

C. VERTICAL AND HORIZONTAL CONTROL

No vertical or horizontal controls were established, recovered, or occupied during OPR-D302-KR-11 data acquisition, which includes H12337. Therefore a Horizontal and Vertical Control Report is not required. Vertical and horizontal control specifics pertaining to H12337 are discussed below.

C.1 VERTICAL CONTROL

The vertical datum for H12337 is Mean Lower Low Water (MLLW). The Project Instructions specified NOAA tide station 8631044 Wachapreague, VA as the source for water level correctors. A full explanation of the tide zone assessment is detailed in Section C.4 of the DAPR REV 1 submitted concurrently with this report. For H12337, 8631044 Wachapreague, VA was the source of all final verified water level heights for determining correctors to soundings. All data for H12337 were contained within four tide zones, which were provided from NOAA and are summarized in Table C-1.

Table C-1. Water Level Zoning Parameters Applied on Sheet H12337

Zone	Time Corrector (minutes)	Range Ratio	Reference Station
SA46	-66	0.87	8631044
SA46A	-72	0.87	8631044
SA55	-66	0.90	8631044
SA55A	-72	0.90	8631044

SAIC did not revise the delivered tide zones for tide station 8631044 Wachapreague, VA as the water level zoning parameters provided by National Ocean Service (NOS), Table C-1, were deemed adequate for the application of observed verified water levels. As a result, they were accepted as final and applied to all H12337 multibeam data.

No final tide note was provided by the NOAA Center for Operational Oceanographic Products and Services (CO-OPS). SAIC is not required to have a final tide note from CO-OPS for H12337. SAIC has provided a final tide note in Appendix IV.

C.2 HORIZONTAL CONTROL

The survey data for sheet H12337 were collected in horizontal datum North American Datum of 1983 (NAD-83), using geodetic coordinates, while data display and products used the UTM Zone 18, North 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)

Please refer to the DAPR REV 1 for details regarding all antenna and transducer offsets.

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

Horizontal positioning of the multibeam transducer by the POS/MV was verified by frequent comparison checks against an independent Trimble DGPS system. During survey data acquisition, the **ISS-2000** real-time system provided a continuous view of the positioning comparison between the POS/MV and the Trimble DGPS. An alarm was triggered within **ISS-2000** if the comparisons were not within an acceptable range. All daily positioning confidence checks for H12337, were within 0.63 meters. These daily positional checks are presented in a standalone table within Separates I, “Daily Positioning Confidence Checks”. All soundings with total horizontal uncertainties which exceeded the maximum allowable IHO S-44 5th edition Order 1a specifications were flagged as invalid and therefore were not used in the CUBE depth calculations.