The lines, the first and last shotpoints, and the direction of shooting are identified in Table 1. Lines appear in the order shot and any pecularities are described in the footnotes.

GEONAV operated quite well during the survey. The maximum time between fixes while on line was 2-3/4 hours; most fixes were less than 1-1/2 hours apart. The beginning and ending line coordinates where given to the GEONAV operator by the client representative on board. The coordinates were referenced to the local datum; therefore, a constant +3.17' in latitude and -3.42' in longitude were applied to all coordinates to convert to the global datum to which the satellite navigation is referenced. The weather was generally fair but the boat stopped shooting prior to Line H-23 due to heavy seas and returned to port and waited a day. While docked at Portland, 17 fixes were taken to refine the correction factors used to "shift" the local datum to the APL.

In processing the navigation data, another datum transformation from APL to the Australian Geodetic Datum, was applied to shotpoint and satellite positions. This "shift" is a nonconstant transformation accomplished by using weighted mean shifts of the origin of one datum with respect to the other. Transformation parameters are determined beforehand by comparing coordinates at known points on the local datum with coordinates for the same points obtained by satellite fixes. The parameters used to transform the datums in this project are values published in the Smithsonian Astrophysical Observatory Special Report 200. The values are

$$\Delta X = -89 \text{ m} \qquad \Delta Y = -34 \text{ m} \qquad \Delta Z = +86 \text{ m}$$

The standard deviation of these values is given as ± 13 m.

After the datum shift was accomplished, U.T.M. coordinates, using zone-54 parameters and the Australian National Spheroid, were computed and used for final mapping and listing. The defining values for the Australian National Spheroid are

3

GSI-709