

## **C. HORIZONTAL AND VERTICAL CONTROL**

NOAA tide station 8651370 Duck, NC was the source of verified water level heights for determining correctors to soundings. The primary means for analyzing the adequacy of zoning was by entering the tidal data from adjacent zones into a spread sheet and

conducting comparative analysis. All data for H12003 was contained within one tide zone (SA46A) so zone crossings were not an issue within the data. Data were reviewed within in the navigated swath editor, SAIC's **Multi View Editor (MVE)** for differences between overlapping swath data as well as crossline versus mainscheme data. In addition, sun illuminated coverage plots were examined on screen to identify any vertical offsets which may be a result of tidal zoning impacts. As addressed in the CUBE Uncertainty Analysis discussion above (Section B.2), there were a few instances where overlapping data had an observed vertical offset of 20 to 25 centimeters. The water level zoning parameters provided by NOS, Table C-1, were adequate for application of the observed verified water levels.

**Table C-1. Water Level Zoning Parameters Applied on Sheet H12003**

<b>Zone</b>	<b>Time Corrector (minutes)</b>	<b>Range Ratio</b>	<b>Reference Station</b>
SA46A	0	1.08	8651370

The survey data for sheet H12003 were collected in horizontal datum NAD-83, using geodetic coordinates, while data display and products used the UTM Zone 18 projection. The following equipment was used for positioning on the *M/V Atlantic Surveyor*:

- POS/MV Model 320 Version 4, Serial Number 2575 with a Trimble Probeacon Differential Receiver (primary sensor)
- Trimble 7400 Rsi GPS Receiver with a Trimble Probeacon Differential Receiver (secondary sensor)

Differential correctors used for online data were from the U.S. Coast Guard Stations at Driver, VA, Annapolis, MD, and Reedy Point, DE. The differential receivers were programmed to only receive differential corrector data from these three stations.

Daily position confidence checks were conducted using an independent Trimble DGPS system. A real-time **ISS-2000** survey monitor also raised an alarm to alert the survey watch stander if the position differences exceeded the maximum allowable distance. All positioning confidence checks were within the 10 meter limit specified in section 5.1.4.2 of the April 2009 "*NOS Hydrographic Surveys Specifications and Deliverables*". A summary report of positioning system confidence checks is included in Separates I.

Please refer to the Horizontal and Vertical Control Report\*, delivered with this Descriptive Report, for detailed descriptions of the procedures and systems used to attain hydrographic positioning.

**\*Filed with original Field Records.**