**ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES**
**Former Joseph Guy Community Center**
**Kwethluk, Alaska**
**August 11, 2011**

## 1.0 INTRODUCTION

This Analysis of Brownfields Cleanup Alternatives (ABCA) is intended as a screening tool to ensure and document that the appropriate type of cleanup is selected to address environmental contamination at the Former Joseph Guy Community Center in Kwethluk, Alaska (see Figure 1). The preferred remedial action considers site characteristics, the surrounding environment, potential future uses, and cleanup goals.

## 2.0 SITE DESCRIPTION

The Former Joseph Guy Community Center (Center) is located at the intersection of Jay Hammond Way and Airport Road in Kwethluk, Alaska. The building was destroyed by fire in April 2006 (see Photo 1). The Center was built with a combination of federal, state, and private funds between 1998 and 2002. The burned-out structure is adjacent to both the post office and Head Start buildings, and is across the street from the Lower Kuskokwim School District school. The Organized Village of Kwethluk (OVK) owns the site.

The 0.5-acre site is located in Section 5, Township 8 North, Range 69 West, Seward Meridian at 60.810278N, -166.423945W. The project location is shown in Photo 2.

## 3.0 PREVIOUS INVESTIGATIONS

The U.S. Environmental Protection Agency (EPA) provided a Targeted Brownfields Assessment (TBA) of the site in 2010, and the report of findings was published in 2011. As part of the TBA, 26 soil samples were collected and analyzed for semi-volatile organic compounds (SVOC) and Target Analyte List (TAL) metals; a subset of 11 soil samples was also tested for dioxins and furans. Two additional soil samples taken at the location of a former aboveground storage tank (AST) were analyzed for diesel range organics (DRO) and residual range organics (RRO). Eight wipe samples were taken from the interior and exterior metal walls of the Center and analyzed for dioxins and furans. Twelve bulk samples were collected from Center debris and analyzed for asbestos.

The results of the sampling found arsenic levels above regulatory cleanup limits in all soil samples. However, the arsenic levels found outside the Center are considered indicative of natural background concentrations and therefore soil outside of the Center does not need to be cleaned up or remediated for arsenic. Seven of the soil samples contained other TAL metals above regulatory

cleanup levels. Two of the soil samples taken outside the former Center contained SVOC above regulatory cleanup levels; at each of these locations, corresponding subsurface samples did not exceed the regulatory clean-up levels for SVOC. One soil sample taken at the location of the former AST contained DRO above the regulatory threshold limit. All of the building wipe samples were positive for dioxins and furans, most likely from burned building materials; no regulatory limit exists for wipe samples and it is not presumed that either of these contaminants will extend beyond the residual on the burned debris. Asbestos was not found in any of the samples and was not anticipated because of the date of construction.

## 4.0 REMEDIAL ALTERNATIVES CONSIDERED

This section identifies the remediation alternatives that may be used to address the environmental contamination at the site. The "No Action Alternative" is used as the baseline against which the other alternative is analyzed. Both of the alternatives will be evaluated with respect to Chapter 75 of Title 18 of the Alaska Administrative Code (18 AAC 75).

The following broad categories of evaluation criteria were considered in assembling remediation alternatives at the site:

- Overall protectiveness to public health and welfare of the environment
- Feasibility in achieving site redevelopment

The preliminary cleanup action area covers approximately 5,100 square feet (sf) of the site. A detailed preliminary cost estimate, including notes and assumptions, is described in the TBA.

### 4.1 No Action Alternative

The "No Action Alternative" would leave a dangerous, attractive nuisance in the middle of the community. Contaminated soil and hazardous building debris would remain in place. Contamination present within the building could potentially migrate from within the building and concentrate in the soil, potentially migrating off-site via runoff and surface water, having a negative effect on adjacent properties and possibly human health (given prolonged exposure). This property would remain both a physical and environmental hazard and a blighting influence on the neighborhood.

### 4.2 Removal and Disposal Alternative

The "Removal and Disposal Alternative" will remove building debris and contaminated soil from the site. The removal area will include the debris overlying the entire footprint of the building plus the three areas outside of the building footprint that had detectable concentrations of contaminants above cleanup levels. The depth for excavations is estimated at 1 foot, or to the depth

of the geotextile liner, which was observed at a depth of approximately 6 to 12 inches during field sampling. A 10-sf area around each of the three outside sampling locations with results exceeding regulatory levels was selected for removal. An excavator or backhoe would be used for the soil removal. If contamination is found to exist outside the boundary of excavation in any direction, either through visual observation, presence of an odor, or field screening results, the excavation should continue until all contamination has been removed.

A 20-percent expansion factor was applied to determine a total volume of about 220 cubic yards (CY) of soil that may be removed. Until the building is removed, it cannot be determined how much soil beneath the building will require removal and management.

The excavated soil should be stockpiled locally for management. Backfill should be obtained from a clean, locally available source. Backfill material will be compacted and graded.

Appropriate field screening equipment should be used during the excavation of all suspect soil areas, including both metals and petroleum contaminated areas. Confirmation sampling should be conducted to ensure all contamination has been removed. This should be conducted by a qualified person, as defined in 18 AAC 75.990(100).

The structure should be demolished and removed using appropriate equipment. The reusable metal from the building should be sent to a scrap metal yard for recycling and to help offset cleanup costs. No laws are known to exist that would prohibit recycling metal containing residual dioxins/furans resulting from fire. The scrap metal could be placed into a container on a barge, and shipped out for recycling. The dimensions of the former community center have been assumed to be:

- **Base:** 60 feet x 80 feet;
- **Side Walls:** 80 feet x 12 feet x 2 walls:
- **Side Walls:** 60 feet x 12 feet x 2 walls; and
- **Roof:** 60 feet x 3 feet for two gables, and 2 x 80 feet x 70 feet for peaked roof.

The total scrap metal surface area is 19,540 CF, based on the values provided above.

Based on information to date, it is not believed that the debris resulting from the fire, in its entirety, constitutes a characteristic hazardous waste. As such, special disposal requirements will not be necessary. However, an environmental contractor should be hired to document the disposal of the excavated material. Debris should be deposited at the local landfill. Much of

the near-surface soil would likely be removed with the final scraping of debris and managed locally.

Due to the nature of the contamination at the Center, decontamination of equipment and personnel will be required, resulting in approximately two 55-gallon drums of decontamination water. It is not anticipated that the decontamination procedure would significantly concentrate chemicals of concern, and decontamination water could be deposited over existing stockpiles at the existing dumpsite. Depending on the site-specific circumstances, testing may be determined appropriate. If testing results indicate it to be necessary, drums can be placed on a barge for transfer to an appropriate disposal facility. It is assumed that the disposal facility as well as the recycling facility will be in Seattle, Washington, and that one barge will be used to transport all material for disposal and recycling.

## 4.3 Estimated Costs to Implement

Two alternatives were assessed as part of the ABCA. The first alternative is the "No Action Alternative." This essentially maintains the status quo for the site since the fire, and requires no additional funding to implement. However, it would still be appropriate for the community to take action to eliminate access to the site in order to preclude the public, particularly children, from entering the premises. The costs to manage this action are outside the scope of this alternative, and as such, the cost to implement the "No Action Alternative" is $0.

The "Removal and Disposal Alternative" has two possible costs associated with it, depending on whether the material is transported out of the community or handled locally. Based on the date of construction of the building and the use of non-hazardous building materials (i.e., no asbestos or PCBs), removal and disposal of the material may be accomplished either through removal from the community to an offsite RCRA Subtitle D landfill outside of Kwethluk, or locally. Owing to budget constraints, DEC plans to use the local approach.

4.3.1 Removal of the debris and materials outside the community is estimated to cost $375,700 per the estimate provided in the TBA. However, this estimate does not take into account the potential financial return on the recycling of the steel in the waste stream, or the option of depositing debris at the local landfill, substantially reducing the overall cost. Estimated costs are as follows:

- Site demolition and management: $75,000
- Transportation and Disposal (barge): $225,000
- Environmental management and oversight: $50,000
- Contingency: $25,000
- TOTAL: $375,000

4.3.2 Management of the debris and waste material locally is estimated to cost $155,000 (including contingency funding). This would include taking advantage of recycling steel, prepping the existing landfill, permitting, and using polluted soil as cover material for burial of debris. Estimated costs are as follows:

- Site demolition, debris transportation, management: $80,000
- Over-excavation of contaminated soil: $10,000
- Landfill improvements/permitting: $10,000
- Environmental management and oversight: $40,000
- Contingency: $15,000
- TOTAL: $155,000

Both removal approaches include environmental assessment and sampling in the areas of excavation outside the building footprint, and sampling across the building footprint after the debris is removed. The intent of the environmental management of the project is to ensure that the site is ready for reuse through confirmation sampling as appropriate to verify that residual contamination does not pose an unacceptable risk to human health or the environment.

## 5.0 PREFERRED REMEDIAL ALTERNATIVE

The remedial alternative was evaluated based on overall protectiveness to public health and welfare of the environment, and feasibility in achieving site redevelopment.

The “Removal and Disposal Alternative” is considered reasonable, technically feasible and capable of protecting human health and the environment. Furthermore, the capacity to address this option at this time may be more economically feasible than in the future because of special equipment and labor temporarily available in the community through the Alaska Native Tribal Health Consortium (ANTHC), and current funding available through the Alaska Department of Environmental Conservation (DEC) State & Tribal Response Program grant.

The “No Action Alternative” would continue to leave the building debris and soil in place at the site, providing an attractive nuisance resulting in severe physical hazards, possibly endangering the community to exposure of residual contamination, and hampering redevelopment of the site.

DEC has chosen the “Removal and Disposal Alternative” as the remedial strategy for the site. The removal and disposal of building debris and contaminated soil from the site is the most time and cost efficient remedial action approach to achieve site closure and will also support the potential future use of the property.

The current vision for removal and disposal of the former community center will encompass the following elements:

1. A coordinated effort of multiple entities in conjunction with the community of Kwethluk;
2. Reduced costs that will enable project completion within one year's time;
3. Improved safety to the community, especially for the Head Start and the School;

DEC, ANTHC, and EPA are pleased to be a part of this partnership with the Kwethluk Community.

## 6.0 REFERENCES

Ecology and Environment, Inc. 2011. *Former Joseph Guy Community Center, ARRA Funded Targeted Brownfields Assessment, Kwethluk, Alaska*, prepared for United States Environmental Protection Agency, Contract Number EP-S7-06-02, Technical Direction Document 09-09-0002.


FORMER JOSEPH GUY COMMUNITY CENTER
Kwethluk, Alaska

0 .5 1
Approximate Scale in Miles

Figure 1

SITE VICINITY MAP


Photo 1: Aerial view of project site in Kwethluk, Alaska.

Photo 2: Former Joseph Guy Community Center in Kwethluk, Alaska.