said. "When the equipment is smiling, we're smiling."

uscg