DJ Wardwell, Assistant Operations Manager for Discovery Drilling in Anchorage, AK, uses a Geprobe® 66DT to pull soil samples near some abandoned fuel storage tanks at Eareckson Air Station on Shemya Island.

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

In July, Discovery Drilling in Anchorage, AK, working with CH2MHILL, 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 Attu, approximately 1,500 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.

Subsurface conditions varied greatly across the island. According to DJ Wardwell, (title) for Discovery Drilling, "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 MC5 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 MC5 Core Catchers and Spacers to ensure that maximum soil recovery was achieved," DJ said.

Three, four, or even five adjacent borings (five are shown in the foreground) were in process simultaneously in order to provide enough soil redundancy at specific depths for the lab to analyze.

The field team used MC5 Core Catchers when encountering loose materials, such as sands, silty sands, and small gravels, to help retain/improve sample recovery. The MC5 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 MC5 Cutting Shoe with an extended back that attaches directly to the liner. No spacer is required.]

"The MC5 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 MC5 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-Slotted Rods to the required depth and then using a peristaltic 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."

Many of Discovery Drililng's clients specifically request their Geoprobe® rigs because of their small footprint and the ability to access tight spaces.

"Our Geoprobe® 66 series machines bring a lot of power to the table relative to their size. We routinely take them to very remote and challenging locations where the rigs and their GH60 hammers are pushed extremely hard. Their versatility, small size and power, combined with the fact that they are self-propelled, make them an obvious choice for projects in remote locations."

... DJ Wardwell, Assistant Operations Manager, Discovery Drilling, Anchorage, AK

(above) DJ Wardwell sets up next to one of many abandoned fuel storage tanks at Eareckson Air Station on Shemya Island. (below) The field team of Mike Rozak, Environmental Technician (seated) and DJ Wardwell, Assistant Operations Manager, collect samples as part of a Compliance Site Investigation on Shemya Island. Ten different sites on the island were the target of the project. The Drilling Team for Discovery Drilling said the 66DT and 6610DT are well suited for work at fueling stations where obstacles and low overheads are common.

The relatively small size of the Geoprobe® 66DT makes it well suited to ship to remote areas of Alaska, such as Kotlik, Barrow, Quinhagak and Atmautluak. Here, soil samples are collected at this site on Shemya Island.