

\$148m project at Moose Creek Dam, North Pole, Alaska



CASE STUDY



Sub-zero temperatures, short daylight hours, low strength materials choc-full of hard, subrounded very hard glacial till - no problem for H2R Senior Driller and Department Manager Tom Carney and Staff Geologist Josh Daily, impressed contractor and owner alike in this high demand and tight schedule job.

Robertson Geo client H2R Corp is supporting Bauer Foundation Corp by providing verification boring services, down hole video and [High Resolution Optical Televiewer®](#) (Robertson Geo Hi-OPTV® deployed with [surface winch](#) and support equipment) inspection, and in situ permeability testing including rising and falling head tests.

The Moose Creek Dam and Floodway facility includes a 7.5-mile earthwork levee built up to 50 feet above the creek bed. Since 1981, the facility has managed 20 flood events successfully. A 2007 risk assessment identified seepage and piping as a potential failure mode. As a result, the US Army Corps of Engineers (USACE) has contracted for the Moose Creek Dam Safety Modification Project (W911KB21C0030). The safety modification includes a barrier wall installation through the embankment and tied into the existing foundations. The construction methods include a slurry trench cutoff wall and jet grouting where appropriate.

Wireline coring in the low strength soil cement mixture is especially challenging since the existing soils are mostly hard, subrounded metamorphic rock deposited by glacial action in the valley. The aggregates come in a wide range of diameters and readily debond from the cement-bentonite binder, which can cause tool jams and damage to the recovered sample. Even without debonding, the hard aggregates cause rapid tool wear and managing tool life without using an extremely aggressive bit that would compromise the sample quality required the decades of expertise that H2R brings to successfully complete the project.



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