



## FACT SHEET

# Aniak Joe Parent/Voc-Tech Building Contamination Update

August 2009

### Summary

The Alaska Department of Environmental Conservation (DEC), along with current and previous landowners and facility operators, continues investigation and cleanup of historic contamination at the Joe Parent Vocational-Technical Education building in Aniak. Over the years contractors have discovered new areas of contamination, requiring additional investigation and cleanup.

The building was first operated by the U.S. Air Force in the 1950s as part of a statewide "White Alice" communication system. By the late 1970s the obsolete facility was turned over to the Kuspuks School District, which renovated the main building and has since used it alternately for vocational technical education and a middle school. Secondary school shop classes and administrative staff currently use the building, and the dormitory wing is used for temporary lodging for school-related activities.

During White Alice operations and school renovation, fluids containing polychlorinated biphenyls (PCBs) were spilled in and around the generator room (now the shop) and outside, contaminating soil. Hazardous materials commonly used around machinery were probably dumped into the site's old septic system. Additional spills occurred where drums of hazardous materials were stored on the property.

Last summer DEC's contractors removed PCB-contaminated soil and continued investigation around the building's old septic system. They found TCE (trichloroethylene), a volatile organic compound, in the septic system and in soil and groundwater between the maintenance shop and the Joe Parent school building.

This spring we discovered a new type of contamination called vapor intrusion. Vapors or "fumes" from the underground TCE contamination are coming into the

school building and probably the maintenance shop at concentrations which are low but above DEC's target indoor air levels.

- The levels of indoor air contamination in the Joe Parent school are not high enough to pose an immediate danger to people who live or work in the affected buildings.
- Ongoing testing of drinking water from the school wells continues to show no TCE or other contaminants.

DEC is now evaluating short-term options to clean the air in the school until we can get a more permanent solution in place.



A septic trench dug in Aniak October 2006 allow sampling. Results showed soil and groundwater contamination. We also learned that vapors from the contamination are entering the air inside buildings at levels which are low but exceed state and federal target levels.

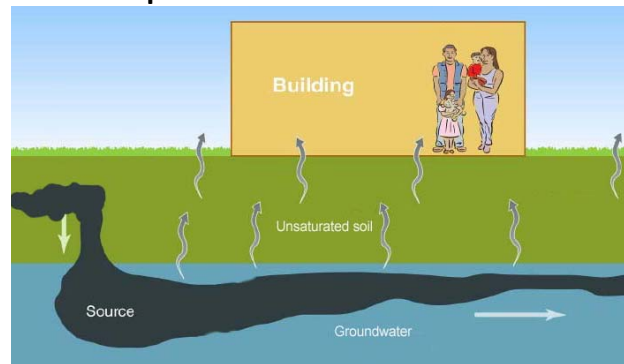
Even with a \$4 million cleanup contract last year, we were not able to remove all the low-level PCB-contaminated soil, due to freeze-up, barge schedules, and funding limitations. This summer contractors will return to ship out the soil now stored on-site in a lined containment cell. They will also do more site characterization to define the full extent and sources of both the TCE and PCBs and then develop a final cleanup plan to address the entire site.

Our overall project goals are to ensure people are not exposed to contaminants at levels that could pose health risks and to clean up contaminants in the soil and groundwater. For PCBs in soil, the approach has been excavation and off-site disposal to meet the 1 part per million cleanup goal for unrestricted land use. We are looking into different cleanup alternatives for TCE, along with monitoring and other measures to protect people from exposure.

### Vapor intrusion findings

Sampling early this spring showed low levels of TCE vapor in air inside the school building and higher levels in soil gas beneath it. The vapors are coming from TCE in soil and groundwater under and near the building.

### What is vapor intrusion?



Volatile chemicals vaporize, or turn into a gas, under normal conditions. When volatile chemicals, like TCE and PCE, get into soil and groundwater, they give off fumes or vapors that can move through the soil and enter buildings through cracks in foundations or through crawl spaces. When this happens, people may come in contact with these vapors. Often the chemicals are odorless.

Elevated levels of tetrachloroethene (PCE) and TCE were also found in higher concentrations in the soil gas underneath the maintenance shop. These findings suggest that vapor intrusion may also be happening in the maintenance shop. Indoor air samples have not been collected in this building because chemicals containing PCE are used and stored in the building and would skew the results.

The indoor air concentrations of TCE found in samples taken at three locations in the school were between 0.75 and 4.7 µg/m<sup>3</sup> (micrograms per cubic meter of air). All were above DEC's and the U.S. Environmental Protection Agency's (EPA) target indoor air concentration of 0.22 µg/m<sup>3</sup>. See chart below for a comparison of levels set by various environmental,

health and occupational agencies. Note that the target levels vary greatly according to acute and chronic risk and the timeframe of exposure.

While the concentrations found in indoor air are still considered low, the situation needs to be fixed, and DEC is assessing options to correct the problem.

### How serious is the problem?

DEC's target indoor air levels are designed to protect human health, based on exposure to small amounts of TCE every day of the year for many years.

Small amounts of TCE and PCE are often found in indoor air due to solvents or chemicals stored in buildings and gases coming from building materials or dry-cleaned clothing. Vapors from common indoor sources are referred to as "background levels." The levels of TCE found in the school are similar to, or only slightly higher than, common levels in typical homes.

The levels found inside the school building are not high enough to pose an immediate health concern to people who live or work in the building. DEC has asked the Environmental Public Health Program (EPHP) at the Alaska Department of Health and Social Services to evaluate the indoor air levels of TCE found in the Joe Parent Voc-Tech building to determine whether or not they are a health concern. EPHP will conduct a "health consultation" and recommend actions needed, if any, to protect public health.

### Potential health impacts of TCE exposure

Breathing TCE and other volatile organic compounds at high enough levels can cause health problems, especially if it occurs over a long time. Breathing in moderate

## Concentrations of TCE Found in Indoor Air in the Aniak Joe Parent School Compared to various target levels 7/09

EPA Target Indoor Air Concentration	DEC Draft Residential Indoor Air Target Levels (30 years of exposure)	DEC Draft Commercial Indoor Air Target Levels (30 years of exposure)	Range of values found in indoor air in school (µg/m <sup>3</sup> )	ATSDR intermediate level (15-364 days exposure), (µg/m <sup>3</sup> )	ATSDR acute (14 days or less, µg/m <sup>3</sup> )	NIOSH-Workplace air (10-hour Time-weighted average) (µg/m <sup>3</sup> )	OSHA - Workplace air Permissible exposure limit over 8-hour workday (µg/m <sup>3</sup> )
(Based on long-term exposure and chronic risk)				(Based on short-term exposure and acute risk)			
0.22	0.22	1.1	0.75 – 4.7	500	10,000	134,356	537,423

All numbers in micrograms per cubic meter of air (µg/m<sup>3</sup>)

EPA = U.S. Environmental Protection Agency  
NIOSH = National Institute for Occupational Safety

ATSDR = (U.S.) Agency for Toxic Substances and Disease Registry  
OSHA = (U.S.) Occupational Safety and Health Administration

levels of TCE may cause headaches, dizziness, and lung irritation. Long-term exposure to moderate TCE levels may cause nerve, kidney, or liver damage, and possibly increase the risk of cancer. The effects of breathing TCE at much lower levels, such as those found in the Joe Parent building, are not clear. DEC's target level for indoor air is very low to be protective of human health.

## Who's responsible?

The parties potentially responsible for contamination at the site include the federal government, the state (as landowner), the Kuspuk School District and its contractors that renovated the site, and the Air Force contractors that operated the White Alice site. Negotiations are on-going in an effort to reach a settlement agreement on past and future cleanup costs and work. In the meantime, DEC is leading the cleanup with state funding.

## PCB contamination

Our goal was to finish the cleanup in 2008. However, soil contaminated with PCBs was more widespread than previously known. We removed about 2,300 cubic yards of contaminated soil and materials, including an old septic system that contained TCE and PCB-contaminated wastes. TCE is mainly used as a solvent to remove grease from metal.

Hazardous materials generated so far during the cleanup, including most of the excavated contaminated soil, were shipped out of state for disposal. Approximately 100 cubic yards of soil with low-level PCBs are staged on-site in a lined containment cell; we plan to dispose of that soil this summer (2009).

## Past investigation and cleanup

The U.S. Air Force and DEC conducted cleanup of PCBs at the site between 1979 and 1983. The PCB cleanup goal for soil was 50 parts per million at that time. In 1983 DEC conducted extensive environmental sampling and tested water from the well at the site and from several homes in Aniak. None of the water well samples contained PCBs. The Army Corps of Engineers removed drums and contamination in 1998.

In 1997, the U.S. Environmental Protection Agency (EPA) released a report that showed PCBs remained in soil outside the building's former generator room, then used as a middle school wood shop. PCBs had been tracked into the school. The Army Corps cleaned the inside of the building and covered the soil temporarily until cleanup could occur. A health study in 1998 tested the school's students, faculty and maintenance staff. The

report concluded that residents had not been exposed to harmful levels of PCBs at the site and that PCBs temporarily covered at the site should be removed.

Between 1998 and 2001, DEC contractors investigated remaining PCB contamination adjacent to the woodshop, and cleaned up a portion of the site. These efforts indicated that the leftover contamination was underground, and therefore people could not be exposed to it.

Since 2004, however, an extensive review of historical records raised questions about PCB contamination in and around the septic system. In 2006, DEC's contractor sampled the contents of the septic system and soil around it. The results showed concentrations of PCBs, arsenic, chromium and TCE above cleanup levels in the septic system and soil, thus expanding the area in need of additional cleanup.

For more detailed information about these cleanup efforts, see [www.dec.state.ak.us/spar/csp/sites/aniak.htm](http://www.dec.state.ak.us/spar/csp/sites/aniak.htm)

## Remedies for vapor intrusion

- **Cleaning up soil and groundwater** to eliminate vapors is a permanent solution but will take time.
- **Purifying the air** inside the school may be the quickest solution to put in place at this time.
- **Reducing air pressure in the ground under the building** (such as sub-slab depressurization). This would take some time to design and install.
- **Adding slight pressure to the building** to prevent vapors from being drawn indoors may be feasible.
- **Sealing cracks and holes** in the foundations and the base of the building will likely happen along with other solutions.

DEC is evaluating which of these solutions will work best for this site, in the short-term and the long-term.

## Staying Informed

If you would like to keep informed and involved with choosing the solutions, please let us know.

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