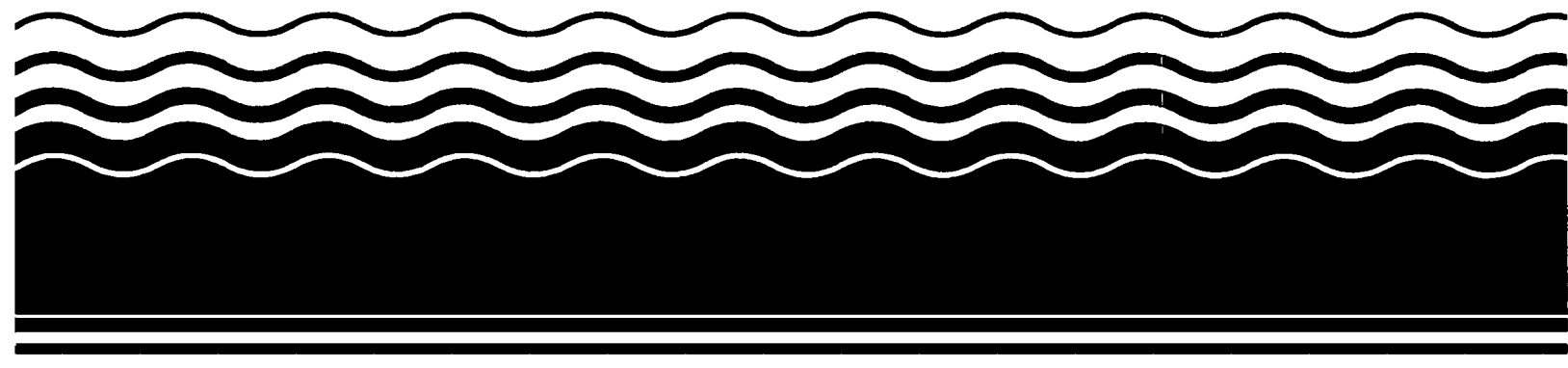




# **Superfund Record of Decision:**

**F. E. Warren Air Force Base,  
WY**



<b>REPORT DOCUMENTATION PAGE</b>		<b>1. REPORT NO.</b> EPA/ROD/R08-93/069	<b>2.</b>	<b>3. Recipient's Accession No.</b>	
<b>4. Title and Subtitle</b> SUPERFUND RECORD OF DECISION F.E. Warren Air Force Base, WY First Remedial Action			<b>5. Report Date</b> 12/30/92		<b>6.</b>
<b>7. Author(s)</b>			<b>8. Performing Organization Rept. No.</b>		
<b>9. Performing Organization Name and Address</b>			<b>10. Project Task/Work Unit No.</b>		
			<b>11. Contract(C) or Grant(G) No.</b> (C) (G)		
<b>12. Sponsoring Organization Name and Address</b> U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			<b>13. Type of Report &amp; Period Covered</b> 800/800		
			<b>14.</b>		
<b>15. Supplementary Notes</b>  PB94-964405					
<b>16. Abstract (Limit: 200 words)</b>  The F.E. Warren Air Force base site is part of a 5,866-acre active strategic air command Base located in Cheyenne, Wyoming. Land use in the area is predominantly residential and agricultural. The site contains 831 onsite residential housing units and personnel barracks. The site overlies a series of water-bearing formations known as the High Plains aquifer. Historically, the base has been utilized for a number of military functions, including cavalry outpost, quartermaster depot, and since 1958, as an operation center for intercontinental ballistic missiles. From 1962 to 1986, approximately 5 gallons per day of waste battery acid were drained from the sinks in an onsite building into concrete lined pits, known as "acid dry wells." Prior to 1977, unneutralized acid was discharged to the system, but subsequently the acid was neutralized with baking soda or soda ash prior to disposal. In 1986, disposal of waste acid was discontinued, and the wells and associated structures were removed. Later that year, the Air Force removed 500 tons of contaminated soil for offsite disposal, filled the excavated areas with clean soil, and covered the areas with gravel. This ROD provides the first of seven remedial actions for this site and addresses the acid dry well area, as OU4. Future RODs will address the spill sites, facility ground water, landfills, fire protection and training areas, open burning and detonation areas, and  (See Attached Page)					
<b>17. Document Analysis</b>					
<b>a. Descriptors</b> Record of Decision - F.E. Warren Air Force Base, WY First Remedial Action Contaminated Medium: None Key Contaminants: None					
<b>b. Identifiers/Open-Ended Terms</b>					
<b>c. COSATI Field/Group</b>					
<b>18. Availability Statement</b>			<b>19. Security Class (This Report)</b> None		<b>21. No. of Pages</b> 16
			<b>20. Security Class (This Page)</b> None		<b>22. Price</b>

EPA/ROD/R08-93/069  
F.E. Warren Air Force Base, WY  
First Remedial Action

Abstract (Continued)

firing ranges, as OUs 1, 2, 3, 5, 6, and 7, respectively. Results from the RI for OU4 indicated that actions taken by the Air Force in 1986 have effectively removed all contaminated soil from the acid dry well area and there are no current risks to human health and the environment; therefore, there are no contaminants of concern affecting this site.

The selected remedial action for this site is no further action, with ground water monitoring. Previous actions taken by the Air Force have effectively removed all current risks to human health and the environment from this site area. There are no present worth or O&M costs associated with this no action remedy.

PERFORMANCE STANDARDS OR GOALS:

Not applicable.

# DECLARATION FOR THE RECORD OF DECISION ACID DRY WELL, OPERABLE UNIT 4

## 1.0 SITE NAME AND LOCATION

F E Warren Air Force Base  
Cheyenne, Wyoming

## 2.0 STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Operable Unit 4 (OU 4), the Acid Dry Well area (ADW) at F E Warren Air Force Base, in Cheyenne, Wyoming. The selected action, the first at F E Warren AFB, was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for the site. The United States Environmental Protection Agency (EPA) and State of Wyoming Department of Environmental Quality (WDEQ), as oversight agencies, concur with the selected remedy. The United States Air Force (USAF) is the lead agency for the site.

## 3.0 DESCRIPTION OF SELECTED REMEDY

The selected remedy for the Acid Dry Well (ADW) area is that no further remedial action is required. Ground-water monitoring will be continued, to confirm that sulfate is not leaching out of the soil into the ground water and to ensure that no unacceptable releases to the environment occur.

OU 4 is the first of seven operable units to be investigated under the FFA. The others are: OU 1 - Spill Sites; OU 2 - Facility Ground water; OU 3 - Landfills; OU 5 - Fire Protection Training Areas; OU 6 - Open Burning/Open Detonation Area; and OU 7 - Firing Range(s). All of the investigations are being conducted in accordance with the FFA. Ground water (OU 2) will be concluded when Records of Decision (RODs) have been prepared for all other operable units.

## 4.0 DECLARATION STATEMENT

The USAF has determined, with the concurrence of EPA and the WDEQ, that no further remedial action is required at the ADW area. Ground water monitoring will be continued. Successful removal of the dry wells and the contaminated soil was completed in 1986. The Baseline Risk Assessment (BRA) conducted in 1992, as part of the remedial investigation concluded that sulfate and low-level metal concentrations in the soil and ground water pose no threat to human health or the environment.

CERCLA Section 121(c), 42 U.S.C. Section 9621(c), requires a five-year review in the event that hazardous substances, pollutants or contaminants remain on site after completion of a remedial action. Sulfates attributable to the Acid Dry Well operation remain in the soil. The Air Force will conduct a review five years after issuance of this Record of Decision. Additionally, the USAF will have an ongoing ground water monitoring program.

**5.0 SIGNATURE OF AGENCY ACCEPTANCE OF REMEDY (EPA)**

The undersigned representative concurs with this Record of Decision for Operable Unit 4 at F E Warren AFB, Wyoming.



James J. Scherer  
Regional Administrator  
U. S. Environmental Protection Agency,  
Region VIII

Dec. 30, 1992  
Date

# DECISION SUMMARY FOR THE RECORD OF DECISION ACID DRY WELL, OPERABLE UNIT 4

## 1.0 SITE NAME, LOCATION, AND DESCRIPTION

F E Warren Air Force Base (F E Warren AFB), occupies approximately 5,866 acres immediately adjacent to the west side of the City of Cheyenne, Wyoming. F E Warren AFB was placed on the National Priority List on 21 February 1990. Historically, F E Warren AFB has served a number of military functions, including; cavalry outpost, quartermaster depot and intercontinental ballistic missile operations base. Operations began at the US Army outpost named Fort D A Russell in 1867. The name was changed to Fort F E Warren in 1930. F E Warren AFB was a major training facility during and after World War II. Fort F E Warren was transferred to the newly formed US Air Force in 1947 and was subsequently named F E Warren AFB. F E Warren AFB underwent extensive renovation after World War II. The majority of the Army training facilities were torn down and not replaced. Construction since that time has centered on facilities for Air Force operations. Beginning in 1958, F E Warren AFB became a Strategic Air Command (SAC) base. Since then, F E Warren AFB has served as an operations center for, first, the Atlas Intercontinental Ballistic Missile (ICBM), followed by the Minuteman I and III and finally, the Peacekeeper (MX) ICBMs. F E Warren AFB is now part of Air Combat Command (ACC).

F E Warren AFB is bordered by agricultural land and rural or suburban residential areas. F E Warren AFB contains 831 residential housing units and several unaccompanied personnel housing units (barracks), along with the services required by residents. The nearest residences to Operable Unit 4 (OU 4), the Acid Dry Well area, are in Carlin Heights, approximately 1,700 feet to the south; in "Sergeant's Row", approximately 2,000 feet to the northeast; and four unaccompanied-enlisted-personnel housing units approximately 1,500 feet to the southwest.

## 2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

Operable Unit 4 (OU 4), the Acid Dry Well area (ADW), is located west of Building 826 between Third and East Streets, in the Transportation Squadron. About five gallons per day of waste battery acid were drained from sinks in Building 826 to concrete-lined, 6-foot deep pits referred to as acid dry wells. The wells were used from 1962 to 1986. Prior to 1977, unneutralized acid was discharged to the system. After 1977, the acid was neutralized with baking soda or soda ash and then discharged to the wells. Disposal of the waste acid was discontinued in 1986. In April 1986, the wells and associated structures were removed. In November 1986, 500 tons of contaminated soil were also removed. The debris from the wells and soil were sent to an industrial disposal site in Utah. The excavation was filled with uncontaminated soil and covered with gravel. The site clean up was conducted at the request and under the direction of the WDEQ.

On September 26, 1991, a Federal Facility Agreement (FFA) was signed between the USAF, EPA, and the State of Wyoming. The agreement is required by Section 120 of CERCLA. The FFA provides the framework for EPA and WDEQ oversight of continuing remedial investigations at F E Warren AFB and further identifies USAF investigation activities and schedules. F E Warren AFB submits work plans and reports to EPA and WDEQ for review and concurrence, in accordance with the FFA.

The Record of Decision (ROD) for OU 4 is the first of seven operable units for which RODs will be prepared. All RODs will be prepared according to EPA guidance.

## 3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The USAF has prepared and implemented a community relations plan (CRP) in accordance with CERCLA requirements, and the FFA. The CRP describes community involvement activities the USAF will undertake during remedial activities at F E Warren AFB. The USAF has followed the requirements of the CRP, including issuance of periodic fact sheets, holding public meetings, providing the opportunity for public comment on the Proposed Plan, etc., throughout the OU 4 investigation.

**5.0 SIGNATURE OF AGENCY ACCEPTANCE OF REMEDY (USAF)**

The undersigned representative concurs with this Record of Decision for Operable Unit 4 at F E Warren AFB, Wyoming.



\_\_\_\_\_  
LANCE W. LORD, Brigadier General, USAF  
Commander, 90th Missile Wing  
F E Warren AFB, Wyoming

29 DEC 1992

\_\_\_\_\_  
Date

The Administrative Record has been established at an on-base location. A Record Repository is located at the Laramie County Public Library. The USAF has prepared and distributed fact sheets to all persons or groups identified on the CRP mailing list (approximately 1450).

The Proposed Plan for OU 4 was made available to the public on August 9, 1992, through advertisements in the Wyoming Tribune-Eagle on August 9, 1992 and in the Casper Star-Tribune on August 11, 1992. These advertisements announced and outlined the public comment period and public meeting. The public comment period was initially scheduled from August 9 to September 8, 1992. A public meeting was held at Cheyenne, Wyoming on August 18, 1992. Several oral comments were presented and are found in the official transcript of the meeting. The transcript has been placed in the Administrative Record.

Due to limited participation, the public comment period was extended for one week, to September 15, 1992, to allow further public participation and comment. A second, informational workshop, public meeting was held on September 1, 1992, at Cheyenne, Wyoming. Announcements were placed in the Wyoming Tribune-Eagle and the Casper Star-Tribune on August 30, 1992, extending the public comment period and scheduling a second public meeting. The official transcript of the meeting has been placed in the Administrative Record.

In addition to the newspaper announcements, the USAF issued press releases which resulted in articles published in the Wyoming Eagle on August 12, 1992; The Trader's Shoppers Guide on August 14, 1992; and the F E Warren AFB Sentinel on August 28, 1992.

One written submittal with three comments was received during the public comment period. Responses to comments on the Proposed Plan are presented in the Responsiveness Summary of this ROD.

#### **4.0 SCOPE AND ROLE OF OPERABLE UNIT**

F E Warren AFB has been divided into seven operable units (OUs). These are: OU 1- Spill Sites; OU 2- Facility Ground Water; OU 3- Landfills; OU 4- Acid Dry Well; OU 5- Fire Protection Training Areas; OU 6- Open Burning/Open Detonation area; and OU 7- Firing Range(s). OU 4 is the first of the seven units to be investigated under the FFA. Prior to the investigation, it was considered a potential soil contamination area and potential source for ground-water contamination. The OU 4 remedial investigation/feasibility study confirmed that the Air Force conducted a successful removal of the wells and associated structures and most of the contaminated soil in 1986. It was also confirmed that there is no risk to human health or the environment from this operable unit. The OU 2 investigation will not be concluded until remedies have been selected for all other operable units.

#### **5.0 SITE CHARACTERISTICS**

F E Warren AFB is underlain by a series of water bearing formations known as the High Plains Aquifer. The Ogallala Formation is the first major water bearing zone in the High Plains Aquifer. An alluvial zone (sediment layer), considered part of the High Plains Aquifer, overlies the Ogallala Formation for under most of the site. Base flows for Crow and Diamond Creeks are from the ground water at F E Warren AFB.

A remedial investigation of the ADW area was initiated in January 1992. The USAF characterized the operable unit, hydrologically and in terms of contamination, with analytical results from soil and ground water sampling. The results of those sampling efforts, and risk assessment, are contained in the Draft Final Remedial Investigation Report, dated July 29, 1992. The Draft Final Feasibility Study Report, dated July 29, 1992, describes potential remedial actions for the area. Potential pathways investigated were: contact with contaminated soil and ground water, airborne contamination and leaching of soil contamination to ground water.



## INORGANIC COMPOUNDS

The highest soil and ground-water contaminant levels found during the remedial investigation follow:

<u>PARAMETER</u>	<u>SOIL</u> <sup>1</sup>	<u>GROUND WATER</u> <sup>1</sup>
Lead	22.0	ND (.010)
Cadmium	ND (2.0)	ND (.005)
Zinc	28.5	ND (.010)
Nickel	8.5	ND (.040)
Sulfate	7250	174

Metal concentrations in soil were consistent with background conditions. Sulfate levels remaining in the soil pose no public health risk. The potential for sulfate leaching to the ground water at levels exceeding the Wyoming ground water quality standard is of concern to the State of Wyoming. Sulfate concentrations in ground water samples were below both the Federal secondary drinking water standard and the State of Wyoming ground water quality standard of 250 mg/L. There is no Federal primary drinking water standard for sulfate.

## ORGANIC CHEMICALS

Ground-water sampling and analysis showed organic chemical compound contamination (Trichloroethylene (TCE) and its suspected degradation products), but its source is not related to the ADW area. TCE detected in ground water samples at OU 4 is the result of widespread contamination. The remedial investigation report concluded that the ADW area is not a TCE contamination source. F E Warren AFB TCE ground water contamination will be addressed during the OU 2 investigation.

## 6.0 SUMMARY OF SITE RISKS

As part of the remedial investigation and feasibility study, the USAF prepared a Baseline Risk Assessment (BRA) which evaluated the risks associated with the contamination at the Acid Dry Well area. The BRA consisted of human health and ecological assessments, including the identification of potential contaminants of concern, an exposure assessment, a toxicity assessment, risk characterization and uncertainty analysis. The BRA characterized the current and potential threats to human health and the environment posed by contaminants:

- migrating in ground water or surface water
- released to the air
- leaching through soil
- remaining in soil or
- bioaccumulating in the food chain

## EXPOSURE ASSESSMENT

Since the acid discharges occurred about six feet below land surface, transport of contaminants by air and surface runoff were either negligible or nonexistent. Contaminant concentrations, except sulfate, found in soil samples, either approximated background, as in the case of metals, or were at levels, negating a health concern. Sulfates in water were not considered in the exposure assessment because of the low concentrations present in water, the short duration of known health effects (diarrhea), and the lack of quantitative toxicity data.

---

<sup>1</sup> Values after ND (non detectable) are the method detection level. Soil values are in milligrams per kilogram (mg/kg) and groundwater values are in milligrams per liter (mg/L). Both are equivalent to parts per million (ppm).

## TOXICITY ASSESSMENT

Metals were detected in samples at concentrations consistent with background conditions (i.e., they are naturally occurring and do not increase risk). Most of the detected organic chemical compounds were attributable to laboratory contamination (methylene chloride and phthalates) or to ground water transport into localized ground water and subsurface soil (i.e., TCE) from upgradient sources.

Scientific studies have found that ingestion of high levels of sulfate in water can cause an acute response (diarrhea) in populations that are not acclimated to the water. Populations which are acclimated can tolerate higher levels without any apparent health problems. However, the time necessary for acclimation has not been fully identified. Limited scientific data indicates that sulfate concentrations in water above 500 mg/L begin to cause a marked increase in diarrhea in study populations. At sulfate levels above 1,000 mg/L the majority of the study population developed diarrhea. Three studies on infants found that when they ingested water containing a sulfate concentration of 630 mg/L or greater, they developed diarrhea. The study also found that diarrhea ceased when the intake of water with sulfate at the above levels stopped.

Sulfate has no known chronic health effects. The Federal secondary drinking water standard and the State of Wyoming standard for a Class I aquifer are both 250 mg/L. There is no Federal primary drinking water standard for sulfate. Both the Federal and State standards are based on drinking water quality (taste and smell) and not the higher levels associated with diarrhea. There are no standards, on any regulatory level, for sulfates in soil.

The remedial investigation found that the highest analytical result concentration for ground-water sulfate, at 174 mg/L, was below all of the Federal and State standards identified above. The investigation also found that sulfate concentrations were below those levels identified as problematic in scientific literature discussed previously.

## RISK CHARACTERIZATION

The risk assessment found that no contaminants are present which could pose threats to human health. Only the possible effects on infants ingesting ground water with elevated sulfate concentrations are of potential concern. There are no drinking water wells in the vicinity of the ADW area. Further sulfate concentrations in ground water are below Federal and State standards, and below the levels identified in scientific literature as causing diarrhea.

## ECOLOGICAL ASSESSMENT

The results of the remedial investigation indicate there is no threat to on-site biota, other wildlife, or vegetation.

## CONCLUSION

Sulfate in soil is not a health risk. The current level of sulfate in water is not a health risk, and is below Federal and State standards. Sulfate in soil could possibly leach into ground water and raise the level of sulfate in water above the standards or to a level (500 mg/L) which could cause diarrhea, if consumed. A factor to consider is the leaching rate of sulfate from soil to ground water. To date ground-water-monitoring results indicate that the leaching rate is low. The purpose of the continued ground-water-monitoring program is to verify sulfate leaching rates.

The conclusion arrived at in the baseline risk assessment was that no further remedial action is required at the Acid Dry Well area, OU 4 to adequately safeguard human and ecological health from contaminant exposures. The actions taken by the USAF in 1986 effectively removed contaminated soil and thereby mitigated threats to human health and the environment. Because there is no risk to human health or the environment, as determined by the Baseline Risk Assessment, additional soil excavation and disposal is not appropriate.

## 7.0 EXPLANATION OF SIGNIFICANT CHANGES

The Proposed Plan, Operable Unit 4, Acid Dry Well area was released for public comment in August 1992. The preferred alternative was that no further remedial action is needed and that ground-water monitoring will be used to evaluate sulfate leaching. The USAF, EPA, and WDEQ reviewed all written and verbal comments submitted during the public comment period and determined that no significant changes were necessary to the remedy proposed in the Proposed Plan.

# RESPONSIVENESS SUMMARY RECORD OF DECISION ACID DRY WELL, OPERABLE UNIT 4

## INTRODUCTION

The responsiveness summary is organized into sections as follows:

- A. Overview
  - B. Background on Community Involvement
  - C. Summary of Comments Received
  - D. State Concerns
- Attachment: Community Relations Activities at F E Warren AFB

## A. OVERVIEW

At the time of the public comment period, the preferred alternative for the Acid Dry Well area, Operable Unit 4, at F E Warren AFB, had been selected by the Air Force, with EPA and Wyoming DEQ concurrence and was presented in the Proposed Plan. The preferred alternative is that no further remedial action is required, with ground-water monitoring to be accomplished to verify that no unacceptable releases to the environment occur at OU 4 and confirm that sulfate is not leaching out of the soil into the ground water.

Based on the public's response and comments received during the public comment period, there are no significant objections to the preferred alternative.

## B. BACKGROUND ON COMMUNITY INVOLVEMENT

Community interest in CERCLA/IRP (Installation Restoration Program) activities at F E Warren AFB has waxed and waned over the years since the records search and interviews conducted for the Air Force in September 1985. No specific individuals or organizations have been consistently involved over this period, although numerous groups and persons have been involved from time to time. There were no concerns expressed during the OU 4, Acid Dry Well area, Remedial Investigation/Feasibility Study, prior to the public comment period.

## C. SUMMARY OF COMMENTS RECEIVED

The public comment period on the Proposed Plan for the Acid Dry Well area, Operable Unit 4, at F E Warren AFB was held from August 9th to September 15th, 1992. Comments received during this time are summarized below. Similar comments have been combined where possible to prevent duplication of responses. There were no specific legal or technical questions.

1. A commentator stated that they received the Proposed Plan on the same day as the public meeting. This commentator was on a mailing list developed as a result of the USAF's Community Relations Plan (CRP) for the facility. One commentator also discussed that another public meeting was being held in the City of Cheyenne that same night and that the date for the meeting was also primary election day. One commentator also asked that another public meeting be held. One written comment referred to the "poor and deceptive publicity" for the public meetings and that the words "hazardous waste" or "Superfund site" were not used in relation to the second meeting. The commentator felt this did not conform to the EPA fact sheet "Public Involvement in the Superfund Program."

**Response:** The USAF apologizes for the late mailings and for scheduling the meeting for the same night as other public meetings and on primary election day. A second, informational workshop, meeting was scheduled for September 1, 1992 and the public comment period was extended until September 15, 1992. These mailings and announcements are not isolated events, but part of the approved

Community Relations Plan activities which have included periodic status reports and Fact Sheets that included OU4 information leading up to the Proposed Plan. See the attachment for more information about community relations activities. There is no known requirement to include "hazardous waste" or "Superfund Site" in any public announcement or mailing.

2. A commentor asked how and why F E Warren AFB was placed on the National Priority List (NPL).

Response: EPA used USAF information to rank F E Warren AFB using the Hazard Ranking System. This system evaluates the potential or the actual risk to human health and the environment and a numerical score is calculated. A score of 28.5 or greater makes the facility eligible for placement on the NPL. F E Warren AFB scored 33.5, based on the potential risks associated with ground water contamination.

3. A commentor suggested that ground water sampling for sulfates be conducted for a minimum of three years, at a biannual frequency. Also that EPA and WDEQ provide input on the sampling duration and frequency. Another commentor had a question regarding the sampling frequency. A written comment was concerned that ground water monitoring would only be accomplished for five years and that potential contamination could take longer to show up.

Response: During the public meeting, the AF Remedial Project Manager stated that quarterly sampling would be conducted for at least a five year period. The actual interval will be determined by USAF, EPA and WDEQ agreement. Currently, semi-annual sampling is proposed, based on the rate of ground water movement through the OU 4 site. The USAF will submit a work plan to both EPA and WDEQ that will describe the sampling effort. The work plan will not be used until it is reviewed and accepted by both EPA and WDEQ. A five year review of OU4 is required by the National Contingency Plan. The five year monitoring program is planned to coincide with the five year review. The Air Force, EPA and State recognize that new information may be developed during this period or that not enough data will be collected such that the monitoring may be extended. If the state or federal water quality standards are exceeded during this period, alternative responses will be evaluated by the parties and an explanation of significant differences or ROD amendment will be issued. It should be noted that use of the Acid Dry Wells began 30 years ago, the wells were removed 6 years ago and ground-water sulfate levels are currently within EPA and State standards.

4. One commentor asked how the USAF is now handling waste battery acid at F E Warren AFB.

Response: F E Warren AFB is recycling batteries, including the battery acid.

5. One commentor had a question about the source of water flowing into Sloans Lake and whether the facility is a source for any water into the lake.

Response: Sloans Lake is fed by a number of sources including storm water runoff, a spring, and water piped in from the Round Top water treatment plant. None of these sources are from F E Warren AFB. Sloans Lake is generally upgradient of F E Warren AFB.

6. One commentor asked why an excavation and disposal alternative was not chosen. One commentor asked what the potential cost could be for excavation and disposal.

Response: The USAF proposed the no further action alternative because the Baseline Risk Assessment, conducted as part of the remedial investigation, found no human health and environmental risk at the Acid Dry Well area. During the public meeting, the Air Force project manager stated that the cost to dispose of the soil and sulfates properly in the Cheyenne Municipal Landfill (i.e., landfill fees) was estimated at \$10,000. The total cost to remove the soil containing sulfates and dispose of it (excavation, transportation, clean fill, fees, etc) is estimated in the Feasibility Study Report to have a present worth of \$79,000.

7. One commenter suggested that excavation and disposal be the chosen remedy to alleviate ground water contamination.

**Response:** As discussed in the Record of Decision (ROD), ground-water sampling and analysis has shown that the EPA secondary drinking water and State of Wyoming ground water quality standards are being met. There is no standard for sulfate levels in soil. A factor to consider is the leaching rate of sulfate from soil to ground water. While the concentration of sulfates in soils may appear high, ground-water monitoring results indicate that the leaching rate is low and is not affecting ground-water quality. One purpose of the continued ground-water monitoring program is to determine sulfate leaching rates over a long period of time. Because there is no risk to human health or the environment, as determined by the Baseline Risk Assessment, excavation and disposal is not appropriate.

8. One commenter asked why a public meeting was held to discuss the proposed plan, when the preferred alternative was no further action.

**Response:** CERCLA has a provision for public participation to discuss the public's opinions of the proposed alternative. The public meeting and public comment period on the proposed plan are one of the means to receive public comments on the proposed plan and to find out what the public feels about the issue.

9. One commenter asked if the facility sends any garbage to the Cheyenne landfill.

**Response:** The USAF contracts with the City of Cheyenne to send solid waste from the facility to the Cheyenne landfill. Hazardous materials or waste are not sent to the landfill. Soil containing sulfates could be sent to the landfill, if excavated.

10. One commenter asked if the USAF recycles anything at F E Warren AFB.

**Response:** The USAF has instituted a recycling program at F E Warren AFB for aluminum, newspaper, tin cans, steel and cardboard. Further recycling programs are also being developed.

11. One commenter was concerned that EPA would not conduct remedial activities at F E Warren AFB because of cost.

**Response:** EPA will not be conducting any remedial activities at F E Warren AFB. Congress established the Defense Environmental Restoration Account (DERA) which provides the Department of Defense (DOD) with a funding mechanism to pay for military facility remediation. DERA is analogous to EPA's Superfund, but only DOD agencies can request funding from the account. The Air Force is required to seek sufficient funding to carry out remediation activities called for in the Federal Facility Agreement.

12. A written comment recommended that OU2 (Ground water) be cleaned up first because of the TCE contamination.

**Response:** The current, phased approach, is outlined in the Federal Facility Agreement. Since Operable Units 1, 3, 4, 5, 6 and 7 may be sources for the ground water contamination, the Air Force, EPA and State of Wyoming agreed that OU2 would be addressed last to allow for elimination of as many potential sources as possible.

#### **D. STATE CONCERNS**

The State of Wyoming is concerned that elevated levels of sulfate in the soil at Operable Unit 4 could leach into the ground water at the operable unit, raising the sulfate level in ground water above the Wyoming standard of 250 mg/L for a Class I aquifer. The monitoring program addresses the State's concerns.

# ATTACHMENT A

## COMMUNITY RELATIONS ACTIVITIES AT F E WARREN AFB

### OVERVIEW

The unique community involvement needs of F E Warren AFB IRP/CERCLA activities are addressed in the Community Relations Plan (CRP). In late 1990, during plan development, interviews were held with 56 people representing F E Warren AFB, other Federal agencies, State, city and county agencies, community groups, wellowners, and other individuals. The most significant issues identified in the interviews were concerns about potential drinking water contamination and about the community involvement process. A brief description of each of the activities which have been developed to address the unique F E Warren AFB situation is contained in this attachment.

### HISTORY OF COMMUNITY INVOLVEMENT

News releases and articles in the Cheyenne and F E Warren AFB newspapers have been part of the IRP process since 1985. Briefings were provided to congressional staffs, the Governor, and mayor in addition to Federal agencies, Wyoming State departments, and local government officials directly responsible for resources potentially affected by the IRP process. Presentations were made to various community groups such as Optimist Club, Military Affairs Committee, Civilian Advisory Council, Society of American Military Engineers, and Wyoming Against MX. Information was disseminated at F E Warren AFB through the Commanders Call which reaches all enlisted personnel through the command structure.

The Technical Review Committee was established as part of the IRP/Superfund process and had its first meeting in May of 1988. The three initial public members were nominated by the Governor of Wyoming, Mayor of Cheyenne, and Laramie County Commission. This committee's membership and a general knowledge of the community, served as the initial basis for the selection of people to be interviewed. One of the peripheral goals of the interview process was to provide a list of potential candidates for the public representatives on the TRC.

An environmental display was presented in July 1990 in the Base Exchange Mall. Pictures of all IRP sites were displayed. Site specific fact sheets, environmental brochures, and EPA literature were made available.

The process designed to tailor the CRP to local concerns, needs, and conditions began in February 1990 with interviews of a former base commander and a concerned citizen who are both involved in a variety of groups within the community. Interviews were also held at the regular March meeting of Wyoming Against MX, attended by 4 Air Force, 2 EPA, and 1 State official working on the IRP/Superfund process, in addition to 10 members of the group itself. These initial public contacts focused on identifying critical public concerns.

The purpose of the community interviews was to identify groups and issues which may relate to the F. E. Warren AFB IRP/Superfund process. Thirty-four interviews were conducted with 56 people, either representing themselves or 20 groups within the area. The Wyoming Department of Environmental Quality and City/County Health were particularly helpful in accompanying interviewers.

Among the people interviewed were congressional staffers, an official Air Force representative, F E Warren AFB housing residents, non-DOD Federal agencies and state and local government agencies. Among community groups a wide range of interests were sampled. There were three individuals identified as involved with a variety of groups, but viewed as reputational leaders beyond their group membership.

Special emphasis was placed on interviewing those who rely on private wells adjacent to F E Warren AFB for drinking water. An introductory letter, Fact Sheet,

and discussion guide were prepared for the interviews. The Fact Sheet was actually a status report on the IRP/Superfund process with a brief description of each of the sites. The purpose of the status report was to provide information and a basis of discussion for those who might not have heard of the program and included an installation map with the sites and key features of F E Warren AFB and immediate surrounding area designated. These fact sheets and the introductory letter were made available for distribution to all interested parties.

Interviews took place in October and November 1990, with a few follow-up interviews and phone conversations continuing into December.

During the interview process it was recognized that some neighborhoods located on the south boundary of F E Warren AFB depend on domestic wells for drinking water. An agreement was made with the City/County Health Department and Wyoming Department of Environmental Quality to process a small number of water samples, if residents requested it. Sample taking was done December 4th and 5th, 1990 by a conjunctive effort of DEQ, City/County Health, and EPA personnel.

#### ISSUES AND CONCERNS

Based on the community interviews, IRP/Superfund activities are not a source of significant concern to the greater Cheyenne community. This is due primarily to the fact that the contamination is seen as being contained within F E Warren AFB. The potential for drinking water contamination is the most significant issue associated with the IRP/Superfund process. Awareness of this issue beyond those who were involved with the process was practically nonexistent.

None of the drinking water well users contacted in the interviews were aware of the IRP/Superfund process or the potential contamination. The initial reaction of wellowners was extreme concern. However, after being provided information about the IRP/Superfund activities and an opportunity to have wells tested by City/County Health and the Wyoming Department of Environmental Quality, their concern decreased. They continue to have a high level of interest and awareness, and want to be kept informed on a regular basis.

The need to keep the community informed and involved was mentioned frequently in the interviews. In the business community, there was confidence in the Air Force's ability to solve the problem. Other groups, such as Wyoming Against the MX, and the potentially affected neighborhoods, indicated a need for greater community information and involvement than had been provided prior to the interviews and adoption of the Community Relations Plan.

The community relations program for the IRP/Superfund activities is designed to inform the public about and provide opportunities for participation in the process. To be effective, the community relations program will be responsive to the level of interest expressed by the community. At this time, the primary need voiced by the public is to be kept well informed of the status of activities and involved in the decision making process.

The potential for TCE contamination in the ground water surrounding F E Warren AFB is the most sensitive issue identified in the community interviews associated with the entire IRP/Superfund process. Continuation of the arrangements for individual well sampling provides an immediate response to public concerns.

#### SPECIAL CONSIDERATIONS

Interviews with residents in the Knob Hill and Fair Acres neighborhoods revealed that direct contact with members of the neighborhood is the most effective method of providing necessary information.

#### ADMINISTRATIVE RECORD REPOSITORY

An Administrative Record Repository containing documentation of the IRP/CERCLA process was established in October 1989 and is maintained at the following locations to insure accessibility.



Laramie County Library  
Reference Section  
2800 Central Avenue  
Cheyenne WY 82001  
Phone (307) 634-3561

90 CES/CEVR  
Environmental Restoration Section  
300 Vesle Drive  
F. E. Warren AFB WY 82005-2793  
Phone (307) 775-3468

This record is maintained according to EPA guidelines, by the Environmental Restoration Flight, and is updated at least quarterly. The Administrative Record Repository also functions as the required information repository. A copy of the Administrative Record is housed in the Laramie County Library reference section to insure public access.

#### TECHNICAL REVIEW COMMITTEE

Procedures to establish the TRC began in November 1987. Actual meetings began in May of 1988. They are held quarterly, generally on the fourth Wednesday in January, April, July and October. TRC public members were nominated by the Governor of Wyoming, Laramie County and the city of Cheyenne, Wyoming. The purposes of the committee are as follows:

1. The purpose of the TRC is to review and comment on Department of Defense actions and proposed actions with respect to releases or threatened releases of hazardous substances into the environment at F E Warren AFB, as well as to ensure open communication and exchange of ideas relating to the F E Warren AFB IRP and Comprehensive Environmental Response, Compensation, and Liability Act - CERCLA, 1980, Superfund Amendments and Reauthorization Act, 1986, and the Resource Conservation and Restoration Act, 1976.
2. All TRC members understand and agree that the primary purpose and function of the TRC is informational, specifically to foster community and interagency awareness and understanding of F E Warren AFB actions with respect to the IRP remedial actions related to the releases or threatened releases of hazardous substances at F E Warren AFB, Wyoming, and to inform F E Warren AFB of community attitudes. The TRC also serves as the entity to deal with public concerns regarding hazardous substance releases and the IRP.

#### MAILING LIST

A major part of the public relations activities is the mailing list. In an attempt to proactively contact the 2,300 wellowners identified in the EPA Superfund ranking, F E Warren sent a general mailing to wellowners within a 3-mile radius. The Wyoming State Engineer's Office provided the mailing list of wellowners. The mailing included a brief status report and a coupon to be mailed back if the wellowner wanted to be added to the mailing list for distribution of later status reports. This activity resulted in the current list that has about 1450 names on it. The mailing list is maintained in the F E Warren AFB Public Affairs Office. Anyone who desires to be included on the list should contact either of the following offices.

90 MW/PA  
5305 Randall Ave  
F E Warren AFB WY 82005-2271  
Phone (307) 775-3381

90 CES/CEVR  
300 Vesle Drive  
F E Warren AFB WY 82005-2793  
Phone (307) 775-3468

#### INFORMATION CONTACT

An information contact person has been designated within the F E Warren AFB Environmental Restoration Section to maintain regular contact with the community. This person will be responsible for responding to requests for information and planning and scheduling activities included in the plan. The preparation of materials for public distribution will be coordinated with the Public Affairs Office. General public information requests should be directed to (307) 775-3468. The media contact for F E Warren AFB is the Public Affairs Office at (307) 775-3381.

Additional environmental concerns may be presented through a 24-hour hotline phone that has been established. The phone number is (307) 775-3242. This phone is monitored on a daily basis by the Environmental Management Flight. The hotline is publicized through quarterly status reports, in press releases and public meetings.

#### DRINKING WATER WELL SAMPLING

City/County Health Department has been sampling wells south of F E Warren AFB since 1988. At the outset of the interview process, it became evident that owners of private drinking water wells south of F E Warren AFB were not aware of the IRP/Superfund process or any potential contamination. Air Force concern prompted an agreement for water sampling made with City/County Health and Wyoming State Department of Environmental Quality, Water Quality Section (WDEQ) to provide for the testing of wells for concerned citizens. The agreement was to cover less than 10 wells. During the interview process, some concerns bordering on alarm were encountered. Such concerns were lowered with the testing procedure. City/County Health and DEQ have a responsibility for citizens health and safety. They did the testing as a part of their normal activities. The testing was not part of the technical scientific sampling done for the IRP/Superfund process because the criteria for sampling was solely based on individual citizen concerns. The testing took place on December 4 and December 5, 1990. In addition to the City/County Health and DEQ personnel, two EPA staff from the Denver Office assisted.

No significant concentrations of contamination were detected. The test results were presented by individual meetings with all wellowners whose wells were tested. These meetings were held by WDEQ with an EPA toxicologist present. Courtesy copies were provided by DEQ to all involved agencies including the Air Force. AF, DEQ, and EPA scheduled an availability session to provide an opportunity for Nob Hill and Fair Acres residents to discuss DEQ testing.

#### OU 4 RELATED ACTIVITIES

Operable Unit 4 has been addressed in Fact Sheets, Status Reports, newspaper advertisements and articles since Fact Sheet 1 was prepared in October 1990 for the initial interviews. Fact Sheet 1 was mailed with the wellowners letter in May, 1991. After the Federal Facility Agreement became effective, a Status Update Report was distributed on December 12, 1991 with information on all of the operable units. On February 13, 1992 another Status Update Report was issued with OU 4 information along with a specific Fact Sheet on OU 4. On June 5, 1992 a third Status Update Report provided additional OU 4 information. The Proposed Plan for Operable Unit 4 was prepared in August, 1992. A display advertisement concerning the Proposed Plan and (first) public meeting was placed in the Wyoming Tribune-Eagle on August 9, 1992. Another public announcement was placed in the Casper Star-Tribune on August 11, 1992, and a copy of the Proposed Plan with the notice of the meeting was sent to all persons on the mailing list. A copy of the unformatted (draft final) Proposed Plan was placed in the Administrative Record and the Laramie County Library Records Repository on August 10, 1992. The formatted (mailed\final) Proposed Plan replaced the unformatted one in the Administrative Record and Repository on September 21, 1992. Because of a mistake with the mailing, the public comment period was extended until September 15, 1992 and a second, informational workshop, meeting was scheduled. Display advertisements announcing the comment period extension and the informational workshop were published on August 30, 1992 in the Wyoming Tribune-Eagle and the Casper Star-Tribune. A notice was sent to all individuals on the mailing list during the week of 24 August 1992. All of the newspaper advertisements and the mailings were coordinated between the Air Force, EPA and Wyoming DEQ before publication or distribution. In addition to the paid advertisements, the Air Force issued press releases which resulted in articles published in the Wyoming Eagle on August 12, 1992; the Trader's Shoppers Guide on August 14, 1992 and the F E Warren AFB Sentinel on August 28, 1992. Following the informational meeting the Wyoming Eagle published an article on September 3, 1992. On September 26, 1992 a series of articles was published in the Wyoming Tribune-Eagle, with references to all of the Operable Units, including OU 4.