

Seismic Refraction Surveys Using Explosives as an Energy Source

A Seismic Refraction Survey is proposed as a part of the geological hazard assessment program in the southern area of the Pemberton Valley. The survey will consist of one or more survey lines located to define the geological conditions of the the south valley wall.

The seismic refraction investigation employs the physics of sound wave conduction though the earth to define the depth to bedrock, and to classify the overburden materials. The field operations entail setting out cables along the survey line and implanting geophone sensors. These sensors and cables are connected to a seismograph to record the seismic information. Seismic energy will be provided from small explosive charges buried in hand-excavated shotholes. A licensed holder of a WCB Blasters certificate will supervise the handling and detonation of the explosives.

Several shotpoints are located within, and off the ends of, each cable. Each geophone cable layout will record several shots located at different positions along the seismic cables. These shots will enable earth layer thicknesses and bedrock depth calculations at each geophone location, which will provide high resolution geological sections. Once a cable layout is complete, the equipment is moved to collect the next spread of data.

Frontier uses the smallest feasible charge size to record the required information. and strict observance of setback distances from waterways, as laid out in the Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters.



Seismic crew setting out cables