

**U.S. DEPARTMENT OF COMMERCE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE

# Horizontal and Vertical Control Report

Type of Survey Hydrographic  
Project OPR-K339-KR-16  
Contract No EA-133C-14-CQ-0031  
Task Order No T0004  
Time Frame July 2016 - October 2016

State Louisiana  
General Locality Gulf of Mexico

2016

CHIEF OF PARTY

David R. Neff, C.H.

## LIBRARY & ARCHIVES

Date \_\_\_\_\_

**HYDROGRAPHIC TITLE SHEET**

H12941  
H12942  
H12943  
H12944  
H12945  
H12946  
H12947

**INSTRUCTIONS** - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD No

eTrac Inc.

**State** Louisiana

**General Locality** Gulf of Mexico

**Sub-Locality** Offshore SW Pass

**Scale** 1:20,000 & 1:40,000      **Date of Survey** August 01 to October 02, 2016

**Instructions Dated** June 28, 2016      **Project No.** OPR-K339-KR-16

**Vessel** M/V Theory, R/V Benthos, R/V Taku

**Chief of Party** David R. Neff, C.H.

**Surveyed by** eTrac Inc.

**Soundings by echo sounder** R2 Sonic 2024 ; R2 Sonic 2026

**Graphic record scaled by** N/A

**Graphic record checked by** N/A      **Automated Plot** N/A

**Verification by** Atlantic Hydrographic Branch

**Soundings in** Meters at MLLW

**REMARKS:**

WGS 84, UTM Zone 16 (H12941, H12942, H12943, H12945, H12947)

UTM Zone 15 (H12946)

Times are in UTC

The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data with which to update the nautical charts of the assigned area.

**SUBCONSULTANTS:**

Geodynamics, LLC, 310A Greenfield Drive, Newport, NC 28570

Theory Marine, LLC, 777 Viewcrest Drive, Ventura, CA 93003

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**Contents**

**A. Vertical Control..... 1**  
**B. Horizontal Control..... 2**  
**C. Approval Sheet..... 4**

**Tables**

**Table 1: Station Information of ID 8762075..... 1**  
**Table 2: Station Information of ID 8760922..... 2**  
**Table 3: Station Information of ID 8761724..... 2**

**A. Vertical Control**

For H12941, H12942, H12943, H12944, H12945, H12946 and H12947 the TCARI method of water level correction was applied during post processing. The Tidal Constituent And Interpolation program (TCARI) is a GUI-driven application developed by The Coast Survey Development Laboratory. TCARI works by separating the astronomic tide, residual, and datum difference components and treating them differently. TCARI has the ability to reference multiple water level stations to supply a network tide solution.

As stated in the Project Instructions, final application of water levels was performed through TCARI utilizing the final TCARI grid supplied by CO-OPS:

**K339KR2016Final.tc**

No subordinate water level stations we required for this project. The following gauges were utilized by TCARI in application of final water level corrections:

<b>Port Fourchon, Belle Pass, LA - Station ID: 8762075</b>	
Established:	Jul 19, 2003
Time Meridian:	90° W
Present Installation:	Jul 18, 2003
Date Removed:	N/A
Water Level Max (ref MHHW):	3.70 ft. Sep 24, 2005
Water Level Min (ref MLLW):	-1.77 ft. Feb 16, 2007
Mean Range:	1.21 ft.
Diurnal Range:	1.24 ft.
Latitude	29° 6.8' N
Longitude	90° 11.9' W
NOAA Chart#:	11357
Met Site Elevation:	N/A

*Table 1: Station Information of ID 8762075*

<b>Pilots Station East, SW Pass, LA - Station ID: 9760922</b>	
Established:	Mar 8, 2004
Time Meridian:	90° W
Present Installation:	Mar 8, 2004
Date Removed:	N/A
Water Level Max (ref MHHW):	5.98 ft. Aug 29, 2005
Water Level Min (ref MLLW):	-1.72 ft. Dec 13, 2004
Mean Range:	1.16 ft.
Diurnal Range:	1.19 ft.
Latitude	29° 55.9' N
Longitude	89° 24.4' W
NOAA Chart#:	11361
Met Site Elevation:	11.6 ft above MSL

*Table 2: Station Information of ID 8760922*

Grand Isle, LA - Station ID: 8761724	
Established:	Nov 9, 1979
Time Meridian:	90° W
Present Installation:	Mar 30, 1990
Date Removed:	N/A
Water Level Max (ref MHHW):	4.45 ft. Aug 29, 2012
Water Level Min (ref MLLW):	-3.07 ft. Jan 13, 1964
Mean Range:	1.04 ft.
Diurnal Range:	1.06 ft.
Latitude	29° 15.8' N
Longitude	89° 57.4' W
NOAA Chart#:	11358
Met Site Elevation:	8.8 ft above MSL

*Table 3: Station Information of ID 8761724*

**B. Horizontal Control**

Survey data for H12941, H12942, H12943, H12944, H12945 and H12947 were collected in WGS84 horizontal datum, UTM Zone 16N Projection. Survey data for H12946 were collected in WGS84 horizontal datum, UTM Zone 15N Projection.

R/V Benthos, R/V Taku, and M/V Theory received GNSS satellite corrections over the POS MV G2 carrier signal from the Marinestar Global Correction System maintained by Fugro.

The Marinestar system is a global realtime GNSS broadcast system that delivers corrections from an array of base stations around the world via geo-stationary satellites.

Upon commencement of OPR-K339-KR-16, the Marinestar corrections system was to be utilized for both horizontal and vertical corrections. After a number of small corrections drops, adversely affecting only the vertical accuracy of the final data, it was decided to utilize the Marinestar system only for horizontal control. Data for OPR-K339-KR-16 were vertically referenced using the TCARI method detailed above.

C. Approval Sheet



OPR-K339-KR-16

Registry Nos.

H12941  
H12942  
H12943  
H12944  
H12945  
H12946  
H12947

Horizontal and Vertical Control Report

This report and the accompanying data are respectfully submitted.

Field operations contributing to the accomplishment of Surveys H12941, H12942, H12943, H12944, H12945, H12946, and H12947 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and associated data have been closely reviewed and are considered complete and adequate as per the Statement of Work.

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David R. Neff | eTrac Inc. | Lead Hydrographer | December 05, 2016

eTrac Inc.  
December 2016