U.S. DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL OCEAN SERVICE

Horizontal and Veritcal Control Report

Type of Survey	**Hydrographic**
Project	**OPR-H355-KR-18**
Contract No	**EA-133C-14-CQ-0031**
Task Order No	**T0008**
Time Frame	**August 2017 - December 2018**

State	**Florida**
General Locality	**Florida**

2018

CHIEF OF PARTY

David R. Neff, C.H.

LIBRARY & ARCHIVES

Date

NOAA FORM 77-28
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTRY No
H13160
H13161
H13162
H13163
H13164
H13165
H13167
H13168
H13169
F00757

FIELD No

eTrac Inc.

HYDROGRAPHIC TITLE SHEET

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

State	Florida		
General Locality	Florida		
Sub-Locality	Florida Keys		
Scale	1:40,000 (H13169: 1:15,000)	**Date of Survey**	August - December 2018
Instructions Dated	August 1, 2018	**Project No.**	OPR-H355-KR-18
Vessel	R/V Benthos, R/V Taku, R/V Marcelle		
Chief of Party	David R. Neff, C.H.		
Surveyed by	eTrac Inc.		
Soundings by echo sounder	Kongsberg 2040c, R2 Sonic 2024		
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:

NAD 83 (2011), UTM Zone 17

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

Bordelon Marine, 382 Thompson Road, Houma, LA

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537

Contents

A. Vertical Control

Per the project instructions, survey data for OPR-H355-KR-18 were vertically referenced to the ellipsoid. Using VDatum, a vertical separation model was created to transform the ellipsoidally referenced data from ITRF-08 to MLLW. This separation model was applied in QPS Qinsy on the vessels in realtime to achieve MLLW in the field. Achieving MLLW in the field was extremely efficient for field operations as the NALL was easily identified in realtime. The separation model was carried through the processing pipeline maintaining MLLW throughout all processing efforts.

R/V Benthos, R/V Taku, and R/V Marcelle received GNSS satellite corrections on the Applanix POS MV 320 over the 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 a network of base stations around the world via geo-stationary satellites. The Marinestar corrections system was utilized for both vertical and horizontal positioning. It should be noted that the G2+ carrier is a recent upgrade from the G2 carrier used in previous years. Improved accuracy was observed in the realtime solution as a result of this upgrade. Accuracies in the 9-13cm range were observed throughout the project, an improvement over the 13-20cm accuracies observed with the previous G2 string.

For OPR-H355-KR-18, Applanix PosPac MMS was utilized to postprocess realtime positioning data utilizing Trimbles PP-RTX implementation of Trimble CenterPoint RTX. The Trimble CenterPoint RTX correction service is delivered via internet connection and integrated into Applanix PosPac MMS 8, to aid in post processed trajectories. A Smoothed Best Estimate of Trajectory (SBET) is provided by PosPac MMS and applied to survey data in Qimera 1.7.3.

B. Horizontal Control

Survey data for OPR-H355-KR-18 were collected in NAD83 (2011) horizontal datum, UTM Zone 17N Projection.

R/V Benthos, R/V Taku, and R/V Marcelle horizontal positioning was achieved using the same equipment and methods as described in the Vertical Control section of this document.

C. Approval Sheet

OPR-H355-KR-18

Registry Nos.
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F00757

Horizontal and Vertical Control Report

This report and the accompanying data are respectfully submitted.

Field operations contributing to the accomplishment of OPR-H355-KR-18 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.

Digitally signed by David Neff
Date: 2018.11.14
14:17:24-08'00'

David R. Neff | eTrac Inc. | Lead Hydrographer | November 8, 2018

eTrac Inc.
November 2018