

NUMA's 1995 Search for the Republic of Texas Navy Vessel *Invincible*, which sank in the Gulf of Mexico off Galveston, Texas, in 1837

Between the 5th and 9th of August 1995, Ralph Wilbanks (Diversified Wilbanks, Inc.) and Wes Hall (Mid-Atlantic Technology and Environmental Research, Inc.), under a verbal contract and in association with Clive Cussler (and the National Underwater Marine Agency), conducted a marine magnetometer survey of a large area offshore from Galveston, Texas. The purpose of the survey was to identify the location of the shipwreck *Invincible*. The *Invincible* was the flagship of the first Republic of Texas Navy, which ~~that~~ operated between 1835 and 1837 during the Texas War for Independence. In 1837, the schooner *Invincible* was attempting to enter Galveston Bay when it came under attack from Mexican Naval vessels and was forced aground south of the entrance to Galveston Bay. ~~off Galveston.~~

~~The survey area was selected by~~ Clive Cussler selected the survey area and was based on his interpretation of historic maps and the accounts of the sinking of ~~the~~ *Invincible*. ~~south of the entrance to Galveston Bay.~~ Two contiguous rectangular areas were investigated. Survey Area 1 was approximately 1,000 feet wide by 21,500 feet long. State Plane Coordinate boundaries for the sSurvey Area 1 were as follows:

A	x=.
B	x=.
C	x=.
D	x=.

Survey Area 2 was contiguous and more or less parallel to Area 1. The area was approximately 3,000 feet wide by 17,500 feet long. State Plane Coordinate boundaries for the sSurvey Area 2 were as follows:

E	x=.
F	x=.
G	x=.
H	x=.

The search was conducted from a 25-foot survey vessel equipped with a variety of electronic equipment including a NavStar™ differential global positioning system interfaced with a 486 computer and a Geometrics 866 Marine Magnetometer. HYPACK navigation software was used to design survey areas, maintain survey lines, and record positioning data along track lines. Because of the expected ferrous mass related to the *Invincible* and the size of the survey area, investigators chose to collect magnetic data along survey lines at 2-second sample intervals (or approximately every 7 feet at a rate of 4 knots per hour) and 100-foot spacing between survey lines.

Investigators identified targets as they were generated. ~~A total of m~~ More than 20 magnetic anomalies were identified within the two survey areas. Some of the anomalies were detected over two or more survey lines.

Classification of anomalies was based on a variety of factors including magnetic intensity, duration (area of magnetic influence), magnetic signature (monopolar, dipolar, and multi-component), and location or association.

Reportedly, ~~The~~ the *Invincible* ~~was reportedly~~ armed with iron cannon that included two 18-pounders (approx. 4,000 lbs. each-), two 9-pounders (approx. 2,000 lbs. each-) and four 6-pounders (approx. 1,700 lbs. each-). Thus, the total iron mass for the cannons alone could amount to 9 to 10 tons. ~~Adding the mass of the cannon with ammunition or shot and other iron associated with the vessel, the investigators estimated the wreck of the *Invincible* to generate a change in the magnetic background detectable of well over 100 feet away. Considering the mass of the cannon with ammunition or shot and other associated iron, investigators estimated that change in the magnetic background (generated by the vessel) could be detected from more than 100 feet away. In close proximity to the wreck (within 50 feet), ~~The~~the expected magnetic intensity in close proximity to the wreck (within 50 feet) should be detectable in the hundreds of gammas. Depending on how the vessel broke up and/or deteriorated, the magnetic signature was expected to be multi-component; however, a dipolar-type signature also might also be possible.~~

Using a subjective (yet conservative) methodology, anomalies were ranked by their potential to be associated with the wreck ~~of the *Invincible*~~. Isolated, low intensity and high intensity anomalies detectable for only 2 to 6 sample intervals (single source anomalies) were discounted and determined to have ~~given a low potential to be associated with a shipwreck.~~ Anomalies detectable between 6 and 10 sample intervals with monopolar and dipolar magnetic signatures were ranked as having a medium potential. ~~to be associated with a shipwreck.~~ Anomalies detectable for 10 or more sample intervals, ~~or more~~ including monopolar, dipolar and multi-component signatures, were considered to have high probability and therefore worthy of testing. Anomalies that were detectable over multiple survey lines or in close proximity were grouped together as one target.

Four magnetic anomalies were categorized as high probability targets. These targets were revisited and resurveyed using a lane spacing of only 15 to 20 feet. Those resurveyed targets, were marked by buoys for later identification by divers.

Time, weather, and equipment limitations permitted the identification of only two high probability targets:

Target C **Texas State Plane Coordinates** x= y=

Target C was a dipolar signature magnetic anomaly of more than 1,050 gammas maximum intensity and was detectable over thirteen 2-second sample intervals. Investigators identified the magnetic anomaly as a 24-inch ~~in~~ diameter section of steel pipe approximately 20 -feet in length, mostly exposed above the bottom surface.

Target B **Texas State Plane Coordinates** x= y=