Heave

 Corrections for heave were applied while scanning echograms. The scanning technique employed in comparing analog traces with the digital record eliminated significant fluctuations resulting from sea action.

Pneumatic Depth Gage

The Pneumatic Depth gage was calibrated March 3, 1991, by the Pacific Operations Group (N/OMA1214). In addition, field systems checks were performed via comparison with diver depth gages each time the pneumatic gage was used. Calibration data and correctors applied to the pneumatic depth gage are included in the Summer 1991 Correctors to Echo Sounding Data Package for OPR-Q181-RA.

Bar Check Lines

Bar check lines were calibrated by RAINIER personnel during January 1991 at PMC. Calibration forms are included in the Summer 1991 Corrections to Echo Sounding Data Package for OPR-Q181-RA.

Tide Correctors

The Unalaska, Alaska, tide station (946-2620) served as control for datum determination. Dutch Harbor, Alaska (station #2109) was the reference station for predicted tides. The time and height correctors for station #2109 were applied to the predicted tides at Dutch Harbor and are shown below:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Correctors</th>
<th>Range Ratio</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dutch Harbor,</td>
<td>Direct</td>
<td>Direct</td>
</tr>
<tr>
<td></td>
<td>Amaknak Island</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report.

The closing leveling records have been forwarded to N/OMA1212 in accordance with HSG 50 and FPM 43. Requests for approved tides have been forwarded to N/OMA12. Copies of the Field Tide Notes and the request for approved tides are included in Appendix V.

H. CONTROL STATIONS

Geographic positions for all control stations are based on the North American Datum of 1983 (NAD83) and the Geodetic Reference System 1980 Ellipsoid.

A listing of the geodetic stations used to control this survey is included in Appendix.

* Filed with the hydrographic data.