



Alaska Department of Environmental Conservation (ADEC) Solid Waste Program (Trisha Bower and Kym Bronson) conducted a Coastal Impact Assistance Program (CIAP), Waste Erosion Assessment and Review (WEAR) site visit for the City of Barrow, August 27<sup>th</sup>, 2014. The following narrative is a brief description of our findings during the August inspection.

**WEAR Sites**

- **Landfill, 71.241865/-156.553563 (Active)** — This 55 acre site is a permitted Class II landfill that is operated by the North Slope Borough. It is located 5.5 miles southeast of the community and has been in operation since 2004. The Borough has a Public Works Department that manages the landfill, employing a full-time Landfill Manager and auxiliary staff. This landfill is designed as a freezeback landfill and is currently monitoring freezeback using thermistors. It accepts municipal solid waste, construction and demolition debris, scrap metal, polluted soil, sewage sludge and some special wastes with ADEC approval. This facility is completely fenced and is located approximately 3.5 miles from Elson Lagoon.



- **TOS Facility, 71.314602/-156.721474 (Inactive)** – Historically the North Slope Borough processed the majority of their waste through the permitted thermal oxidation system (TOS), and disposed of the ash in the Barrow Landfill. This was required due to the landfills close proximity to nesting grounds for an endangered species. It began operations in 2004, but it has been down since 2012. Until it is operational again, all the waste is being disposed of in the landfill without being processed in the TOS unit. The North Slope Borough also collects various materials for recycling and backhaul at this location. This site is located approximately 90 feet from the Chukchi Sea.



- **Barrow North Salt Lagoon Landfill, 71.313143/-156.722782 (Closed)** — This 40 acre site is a closed Class II landfill that is maintained by the North Slope Borough. It is located 2 miles northeast of the community of Barrow along Stevenson Street and adjacent to the TOS Facility. The landfill was established in 1955 and received wastes until it was closed in 2007. Wastes deposited at the site predominately consisted of municipal solid waste, non-hazardous commercial waste, and construction and demolition debris waste. The landfill was closed using a freezeback design and is currently monitoring freezeback using thermistors. The Borough has a Public Works Department that maintains and monitors the site. The northwestern boundary of the landfill runs parallel to Stevenson Street and is approximately 100 feet from the Chukchi Sea.



- **NARL – Naval Arctic Research Lab, 71.324892/-156.679144 (Active)** – This site is located almost 2 miles northeast of Barrow. It is a known Contaminated Site (File ID 310.38.008) due to fuel spills of at least 700,000 gallons dating from the 1970s and possible PCB contamination. A minimal amount of fuel was recovered. Seasonal near surface groundwater under gravel near the hangar area has floating hydrocarbons. Imikpuk Lake, a drinking water source, is jeopardized. Extent of contamination remains unknown. Active soil layer from ground surface to about 20-55 inches below ground surface. This site is located approximately 1030 feet from the Chukchi Sea.



- **NARL Bulk Fuel Tank Farm, 71.342103/-156.609610 (Active)** – This is a known contaminated site that is being monitored by the Contaminated Sites Program (File ID 310.38.016). This is the site of the former bulk fuel tank farm which piped fuel to the Naval Arctic Research Laboratory (NARL) facility. There was 100,000 gallons of jet fuel spilled in 1970 and there is no record of cleanup activities. The tanks have long been removed and the site is a large gravel pad by the North Salt Lagoon. Soil cleanup activities were conducted in 2003 and the site remains under long-term monitoring with annual sampling. This site is located approximately 1220 feet from the Chukchi Sea.



- **NARL Old Waste Disposal Area, 71.324725/-156.671964 (Closed)** – This is a known Contaminated Site (File ID 310.38.015) with the status ‘Cleanup Complete – Institutional Controls.’ The 50-acre disposal area is located approximately 0.5 mile south of the main Naval Arctic Research Lab (NARL) complex, between Middle Salt Lagoon and Imikpuk Lake, and was used from the late 1940s until the early 1950s to dispose of wastes generated at the NARL facility. Many types of waste were disposed of including honey buckets, waste solvents, and waste oils. During the mid-1950s, the Navy removed most of the debris from the old waste disposal area and deposited the collected waste at the South Salt Lagoon area. Debris remains imbedded in the permafrost in the waste disposal area, in some cases protruding as much as 2 feet above the surface of the ground. This site was closed in 2008 with institutional controls noted for site users and future property owners: demolition debris landfill is located in the site; debris must remain buried unless otherwise approved by ADEC Solid Waste Program; site may contain incidental soil contamination; and removing soils from the former storage tanks location must be preapproved by ADEC. This site is approximately 1500 feet from the Chukchi Sea.



- **NARL Powerhouse Fuel Spill, 71.327565/-156.670721 (Active)** – This is an active Contaminated Site (File ID 410.26.007) due to petroleum contamination. Reportedly a 10,000 gallon fuel spill occurred at the site in 1958. This site is under long-term monitoring of soil and water sampling on a yearly basis. This site is located approximately 960 feet from the Chukchi Sea.



- **NARL Airstrip Fuel Spill, 71.335965/-156.645617 (Active)** – This is a known Contaminated Site (File ID 310.38.012) due to several fuel spills from various locations at this site, primarily confined to the hangar area. Spills are: 1976 - estimated 48,000 gallons of gasoline; 1978 - 24,700 gallons of jet fuel and 277,463 gallons of gasoline (140,000 gallons recovered); and 1986 - unknown quantity of jet fuel. The Naval Arctic Research Laboratory (NARL) airstrip, which is located northeast of the main NARL complex, was completed in the late 1940s. Several cleanup activities have taken place over the years. The site remains under long-term monitoring with annual sampling and site evaluation every 5 years. This site is located approximately 360 feet from the Chukchi Sea.



- **Point Barrow POW-M Dewline Site Air Terminal Area, 71.334091/-156.644531 (Active)** – This is a known Contaminated Site (File ID 310.38.004). The Air Terminal Area is located north of the main installation on the western shore of the North Salt Lagoon. Data collected during the 2007 Remedial Investigation indicated volatile petroleum hydrocarbons were present in surface soil, surface water of a tundra pond, and in active layer water. No soil contaminants exceeded appropriate cleanup levels. No documented spills have occurred at the Air Terminal Area. The source of contamination is believed to be multiple large historic fuel spills located up-gradient on the adjacent United States Navy (USN) property at the Barrow Naval Arctic Research Laboratory (NARL) Airstrip Site. The dominant form of contaminant transport appears to occur in the form of dissolved petroleum hydrocarbons moving in the saturated zone above the permafrost. Multiple soil removal actions, product recovery activities, and investigations have been conducted on the up-gradient NARL Airstrip Site on the USN property. The USN is conducting long-term monitoring of the contaminant sources on their property; it is likely to take a number of decades for remaining contamination at the USN site to attenuate sufficiently to allow unrestricted use. Annual inspections are performed at this site as part of the long-term monitoring. This site is located approximately 1200 feet from the Chukchi Sea.



- **Tank Farms, 71.278519/-156.796665 (Active)** – This site consists of two separate tank farms that are located adjacent to each other. One is owned and operated by the North Slope Borough with a total capacity of 1,141,392 gallons. The other tank farm is owned and operated by Eskimos Inc. as the Block B Tank Farm. It has a total capacity of 4,643,983 gallons. Both tank farms are regulated by the ADEC Terminals and Tank Farms Section. There are 17 fuel tanks within separate secured areas with secondary containment. This site is located approximately 2300 feet from the Chukchi Sea.



- **Spenard Builders Supply, 71.329356/-156.671685 (Closed)** – This is a known Contaminated Site (File ID 310.38.025) due to a fuel spill. In 2008 approximately 100-150 gallons of gasoline were released to the ground when snow beneath a 300-gallon aboveground storage tank thawed. Initial remediation efforts included excavation to a depth of 3-4 feet, transport of contaminated soil to the Barrow Landfill for treatment, and backfill with clean material. Sampling was conducted later in 2008 after the source area was re-excavated to the bottom of the original excavation. The site status was changed to ‘Cleanup Complete – Institutional Controls’ in 2009. Residual contamination remains at the site, but it does not pose an unacceptable risk to human health or the environment with the institutional controls. This site is located approximately 380 feet from the Chukchi Sea.



- **NSB South Pad, 71.272685/-156.811367 (Active)** – This 17 acre site is a known Contaminated Site (File ID 310.38.028) that is located approximately 1 mile south of the runway. An inspection conducted in 2011 noted over 350 leaking and/or rusted drums of unknown material, 24 fuel tanks, numerous 5- and 1-gallon containers, stained soil, and signs of contaminant migration from the pad into the surrounding tundra. Characterization of the drums and fuel tanks was conducted in 2013. Further site characterization is on-going for this site. It is located approximately 2000 feet from the Chukchi Sea.

