



EnviroNews

An update on Superfund cleanup and other environmental activities at Hill Air Force Base

Hill completes tank upgrades

AN ERA ENDED for underground storage tanks at Hill AFB, when contractors removed the last of three 10,000-gallon gasoline storage tanks from the Army and Air Force Exchange Service's Service Station on Sept. 6.

The removal was the final step in a major tank upgrading project that began at Hill in 1988. The upgrades were mandated by a change in the laws that regulate underground tanks that contain hazardous waste or material. According to the law, all underground tanks must be removed and replaced with either above-ground tanks or leak resistant underground tanks. The upgrades were to be completed by Dec. 22, 1998.

During the project, Hill unearthed 140 tanks, many of which were no longer in use. Where needed, the tanks were replaced with 15 above-ground tanks and 30 underground tanks. Six tanks were cleaned and abandoned in place—a provision in the law made for tanks that are difficult to remove.

Not all storage tanks are regulated under the new law. For example, tanks used to store heating oil are not regulated. But that still left 146 tanks containing jet fuel, gasoline, diesel fuel, waste oil and antifreeze that required upgrading.

Sam Johnson, who has headed up the upgrade project for the last two years, said he feels a great sense of accomplishment that the base was able to finish the upgrades three years before the deadline. "Removing these tanks removes a significant environmental risk," Johnson said. "We could have waited until the deadline, but decided it would be better to remove them as soon as possible."

According to the regulations, new tanks and their associated plumbing must be designed to resist leaking. This means they must protect against corrosion and have leak-detection devices. They must also have overfill protection, an important requirement considering that overfills, not leaks, are responsible for



These underground storage tanks at the Army and Air Force Exchange Service's Service Station have been replaced with new tanks that meet new leak-prevention guidelines. This project completes Hill's seven-year effort to bring all storage tanks into compliance with new regulations.

most of the contamination at tank sites.

Above-ground tanks must be placed inside some type of secondary containment, usually a concrete box designed to prevent the contents of the tank from leaking into the environment.

In addition to the required upgrades, Hill has also removed about 60 of the "unregulated tanks."

"If diesel fuel leaks from a heating oil tank, it still pollutes as badly as diesel fuel from a gas station's storage tank. The only difference is that one is regulated and one is not. We've decided it makes sense to upgrade all our tanks to the new standards, and we intend to do just that," Johnson said. ❁

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OU-6 Removal Action

Riverdale cleanup project to intercept groundwater

CLEANUP WILL SOON BEGIN in Craigdale, as Hill AFB is currently constructing a groundwater collection and treatment system that will be operational early next year.

This system, which was proposed in 1994, is designed to intercept and treat contaminated groundwater that has moved beneath the Craigdale Subdivision in Riverdale. According to the engineer in charge of the project, this is the first of several steps Hill will take in the next few years to clean up contamination in the area.

“We are trying to stop the contamination from spreading and remove the contaminants from beneath the homes here,” said Steve Hicken, Operable Unit 6 project manager. “Once we control the spread, then we can go after the contamination remaining on base.”

The system’s design calls for a series of wells to be installed through the contaminated area. These wells will pump contaminated groundwater from the ground and send the water to a treatment system, which will be built a few hundred feet away. The contaminants will be removed from the water and the water will be discharged into the storm sewer system.

As shown in the diagram, the wells are arranged in two lines through the “toe”, or outer

edge, of the plume. Some of the wells were installed in the street and some of them in the easement between the curb and sidewalk.

Once in operation, these wells will form an underground barrier that will collect the contaminated water and prevent it from spreading further.

The system operates on a hydrogeologic principle called “radius of influence.” The radius of influence refers to the effect a well has on the underground water surrounding it. A well’s radius of influence depends primarily on the type of soil, but is also affected by the strength of the well’s pump and the size of the well. A well with a large radius of influence can affect the movement of groundwater several hundred feet away. The wells being installed in Craigdale, have a much smaller radius of influence—only about 30 feet from the well.

Installing one well would be similar to putting a single vacuum hose into a pile of sawdust—you would get all the sawdust immediately in front of the hose, but progressively less the farther away from the hose you get. Installing a series of wells, on the other hand, would be like putting several vacuum hoses in the sawdust. Their combined power, alone, would quickly suck up nearly all the sawdust. But to get all the sawdust, you would have to carefully place each hose, making sure no areas are missed and no efforts are needlessly duplicated.

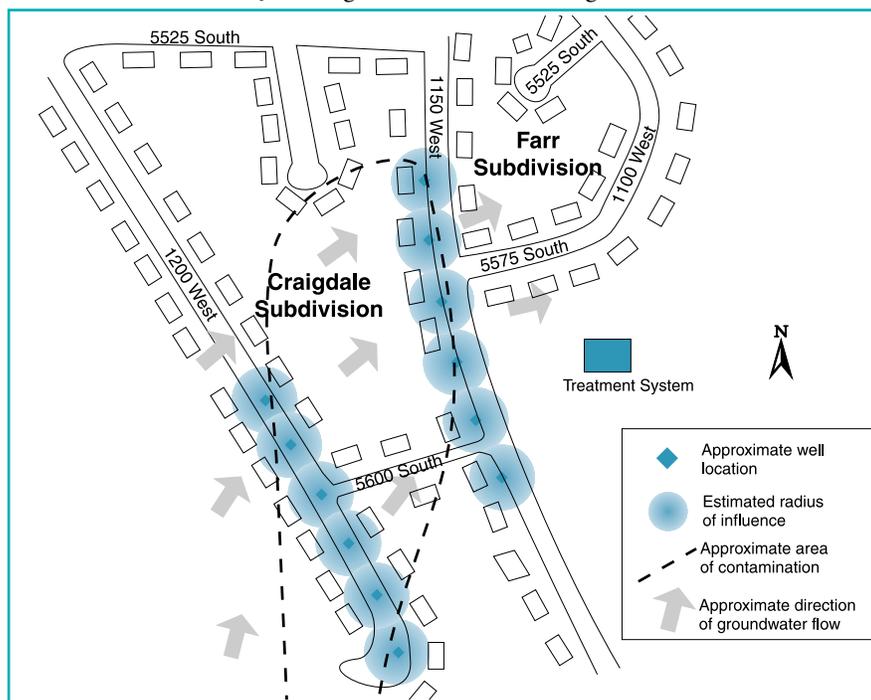
With intercepting groundwater, the trick is finding the ideal location for the wells. For this, Hicken said he will use on-the-spot tests to decide where to place the wells.

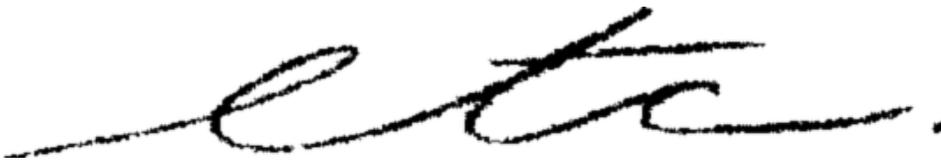
“We’ll place the first well, test its radius of influence and use the test data to help us place the next well,” Hicken said. “We’ll then repeat the process until we have enough wells installed to accomplish the project’s objectives. We estimate it will take six wells per line to do the job.”

The extracted groundwater will be piped to a small air stripper, which will be built in a vacant lot just east of the wells. The air stripper will remove the contaminants from the water, discharging the treated water into the storm sewer system.

The treated water will be carefully monitored to ensure contaminant levels remain below drinking water standards.

Extraction wells will be placed along 1150 West and 1200 West. If all works according to plan, the wells will intercept the contaminated groundwater, which will be sent to a treatment system just a few hundred feet away.





ENVIRONMENTAL NEWS, NOTES & HAPPENINGS

Cleanup work begins at Operable Unit 4

On Sept. 14, construction of the cleanup system began at Operable Unit 4, 15 months after the signing of the Record of Decision for the site.

Operable Unit 4 is the first of Hill's nine Operable Units to begin construction of its final cleanup system.

Construction will occur in phases. The first phase, which is currently under way at Landfill 1, consists of a combination of a landfill cap and dewatering system. The cap will prevent water from en-

tering the landfill from above with the dewatering system serving to remove underground water that may move into the landfill underneath the cap. The dewatering system could be modified at a later date to be used as part of a vapor extraction system.

The next phase will include upgrading the horizontal drain system that was installed in 1993. The drains will be made permanent with new piping and an automated air stripping unit.

Groundwater containment system proposed at OU-1

Hill AFB has proposed to install a groundwater containment system along the base boundary at Operable Unit 1. The containment action is part of an Engineering Evaluation/Cost Analysis being performed at the site.

The purpose of the system would be to cut off the flow of contaminated groundwater, which is moving off base into the community of South Weber.

Engineers have designed a system that will use a combination of groundwater extraction wells and an underground contain-

ment wall to capture and remove contaminated groundwater before it leaves the base.

Project Manager, Kevin Bourne said the primary sources of the contamination are a chemical disposal pit and firefighter training area.

The Air Force is currently evaluating the comments received during the public comment period.

The containment system is being proposed as an interim measure. The final cleanup proposal will be presented for public comment in late 1996.

Restoration Advisory Board Meeting

Date: Wednesday, January 17, 1996

Time: 7 to 9 p.m.

Place: Hill AFB Officers' Club

Agenda Items:

- Technical assistance money for RABs.
- Operable Unit 1 overview

The meeting is open to the public. All who desire to attend the meeting will be granted access to the base for the purpose of attending the meeting. Please call David Harris at 777-8790 for more information.



EnviroNews is a publication of the Environmental Management Directorate, Hill AFB, UT, designed to keep the public informed of hazardous waste cleanup and other environmental activities at the base. Unless otherwise credited, all stories, photographs and graphics are produced by the editor. For questions, comments or to be added to the mailing list please write to **EnviroNews**, OO-ALC/EMR, 7274 Wardleigh Road, Hill AFB, UT 84056-5137.

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Technically speaking...

Superfund 101

Recently, we've added a large number of people to our mailing list. If your name is among the new additions, this may be your first issue of EnviroNews. For this reason, we thought it might be helpful to tell you a little about the environmental regulations that govern hazardous waste cleanup—specifically, Superfund cleanups.



Obviously, Superfund law is far too complex to completely explain in the limited space we have here. However, in the next two or three issues we will try to summarize the important parts of the law and how it relates to cleanup work at Hill AFB. Part One talks about the Superfund process. Part 2 will discuss remedy selection and public involvement. Part 3 will discuss the improvements being made to Superfund and Hill's efforts to streamline the process.

Part One: The Process

IN 1980, CONGRESS PASSED the Comprehensive Environmental Response, Compensation and Liability Act, or CERCLA, the law commonly known as Superfund. This law fulfilled the wishes of many who wanted to put an end to the environmental disasters of the 1960s and 1970s.

Its purpose is simple—find and clean up hazardous waste sites. According to the law, those responsible for the pollution pay to clean up the site. If the polluter cannot be found or is unable to pay, then the cleanup is financed by the Superfund Trust Fund. This fund is mostly financed by taxes on the industries that pollute the most—the chemical and oil industries.

To be eligible for Superfund, a site must be placed on the National Priorities List, or NPL. After a preliminary investigation, the Environmental Protection Agency ranks the site according to danger posed by the hazards at the site. If a site scores high enough, it's placed on the list. Currently, the NPL includes 1,230 sites, including Hill AFB.

In 1981, the Department of Defense created the Installation Restoration Program or IRP, essentially its version of Superfund. This program ensured the military would be responsible for cleaning up hazardous waste sites at military installations by making it subject to Superfund regulations. Instead of the Superfund Trust Fund paying for the cleanup, IRP cleanups are financed by the Defense Environmental Restoration Account, or DERA.

DERA is a line item in the military budget, meaning that every year the military must allocate a piece of its budget, and devote it to hazardous waste cleanup. And it's no small piece. In 1994, DOD budgeted nearly 2.5 billion dollars for environmental cleanup. Hill received about \$16 million of that. In 1996, Hill will receive only about \$13.5 million.

While the original intent of Superfund was

simple, hardly anyone knew just how complex environmental cleanup would be. Most assumed that cleanup would be accomplished very quickly and easily. Few would have guessed that 15 years later, only a handful of sites would actually be cleaned up.

Criticism has been directed at many aspects of the law, but many point to the "Process" as Superfund's ball and chain. In a word, Superfund is tedious. Cleaning up a site involves a thorough investigation followed by evaluating and selecting cleanup alternatives. The preferred alternative must then be approved, designed and constructed. Then the actual cleanup begins.

Investigations occur in two phases—a Preliminary Assessment and a Remedial Investigation—both of which include numerous reports and mountains of investigative data. Each of these reports goes through at least three stages of development, receiving a thorough review by State and Federal regulating agencies at each stage.

The bottom line—field work, reports and review add up to an investigation that on average takes more than 10 years to complete.

While that seems like a long time, the investigations are very thorough and give engineers a wealth of information about the site. Groundwater and soil are carefully monitored to see what is in the ground, how much is there and if it is moving. Toxicologists perform an assessment of the risks to see if the contamination currently poses or could pose a threat to people or the environment.

Once the investigation is finished, engineers must evaluate numerous possible cleanup alternatives to determine which would be best suited to cleaning up the site. Those shown to be unsuitable are discarded. The remaining alternatives are carefully evaluated and a preferred alternative is selected and presented for public review and comment.

Class	Title	Section	Tim
CE459	Advanced Structure	002	
CEE459	Advanced Structure	003	
EL101	Intro to Superfund	001	MR
EL101	Intro to Superfund	002	MT
EL102	Intro to RCRA	001	TT
EL102	Intro to RCRA	002	T
EL103	Hazardous Waste Mgt	001	
EL110	Hazardous Waste Mgt	002	
EL110	Air Quality Regs	001	
110	Air Quality Regs		

Editor's note: This series will be continued in the next issue. Part Two will discuss public involvement and remedy selection.

Four-star general addresses opening

New recycling center opens at Hill



General Henry Viccellio, Jr. (center) commander of the Air Force Materiel Command, discusses the opening of the Recycling Center with Bob Van Orman, (left) Hill's director of Environmental Management. Also present at the opening ceremonies were Maj. Gen. Stephen P. Condon, Ogden Air Logistics Center commander (right) and Blair Armstrong (behind Van Orman), chief of Hill's Hazardous Waste Division.

By Gwen Brewer
Environmental Public Affairs Coordinator

GEN. HENRY VICCELLIO, JR., Air Force Materiel Command commander, cut the ceremonial ribbon at the base's new Hazardous Waste Recycling Center, Aug. 24, opening another chapter in Hill's nationally recognized pollution prevention program.

The recycling center will house facilities to recycle many materials that are currently disposed of as hazardous waste, potentially saving the Air Force hundreds of thousands of dollars in reduced disposal costs and in reduced purchasing costs.

"Everyone says that environmental compliance always costs money. Hill AFB proves them wrong," the general said in his remarks.

"Every container of hazardous waste recycled here is one less container with the potential to pollute the environment," said Blair Armstrong, chief of Environmental Management's Hazardous Waste division, which manages the Recycling Center.

The savings breakdown as follows:

- The base saves more than \$200,000 by recycling machine coolant based on a projected us-

age of 400,000 pounds annually.

- Recycling approximately 1,800 respirator filter cartridges (cleaned for reuse at the center) saves more than \$150,000 annually.
- Projected use of a rag laundering system for washing, drying and baling 110,000 pounds of contaminated rags brings a savings of \$76,000 annually by reusing the rags instead of disposing of them as hazardous waste.
- Based on a recycling cost of \$7 per gallon and an estimated annual usage of 90 gallons, annual savings from a Recovery Distillation Unit for FC-77 heat transfer fluid will be \$30,870.
- An Engine Coolant Recycler saves the base \$12,800 annually.
- Crushing unusable metal containers and used oil filters and compressing bulky hazardous waste items reduces the disposal volume, creating additional savings.

"The Recycling Center will reduce hazardous waste disposal by 322 tons per year, about 30 percent of the total hazardous waste from the base," said Bob Van Orman, director of Environmental Management.

The Air Force saves approximately \$500,000 every year by recycling these hazardous materials, Van Orman said.

With one of the military's premier pollution prevention programs, Hill continues to develop innovative ways of maintaining the delicate balance between protecting the environment and accomplishing its military missions. By giving Hill workers additional ways to reduce, reuse and recycle, the state-of-the-art Recycling Center goes a long way toward keeping those scales balanced. ♻️

Photo by Gwen Brewer

Operable Unit Update

Operable Unit 1 Landfills 3 and 4, Chemical Pits 1 and 2, Fire Training Areas 1 and 2 and South Weber



Project Manager: Kevin Bourne 777-8790, ext. 356

A containment action designed to prevent contaminated groundwater from flowing off base was presented for public review and comment in November. It will be implemented, with construction beginning this summer.

The first of nine field studies of co-solvent soil flushing has been completed. Using ethanol as a co-solvent, researchers from the University of Florida found that they were able to remove more than 80 percent of the contamination from the soil, a good result.

Operable Unit 2 Chemical Pit 3 and South Weber



Project Manager: Steve Hicken 777-8790, ext. 364

Project manager Kyle Kirchner has taken a new job in Kansas City with Geotechnical Services, Inc., and is no longer with us. Responsibility for OU-2 has been turned over to Steve Hicken, who along with Paul Betts and Ray Spencer will oversee operations at the site.

The Record of Decision, originally due to be signed Sept. 1994, has been delayed by the EPA while they make further revisions.

Operable Unit 3 Industrial Wastewater Treatment Plant; Berman Pond; Ponds 1, 2 and 3; Bldg. 514 (Soils only)



Project Manager: Andrew Gemperline 777-8790, ext. 365

The Record of Decision has been signed by the Air Force, EPA and UDEQ for Operable Unit 3, setting in motion cleanup and containment actions proposed last March.

Currently, a study is under way at Berman Pond to see if vertical extraction wells will be an effective method of removing the water that has pooled underground within the former pond's boundaries. If effective, the technique may be used in the final cleanup action, scheduled to begin in late 1996.

Operable Unit 4 Landfills 1&2, North Gate dump, South Weber and Riverdale



Project Manager: Dan Adkins 777-8790, ext. 387

Construction at OU-4 began Sept. 14. A landfill cap will be installed to prevent infiltration of water through the landfill. It is expected to be completed in December.

The design of the horizontal drain groundwater treatment system is 60 percent complete. Construction of the project is expected to begin in June 1996.

We will begin monitoring the off-base seeps and springs this month.

Operable Unit 5 Tooele Army Rail Shop, Bamberger Pond, Sunset and Clinton.



Project Manager: Mark Wheeler 777-8790, ext. 360

The Draft Feasibility Study is currently undergoing review by the EPA and UDEQ. All future progress toward the Record of Decision at OU-5 is pending the receipt of regulatory comments.

The aeration curtain installed last year has been tremendously successful and will be expanded. The 50-foot-long trench will be expanded to 400 feet in length. Construction will begin this fall and will be operational by Spring of 1996.

Operable Unit 6 Bldg. 1915, MAMS 2000 Area, Roy Gate Pond and Riverdale



Project Manager: Steve Hicken 777-8790, ext. 364

The Draft Feasibility Study and Draft Proposed Plan are currently under regulatory review. The Final Remedial Investigation is complete and will be released to the public this month.

The Proposed Plan, originally scheduled for release in December, has been delayed indefinitely. However, cleanup actions currently under way will continue as scheduled. See page 2 for more details.

Operable Unit 7 Bldgs. 220 and 225 (Soils only)



Project Manager: Steve Hicken 777-8790, ext. 364

The Record of Decision for Operable Unit 7 has been signed by the Air Force, EPA and UDEQ. According to the ROD, the site will be monitored to ensure no contamination leaves the site. The design of the monitoring system is underway and will be completed in 1996. Monitoring of the site will begin in 1997.

Operable Unit 8 Base industrial complex (groundwater only) and Layton



Project Manager: Howie Aubertin 777-8790, ext. 359

An Open House was held Aug. 17 to present a proposed cleanup action to the public. The meeting was very successful, with more than 40 residents attending. Hill's environmental staff, along with contractors and regulators were able to meet one-on-one with attendees and received valuable information about the area. No comments opposing the action were received.

Currently, tests are being performed along the base boundary to determine the best place to install extraction wells.

Operable Unit 9 Entire base except for current Operable Units



Project Manager: Darrin Wray 777-8790, ext. 369

The Work Plans for the North Area and South Area Site Investigations are complete. Sampling will soon begin at the more than 250 areas identified in the studies done last year. Soil and groundwater samples will be taken in an effort to find contaminants that could have been disposed of in the past.

The sampling will be completed in June of 1996.