

Contaminated Sites in Alaska



**Alaska Department of
Environmental Conservation**

"What's in school site soil?"

Juneau Empire, September 9, 1996

"DEC expects response for voluntary cleanup program"

Alaska Journal of Commerce, November 25, 1996

"Contaminated soil threatens Wasilla Creek during runoff"

Anchorage Daily News, March 30, 1994

"State to check tainted Six Mile wells again."

Anchorage Daily News, June 17, 1996

"DOT has dug up some unpleasant surprises"

Peninsula Clarion
November 26, 1996

"Air Force to spend \$20 million in cleanup"

Alaska Journal of Commerce, May 30, 1994

"Parties sign KPC cleanup agreement"

Ketchikan Daily News, January 1997

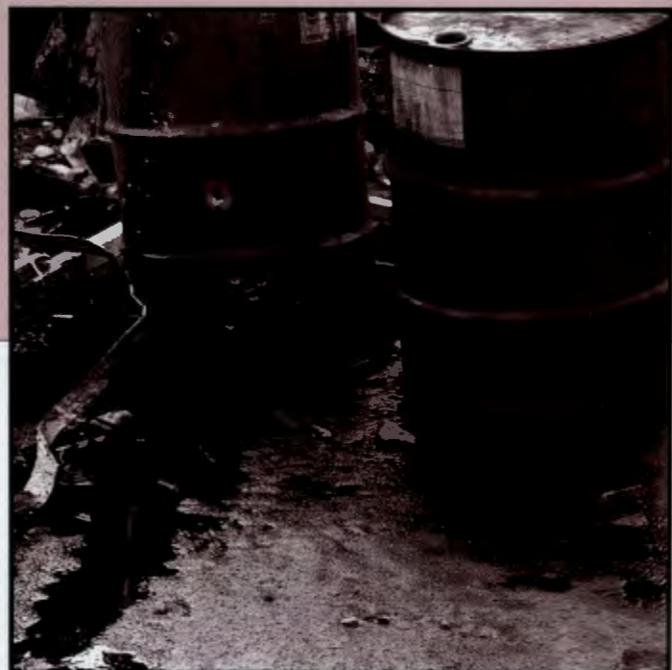


What is a Contaminated Site?

A contaminated site is a location where hazardous substances, including petroleum products, have been improperly disposed. Many of these sites resulted from disposal methods considered standard practices before the problems or hazards they can cause were known. Contaminated sites often threaten human health or the environment and can cause economic hardship to people and communities. The news headlines shown above provide just a few examples of Alaska's contaminated site problem.

Other contaminated sites may be associated with military, commercial or industrial activities, including oil production and storage operations, mining, and a wide variety of smaller enterprises where

hazardous materials were used. In some instances, groundwater and surface waters have become so polluted that human health or the environment has been placed at risk or impaired. Some of these pollutants are known to cause increased incidence of cancer while others may contribute to health problems.



Leaking 55-gallon drums: the trademark of many contaminated sites.

The Contaminated Sites Remediation Program within the Alaska Department of Environmental Conservation (DEC) is charged with protecting human health and the environment from sites contaminated by oil or other hazardous substances. The program seeks to ensure that contaminated sites are evaluated and cleaned up in order of the greatest risk posed to human health and the environment. In most cases, this means overseeing companies or individuals who have taken responsibility for cleaning up contamination found on their property. In cases where a responsible person cannot be found or is unable to act, the DEC may take a direct role in cleaning up a site.



A remote Alaska site is marred by abandoned drums containing hazardous wastes.



Transformers containing PCBs can release hazardous chemicals into soils.



Abandoned military sites may become active contaminated sites.



What are the Problems?

How many sites are there?

The Contaminated Sites Remediation Program database listed 1,685 sites as of January 1997. This does not include sites resulting from leaks of commercial underground storage tanks, which are managed under a separate DEC program. Each year the Department provides a prioritized listing to the Legislature of active sites and those which have been closed. Sites are scored and ranked according to the severity of risk to human health and/or the environment. A total of 457 sites have been determined to be high priority for cleanup.

The federal Environmental Protection Agency (EPA) also ranks sites and maintains a list of those most seriously contaminated in the nation. These sites are placed on a "National Priorities List" and are commonly known as "Superfund" sites. At the eight Superfund sites in Alaska, DEC works in partnership with the EPA to ensure their cleanup.

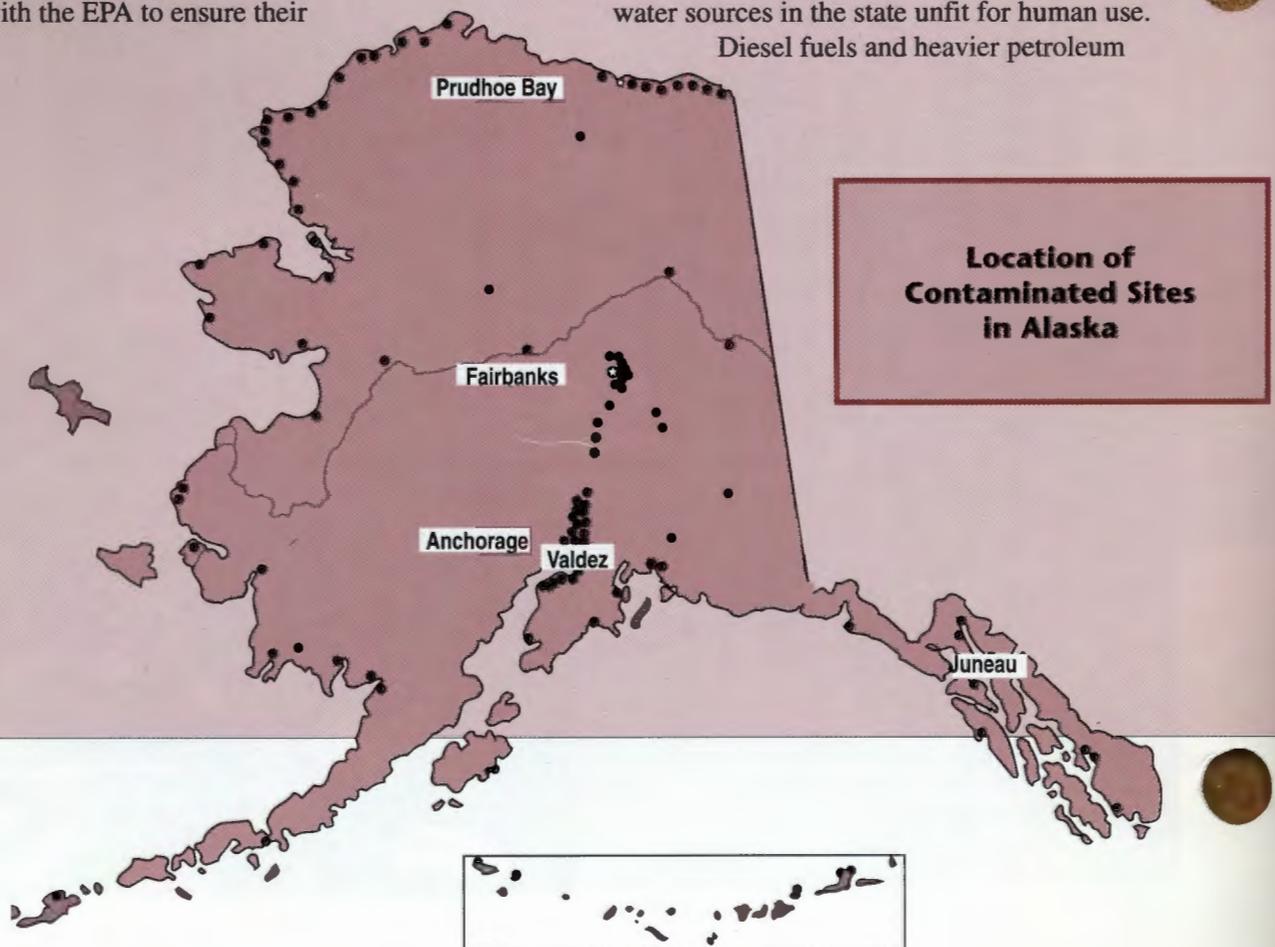
Where are they?

Although the majority of sites are clustered around urban areas, it is also apparent that these sites have followed human activities of the last century throughout the state.

What hazardous substances are found at these sites?

Many different types of hazardous substances are found at contaminated sites in Alaska. Petroleum products are by far the most common. The toxic nature of petroleum compounds can be quite high for "light" products such as gasoline or aviation fuel, which contain high levels of the most harmful "aromatic" constituents such as benzene, ethylbenzene, toluene, and xylene. Benzene is a known cancer-causing agent (carcinogen). Aromatic compounds tend to be the most easily dissolved in water and are responsible for making many drinking water sources in the state unfit for human use.

Diesel fuels and heavier petroleum



products, although hazardous, have lower concentrations of the most harmful chemicals.

Other contaminated sites can have chlorinated solvents, heavy metals, synthetic organic pesticides, non-chlorinated solvents, and inorganic acids and bases. The most toxic of these tend to be the chlorinated compounds, including: chlorinated solvents, polychlorinated biphenyls (PCBs), and herbicides, including dioxin-containing herbicides. The banned pesticide DDT has also been found at several sites. Heavy metal contamination can also pose a serious threat to human health, such as where improper disposal of lead acid batteries has occurred, or where mercury was once used in mining retort operations. Cadmium, chromium and arsenic also show up as heavy metal contaminants.

Abandoned hazardous materials which are ignitable, corrosive, reactive, and toxic all can threaten health and welfare. Exposure to these chemicals can cause a wide range of acute and chronic health effects. In some cases the most important risks may be ecological rather than human health based, particularly in remote locations where human exposure is less likely.

Who is responsible for cleanup?

In Alaska, about one-third of the sites in the DEC inventory are on federal lands, most of these on military bases. Another third are privately owned commercial and/or industrial properties. The rest are owned by state and local governments. DEC participates with other local, state and federal agencies in cooperative cleanup operations.

In most cases, the responsible person contracts with an environmental consulting firm to clean up the site, with oversight provided by DEC. When a responsible

person cannot be identified, however, and a site is a serious threat to human health or the environment, the state may bear the cost of site investigation and/or cleanup.

The Alaska Legislature created the Oil and Hazardous Substance Release Response Fund to cover the costs of oversight and cleanup. Alaska law requires that state funds be recovered from responsible parties, however the responsible person is not always able to pay.

How are Alaskans affected?

Contamination of groundwater is the most serious problem posed by contaminated sites, and the most costly to solve. Many sites currently listed on the inventory have drinking water which exceeds state and EPA health standards for contamination. Groundwater also enters into streams, rivers and oceans, and contamination could affect wildlife as well.

Populations of fish and other wildlife, on which many Alaskans depend for subsistence, sport, and commercial harvest, may be impaired.

Contamination may also result in significant economic losses. For example, property transfers can be delayed or may not occur if a site is suspected or known to be contaminated.

Contaminated sites must be thoroughly investigated and cleaned up to protect the quality of life that Alaskans deserve.



What is the state doing?

DEC's Contaminated Sites Remediation Program staff perform these tasks:

- ☞ Determine which sites pose the most immediate threat to humans, the environment or public resources such as groundwater.
 - ☞ Contain and remove any contaminants that are an immediate danger to public health or the environment.
 - ☞ Make sure that persons working or living in the vicinity of a cleanup operation are protected from harm and kept informed of the cleanup.
 - ☞ Assess sites to determine if cleanup is needed.
 - ☞ Investigate the nature and extent of contamination, including extensive soil and water sampling in many cases.
 - ☞ Identify the responsible party; i.e., the party who actually spilled or dumped the material, the property owner or the public agency managing the property, and any other liable persons.
 - ☞ Keep a current list of all contaminated sites in Alaska and track their progress toward cleanup.
 - ☞ Select appropriate cleanup levels based on site specific criteria and data in scientific risk evaluations.
 - ☞ Monitor the effectiveness of the containment, cleanup and disposal operations.
- ☞ Follow up on citizen complaints and review existing records on areas suspected to have been contaminated.
 - ☞ Manage state-lead projects in cases where the responsible party has not been identified or is not financially able to clean up a site. This often includes direct contractor oversight.
 - ☞ Develop innovative programs, such as the Voluntary Cleanup Program, to encourage responsible persons to clean up their sites.
 - ☞ Develop new regulations and policy so responsible persons and DEC staff use the most scientifically advanced methods and information to clean up sites.
 - ☞ Determine if cleanup actions and quality assurance procedures are adequate, and evaluate whether chosen technologies and methods are appropriate, by review of site assessments, risk assessments, and cleanup workplans and reports.

A worker at a cleanup operation dressed in "Level C" protective gear.



- ☞ Travel to the sites to document activities and ensure that site work proceeds according to the approved plan.
- ☞ Work with federal agencies to clean up military bases and other federal lands.
- ☞ Recover from the responsible party costs incurred by the state.

As of October 1996, a total of 353 contaminated sites have been cleaned up or closed out. An equally important goal to cleaning up existing sites is the prevention of future ones. If you know of contamination problems in your community please contact one of our offices listed on the back cover. DEC staff can also provide you with pollution prevention tips, update you on site remediation activities, and refer you to any other DEC programs that may be of assistance to you.

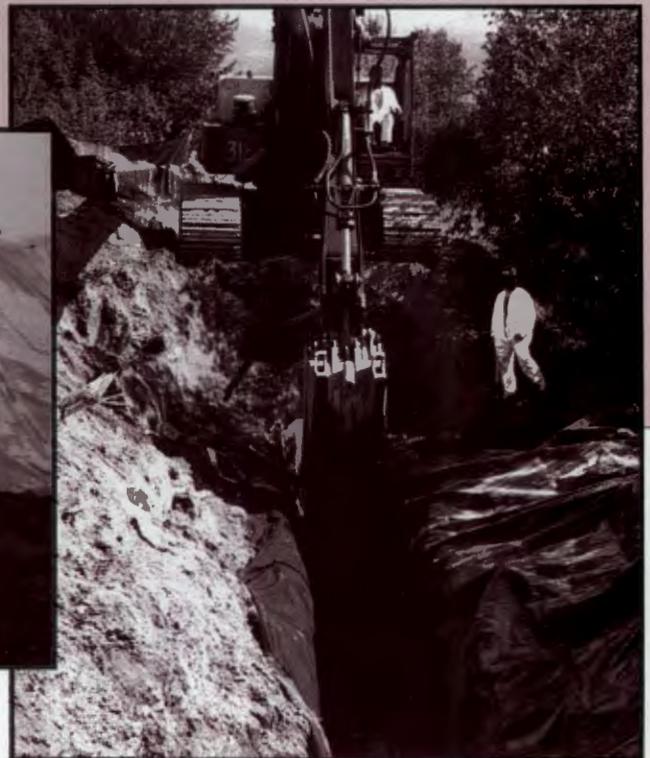


A commercial drilling contractor may be employed to collect core samples during the site investigation phase of a cleanup. This soil core sample will be analyzed in a laboratory to determine its properties and detect specific contaminants.

A lined trench intercepts contaminated substances during a major site cleanup.



Contaminated soil is aerated as part of some treatment processes.



For more information—

January 1997

Contaminated Sites Remediation Program

	PHONE	FAX
Juneau	465-5390	465-5262
Anchorage	269-7500	269-7649
Fairbanks	451-2153	451-2187
Soldotna	262-5210	262-2294

Discharge Notification & Reporting Requirements

AS 46.03.755 and 18 AAC 75.300—.307

Notification of a discharge must be made to the nearest
Area Response team during working hours:

Anchorage: 269-7500 Fairbanks: 451-2121 Juneau: 465-5340

OR to the 24-hour Emergency Reporting Number during non-working hours:
1-800-478-9300

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