



# DETAILED ACTION PLAN

## CHEVAK FORMER AVEC TANK FARM

### WASTE EROSION ASSESSMENT & REVIEW (WEAR)

MAY 2015

The **Chevak Former AVEC Tank Farm** is located at latitude 61.528480 and longitude -165.585547. It is centrally located within the community, between the old school and the Ninglikfak River. It was inspected for the Waste Erosion Assessment and Review (WEAR) project on July 8, 2014.

The Former AVEC Tank Farm was owned and operated by Alaska Village Electric Cooperative (AVEC), who is also the landowner per Trustee Deed dated April 8, 1975 and recorded in the Bethel Recording District, Book 21, Page 409. It is located between the Former City Tank Farm and the Former Chevak Company Corporation Tank Farm.



Imagery Dated 2007. WEAR Map at <http://dec.alaska.gov/eh/sw/wear.html>

**Community\* – CHEVAK** – The community is located on the north bank of the Ninglikfak River, 17 miles east of Hooper Bay in the Yukon-Kuskokwim Delta. Chevak is a Cup'ik Eskimo village. Commercial fishing and subsistence activities are an important part of the local culture.



## CONTAMINANT RISK

The Chevak Former AVEC Tank Farm was in operation from the 1970s to 2010. This site is located centrally within the community and is 235 feet from the Ninglikfak River. The tank farm is considered a small site measuring approximately 0.1 acres. It consists of 18 grey, single-walled, vertical, diesel fuel tanks within a fenced area. The tanks are reported to be empty. The nearest residences are 160 feet from the tank farm. There was no stressed vegetation observed. It is approximately 235 feet from a subsistence area and 4,000 feet from a critical habitat area for Spectacled and Steller’s Eiders.

Possible contamination at the Chevak Former AVEC Tank Farm is diesel fuel. Contaminants associated with diesel fuel include benzene and polycyclic aromatic hydrocarbons (PAHs), and possibly lead from leaded gasoline. These contaminants are known to cause cancer and other chronic diseases. Any contamination at this site could impact nearby soil, water, and subsistence resources. The tank farm is within the drinking water protection zone for the Chevak Water System Main Well, which draws from groundwater. According to the Alaska Department of Environmental Conservation’s (ADEC), Drinking Water Watch database, the system is monitored every 3 years for a group of volatile organic compounds (VOCs) related to fuel products. Over the years, VOCs including benzene have not been detected; however, lead has been detected.





## EROSION RISK

The US Army Corps of Engineers 2009 study, *Alaska Baseline Erosion Assessment (BEA)*, lists an estimated erosion rate of 5 to 10 feet per year for Chevak. This area of the riverbank is reported by community residents to be eroding at 5 feet per year and is said to be caused by river currents, ice jams and melting permafrost. The community had constructed a sandbag retaining wall at one section of riverbank and utilized chain link mesh in another section to mitigate erosion. However, both methods have limited effectiveness. The soil at this site is sand and silt which is more easily eroded from the river current and storms than other soil types.

The Chevak Former AVEC Tank Farm is 225 feet from the Ninglikfak River according to 2013 aerial imagery. Using the 5 feet per year erosion rate calculated by the BEA and reported by community residents, it is estimated that the site will be impacted by erosion around 2058.



## MITIGATION

There are currently some local erosion mitigation efforts for this site. A sand bag wall and chain link mesh were the primary techniques employed. Erosion is still occurring as these measures have not been effective.

### Mitigation Options

- A. **No Action** – If no action is taken to control erosion or remove the structures, the riverbank will continue to erode closer to the tank farm. The tank farm will eventually erode, releasing any contaminants in the soil beneath the tanks into the river. Those contaminants could possibly impact nearby subsistence areas along the river and the Ninglikfak River water quality.
- B. **Remove Site** – Removing the tank farm will mitigate the contaminant risk for the site. This could include digging up any contaminated soil at the site and treating or disposing of that soil. This action will likely require planning, such as: remove and dispose of the tanks, determine the location of any contamination, and remediate any contamination found from the site.
- C. **Erosion Mitigation** – Strong river currents, ice jams and spring breakup are the primary causes of erosion on this riverbank. Further study should be conducted to evaluate what erosion mitigation is best for the Ninglikfak River. The Department of Commerce, Community, and Economic Development’s Division of Community and Regional Affairs handbook, *Understanding and Evaluating Erosion Problems*, suggests the best methods for protecting against erosion from these causes as beach fill or relocation. The full list of suggested methods is provided in Table 2 of the document which is available online at <http://commerce.state.ak.us/dnn/dcra/PlanningLandManagement.aspx>.

## SUMMARY

The Chevak Former AVEC Tank Farm poses a significant contaminant risk due to fuel contamination, the close proximity to residences, and location within the drinking water protection zone for the community water system. The tank farm poses an erosion risk as the Ninglikfak River is actively eroding and erosion is estimated to impact the tank farm by 2058. A sand bag wall and chain link mesh were the primary mitigation measures employed, but erosion is still occurring.

## RECOMMENDATIONS

The Chevak Former AVEC Tank Farm is no longer in service. Removal of the site is recommended as it has been inactive since the construction of the new consolidated tank farm in 2010 and likely will not be used in the future. The empty fuel tanks could be cut into smaller pieces for easier transport to and disposal at the permitted Chevak Landfill. After the site has been cleared, the soil should be characterized to determine if any contamination exists and, as needed, a plan developed for cleanup.

The Chevak Water System Main Well should continue to be monitored for VOCs to ensure no fuels are impacting it. Monitoring and further evaluation of erosion should be conducted to more accurately assess the severity of erosion. If erosion is determined to impact significant infrastructure, the benefits of erosion mitigation should be carefully compared with the cost of construction.



Imagery Dated 2007. WEAR Map at <http://dec.alaska.gov/eh/sw/wear.html>

\*Community Database Online, Division of Community and Regional Affairs, Department of Commerce, Community and Economic Development

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