



**2004 FACT SHEET**  
**ADOT&PF PEGER ROAD MAINTENANCE FACILITY**  
**FAIRBANKS, ALASKA**

**JANUARY 2005**

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**What's New**

This fact sheet provides a summary of the Alaska Department of Environmental Conservation's (ADEC) continuing ground water assessment and interim corrective measures associated with the Alaska Department of Transportation and Public Facilities (ADOT&PF) Peger Road Maintenance facility. The local ground water has been impacted by a chlorinated solvent, Trichloroethene (TCE), and components of petroleum fuels. Historical background information can be found in the 2003 fact sheet.

**Summary**

The following are the highlights from the 2004 activities and future activities:

1. The deeper part of the TCE ground water plume extends northwest beyond 19<sup>th</sup> Avenue. (See Figure 1.)
2. A benzene ground water plume is commingled with the deeper part of the TCE ground water plume in the vicinity of 19<sup>th</sup> and 20<sup>th</sup> Avenues. (See Figure 2.) The source of the new benzene ground water plume is not apparent at this time.
3. TCE and benzene concentrations in the previously sampled monitoring wells, located on-site and down gradient from the Materials Laboratory, did not change substantially since the April 2004 sampling event.
4. Where a smaller TCE ground water plume originates in the vicinity of the Cat House at the Peger Road Maintenance facility, the concentration of TCE in monitoring well MW-99-2 increased from 35 µg/L in November 1999 to 259 µg/L in October 2004. (See Figure 1.) The reason for the increase is not apparent at this time.
5. The ADEC/United States Geological Survey (USGS) degradation study suggests that limited biological degradation of TCE is occurring at Peger Road, but the natural degradation rate could possibly be stimulated by the injection of shrimp or crab chitin into the TCE source area.
6. Approximately 700 cubic yards of TCE-contaminated soil were excavated for the expansion of the Materials Laboratory on site. Excavated soil was land-spread to volatilize the TCE and a vapor barrier and ventilation system were installed in the excavation to minimize vapor intrusion into the new building.
7. Residences and businesses in the vicinity of the ground water plumes will be surveyed for private wells. Wells will be sampled in 2005.

## **Ground Water Assessment**

The two most significant findings for 2004 are that the deeper part of the TCE ground water plume extends beyond 19<sup>th</sup> Avenue to the northwest, and that there is a benzene ground water plume, of unknown origin, commingled with the northern part of the deep TCE plume. Both plumes are approaching areas where there are known private irrigation wells. Additional monitoring wells will be installed in 2005 to locate the distal end of the deeper portion of the TCE ground water plume, to delineate the extent and source of the newly discovered benzene plume, and to investigate the reasons for the increased TCE concentrations near the CAT House.

## **ADEC-USGS Degradation Study**

In 2003 ADEC contracted with the USGS Toxic Hydrology Laboratory to provide an independent assessment of the natural attenuation capability of the local aquifer to remediate the TCE contamination.

The major findings to date are:

1. There is limited biodegradation of TCE to its daughter products because of biological competition between the microbes that degrade TCE and the microbes that degrade the natural ferric iron (Fe III) in the aquifer's soil.
2. There is a high potential for the complete degradation of the daughter products Dichloroethene (DCE) and Vinyl Chloride (VC) by anaerobic oxidation ; thereby minimizing any significant accumulation of DCE and especially VC, the more toxic daughter product of TCE.
3. Of the three experimental treatments that could be injected to improve biodegradation, only chitin enhanced the degradation of TCE.
4. The addition of any substance to enhance biodegradation at Peger Road should be restricted to the source area to further prevent the accumulation of DCE and VC.

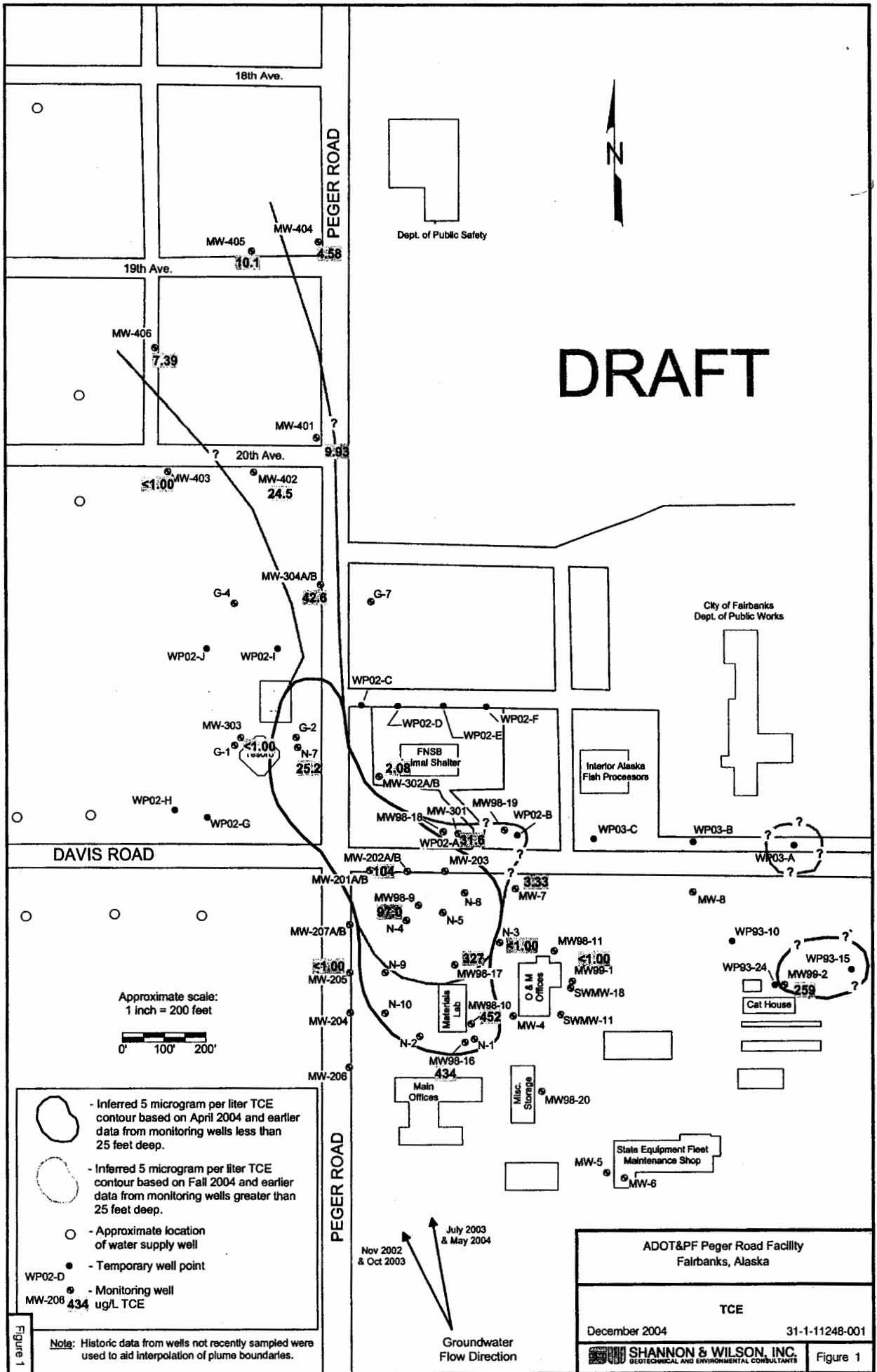
## **Future Activities**

The paramount objective is to delineate the extent of the TCE ground water plume originating at the Materials Laboratory and the associated commingled benzene ground water plume in order to assess any potential threat to human health. Consequently, additional monitoring wells will be installed in spring 2005.

Concurrently, all irrigation wells and any drinking water wells in the vicinity of plumes will be identified and sampled in spring 2005.

Annual ground water monitoring will continue to assess the overall nature of the plumes. Additional corrective measures will be taken if the ground water poses a significant risk to human health.

If you have any questions, please contact Mr. Douglas Bauer at (907) 451-2192 or at [Doug\\_Bauer@dec.state.ak.us](mailto:Doug_Bauer@dec.state.ak.us).



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Approximate scale:  
1 inch = 200 feet

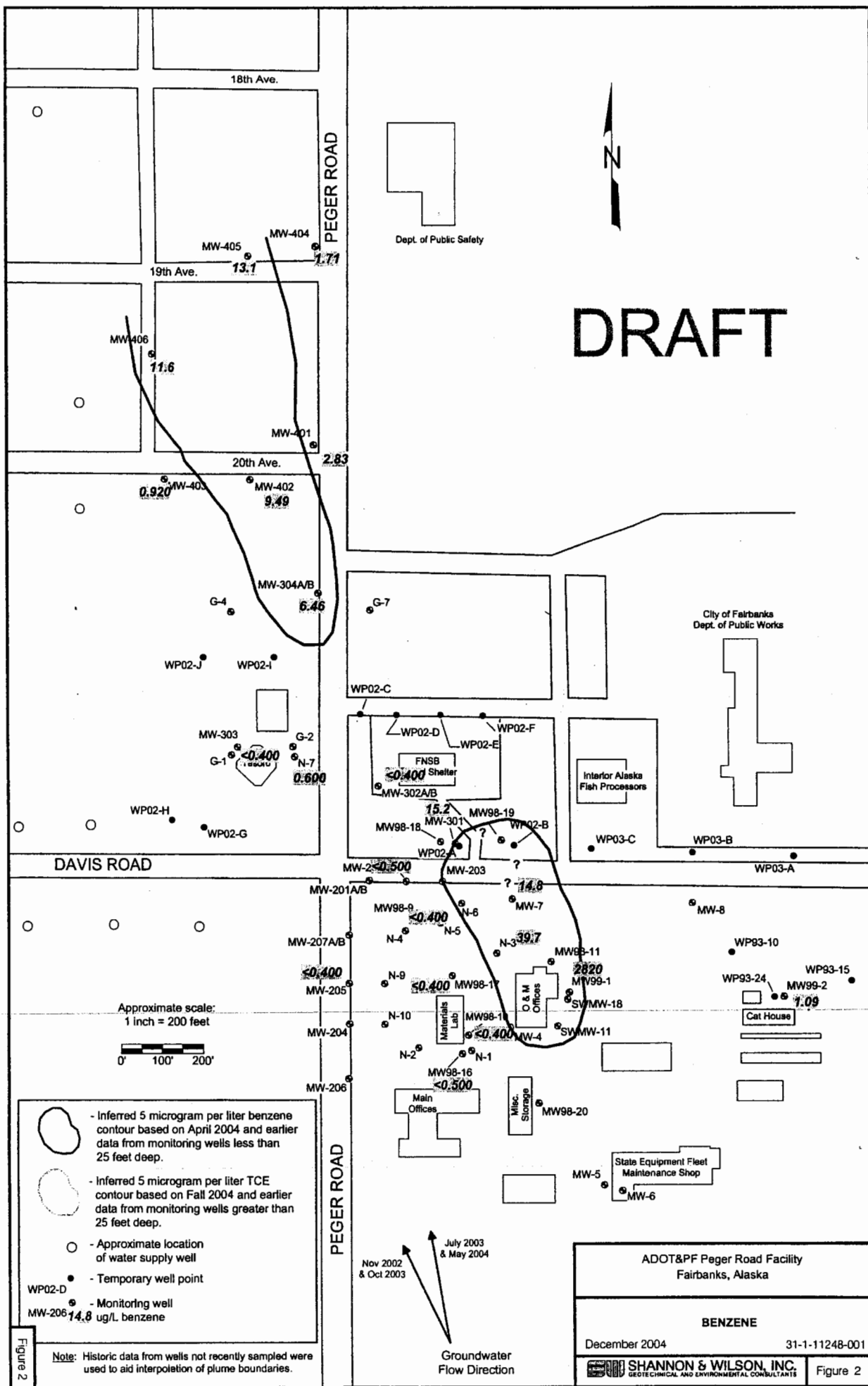
- Inferred 5 microgram per liter TCE contour based on April 2004 and earlier data from monitoring wells less than 25 feet deep.
  - Inferred 5 microgram per liter TCE contour based on Fall 2004 and earlier data from monitoring wells greater than 25 feet deep.
  - Approximate location of water supply well
  - Temporary well point
  - Monitoring well
- WP02-D  
MW-206 434 ug/L TCE

Note: Historic data from wells not recently sampled were used to aid interpolation of plume boundaries.

ADOT&PF Peger Road Facility Fairbanks, Alaska	
TCE	
December 2004	31-1-11248-001
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Figure 1

Figure 1



DRAFT

- Inferred 5 microgram per liter benzene contour based on April 2004 and earlier data from monitoring wells less than 25 feet deep.
- Inferred 5 microgram per liter TCE contour based on Fall 2004 and earlier data from monitoring wells greater than 25 feet deep.
- Approximate location of water supply well
- Temporary well point
- Monitoring well

WP02-D  
MW-206 14.8 ug/L benzene

Note: Historic data from wells not recently sampled were used to aid interpolation of plume boundaries.

ADOT&PF Peger Road Facility  
Fairbanks, Alaska

BENZENE

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Figure 2

Figure 2