The post mission processing end product is the computerized map and listing of transverse Mercator projected positions.

D. SYSTEM DESCRIPTION

1. General

The GeoNav system establishes its absolute geographical location from information transmitted by satellites of the U.S. Navy Navigational Satellite System. The vessel's continuous path of travel is computed by a dead reckoning system consisting of a velocity measurement system (VMS) and an azimuth measurement system (AMS). The VMS derives its values from four-beam independent doppler sonar velocity measurements compensated for the ship's pitch and roll, and for variations in the sound propagation velocity. The AMS consists of a gyrocompass externally compensated for the ship's dynamics.

At intervals averaging approximately 1.5 hours at the equator and less at higher latitudes, the dead reckoned position is corrected by a satellite position fix. Each satellite fix printout contains an estimate of fix accuracy and provides calibration factors for the dead reckoning system. In this manner, a self-contained quality control is established.

The Navy currently has five satellites in non-synchronous, circular, polar orbits of about 600 mi. altitude. A core memory onboard the satellite contains its orbital position information which is updated approximately every 12 to 18 hours from ground tracking and injection stations. The satellite continuously transmits this data as its navigation message phase encoded onto two carrier frequencies.

The vessel's satellite receiver automatically locks onto the satellite signals when it appears in sight. A satellite pass may have a