



DETAILED ACTION PLAN

CHEVAK OLD RIVER LANDFILL

WASTE EROSION ASSESSMENT & REVIEW (WEAR)

MAY 2015

The **Chevak Old River Landfill** is located at latitude 61.528443 and longitude -165.584035. It is in the southeast portion of the community along the bend of the Ninglikfak River. It was inspected for the Waste Erosion Assessment and Review (WEAR) project on July 8, 2014.

The Chevak Old River Landfill is located 300 feet southeast of the old high school building and directly south of the Chevak Company Corporation Tank Farm. The landowner is believed to be the Chevak Company Corporation per the community map dated 2007.



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 Yup'ik Eskimo village. Commercial fishing and subsistence activities are an important part of the local culture.



CONTAMINANT RISK

The Chevak Old River Landfill was in operation from the 1970s to 1985 and accepted municipal solid waste (MSW). This site is located at the southeast end of the community and is eroding into the Ninglikfak River. The landfill is considered a small site measuring approximately 0.2 acres. The nearest residences are 200 feet from the site. There was no stressed vegetation observed. It is approximately 30 feet from a subsistence area and 4,000 feet from a critical habitat area for spectacled and Steller’s eiders. The landfill is within the drinking water protection zone for the Chevak Water System Main Well, which draws from groundwater.

The MSW has been covered for several decades but, within the last ten years, the river has been eroding this area. During the 2014 inspection, MSW was uncovered and falling into the river. Local residents placed posts to indicate where the ground drops off, but no measures had been taken to remove the MSW. The MSW was spread along the riverbank downstream of this eroding site.

Rural communities generate smaller volumes of MSW than larger urban communities; however, these smaller landfills pose significant risks if not designed or operated appropriately. MSW may include household hazardous waste (HHW) from cleaners, automotive maintenance, batteries, paints, etc., that if not managed appropriately can be a concern. Contaminants associated with HHW may include solvents and heavy metals, such as lead, which are known to cause negative health effects.



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 has constructed a sandbag retaining wall in one area and utilized chain link mesh to mitigate erosion in other areas. However, these attempts have limited effect and the riverbank continues to erode. The soil at this site is sand and silt which is more easily eroded from the river current and storms than other soil types.

During the 2014 WEAR inspection this site was actively eroding into the Ninglikfak River.



MITIGATION

There are currently some local erosion mitigation efforts nearby. However, the old landfill is just upstream of riverbank protection methods. A sand bag wall and chain link mesh are 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 waste, the river will continue to erode more of the landfill. The landfill will eventually completely erode, potentially releasing contaminants into the river that could possibly impact nearby river subsistence areas and river’s water quality. Eroded waste would also pose a navigation hazard to boat traffic.
- B. **Remove Site** – Removing the landfill will mitigate the contaminant risk for the site. This will involve digging up all of the waste at the site and moving it to another landfill. The extent of the MSW will need to be determined to ensure all waste is removed. The MSW could be disposed of in the permitted Chevak Landfill with the City of Chevak’s permission.
- 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 are beach fill or relocation. The full list of suggested methods provided in Table 2 of the document which is available online at <http://commerce.state.ak.us/dnn/dcra/PlanningLandManagement.aspx>.

SUMMARY

The Chevak Old River Landfill poses a contaminant risk due to evidence of burning and municipal solid waste, the close proximity to residences, and location within the drinking water protection zone for the community water system. This site poses an erosion risk as the Ninglikfak River is actively eroding the Chevak Old River Landfill, potentially releasing contaminants. The community has constructed a sand bag retaining wall in one section of riverbank and chain link mesh to protect vegetation in another, but neither has been effective to control erosion along the riverbank.

RECOMMENDATIONS

Removal of the Old Chevak River Landfill is recommended as the site is currently eroding. Further erosion of this site may spread contaminants associated with HHW, potentially damaging water quality and subsistence resources, while debris in the river could cause navigation hazards. Much of the waste is already exposed and would be relatively easy to remove. The waste should be taken to the permitted Chevak Landfill or another ADEC-permitted landfill. Since the site is actively eroding and a portion is already gone, removal of the site should be a priority. Planning for and finding ways to fund the removal and cleanup of this site should begin soon to minimize the impact of continued erosion of this landfill. Foot and boat traffic along this stretch of the riverbank should be minimized to reduce human-influenced erosion. Fencing, or some other barrier, should be placed near the end of the waste to prevent further waste erosion until full removal can take place.

Erosion mitigation may be appropriate for protecting other infrastructure for the community. Yearly monitoring and documentation of erosion should be conducted to allow accurate assessment of the severity of erosion and future impacts to the community.



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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