Discovery Drilling in Alaska Takes Their Unique Rig to a Unique Site

In July, Discovery Drilling in Anchorage, AK, working with CH2Mヒル, deployed their Geoprobe® 66DT to the island of Shemya, AK. Shemya, home to Eareckson Air Station, is located on the western tip of Alaska’s Aleutian Islands, near the larger island of Ama, approximately 1,905 miles southwest of Anchorage. The island has seen its fair share of military activity over the years. From WWII to The Cold War, to present day, the small (4 miles wide) island of Shemya has been used to support military operations ranging from reconnaissance to refueling missions.

A Compliance Site Investigation was launched to collect subsurface information from soils and groundwater around the island. The focus of the Discovery team’s efforts on Shemya Island were areas near abandoned underground and above ground fuel storage tanks. In total, the team conducted environmental soil and groundwater sampling at ten different sites across the island. Each site had between three and six borings, and temporary monitoring wells were installed for groundwater sampling. Due to logistical constraints and challenging drilling locations with limited access, Discovery Drilling’s 66DT, a light-weight track-mounted rig, was the perfect candidate for the job.

Sub-surface conditions varied greatly across the island. According to DJ Wardwell, “it was always a surprise for the driller when advancing the first tool string at a new site. Drilling would often become difficult when very dense soils were encountered, so the GH60 hammer and 66DT were pushed extremely hard.” DJ said. “The rig proved to be a real workhorse, however, and finished the job requiring nothing other than fuel and routine maintenance.”

The field team used the MCS Soil Sampling System to collect continuous 60 in. soil samples throughout the project. Drill depths ranged from 5 ft. to 20 ft., depending on each site’s geology. “Due to the ever-changing soil conditions, we would often switch between MCS Core Catchers and Spacers to ensure that maximum soil recovery was achieved,” DJ said.

The field team used MCS Core Catchers when encountering loose materials, such as sand, silt, sands, and small gravels, to help retain/improve sample recovery. The MCS Spacer Rings were also used. Spacer Rings provide a direct path for materials, such as clay or compacted materials, to move into the liner when a core catcher is not required to help retain the sample. [Geoprobe Systems® now offers an MCS Cutting Shoe with an extended back that attaches directly to the liner. No spacer is required.]

“The MCS Soil Sampling System proved to be an excellent method for soil recovery leaving no cuttings to dispose of and no large borings to backfill,” DJ added.

The team’s work plan required that a large amount of soil be collected at certain depths, often much more than a full MCS liner could provide. The driller would often have three, four, or even five adjacent borings going simultaneously in order to provide enough soil redundancy at specific depths for the lab to analyze. Using the rig’s mast extension and swing, the driller was able to accomplish this without having to move the rig.

Grab samples were collected when groundwater was encountered. This was accomplished by driving 2.25 in. Mill-Sharred Rods to the required depth and then using a portable pump to recover an adequate amount of groundwater for laboratory analyses.

The Discovery Drilling field team believes the 66DT’s versatility, size, and power played a huge role in the overall efficiency and success of the project.

“It was a pleasure to operate such a unique machine in such a unique place,” DJ said. “We’ve been using our 66DT and 6610DT for projects all over Alaska. Their small size allows us to ship them to the most remote locations that Alaska has to offer. Over the last few months, we have deployed them to places like Kotlik, Barrow, Quinhagak, Atmautluak, and many other locations for geotechnical investigations. We have also used them for environmental work in places like Eielson Air Force Base near Fairbanks and on Shemya Island.”