Manning Point (Jago River) FUDS Team Summary

The U.S. Army Corps of Engineers (USACE) - Alaska District executed a removal action at the Manning Point Formerly Used Defense Site (FUDS), Jago River delta near the Native Village of Kaktovik, Alaska. The Jago River delta is located approximately 8 miles southeast of Kaktovik on the North Slope of Alaska. The focus of the project was to remove and dispose of drums and possible liquid product and associated soil contamination.

The team included staff from the Alaska District, Marsh Creek, LLC, 6 subcontractors and many vendors. The Alaska District worked closely with the contractor to develop detailed planning documents for the execution of the field work. This project site is located in the Arctic National Wildlife Refuge (ANWR), so extra precautions were necessary to obtain a permit from the U.S. Fish and Wildlife Service.

Accomplishments included:

- Removed over 1,400 drums from the Jago River delta (see Photo 1), eliminating the possibility for releases of petroleum products into the Arctic Ocean.
- Transported equipment and supplies over 800 miles to perform work that lasted approximately 3 weeks during August of 2010.
- This project was jointly executed with another project at Brownlow Point that saved the Government nearly $500,000 in mobilization/demobilization costs alone.
- Approximately 2,500 man-hours were worked by the entire project team with **zero** lost-time incidents or accidents.
- Collaborated with state regulators and U.S. Fish and Wildlife Service staff to develop special use permit requirements for project implementation.

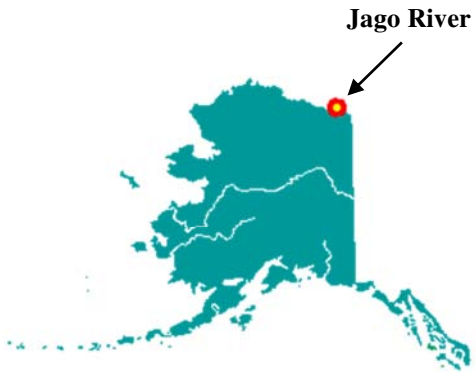

Figure 1. Alaska Project Location Map

Photo 1. Sam Widmer (left) with Weston Solutions works with Eric Jenks (center), and Mike Flisk (right) with Marsh Creek, LLC to retrieve a buried drum from a sand bar in the Jago River delta. Over 1,400 drums were recovered from the Jago River area.

BACKGROUND

The Defense Environmental Restoration Program (DERP) – Formerly Used Defense Sites (FUDS) program is responsible for the cleanup of environmental contamination released during the operation of historic military facilities. The U.S. Army Corps of Engineers (USACE), Alaska District is responsible for addressing over 526 FUDS properties located within the state of Alaska. Alaskan FUDS present unique challenges due to both their complex site conditions and difficult logistics. In order to successfully investigate and remediate these extremely remote sites, the Alaska District is continually searching for better ways to execute project investigations and cleanups.

The Jago River is located on the Beaufort Sea coast, approximately 8 miles southeast of the village of Kaktovik, Alaska (commonly known as Barter Island). The Jago River is part of the Arctic National Wildlife Refuge (ANWR), administered by the U.S. Fish and Wildlife Service (USFWS).

The Jago River is characterized by an arctic maritime climate with frequent fog, especially in the late summer and early fall. The Jago River delta is comprised of an area of about 7 square miles. The average daily minimum temperature during winter is -4º F; during summer it is about 32º F. The average annual temperature for the coastal plain is approximately 9º F. The average precipitation for the coastal plain is approximately 6-inches annually. The winds are strong and persistent over the gradually sloping (≤ 1 degree) coastal plain. Permafrost-driven pingos along with ice-wedge polygons, streams, lakes, ponds, and frost boils create the only topography of the area. The regions soils are poorly drained except along streams and rivers.

The Manning Point Distant Early Warning (DEW) Line Station served as a former staging area for the Barter Island DEW Line Station. Approximately 400 drums that once contained petroleum-oil-lubricant (POL) products are scattered across the site (see Photo 2). The drums at the Jago River site are originally from Manning Point; evidence suggests that the drums were re-deposited across the river delta during storm events. The DEW Line sites were used from about 1953 to 1957.

PROJECT DESCRIPTION

The Project Delivery Team was tasked with the mission of implementing the FUDS program for Manning Point. The DERP goals are to reduce risk to human health and the environment through implementation of effective, legally compliant, and cost-effective response actions. The FUDS program requires projects to progress to various stages by specific dates (i.e., milestones).

Photo 2. Numerous drums were deposited in the Jago River delta by storm events. Over 1,400 drums were located and removed from the river delta. This removal action helped to eliminate any future releases of petroleum product into the Arctic Ocean.

The team developed comprehensive planning documents to conduct the drum removal effort at the Jago River delta, repackage any product discovered in drums, and sample soil beneath every located drum. Many, if not all, of these drums date back over 50 years to Cold War operations of the DEW Line system.

Photo 3. Darren Kayotuk (left) and Eric Jenks (right) utilize a demolition saw to dehead a drum before cleaning out residue inside.

Field activities for the drum removal action consisted of removing an estimated 400 drums (actual number removed was 1,400 drums) from the site, visually evaluating the soil underneath every drum that was located, and field screening the soil beneath the drums using a photo-ionization detector (PID). If PID readings were detected, an analytical sample was collected from beneath each drum that had the highest screening result. Drums were removed from their locations by hand and staged in groups of 8-10 for transport via helicopter to Kaktovik. Once transported to Kaktovik, the drums were deheaded (see Photo 3), cleaned, crushed, and placed in containers for transport to a recycling facility in Fairbanks, Alaska. Drums that were discovered to contain petroleum, oil, or lubricants (POLs) had their contents transferred into new drums for transportation to a POL recycling facility in Palmer, Alaska.

The team worked diligently to implement cost savings measures and project efficiencies during execution of field activities. This effort included:

- Compliance with environmental regulations and stringent USFWS Special Use Permit (SUP) requirements including the development of a Polar Bear Awareness and Interaction Plan.
- Dealing with the ever-present foggy conditions to fly to the project site for surveying, drum recovery, sampling, and fuel recovery. Several days of helicopter standby time were mitigated by waiting until the evening hours when there were breaks in the fog bank to transport workers to the site.
- Working extra hours during favorable weather to build a stockpile of drums in Kaktovik to process for packaging into containers.
- Coordinating the efficient shipment of environmental samples to the analytical laboratory in Anchorage to quickly obtain sample results for areas with high PID readings.

PROGRAM MANAGEMENT

The Jago River FUDS project approach was unique in that practically all of the work was heavily reliant on helicopters to perform the work. The extremely remote aspect of the drums to be removed and locating the drums were difficult challenges to tackle.

The Jago River FUDS Team has achieved commendable accomplishments over the past year; the team's successes are noteworthy because of a litany of challenges they faced. Generally, these challenges fall into three categories:

- remote site logistics;
- strict right-of-entry access requirements from the landowner and operations in a National Wildlife Refuge with threatened species habitat; and
- inclement weather throughout the duration of the project.

Proactive involvement by the Corps of Engineers, the regulatory agency Alaska Department of Environmental Conservation (ADEC), and the contractor led to smooth execution of the work activities in the field. Accomplishing the work within the original schedule with more than a three-fold increase in scope is an outstanding achievement.

The Jago River project was conducted concurrently with another nearby FUDS project at Brownlow Point on the North Slope of Alaska. Joint execution of these projects ***saved the FUDS program nearly $500,000*** in mobilization/demobilization costs alone. Additional cost savings resulted from shared logistics planning, comprehensive work planning documents, and combined lodging arrangements.

The Jago River project was originally scheduled for award in 2011, but the Project Delivery Team noted that this project could be accomplished concurrently with the Brownlow Point project located 60 miles to the west that was programmed for 2010. Using a combined solicitation, the Jago River project was listed as an option to see if it would be affordable to combine similar tasks. The proposal came back from the contractor with a total price that was within the Independent Government Estimate. This helped to ***trim one year off project completion and eliminate potential future releases of petroleum product into the Arctic Ocean.***

TECHNICAL MERIT

The removal action consisted of removing all drums located during the survey phase of the contract and collecting all necessary samples and to meet the data quality objectives. This required a lengthy deployment of 28 continuous field days. Approximately 2,500 man-hours were worked by the entire project team with **zero** lost-time incidents or accidents.

Photo 4. Surveyors Darren Husz (left) and Jeremy Voris (right) with F.R. Bell & Associates are surveying in one of the over 1,400 drums they located over a two day surveying effort.

Of the original 400 drums specified in the scope of work, the survey crew was able to locate over 1,400 drums during their two day hike around all of the sand bars in the Jago River delta (see Photo 4). Hundreds of drums were found buried in

the sand in areas not noticed by two previous investigations. Some drums were buried beneath other drums in as much as three feet of sand. This made drum retrieval difficult as only manual excavation methods were permissible.

Out of 1,400 drums recovered (see Photo 5), 35 were found to contain product. These products ranged from diesel fuel, gasoline, solvents, used motor oil, and lubricants. All product containing drums underwent hazardous categorization (HazCat) identification screening for combining compatible items. HazCat kits were sent to the field with trained technicians for product combining.

The work plan called for conducting heated headspace PID soil analysis beneath every drum located in the Jago River delta. Since there was no way to effectively heat the samples in the field, the bags of soil were marked and flown back to Kaktovik to be heated and analyzed. Of the over 1,400 bags of soil, about 20 were flagged for analytical sampling. Of the 20 samples sent to the laboratory for analytical testing, none were found to be above the Arctic Zone cleanup standards set by the ADEC.

Photo 5. Eric Jenks (left), Mike Flisk (center), and Dave Vandergriff (right) are processing drums in the village of Kaktovik, Alaska. The drums are cleaned and crushed before being placed and a container for shipment to a metal recycler in Fairbanks, Alaska.

ORIENTATION TO MISSION

The FUDS program has a critical task related to mission. The current FUDS cost to complete for Alaska is $1.2 billion. The actions taken at Jago River allowed USACE to eliminate future liability at this property. The Alaska District can now focus on other properties that require cleanup.

TRANSFERABILITY

The Alaska District FUDS Program has over 10 other Alaska North Slope sites to address in future years. Because of the extremely high site mobilization costs, remedial/removal actions must be as efficient as possible to limit cost growth and achieve program objectives in a reasonable timeframe. The relationships established with the USFWS, the ADEC, and local villages are critical to future success implementing remedial/removal actions on the North Slope of Alaska. The trust earned by the Project Delivery Team ensures expectations can be met and understood when working at new locations.

The team solved many logistical challenges directly applicable to future work on the North Slope.

- ***Contingency Plans.*** When the three-fold increase in drum quantity was realized, the contractor immediately made plans to mobilize a second helicopter to the site to

deal with the increase in quantity. For a solid week, two helicopters were used to sling loads of drums that were retrieved from the sand bars (see Photo 6). Also, the front-end loader that the contractor was renting from a local contractor broke down. The contractor had to quickly obtain another front-loader in Prudhoe Bay and ship it to Kaktovik on the next available barge.

Photo 6. Workers from Marsh Creek and Weston Solutions observe a sling load of 8-10 drums being transported by a Pollux Aviation R-44 helicopter to Kaktovik, Alaska.

- ***Transportation.*** It was anticipated that fog would become an impediment to project completion during the latter part of August, so the contractor was anticipating using the helicopter extensively during early August to retrieve the drums from Jago River. But, unfortunately, the fog was present throughout the entire month of August. The helicopter pilots were flexible to fly later in the evenings or whenever there was an adequate break in the fog bank.

- ***Barging.*** The barging company proved to be unreliable with respect to their schedule. This presented some challenges for getting critical items shipped to Kaktovik in order to execute the project. The contractor had to quickly act on the increase in drums and ship six additional containers from Anchorage to Prudhoe Bay to load onto the barge before it departed for Kaktovik.

- ***Polar Bear Watch.*** The contractor had to develop a Polar Bear and Wildlife Interaction Plan to deal with possible encounters with polar bears in their natural habitat. Polar bears have a protected status under the Marine Mammal Protection Act. Daily monitoring was performed during helicopter flights to the work location. Fortunately, there were no issues with polar bears during the execution of the work. However, over the course of the project, a dozen polar bears were sighted in and around Kaktovik and the Jago River delta area. Each crew on the project site had one person who was trained to use a firearm and kept it with them while the work activities were being completed.

STAKEHOLDER INTERACTION

The Corps of Engineers holds regular Restoration Advisory Board (RAB) meetings, in conjunction with the U.S. Air Force, to discuss current and upcoming environmental projects with community members from the village of Kaktovik, Alaska. These meetings are typically performed on an annual or biannual schedule, depending on the number of projects being performed. These public meetings are critically important in keeping the public informed of our intentions for current and future remediation. It also provides a venue for the public to comment on environmental work that has or will be done.

An ADEC regulatory representative also typically participates in all of the RAB meetings and addresses concerns from the public. These meetings are always held in the evenings where maximum public participation can be realized.

In an effort to partner with the local community of Kaktovik, two local hires were used to accomplish the work. Their local knowledge of the area was invaluable in the performance of the project.

Site access required obtaining a Special Use Permit from the landowner (USFWS). Operations were restricted based on land use and critical habitat for threatened species (i.e., polar bears). Due to whaling season beginning in the beginning of September, the field work was constrained by a finish date of no later than 1 September 2010.

The field team ensured compliance with the SUP through daily safety briefings and through discussions about the quality control aspects of field activity execution.