



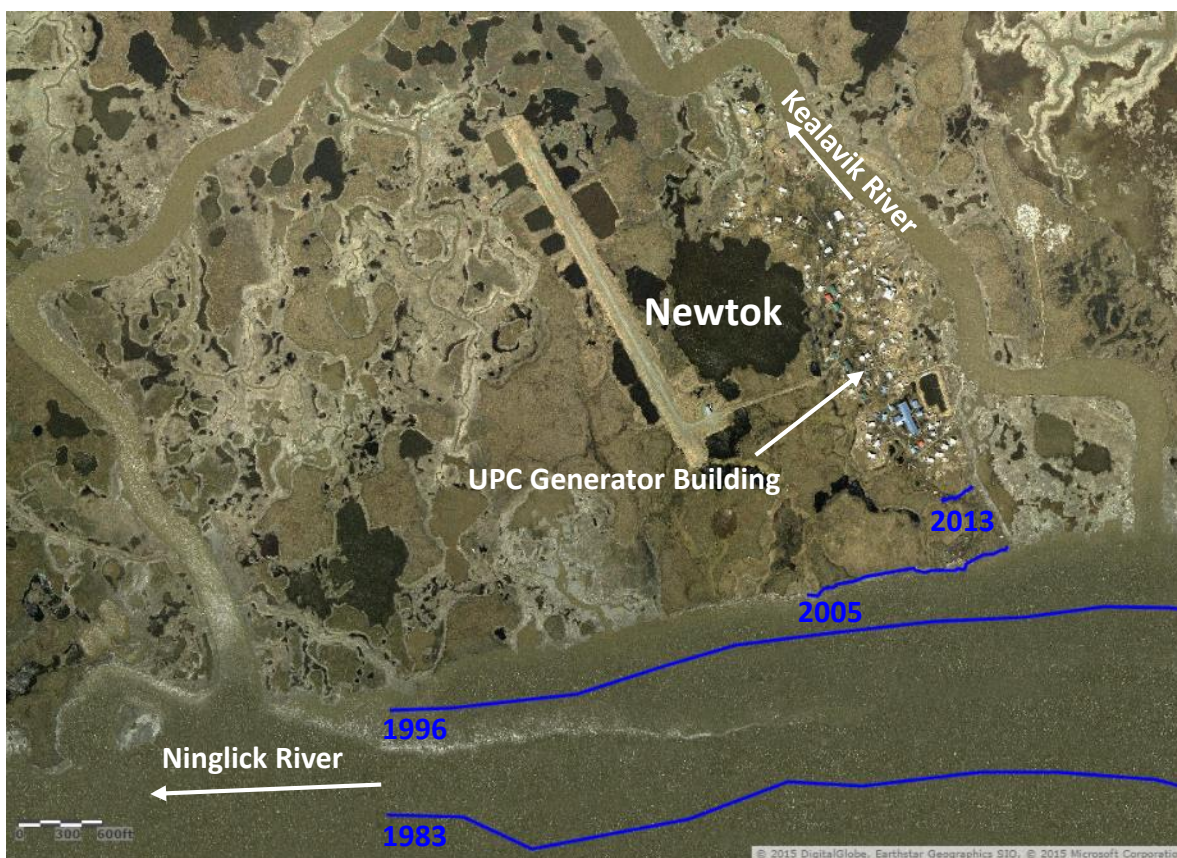
# DETAILED ACTION PLAN

## NEWTOK UPC GENERATOR BUILDING

### WASTE EROSION ASSESSMENT & REVIEW (WEAR)

MAY 2015

The **Newtok Ungusraq Power Company (UPC) Generator Building** is a generator building providing electricity for the Newtok community. The site is operated by UPC and the landowner is believed to be Newtok Corporation, Inc. It is located about 300 feet north of the school at latitude 60.937765 and longitude -164.63106 and was inspected for the Waste Erosion Assessment and Review (WEAR project) on June 17, 2013.



Imagery Dated 2005. WEAR Map at <http://dec.alaska.gov/eh/sw/wear.html>

**Community\* – NEWTOK** – Newtok (population 380) is located on the Ninglick River north of Nelson Island in the Yukon-Kuskokwim Delta Region, 94 miles northwest of Bethel. Due to severe erosion, the village wants to relocate to a new site called Mertarvik, known locally as Taqikcaq, approximately 5 miles away on Nelson Island. In November 2003, the 108th Congress passed S. 924, allowing the village to relocate to Nelson Island. The legislation authorizes an exchange of lands between the U.S. Fish and Wildlife Service and the Newtok Native Corporation to allow villagers to relocate. Newtok is a traditional Yup'ik Eskimo village, with an active subsistence lifestyle.





## CONTAMINANT RISK

The generator building is categorized as small in size, having an area of 0.02 acres. The building itself is in disrepair and one corner is being held up by old drums. Blackened soil, dead vegetation, and sheen in nearby water was observed, suggesting the soil on the site is contaminated.

Possible contamination at the UPC Generator Building is fuels. This site burns fuel for electricity generation. Drums and some old equipment containing petroleum products were seen around the site. Contaminants associated with fuels include benzene and polycyclic aromatic hydrocarbons (PAHs). These contaminants are known to cause cancer and other chronic diseases. Contamination could have a serious impact on nearby soil, water, and subsistence resources. The nearest residence is located 150 feet away. This site is within the drinking water protection zone for the school's groundwater well. According to the Alaska Department of Environmental Conservation's (ADEC) Drinking Water Watch database, the school system is monitored every 3 years for a range of VOCs. VOCs have been detected, albeit below drinking water standards.



UPC Generator Building (ADEC 2013)



UPC Generator Building Drums (ADEC 2013)



Blackened Soil and Dead Vegetation (ADEC 2013)



Sheen, Nearby Ponded Water (ADEC 2013)



## EROSION RISK

The Ninglick River is severely eroding the southern banks of Newtok. The Army Corps of Engineers' 2009 study, *Alaska Baseline Erosion Assessment* (BEA), calculated a long-term average erosion rate of 71 feet per year for the Ninglick River. This extreme rate of erosion is primarily due to wave action and thawing of ice-heavy soil in the shoreline. The soil type in this area is rich in loam, an easily erodible material. The Ninglick River has been consistently eroding towards Newtok for decades.

The UPC Generator Building lies 1,100 feet away from the Ninglick River. Using the 71 feet per year erosion rate calculated by BEA, it was estimated that the site will begin eroding in 2028.



Ninglick River Erosion (ADEC 2013)



Ninglick River Erosion (ADEC 2013)

## MITIGATION

Newtok is in the process of moving to a new location on the northeast side of Nelson Island. Efforts are not being taken to mitigate erosion, as costs associated with slowing or stopping this erosion problem are extremely high. The BEA estimated it would cost \$90 million to protect the one-mile stretch of shoreline adjacent to the community.

### Mitigation Options

- A. **No Action** – If no action is taken to control erosion or remove the site, the shoreline will continue to erode and will impact the UPC Generator Building. This has been estimated to happen around 2028, causing navigation hazards as well as the release of contamination. Harm to water, soil, and subsistence resources would likely occur.
- B. **Remove Site** – Removing the UPC Generator Building before erosion reaches the site would eliminate the chance of navigation hazards. Removing the site as well as cleaning up contaminated soil would additionally eliminate contaminant risk. Without contaminant risk, erosion of the site would not impact water, soil, or subsistence resources. This action would require planning, money, and equipment to remove the building and drums as well as to test and remediate any contaminated soil.
- C. **Erosion Mitigation** – Currents are the primary cause of erosion on this riverbank. With the extreme erosion rate, erosion mitigation would be extremely expensive (estimated at \$90 million by BEA). As such, the community has already begun the relocation process so erosion mitigation would provide little benefit.

## SUMMARY

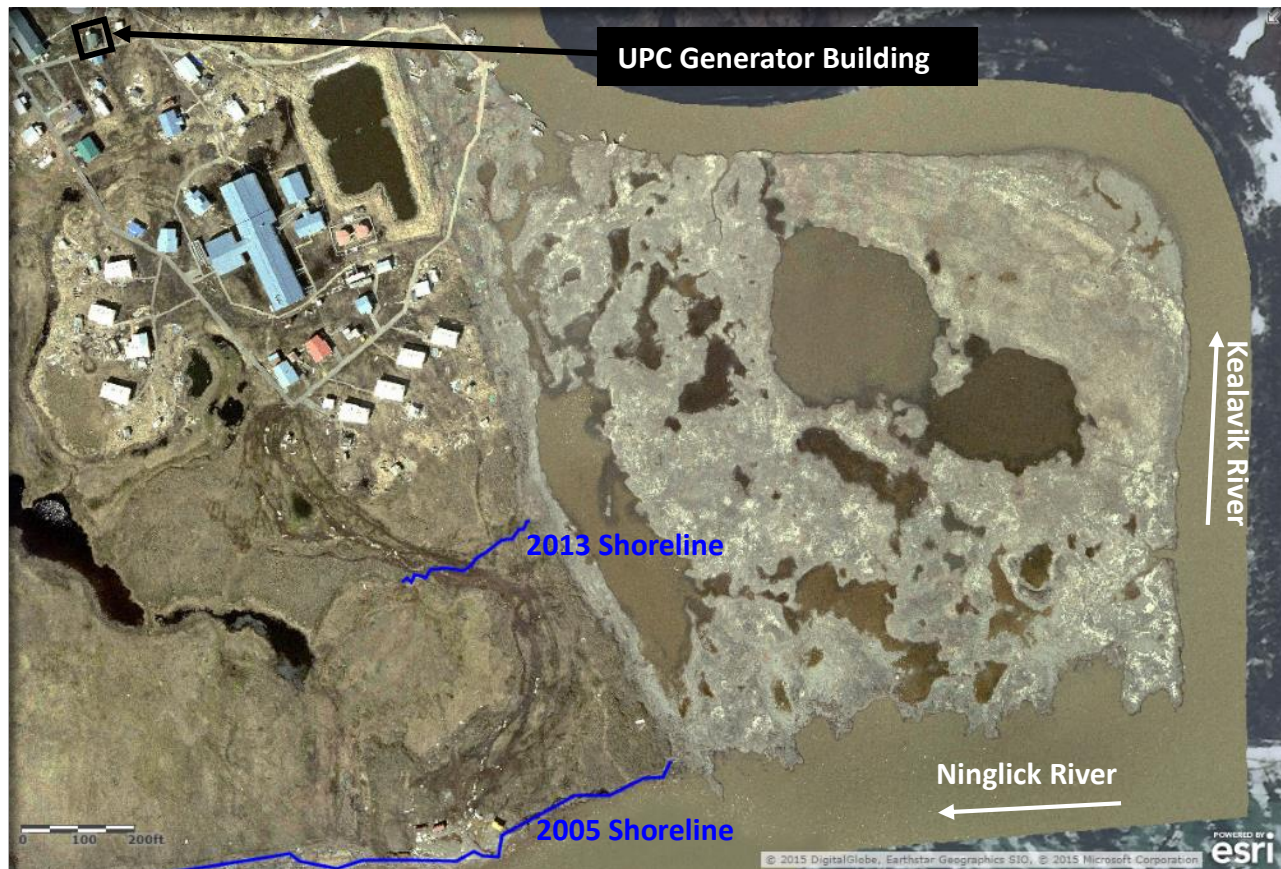
The UPC Generator Building poses a significant contaminant risk due to fuel contamination, the close proximity to residences, and its location within the drinking water protection zone for the community water system. The Ninglick River is severely eroding the shoreline at a rate of 71 feet per year (calculated by BEA) and is estimated to impact this site around 2028. There are no erosion mitigation measures for this site, and none will be installed as the community is in the process of relocating to a new site due to severe erosion of the entire community.



## RECOMMENDATIONS

Erosion rates are extreme in Newtok; the BEA expects that the community will be lost in 10-15 years. The relocation of the entire Newtok community to the new Mertarvik site is already underway. There are no plans to install erosion mitigation.

The UPC Generator Building provides key infrastructure in the form of electricity production, so it is recommended to remove and remediate this site in conjunction with the community relocation. Sampling should be done at the site to ensure no contamination remains after removal. Erosion is estimated to reach the site in 2028, which provides time to plan and find funding to remove and remediate this site before the site is impacted by erosion from the Ninglick River. Although a significant portion of the community will erode before this site is impacted, the Generator Building is a site of high environmental concern that should be addressed.



Imagery Dated 2005. 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

*This document is funded in part with qualified outer continental shelf oil and gas revenues by the Coastal Impact Assistance Program within the Department of the Interior's U.S. Fish and Wildlife Service.*