Alaska Department of Environmental Conservation

The Cleanup Process

The Cleanup of Leaking Underground Storage Tank Sites in Alaska

July 2015

The Alaska Department of Environmental Conservation's Contaminated Sites Program oversees the cleanup or conducts the cleanup of leaking underground storage tank sites[1] based on their danger to public health and the environment. DEC stresses that prevention is the best way to protect people and the environment. When leaks or spills do occur, cleaning up soil and groundwater can be quite difficult, time-consuming and expensive, but foremost in the process is protecting the health and safety of people, and the environment.

The following process describes the investigation and cleanup of what remains after an initial spill response or once an underground leak or discharge is discovered. The process can range from a large, formal cleanup with extensive public involvement and lasting several years to a simple one taking a few months. It all depends on the source and extent of contamination and the threat to people and the environment.

This fact sheet briefly summarizes the investigation and cleanup process. For complete information, see Title 46 in the Alaska Statutes, DEC's Underground Storage Tanks Procedures Manual, and the 18 AAC 78 regulations in the Alaska Administrative Code.

Release notification and initial abatement

18 AAC 78.220, release notification and response

18 AAC 78.230, initial abatement

If a leak, overfill or other petroleum release is identified, the owner or operator must notify DEC within 24 hours and take immediate action to prevent any further release, including removing the petroleum from the tank if necessary.

The owner or operator must stop using the system, visually inspect any aboveground release or exposed below-ground release, monitor and fix any fire and safety hazards from vapors or free product, and stockpile or treat any excavated contaminated soils to prevent water run-on or run-off, following DEC-approved methods.

Investigating the release

18 AAC 78.235, release investigation

The owner and operator of the underground storage tank are legally responsible for cleaning it up. If the owner or operator believes someone else is responsible for the contamination, he or she should give that information to the DEC project manager for the site. It's best to identify and work with all potentially responsible parties from the beginning of the cleanup process so everyone understands their responsibilities.

[1] State and federal laws that regulate underground storage tanks and their associated piping, called UST systems, as defined by AS 46.03.450 – include petroleum tank systems that have 10 percent or more volume underground, hold at least 110 gallons and are *not* used only for heating oil where the fuel is only consumed at the premises. Underground heating oil tank systems that are also used for another purpose (such as emergency power generation or fueling vehicles) are regulated under DEC regulations, 18 AAC 78 (Underground Storage Tanks), and under federal law. Contamination from underground tank systems that have only been used for the storage of heating oil consumed at the premises must be reported to DEC and cleaned up under other DEC regulations, 18 AAC 75 (Oil and Other Hazardous Substances Pollution Control; these are the regulations for contaminated sites).

Investigating the release

18 AAC 78.235, release investigation

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The responsible party must arrange for a "qualified environmental professional, impartial third party"[2] – an environmental contractor or consultant – to collect, interpret and report the field data in accordance with 18 AAC 78 and the Underground Storage Tanks Procedures Manual.

The process usually involves these steps:

Scoping – To find all available information about the site, how much petroleum contamination exists, and what harm there could be to people, animals and plants.

Conceptual Site Model – A first estimate of the source of the contamination and where it is, how it behaves under site conditions, and what threat it may pose. The Conceptual Site Model may be in a separate report or included in the next step.

Release investigation – The contractor designs the field work that will confirm or correct the first estimates of the conceptual site model. Often the contractor chooses to submit a work plan to DEC for approval before starting work, but it's not required at this stage unless requested by DEC. The contractor takes samples and gathers more information at the site, and DEC oversees the work. Samples must be collected to adequately characterize the horizontal and vertical distribution of the release in soil and groundwater. The results of the release investigation work must be submitted to DEC in a report within 45 days of the date of release confirmation, or in accordance with a schedule approved by DEC.

Cleanup levels – An important part of the cleanup process is determining cleanup levels – the concentration of a contaminant that may be left in the soil or groundwater without posing a threat to human health, safety or welfare, or the environment. Different levels apply depending on the contaminant, the site characteristics and how people or environmental receptors are exposed.

When little is known about a site, default cleanup levels set in state law are used to be protective. Less stringent levels can sometimes be set when specific information is known about the site. Removal of 100 percent of the contamination may not be possible, practical or affordable. Cleanup techniques are analyzed, and one or more are recommended based on their protectiveness, as well as practicality, effectiveness, conformity with state regulations and consideration of any public comment.

Risk assessment – A risk assessment is sometimes conducted to gather detailed information about the site and how people and environmental receptors may be exposed to the contamination. Risk assessments can also be used to justify protective cleanup levels that are more or less strict than default levels. An important part of a risk assessment is to gather information from residents and other people on how they use the land and its resources.

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[2] The regulation 18 AAC 78.995(164) defines "qualified environmental professional" as someone who actively practices environmental science or engineering, geology, physical science, hydrology or a related field and meets minimum education and experience requirements. Additional regulations in 18 AAC 78 require that the person collecting, interpreting and reporting on the field data be a "qualified, impartial third party" or be supervised by one.

Corrective action plan

18 AAC 78.250, corrective action plan

18 AAC 78.260, correction action plan approval

Once DEC is informed about the release, it can require a corrective action plan if it determines that there is a threat to human health or safety, or the environment. The contractor must prepare the plan according to DEC's deadlines and rules.

The plan must contain a field work schedule, sampling and analysis plan, and provisions for stopping the contamination from spreading to new areas or to water. The responsible party must demonstrate that the plan complies with DEC rules on contaminated soil storage, movement, treatment and disposal, and contaminated groundwater treatment and disposal, among other processes.

DEC then reviews the plan, and approves it or requests modifications to it, based on criteria in the regulation. If drinking water systems are endangered, DEC can require the responsible party to provide adequate alternative drinking water systems.

The results of the corrective action work must be submitted to DEC in an interim corrective action report within 60 days after the date of release confirmation, or in accordance with a schedule approved by DEC.

Final corrective action reporting and site closure

18 AAC 78.276, final corrective action reporting and site closure

18 AAC 78.625, institutional controls

The responsible person submits a final corrective action report to DEC when the cleanup is complete. The report must show that the site meets applicable cleanup levels and other requirements.

Site closure – DEC will give a "Corrective Action Complete" status when the site has been adequately characterized and efforts to reduce contamination have met approved cleanup levels.

Institutional Controls – As mentioned earlier, complete cleanup is not always practical or affordable. DEC may allow residual contamination to remain at the site above levels that would otherwise allow for unrestricted future land and water use, but there may be conditions or restrictions on land use that require compliance by current or future owners or operators. Those conditions require follow-up reporting. DEC would then grant "Corrective Action Complete - Institutional Controls" status. Institutional controls may also be necessary prior to site closure to protect human health and the environment during the investigation and cleanup stages.

DEC is required by law to seek recovery of the cost of its oversight from the responsible parties.

Follow-up...

DEC's Contaminated Sites Program protects human health, safety and the environment by overseeing and conducting cleanups at contaminated sites in Alaska and by preventing releases from underground storage tanks. For follow-up questions, please contact the Contaminated Sites staff in the office closest to you:

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dec.alaska.gov/spar/csp