



## F. E. Warren Revamps Environmental Cleanup Program

F. E. Warren Air Force Base in Cheyenne, Wyoming has a long, continuous history of military involvement that has resulted in a unique environmental challenge. The base was originally opened as Fort D. A. Russell in 1867 as an Army Post to protect railroad workers from Indian attacks. In 1930, it was renamed for Francis E. Warren (F. E. Warren) in honor of the Wyoming Senator who played an important role in the development of the post. During World War II the base doubled in size and the Air Force assumed control in 1947. Moving under the Strategic Air Command in 1958,

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*In mid-September, Air Force contractors began hauling waste from Landfill 2c offsite. The Air Force is transporting non-hazardous waste to a landfill in Colorado and hazardous waste to an approved disposal facility in Utah.*

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## Construction Nears Completion on Two F. E. Warren Landfills

The dirt is moving at Landfill 2c (LF2c) and Landfill 5a (LF5a) on F. E. Warren Air Force Base. The Air Force, Environmental Protection Agency (EPA), and Wyoming Department of Environmental Quality (WDEQ) have agreed upon the corrective action, construction contracts have been awarded, and work is nearly complete.

### Cleanup Plan for LF2c

LF2c is about three acres in size and is located just south of Crow Creek and east of the Carlin Heights housing area (see Figure 1—Restoration Management Site Map). This landfill was used from 1900 to 1941 as a fill operation. In some instances, operators burned materials before putting them into existing gullies. LF2c received waste generated on the base,

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## F. E. Warren Revives Restoration Program

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the base was selected for deployment of the Atlas D missile and became operational in 1960 as an Intercontinental Ballistic Missile (ICBM) unit. In 1965 Minuteman I was deployed at F. E. Warren and subsequent changes, due to new and modified weapon systems, have resulted in the current 150 Minuteman IIIs and 50 Peacekeeper missiles.

In 1985, the United States Air Force initiated the *Installation Restoration Program (IRP)*\* environmental cleanup effort at F. E. Warren with a record search on base to determine potential areas that have been environmentally impacted. Since then, the Air Force has invested many resources to find all areas that may have been polluted since the base was

opened in 1867. These efforts have revealed several areas where pollutants were spilled and where landfills once existed. Investigation of these areas started in earnest in the early 1990s.

In the fall of 1997, the Air Force decided to take a top-to-bottom look at the F. E. Warren cleanup program and where improvements could be made. As a result, the Air Force, EPA, and WDEQ modified the Federal Facilities Agreement (FFA) for F. E. Warren, reducing total cleanup time by five years and agreed to a change in functional program management. An FFA is an agreement between EPA, the state environmental agency, and a federal facility regarding hazardous waste cleanup at sites that appear on the *National Priorities List*. The F. E. Warren

FFA schedule modification was signed after months of meetings about the program management, the best cleanup schedule, correct actions to take, and required funding.

### Liaison Position Created

One of the outcomes of changing the program management was to create a new staff position. The Chief, Restoration Management functions as a liaison between outside agencies, the public, and the Remedial Project Managers (RPMs). Col. William Springer took the position in October 1997 and reports directly to the 90th Space Wing commander, Col. William Shelton. Having one person dedicated to sharing information with outside agencies lets the RPMs focus on the cleanup and restoration activities.

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## Wanted: Restoration Advisory Board Members

The F. E. Warren Air Force Base Restoration Advisory Board (RAB) is comprised of members of the community from all walks of life. Its purpose is to advise the Air Force, WDEQ, and EPA Remedial Project Managers about issues of concern to the community regarding the environmental cleanup of F. E. Warren AFB. If you are inter-

ested in the progress of this program, then membership on this board is for you.

In addition, the general public is cordially invited to attend all RAB meetings. Meetings are held every fourth Tuesday of the month, except in November when it meets on the third Tuesday. The RAB does not meet in July and December. All RAB meetings are held from 7 to 9 p.m. in the Regency

Room at the Little America Hotel and Resort, 2800 W. Lincolnway, Cheyenne, WY.

For more information about RAB meetings or membership, contact:

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*\*Italicized items are defined in the glossary on page 6.*

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### Cleanup Schedule Determined

Over the last six months, F. E. Warren personnel and environmental regulators met to work out an improved, very detailed, schedule for future cleanup efforts. An outcome of the comprehensive planning meetings is to use the "zone" concept for the base investigation. The base has been divided into zones to ensure that influencing environmental factors within the zone are considered during investigations and before taking cleanup action.

Another objective of the meetings was to negotiate dates for all major milestones in the cleanup process while factoring in the need to meet all regulatory requirements with the realities of coordinating a project of this magnitude. The result is a schedule achievable from the Air Force standpoint and agreeable to EPA, WDEQ, Air Force Space Command, and Air Force Pentagon officials. The new schedule lays out all major decision points and delivery dates. The milestones were scheduled, and will be tracked with the aid of a computer program tailored to this type of effort.

The new and aggressive schedule will require additional funds in the short term, but will save money in the long run and will substantially reduce the time it takes the Air Force to ensure a clean environment.

The agreed upon new schedule was only possible through the excellent cooperation displayed by all participants with a clear focus on a common goal. ☐

## Construction Nears Completion on Two F. E. Warren Landfills

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including construction debris such as wood and concrete in addition to oils, solvents, and battery acid from various work areas. The landfill was covered with soil and seeded, but some of the debris was beginning to slough into Crow Creek and must be cleaned up.

Lt. Gen. Lance Lord, Air Force Space Command Vice Commander, signed a revised *Action Memorandum* for LF2c on September 9, 1998. Loading and hauling non-hazardous waste off-site began immediately and will continue until mid-November. The non-hazardous material is being transported to North Weld Sanitary Landfill, north of Denver, Colo. LF2c had a small amount of lead-contaminated waste, which has been hauled to Safety-Kleen Grassy Mountain Facility, an

approved hazardous-waste disposal facility in Utah. After all excavation is completed, the site will be restored and replanted.

### Cleanup Plan for LF5a

LF5a operated from about 1960 to 1970 as the F. E. Warren sanitary landfill and consisted of three burn pits and a series of trenches. Refuse from F. E. Warren shops and housing areas was transported daily to the landfill. Reportedly, refuse disposed of in LF5a included domestic waste and shop waste, such as solvents, oils, *ethylene glycol*, silicone oil, hydraulic fluid, waste aircraft fuel, batteries, expired pesticides, old paint, asbestos insulation and incinerator ash. To reduce waste volume, the refuse was burned in the pits, placed in the 10- to 15-foot deep trenches, and covered with soil.

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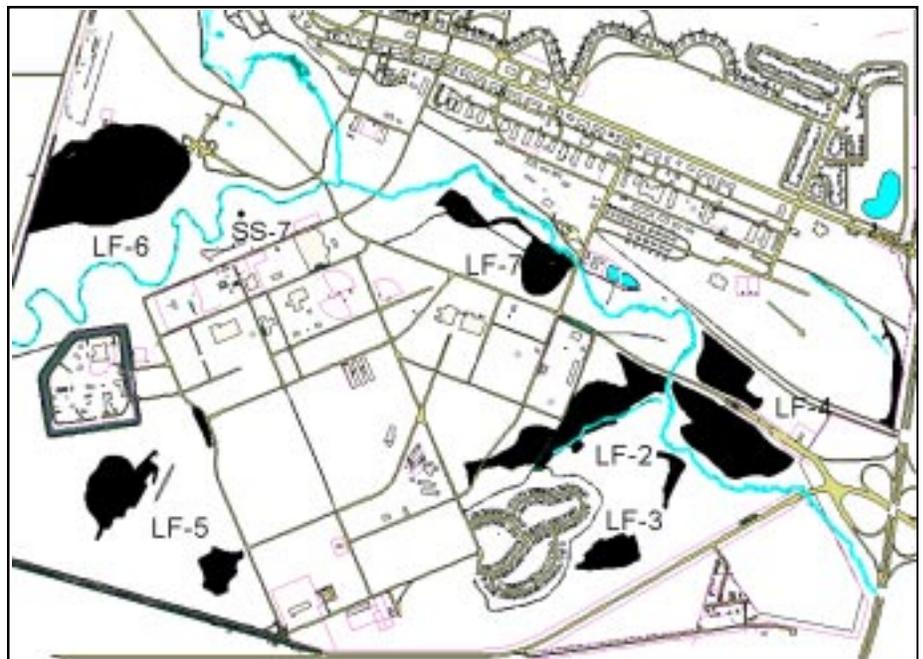


Figure 1— Restoration Management Site Cleanup Map. Cleanup at areas LF2c and LF5a is nearing completion. Designs have been submitted at Landfill 6 and Spill Site 7.

# Technical Assistance Available to Encourage Public Participation

During the August 25, 1998, RAB meeting, Mr. Jon Ussery from Headquarters Air Force Space Command outlined the Technical Assistance for Public Participation (TAPP) program for Defense Environmental Restoration Activities. The following is a summary of the program:

## What is TAPP?

The National Defense Authorization Act (NDAA) of 1996 provided an avenue for local community members to obtain technical assistance concerning environmental restoration on Department of Defense (DoD) facilities.

The goal of the TAPP program is to enhance community participation through increased understanding of the technical issues of the cleanup program. Members of the RAB or the Technical Review Committee (TRC) are eligible for the grant. The TAPP program

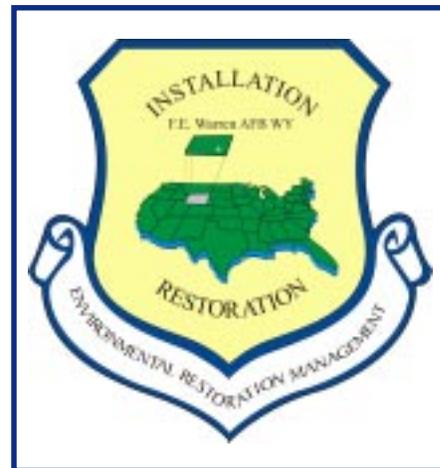
allows RAB and TRC members to use installation environmental cleanup funds to hire a contractor for additional technical assistance if it is determined available sources for the information cannot provide the needed assistance.

## Installation Commander Responsibilities

The installation commander is responsible for implementing the requirements of NDAA-96. As such, he is involved in the approval process for all technical assistance project requests. He has the authority to recommend waivers for requests and comment on appeals.

## When Can RAB/TRC Establish the Need for TAPP?

There are two conditions under which the RAB or TRC can establish the need for TAPP. The first is if technical expertise is not available elsewhere. The other is if



technical assistance will contribute positively to the IRP and will enhance community acceptance of restoration activities. Projects will be approved if:

- They meet the need defined in the community members' request
- They meet the eligibility requirements
- Adequate funding is available

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## Installation Restoration Program Site Status:

# Air Force Submits Cleanup Design for Two Sites

The IRP at F. E. Warren encompasses several projects. Below is a status summary of recent cleanup activities at the base.

### Landfill 6

The Air Force submitted a 100% *Draft Final Design* to WDEQ and EPA on September 8, 1998. The design calls for using a

*geosynthetic clay liner* and a *passive venting system*. The Air Force anticipates it will award the cover placement contract this winter. The landfill is currently covered with vegetation to prevent erosion.

### Spill Site 7

The Air Force submitted the Spill Site 7 IRA Draft 100% Design to EPA and WDEQ on September

14, 1998 for review. The IRA for the site consists of an *iron filings reaction wall* to treat chlorinated solvent contamination in the top 15 feet of groundwater.

The contract for this project will also be awarded this winter. ☐

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EPA and WDEQ approved the final landfill cap 100% design, which is an EPA-approved source control method, at LF5a. EPA established containment as a presumptive remedy for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, *Superfund*) municipal landfill sites. Presumptive remedies are remedies typically selected for a particular environmental hazard. Waste treatment at municipal landfill sites is often impractical because the landfills are so large and the type of waste found in them is very diverse. For municipal landfills, like LF5a, EPA considers a cap or cover protective of human health and the environment. Therefore, the selected *Interim Remedial Action* (IRA) for covering LF5a is based on the types of wastes historically deposited at the site and the size of the landfill.

The Air Force plan to meet the objectives of the LF5a IRA is to install a cover that will keep moisture away from the covered waste. The selected IRA will:

- Cover the landfill to prevent people and wildlife from coming into direct contact with the landfill contents



*The Air Force has begun work on the Interim Remedial Action Plan at LF-5a, which consists of placing a cover over the landfill to help keep moisture away from the ground underneath. The final cleanup plan will address any surface water or groundwater contamination at the site.*

- Minimize the amount of moisture that infiltrates the cover system
- Control surface water pooling
- Provide drainage from the surface of the landfill
- Minimize soil erosion

The type of cover the Air Force plans to use consists of a compacted layer of soil a minimum of two feet deep topped with a minimum of six inches of topsoil and vegetation. The cover creates an umbrella effect, ensuring that rain or snow will not come in contact with the landfill waste material. Keeping moisture away from the waste will reduce the

amount of chemicals that leach into the groundwater aquifer.

The landfill will not be available for redevelopment. The Air Force will place restrictions on the LF5a area to prohibit residential development or any other activity that would jeopardize the cover's effectiveness.

The cover is not the final cleanup plan for LF5a. The final plan will address the principal threats posed by the site, such as any surface water and groundwater contamination. Construction has begun on the cover and is scheduled to be complete by the end of December. □

## Access Information on the Internet



Information about the cleanup activities at F. E. Warren Air Force Base, as well as other environmental information, is available from a variety of sources on the Internet. Visit any of these sites to learn about what is going on at F. E. Warren and in your community.

**F. E. Warren AFB**  
<http://www.warren.af.mil/>

**Environmental Protection Agency**  
<http://www.epa.gov>

**Wyoming Department of Environmental Quality**  
<http://www.deq.state.wy.us>

# Glossary of Terms Used in the IRP Program

The following terms are used throughout this update. For more hazardous waste terms, visit the EPA Terms of the Environment web page at <http://earth1.epa.gov/OCEPAterms/>.

## Action Memorandum

A decision document that outlines the installation's selection of an interim cleanup plan for an IRP site.

## Cap

A cover, usually composed of clay-type soil or a combination of clay soil and synthetic liner, which is placed over a landfill. The cap limits the ability of precipitation to percolate through the landfill, thereby reducing leaching of contaminants into groundwater.

## Ethylene Glycol

A colorless, odorless liquid commonly used in antifreeze.

## Final Design

Construction plans, engineering specifications, and projected costs for the selected interim or final site remedy. The design goes through several stages of review during development.

## Geosynthetic Clay Liner

A two- or three-layer membrane typically constructed of a bottom layer of compacted clay, a high-density polyethylene sheet, and a high-density polyethylene mat. The liner is then covered with soils, forming a landfill cap.

## Iron Filings Reaction Wall

An underground wall installed downgradient from the site of groundwater contamination. As

water flows through the wall, contaminants are chemically picked up and contained by the iron filings.



## Interim Remedial Action (IRA)

A cleanup phase that follows the remedial design of the selected cleanup alternative for a Superfund site. An interim action is used to address imminent risks to human health or the environment when there is not enough information available to determine the most effective long-term cleanup plan. The IRA may contribute to or eliminate the need for final actions at a site.

## Installation Restoration Program (IRP)

The DoD program for identifying the locations and releases from past disposal sites and minimizing their associated hazards to public health. The Air Force is cleaning up F. E. Warren under this program.

## Landfill

A method for final disposal of solid waste on land. The refuse is spread and compacted and a cover of soil applied so that effects on the environment and public health and safety are minimized. Under current regulations, landfills are required to have liners and leachate treatment systems to prevent contamination of ground and surface waters. Landfills at the base were used before the regulations were developed and may not

have bottom liners and leachate collection systems. Additionally, some landfills at the base were used for disposal of liquid industrial wastes like solvents, waste oil and paint.

## National Priorities List

EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. The list is based primarily on the score a site receives from the Hazard Ranking System, a method of determining the relative severity of a hazardous substance at a site.

## Passive Venting System

A series of wells that allow gas buildup in the subsurface to escape to the atmosphere without the use of any machinery or mechanical aides. These systems are typically used at landfills to allow natural methane gas to escape from inside the unit.



## Superfund

The program EPA operates under the legislative authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act. Under Superfund, EPA has the authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health, welfare or the environment. Base environmental personnel work closely with EPA to clean up IRP sites. ☐

## TAPP Aids Public Participation

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Projects may be disapproved if one of these criteria is not met or if an alternative exists. Any disapproval must be accompanied with rationale behind the decision and alternatives.

### Funding and Waivers

TAPP rules set an annual limit on purchase orders at an installation to \$25,000 or one percent of the installation environmental restoration cost-to-complete, whichever is less, and \$100,000 over the life of the program. Waivers to these limits may be granted at the discretion of the Deputy Assistant Service Secretary.

### Appeals for Request Denial

The first goal of TAPP is to provide the required services. However, if the project is denied, appeals may be submitted to the Installation Commander for review. If disapproved, the appeal is sent to the Major Command and

finally to the Service Secretary for resolution. Appeals should be resolved at the lowest level possible.

### TAPP Project Results

The results of TAPP projects become public record. The contractor briefs the community at public meetings and notifies the regulatory agencies. If appropriate, the results of TAPP projects may be incorporated into the Installation Restoration Program.

### Submitting Requests

RAB members initiate the TAPP process by contacting the community co-chair with their concern. The request is then provided to the DoD co-chair, who is responsible for ensuring it is submitted through proper channels. For more information concerning the TAPP program, contact the USAF Remedial Project Manager, Mr. John Wright at (307) 773-4359. ☐

## Administrative Record Available for Public Review



**I**nformation about the F.E. Warren hazardous waste cleanup is

available for review in the Administrative Record File, the official collection of documents, data, reports and other information that supports EPA's decision on cleanup at a site.

You may review the Administrative Record File at:

90th SW/RM  
Environmental Restoration  
Management  
6203 15th Calvary Avenue  
Building 367  
F.E. Warren AFB, WY 82005

Laramie County Library  
2800 Central Avenue  
Cheyenne, WY 82001

## Help Update Our Mailing List

If you need to report any changes in your mailing address, would like to be added to or deleted from the list, or would like to add a friend to the list, please call the Environmental office at (307) 773-4355, or complete this coupon and mail to the return address on the last page. Thank you.

Name: \_\_\_\_\_

Street/P.O. Box: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone: \_\_\_\_\_

Check if you would like:

- To be added to the list
- To be deleted from the list
- To have your address changed



## For Additional Information ...

For more information about the F.E. Warren hazardous waste cleanup, please contact one of the following Remedial Project Managers:

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## Inside: Information on the F.E. Warren AFB Environmental Restoration



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