

WEBER  
BASIN  
WATER  
CONSERVANCY  
DISTRICT

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Hill Air Force Base, Utah

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**Proposed Final Environmental Assessment  
for**

**Construction of the  
Proposed Fluoride Injection Station  
(Weber Basin Water Conservancy District)**

February, 2003

*Proposed Final*  
**Environmental Assessment (EA):  
Proposed Fluoride Injection Station  
(Weber Basin Water Conservancy District),  
Hill Air Force Base, Utah**

**Under an Agreement for Environmental Consulting Services**

**Prepared For:**

**Weber Basin Water Conservancy District  
2837 East Highway 193  
Layton UT 84040**

**February 13, 2003**

**Prepared in accordance with the Department of the Air Force Environmental Impact Analysis Process (EIAP) 32 CFR Part 989, Effective July 6, 1999, which implements the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) regulations.**

## EXECUTIVE SUMMARY

### **Purpose and Need**

Weber Basin Water Conservancy District (the district) supplies drinking water to residents, commercial enterprises, and public agencies in Davis County, Utah. On November 7, 2000, a majority of voters in Davis County voted to approve addition of fluoride to the public water supply within the county. The Davis County health department then published its *Order to Add Fluoride to the Public Water Supplies Within Davis County* on April 23, 2001 (Davis 2001), applicable to the district's Davis South water treatment plant (southern Davis County) and Davis North water treatment plant (northern Davis County). Related to northern Davis County near Hill Air Force Base (AFB) and Davis North water treatment plant, the district was ordered to develop a fluoride implementation plan by September 10, 2001, which was prepared, and which specified that fluoridated water would be delivered by the fall of 2002.

Weber Basin Water Conservancy District is requesting a lease of less than 1 acre within the northwestern portion of Hill AFB on which to construct a fluoride injection station. The purpose of the proposed action is to enable the district to provide current and future residents of northern Davis County with fluoridated culinary water pursuant to the outcome of an election held on November 7, 2000, and a subsequent order from the Davis County health department.

The proposed action is needed because no fluoride injection station currently exists downstream of the district's Davis North water treatment plant to satisfy the Davis County health department order. The proposed location was selected because it is the only available location where a single fluoride injection station could accomplish the requirements of the fluoridation order.

### **Scope of Review**

No cultural and/or historical resources were identified within the area of the proposed action on Hill AFB property (personal communication, Ms. Jaynie Hirschi). No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area, and no suitable habitat for any such species is likely to be disturbed by the project. No hazardous waste is expected to be generated by the project, but accidental spills of hydrofluosilicic acid during operations, or fuel, lubricants, or other chemicals during construction could occur.

The issues that were identified and analyzed in the document are: air quality, solid and hazardous wastes, physical environment (surface soils, surface water, and groundwater), and biological resources. Environmental effects of the no action alternative were also considered.

## **Selection Criteria**

The future configuration of the district's water supply system in northern Davis County near Hill AFB should deliver only culinary water that has been fluoridated as per order of the Davis County health department; and be protective of facilities, human health, and the environment.

## **Proposed Action and Alternatives**

*Proposed Action* - The proposed action includes all work necessary to construct, on Hill AFB, a fluoride injection station, to be owned and operated by the district. Hill AFB would grant a lease for the proposed action of less than 1 acre on Air Force property, to construct the following items:

- a 12 foot by 26 foot building to contain double-walled liquid holding tanks and equipment;
- a 7 foot by 7 foot miscellaneous spill containment vault adjacent to the building;
- an 8 foot by 12 foot injection vault located (off base) adjacent to an existing water line; and
- associated small diameter piping and buried electric service (partly off base).

The deepest point of excavation would be 12 feet below ground surface at the location of the off-base injection vault. The on-base portion of the system would be installed by excavating 7 feet of soil or less. While open, the sides of the excavation would be sloped at 1.5 horizontal to 1.0 vertical or other such angle as approved by the design and geotechnical engineering contractors. The district would restore all impacted surfaces to their original condition.

*Alternative B* – Alternative B includes all work necessary to construct fluoride injection stations at alternate locations. No other candidate site exists that could accomplish the fluoridation by constructing a single new facility. Alternative B would include constructing three fluoride injection stations instead of one. Under this alternative, the district would propose to construct the three facilities: along 1900 West Street in the City of Sunset; on 2400 North Street in Sunset; and at a City of Clinton water storage facility (on Hill AFB property).

*No Action Alternative* – Under the no action alternative, the district would be unable to comply with the Davis County health department order to deliver fluoridated culinary water within the portions of its system that lie downstream of the district's Davis North water treatment plant. It is not known whether other means of providing compliant water to these customers could be identified.

## **Results of the Environmental Assessment**

The proposed action, Alternative B, and the no action alternative were all considered in detail. Either the proposed action or Alternative B could be implemented with minor short-term environmental impacts such as air emissions and disturbing vegetation during

construction activities. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. Neither generation of hazardous waste nor acid spills would be anticipated; however, waste management plans and adequate spill response resources exist should the need arise. No long-term environmental impacts are expected.

There are no environmental impacts associated with the no action alternative. The no action alternative would not provide water containing fluoride to the customers of the district. It is not known whether other means of providing compliant water to these customers could be identified, or if litigation due to this failure would occur.

### COMPARISON OF ALTERNATIVES

<b>Issue</b>	<b><u>Proposed Action</u></b> <b>Construct the Fluoride Injection Facility As Proposed</b>	<b><u>Alternative B</u></b> <b>Construct the Fluoride Injection Facility Elsewhere</b>	<b><u>No Action</u></b> <b>Do Not Construct the Fluoride Injection Facility</b>
<b>Air Quality</b>	Temporary construction-related emissions.	Temporary construction-related emissions.	No impact.
<b>Solid and Hazardous Wastes</b>	Would not be generated. No impact (accidental spills to be remediated).	Would not be generated. No impact (accidental spills to be remediated).	No impact.
<b>Surface Soils</b>	Construction-related erosion control measures may be required.	Construction-related erosion control measures may be required.	No impact.
<b>Surface Water</b>	No impact (accidental spills to be remediated).	No impact (accidental spills to be remediated).	No impact.
<b>Groundwater</b>	No impact (accidental spills to be remediated).	No impact (accidental spills to be remediated).	No impact.
<b>Biological Resources</b>	Revegetation with native species may improve conditions at the site.	Revegetation with native species may improve conditions at the site.	No impact.

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## LIST OF ACRONYMS AND CHEMICAL TERMS

AFB	Air Force Base
bgs	Below Ground Surface
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DAQ	Utah Division of Air Quality
DERR	Utah Division of Environmental Response and Remediation
DOT	United States Department of Transportation
DWQ	Utah Division of Water Quality
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
FONSI	Finding of No Significant Impact
IRP	Installation Restoration Program
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	Oxides of Nitrogen
O <sub>3</sub>	Ozone
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
pH	Negative Logarithm of the Hydrogen Ion Concentration (for pH above 7, a solution is alkaline, for pH below 7, it is acidic)
PM-10	Particulates Smaller Than 10 Microns in Diameter
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
SO <sub>x</sub>	Oxides of Sulfur
UAC	Utah Administrative Code
UN	United Nations
US	United States
UST	Underground Storage Tank
VOC	Volatile Organic Compound

## **1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **1.1 Introduction**

Weber Basin Water Conservancy District (the district) supplies drinking water to residents, commercial enterprises, and public agencies in Davis County, Utah. On November 7, 2000, a majority of voters in Davis County voted to approve addition of fluoride to the public water supply within the county. The Davis County health department then published its *Order to Add Fluoride to the Public Water Supplies Within Davis County* on April 23, 2001 (Davis 2001), applicable to the district's Davis South water treatment plant (southern Davis County) and Davis North water treatment plant (northern Davis County). Related to northern Davis County near Hill Air Force Base (AFB) and Davis North water treatment plant, the district was ordered to develop a fluoride implementation plan by September 10, 2001, which was prepared, and which specified that fluoridated water would be delivered by the fall of 2002.

New facilities are required to satisfy the Davis County health department order. District managers and their consulting engineers have investigated siting options for proposed new facilities. A candidate site was identified on the northwest portion of Hill AFB where a single fluoride injection station could accomplish the requirements of the fluoridation order. The district has requested a lease of less than 1 acre of Hill AFB land on which the district would construct and operate the fluoride injection station. Existing public water mains would deliver the fluoridated water to the residents of northern Davis County.

No other candidate site exists that could accomplish the fluoridation by constructing a single new facility. An alternative plan is to build three fluoride injection stations instead of one. Under this scenario, the district would propose to construct the three facilities: along 1900 West Street in the City of Sunset; on 2400 North Street in Sunset; and at a City of Clinton water storage facility (on Hill AFB property).

### **1.2 Purpose and Need**

Weber Basin Water Conservancy District is requesting a lease of less than 1 acre within the northwestern portion of Hill AFB on which to construct a fluoride injection station. The purpose of the proposed action is to enable the district to provide current and future residents of northern Davis County with fluoridated culinary water pursuant to the outcome of an election held on November 7, 2000, and a subsequent order from the Davis County health department.

The proposed action is needed because no fluoride injection station currently exists downstream of the district's Davis North water treatment plant to satisfy the Davis County health department order. The proposed location was selected because it is the only available location where a single fluoride injection station could accomplish the requirements of the fluoridation order.

### **1.3 Location of the Proposed Action**

Hill AFB is located approximately twenty five miles north of downtown Salt Lake City and 7 miles south of downtown Ogden, Utah (Figure 1). Hill AFB is surrounded by several communities: Roy and Riverdale to the north; South Weber to the northeast; Layton to the south; and Clearfield, Sunset, and Clinton to the west. The base lies primarily in northern Davis County with a small portion located in southern Weber County.

The proposed fluoride injection station is located in the extreme northwestern portion of the base (Figure 2), just inside the base property on the east side of Interstate Highway 15. Hill AFB land use in the vicinity of the proposed facility (Figure 3) consists of open grassy areas, a currently unused railroad track, and a gravel road. Approximately 600 feet east of the proposed lease lies Roy City Corporation's 1 acre property (or inholding), upon which 3 drinking water reservoirs and a well are located.

### **1.4 Scope of the Environmental Review and Anticipated Environmental Issues**

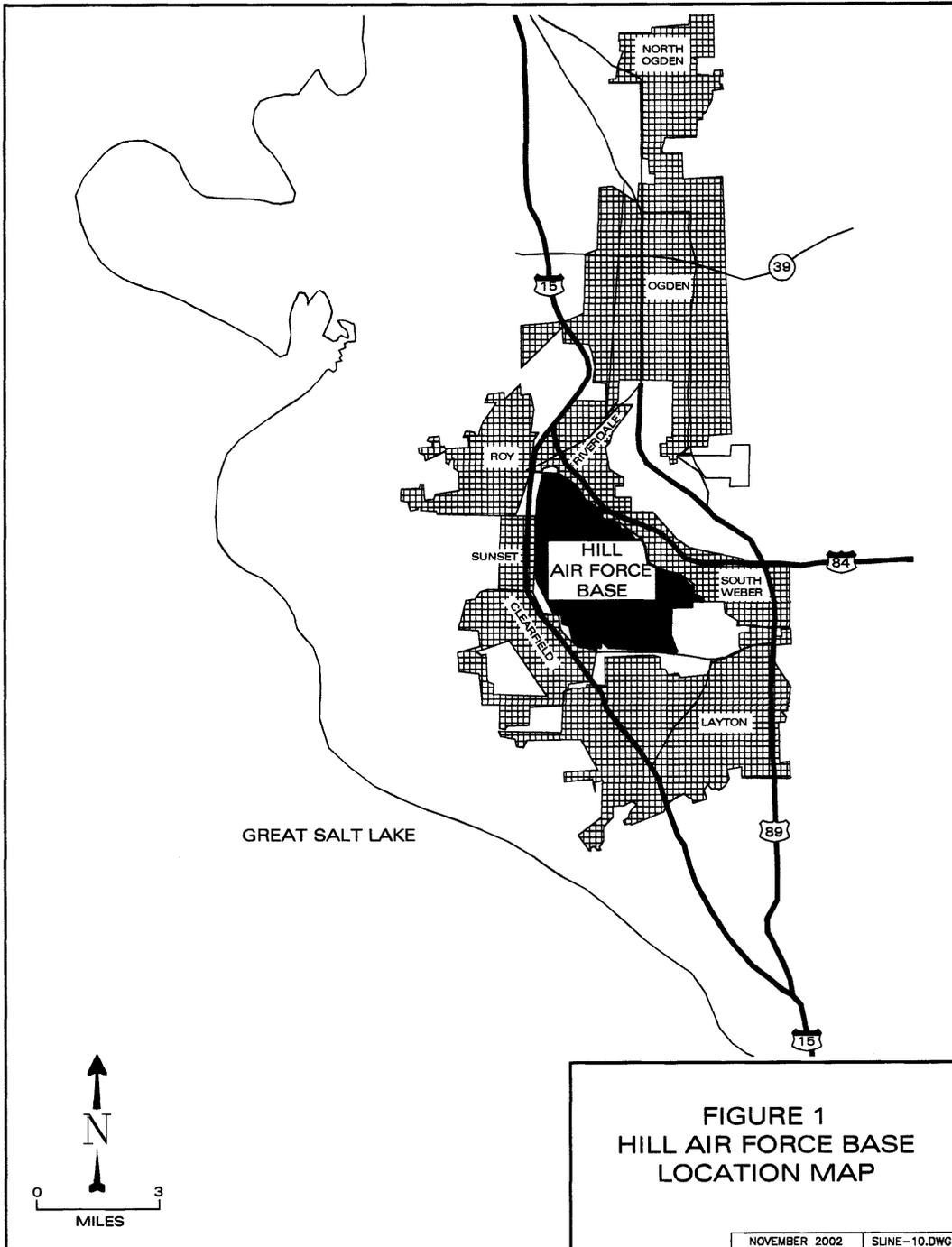
The scope of this environmental review is to analyze environmental concerns related to the proposed construction on Hill AFB of a fluoride injection station, to be owned and operated by Weber Basin Water Conservancy District. Related utilities to be provided are small diameter piping and buried electric service. No existing utilities would be impacted. Rinse water will be collected in a sump. No hazardous wastes are expected to be generated. Solid wastes may be generated, and hazardous wastes could be generated: if a spill of fuel, lubricants, or construction-related chemicals occurs during construction activities; or if a spill of hydrofluosilicic acid occurs during operation of the facility.

An inspection of the ground surface was conducted to identify any cultural and/or historical resources within the boundaries of the proposed action on Hill AFB property. No resources were identified (personal communication, Ms. Jaynie Hirschi).

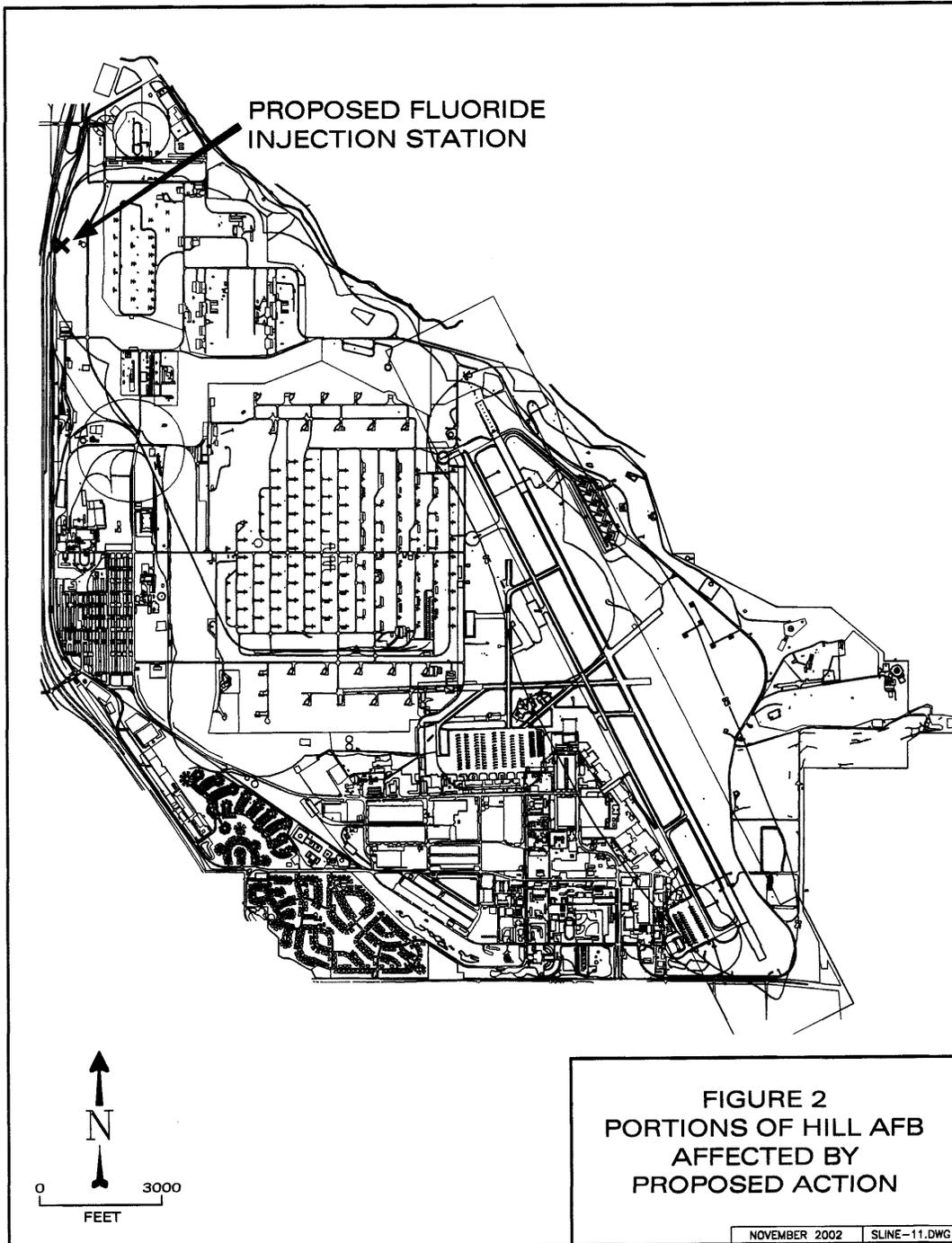
No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area, and no suitable habitat for any such species is likely to be disturbed by the project.

Hill AFB conducts groundwater monitoring of the shallow, unconfined aquifer near the proposed action. Contamination has been detected in wells approximately 300 feet to the south of the proposed action. The measured depth to groundwater near the proposed action is approximately 65 feet below ground surface (bgs) (personal communication, Mr. Steve Hicken).

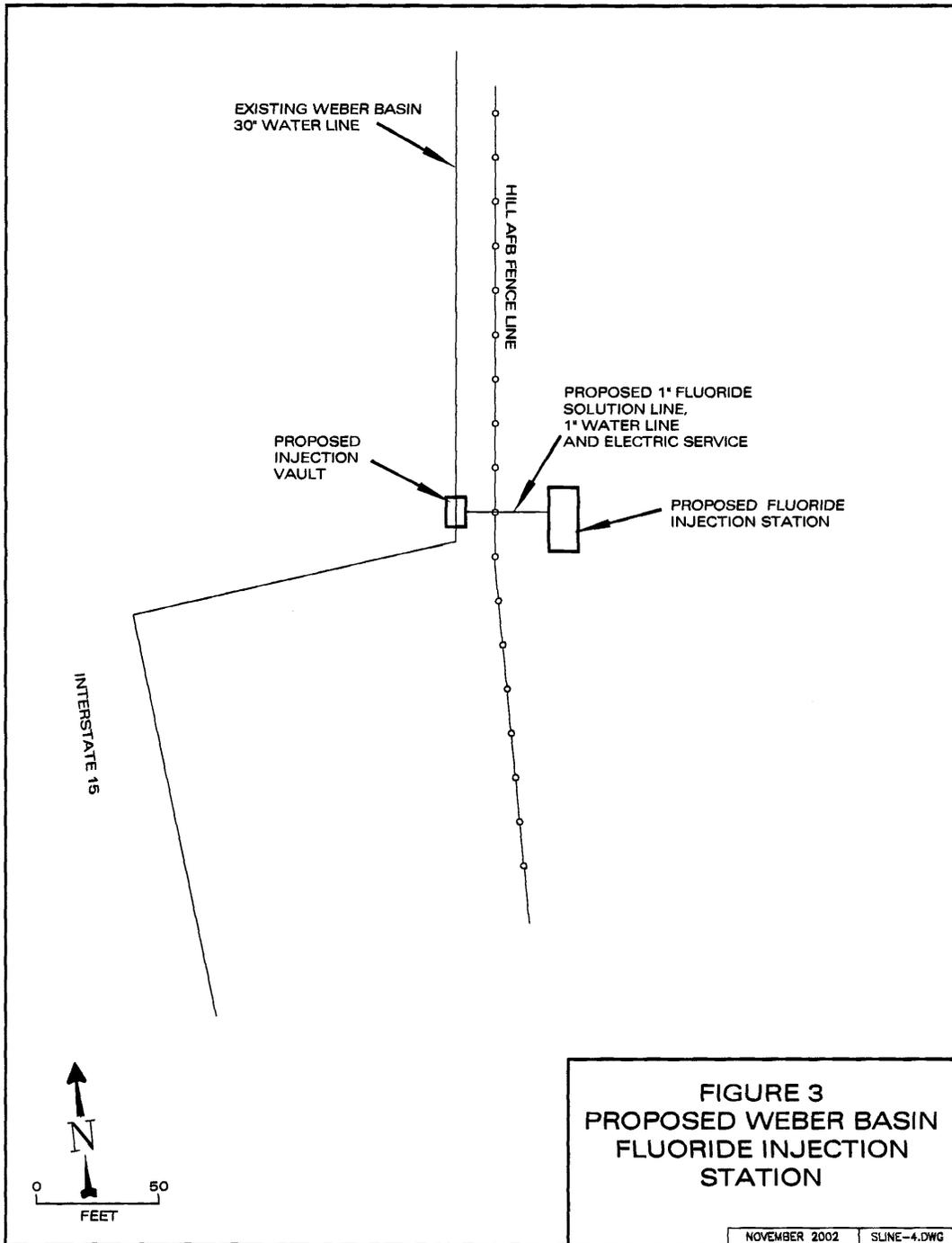
The issues that have been identified for detailed consideration and therefore presented in Sections 3 and 4 are: air quality, solid and hazardous wastes, physical environment (surface soils, surface water, and groundwater), and biological resources. Environmental effects of the proposed action, alternative locations, and the no action alternative were all considered.



**Figure 1: Hill AFB Location Map**



**Figure 2: Portions of Hill AFB Affected by Proposed Action**



**Figure 3: Proposed Fluoride Injection Station**

## **1.5 Applicable Regulations and Permits**

Any lease or other outgrant of Air Force property must be accomplished in accordance with Air Force Instruction 32-9003.

Throughout the construction phase of the project, district personnel and their contractors would follow safety guidelines of the Occupational Safety and Health Administration (OSHA) as presented in the *Code of Federal Regulations* (CFR) for trenching, Title 29 Part 1926 Subpart P.

Air emissions generated by construction activities must be addressed in accordance with Utah's State Implementation Plan, which complies with the Clean Air Act's General Conformity Rule, Section 176 (c). A conformity analysis was conducted for this proposed action as specified by "*Determining Conformity of Federal Actions to State or Federal Implementation Plans*," 40 CFR 93, revised July 1, 1998 (see Sections 3.1 and 4.1 of this document). The contractor would be required to have a water truck on site as needed during especially dry and windy weather for the purpose of dust suppression.

Hill AFB would require two weeks' notice prior to any construction activities resulting from the proposed action or other selected on-base alternative. Hill AFB would provide an archaeologist to observe the excavation for unearthing of any cultural and/or historical resources. If any resources were to be identified, construction would be required to proceed in such a fashion that adverse affects to those resources were mitigated. Hill AFB would also provide utility clearance prior to excavation activities.

The requirements of the Utah Water Quality Act (consistent with the federal Clean Water Act) related to construction impacts to surface waters are incorporated into section R317-8 of the *Utah Administrative Code* (UAC). Construction dewatering projects require review from Utah's Division of Water Quality (DWQ). Since the proposed project would not disturb an aggregate of 5 acres or more or require dewatering, a construction stormwater permit from DWQ would not be required.

The proposed construction is not expected to generate any wastes that are regulated by the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act, or similar law. Hazardous wastes at Hill AFB are routinely and properly handled in accordance with RCRA regulations, Utah hazardous waste management regulations contained in the UAC Section R315-1, and the *Hill AFB Hazardous Waste Management Plan*. These regulations control hazardous waste from its origin and storage to ultimate treatment, and/or disposal. In Utah, the above regulations are enforced by the Utah Division of Solid and Hazardous Waste.

Transportation of hydrofluosilicic acid (synonym of fluorosilicic acid) must be accomplished in accordance with requirements of the United States (US) Department of Transportation (DOT), *Hazardous Materials Regulations and Procedures*. These requirements are contained in 49 CFR 100 through 49 CFR 185.

Various OSHA standards would apply to the proposed action, as the workers who deliver the acid and operate the facility would have potential for exposure to corrosive materials. The appropriate OSHA standards are:

- 29 CFR 1910.1200 *Hazard Communication Standard*
- 29 CFR 1910.132 *Personal Protective Equipment - General Requirements*
- 29 CFR 1910.133 *Personal Protective Equipment - Eye and Face Protection*
- 29 CFR 1910.134 *Personal Protective Equipment - Respiratory Protection*
- 29 CFR 1910.120(q) *Emergency Response Program to Hazardous Substance Releases*

The US Environmental Protection Agency (EPA) regulates hydrofluosilicic acid because it exhibits the characteristic of corrosivity (40 CFR 261.22, RCRA waste number D002). Table 302.4 in 40 CFR 302 specifies a reportable quantity for off-site releases of corrosive waste to be 100 pounds (approximately 10 gallons of hydrofluosilicic acid). Only off-site releases in excess of this amount must be reported, because the definition of a release in 40 CFR 302.3 excludes, “*any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons.*”

The emergency release notification provisions of 40 CFR 355 apply to off-site releases of hydrofluosilicic acid. Only off-site releases in excess of this amount must be reported, because the definition of a release in 40 CFR 355.40 excludes “*any release which results in exposure to persons solely within the boundaries of the facility.*”

The hazardous chemical reporting requirements of 40 CFR 370 would apply to the proposed facility because it may contain up to 3,500 gallons (approximately 35,000 pounds) of a corrosive substance, for which the minimum threshold level is 10,000 pounds. The material safety data sheet (MSDS) reporting requirements of 40 CFR 370.21 and the inventory reporting requirements of 40 CFR 370.25 would apply to the proposed facility.

In the event of any drips, leaks, or spills of hydrofluosilicic acid, any waste liquid, sorbent materials, soil, or disposable personal protective equipment (PPE) would be managed in accordance with the requirements of 40 CFR 262, *Standards Applicable to Generators of Hazardous Waste*. District personnel would also coordinate with Hill AFB hazardous waste managers to ensure all applicable conditions of the *Hill AFB Hazardous Waste Management Plan* are met.

No other US Air Force or Hill AFB environmental regulations or permits were identified that would apply to the proposed facility by virtue of being more stringent than those addressed above (personal communication, Mr. Lynn Hill, Mr. Mike Zucker, Ms. Connie Rauen).

## **2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

This section describes selection criteria, the proposed action, a second alternative, and the no action alternative.

### **2.1 Selection Criteria**

As discussed in Section 1.1, Weber Basin Water Conservancy District supplies drinking water to residents, commercial enterprises, and public agencies in Davis County, Utah. The fluoride injection station is required to satisfy an order of the Davis County health department dated April 23, 2001. Due to these considerations, the following selection criteria were established. The future configuration of the district's water supply system in northern Davis County near Hill AFB should:

- deliver only culinary water that has been fluoridated as per order of the Davis County health department (Davis 2001); and
- be protective of facilities, human health, and the environment.

### **2.2 Proposed Action: Construct the Fluoride Injection Station on Hill AFB**

The proposed action includes all work necessary to construct, on Hill AFB, a fluoride injection station, to be owned and operated by the district. Hill AFB would grant a lease for the proposed action of less than 1 acre on Air Force property, to construct the following items:

- a 12 foot by 26 foot building to contain double-walled liquid holding tanks and equipment;
- a 7 foot by 7 foot miscellaneous spill containment vault adjacent to the building;
- an 8 foot by 12 foot injection vault located (off base) adjacent to an existing water line; and
- associated small diameter piping and buried electric service (partly off base).

The deepest point of excavation would be 12 feet bgs at the location of the off-base injection vault. The on-base portion of the system would be installed by excavating 7 feet of soil or less. While open, the sides of the excavation would be sloped at 1.5 horizontal to 1.0 vertical or other such angle as approved by the design and geotechnical engineering contractors. The district would restore all impacted surfaces to their original condition.

The environmental impacts of the proposed action are summarized in Section 2.5 of this document, and are discussed at greater length in Section 4 of this document.

### **2.3 Construct the Fluoride Injection Station Elsewhere (Alternative B)**

Alternative B includes all work necessary to construct fluoride injection stations at alternate locations. No other candidate site exists that could accomplish the fluoridation

by constructing a single new facility (Weber 2002). Alternative B would include constructing three fluoride injection stations instead of one. Under this alternative, the district would propose to construct the three facilities: along 1900 West Street in the City of Sunset; on 2400 North Street in Sunset; and at a City of Clinton water storage facility (on Hill AFB property).

The environmental impacts of Alternative B are summarized in Section 2.5 of this document, and are discussed at greater length in Section 4 of this document.

#### **2.4 No Action Alternative: Do Not Construct the Fluoride Injection Station**

Under the no action alternative, the district would be unable to comply with the Davis County health department order to deliver fluoridated culinary water within the portions of its system that lie downstream of the district's Davis North water treatment plant. It is not known whether other means of providing compliant water to these customers could be identified.

The environmental impacts of the no action alternative are summarized in Section 2.5 of this document, and are discussed at greater length in Section 4 of this document.

#### **2.5 Comparison of the Alternatives Considered in Detail**

The proposed action, Alternative B, and the no action alternative were all considered in detail. Either the proposed action or Alternative B could be implemented with minor short-term environmental impacts such as air emissions and disturbing vegetation during construction activities. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. Neither generation of hazardous waste nor acid spills would be anticipated; however, waste management plans and adequate spill response resources exist should the need arise. No long-term environmental impacts are expected.

The no action alternative does not meet the selection criterion to deliver culinary water that has been fluoridated as per order of the Davis County health department. However, the framework of an environmental assessment requires that the no action alternative must be considered even if it does not meet all of the selection criteria. The no action alternative would not provide water containing fluoride to the customers of the district. It is not known whether other means of providing compliant water to these customers could be identified, or if litigation due to this failure would occur.

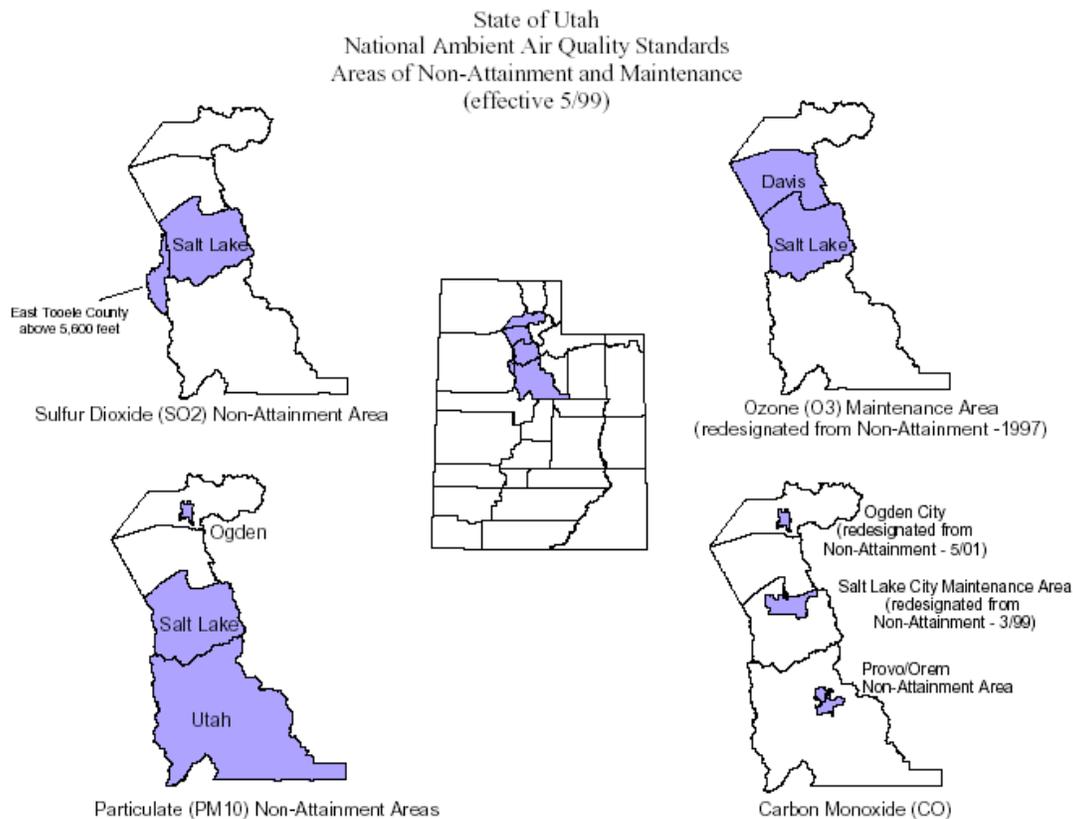
**Table 1: Summary Comparison of Alternatives**

<b>Issue</b>	<b><u>Proposed Action</u></b> <b>Construct the Fluoride Injection Facility As Proposed</b>	<b><u>Alternative B</u></b> <b>Construct the Fluoride Injection Facility Elsewhere</b>	<b><u>No Action</u></b> <b>Do Not Construct the Fluoride Injection Facility</b>
<b>Air Quality</b>	Temporary construction-related emissions.	Temporary construction-related emissions.	No impact.
<b>Solid and Hazardous Wastes</b>	Would not be generated. No impact (accidental spills to be remediated).	Would not be generated. No impact (accidental spills to be remediated).	No impact.
<b>Surface Soils</b>	Construction-related erosion control measures may be required.	Construction-related erosion control measures may be required.	No impact.
<b>Surface Water</b>	No impact (accidental spills to be remediated).	No impact (accidental spills to be remediated).	No impact.
<b>Groundwater</b>	No impact (accidental spills to be remediated).	No impact (accidental spills to be remediated).	No impact.
<b>Biological Resources</b>	Revegetation with native species may improve conditions at the site.	Revegetation with native species may improve conditions at the site.	No impact.

### 3.0 EXISTING ENVIRONMENT

#### 3.1 Air Quality

Hill AFB is located in Davis and Weber Counties, Utah. Neither county is in complete attainment status with federal clean air standards (Figure 4). Nonattainment areas fail to meet national ambient air quality standards (NAAQS) for one or more of the criteria pollutants: oxides of nitrogen (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), particulates less than 10 microns in diameter (PM-10), carbon monoxide (CO), and lead. Davis County was upgraded from an ozone non-attainment area to a maintenance area, effective 1997. Current status according to the Utah Division of Air Quality (DAQ 2002) for the City of Ogden in Weber County (approximately 7 miles north of the proposed action) is designation as a non-attainment area for PM-10 and a maintenance area for CO.



**Figure 4: State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance (Effective 5/99)**

The current air quality trend at Hill AFB is one of decreasing emissions as Hill AFB managers implement programs to eliminate ozone-depleting substances, limit use of volatile organic compounds (VOCs), install VOC emission control equipment for painting operations, switch to lower vapor pressure solvents and aircraft fuel, convert internal combustion engines from gasoline and diesel to natural gas, and improve the capture of particulates during painting and abrasive blasting operations.

### **3.2 Solid and Hazardous Wastes**

In general, hazardous wastes include substances that, because of their concentration, physical, chemical, or other characteristics, may present substantial danger to public health or welfare or to the environment when released into the environment or otherwise improperly managed. Hazardous wastes generated at Hill AFB are managed as specified in the *Hill AFB Hazardous Waste Management Plan* with oversight by personnel from the Environmental Management Directorate and the Defense Reutilization and Marketing Office. Hazardous wastes at Hill AFB are properly stored during characterization, and then manifested and transported off site for treatment and/or disposal.

There are no solid or hazardous wastes currently being generated within or adjacent to the proposed lease area. There are no known sources of RCRA contamination or polychlorinated biphenyls (PCBs) in the area (personal communication, Mr. Dee Choate, Mr. Jim Caldwell). There are no known sources of underground storage tank (UST) contamination in the area (personal communication, Dr. Dan Stone). There is no known surface contamination in the area that would be addressed by the Hill AFB installation restoration program (personal communication, Mr. Steve Hicken, Mr. Dave Mills).

### **3.3 Physical Environment**

#### **3.3.1 Surface Soils**

The surface soils in the vicinity of the proposed fluoride injection station are relatively flat to sloping (in a westerly direction), are sustaining a crop of native and non-native shrubs and herbaceous species, and are not eroding.

#### **3.3.2 Surface Water**

The Davis & Weber Counties Canal Company operates an irrigation canal down slope from, and within 100 feet of the proposed fluoride injection station.

#### **3.3.3 Groundwater**

Groundwater flow in the immediate area is toward the west, following the topographic slope toward the Great Salt Lake. At the site of the proposed action, depth to groundwater is approximately 65 feet bgs. The Hill AFB installation restoration program

(IRP) has investigated water quality in the shallow, unconfined aquifer by installing and sampling neighboring monitoring wells. The nearest groundwater and soil vapor contamination issues are to the south at Operable Unit 12 (formerly Operable Unit 5) (*author's note, based on reviewing several IRP maps and personal communication with Dave Mills, the plume boundary is approximately 100 feet to the south, and proposed extraction well EX-7 is approximately 300 feet to the south*).

### **3.4 Biological Resources**

The proposed location is completely vegetated with native and non-native shrubs and herbaceous species. Native plants cover about 85 percent of the area, and include species such as rubber rabbitbrush (35 percent), bluegrass, (30 percent), aster (5 percent), Indian rice grass (5 percent), and green rabbitbrush (5 percent).

Cheatgrass and ragweed are the two most prevalent weedy, non-native species, occupying 10 and 5 percent of ground cover, respectively. There are no trees within the proposed lease area, although there is one hardwood and two pine trees to the southwest of the proposed location, directly adjacent to Interstate 15. Overall, the condition of the vegetation in the proposed location is good to fair, with only 15 percent of the vegetative cover consisting of non-native plants.

Although deer and fox are known to occur on Hill AFB, the area and its immediate surroundings are too small in area to provide significant habitat for either of these species. Additionally, the presence of Interstate 15 adjacent to the west probably acts as a deterrent for many species. Thus, birds and small mammals (e.g. mice) are the only wildlife likely to use the site on a regular basis.

A few bird species, primarily sparrows, meadowlarks, and finches probably feed in the area periodically during the nesting seasons (none observed during the site visit). The lack of perches and the dense shrub layer, which would reduce the likelihood of finding suitable prey, suggests that raptors do not use the area to any significant extent. No migratory birds were observed during the site visit.

No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed project site.

## 4.0 ENVIRONMENTAL CONSEQUENCES

### 4.1 Air Quality

#### 4.1.1 Impacts of the Proposed Action

No air emissions would be produced by operating the proposed fluoride injection plant. Related to air quality hazards from potential spills, the Hill AFB supervising industrial hygienist noted the vapor pressure of hydrofluosilicic acid is similar to that of water, and no special concerns were raised for inhalation hazards (e-mail from Cary Fisher to Dan DeFinis).

The only air quality impacts of the proposed action would be related to generation of PM-10 during excavation, backfill, and general construction operations, and construction equipment emissions during the same time period.

Emissions of PM-10 would be produced as soil is disturbed during proposed construction activities. EPA has estimated that fugitive dust emissions from construction activities produce 0.11 tons of PM-10 per acre per month (EPA 1996). The proposed action would involve approximately 1 week of excavation and backfill activities for the 0.11 acres being disturbed during construction of the reservoir and small pump house. Fugitive dust emissions of 0.003 tons of PM-10 were therefore calculated for the proposed action. To mitigate emissions of fugitive dust, the district's contractor would be required to have a water truck on site as needed during dry and windy weather for the purpose of dust suppression and reducing the emissions of PM-10.

The internal combustion engines of heavy equipment would also generate emissions of PM-10, VOCs, NO<sub>x</sub>, and CO. Assumptions and estimated emissions are listed in Table 2.

**Table 2: Calculated Heavy Equipment Emissions**

<b>Data Assumptions:</b>						
<b>Equipment Type</b>	<b>Diesel Emission Factor (lbs/hr)</b>					
	<b>SOx</b>	<b>NOx</b>	<b>CO</b>	<b>VOC</b>	<b>PM10</b>	
Asphalt Truck	0.143	1.691	0.675	0.183	0.139	
Backhoe	0.182	1.89	0.572	0.291	0.172	
Bulldozer	0.348	4.166	1.794	0.257	0.165	
Concrete Truck	0.454	4.166	1.794	0.304	0.256	
Crane/Cherry Picker	0.143	1.691	0.675	0.183	0.139	
Dump Truck	0.454	4.166	1.794	0.304	0.256	
Flat Bed	0.454	4.166	1.794	0.304	0.256	
Fork Lift	0.143	1.691	0.675	0.183	0.139	
Front End Loader	0.182	1.89	0.572	0.291	0.172	
Motored Grader	0.086	0.713	0.151	0.052	0.061	
Roller/Compactor	0.143	1.691	0.675	0.183	0.139	
Scraper	0.463	3.84	1.257	0.425	0.406	
Note: VOC = Aldehydes and Hydrocarbons						
Source: Table II-7.1, AP-42						
Used Miscellaneous Eqpt. EFs for Crane, Drill Rig, Fork Lift and Roller/Compactor						
<b>Construct Roy City Corporation Culinary Reservoir and Pump House:</b>						
<b>EQUIPMENT TYPE</b>	<b>HOURS OF OPERATION</b>	<b>Diesel Emissions (lbs)</b>				
		<b>SOx</b>	<b>NOx</b>	<b>CO</b>	<b>VOC</b>	<b>PM10</b>
Asphalt Truck						
Backhoe	20	3.6	37.8	11.4	5.8	3.4
Bulldozer						
Concrete Truck	8	3.6	33.3	14.4	2.4	2.0
Crane/Cherry Picker	4	0.6	6.8	2.7	0.7	0.6
Dump Truck	4	1.8	16.7	7.2	1.2	1.0
Flat Bed						
Fork Lift						
Front End Loader						
Motored Grader						
Roller/Compactor						
Scraper						
<b>TOTAL ESTIMATED EMISSIONS (lbs)</b>		<b>9.7</b>	<b>94.6</b>	<b>35.7</b>	<b>10.2</b>	<b>7.1</b>
<b>TOTAL ESTIMATED EMISSIONS (tons)</b>		<b>0.00</b>	<b>0.05</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>

Source of Hours: Discussions With Darren Hess, Weber Basin Engineer

Related to conformity with Utah's State Implementation Plan, and therefore the Clean Air Act's General Conformity Rule and 40 CFR 93, the proposed construction is expected to be less than 6 months in duration. Therefore, it does not require a new source review. Fugitive emissions from construction activities should be mitigated according to *Utah Administrative Code, Rule R307-205, Emission Standards: Fugitive Emissions and Fugitive Dust*. Good housekeeping practices should be used to maintain construction

opacity at less than 20 percent. Haul roads should be kept wet, and any soil that is deposited on nearby paved roads by construction vehicles should be removed from the roads and returned to the site or appropriate disposal area. Conformity was determined to exist.

#### **4.1.2 Impacts of Alternative B**

Since Alternative B would require construction of 3 separate fluoride injection stations, construction-related air quality impacts would be approximately 3 times greater than impacts of the proposed action.

#### **4.1.3 Impacts of the No Action Alternative**

There would be no air quality impacts associated with the no action alternative.

#### **4.1.4 Cumulative Impacts**

Air emissions would be temporary, only being generated during the construction period. There are no cumulative impacts to air quality associated with the proposed action or Alternative B. There are no cumulative air quality impacts associated with the no action alternative.

### **4.2 Solid and Hazardous Wastes**

#### **4.2.1 Impacts of the Proposed Action**

##### **4.2.1.1 During Construction**

During the proposed construction activities, no solid wastes would be generated except for minor amounts of construction debris that would be treated as uncontaminated trash. It is possible that equipment failure or a spill of fuel, lubricants, or construction-related chemicals could generate solid or hazardous wastes. In such a case, or if excavated soils exhibit suspicious odors or appearance, the following procedures would apply on Hill AFB.

Hill AFB personnel have specified procedures for handling construction-related solid and hazardous wastes in their engineering construction specifications. The procedures are stated in *Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection*. All solid non-hazardous waste is collected and disposed on a daily basis. Samples from suspect wastes are analyzed for hazardous vs. non-hazardous determination. The suspect waste is safely stored while analytical results are pending. Hazardous wastes are stored at sites operated in accordance with the requirements of 40

CFR 265. The regulations require the generator to characterize hazardous wastes with analyses or process knowledge. Hazardous wastes are eventually labeled, transported, treated, and disposed in accordance with federal and state regulations.

#### **4.2.1.2 During Delivery of Acid**

The hydrofluosilicic acid would be delivered in a rubber lined trailer capable of hauling 46,000 pounds of the material. Delivery trucks and trailers carrying hydrofluosilicic acid would comply with all DOT requirements from 49 CFR 100-185. Each delivery vehicle would display a placard and carry a bill of lading, both referencing the United Nations (UN) dangerous goods number 1778. The driver would be equipped with a full acid suit including gloves, goggles, full face shield, and rubber boots.

Each trailer would be equipped with a standpipe reaching from the bottom of the trailer out the top through a valve. A hose would be connected to the tank (using 2-inch camlock fittings) and then to the truck. A small amount of pressure would be applied to push the hydrofluosilicic acid through the top valve and into the hose. The hose would be checked for leaks at the low pressure. If no leaks occur, the trailer would be pressurized to full operating pressure, which would allow the material to be unloaded in 60 to 90 minutes.

To prevent delivery of too much acid, the district's tank would be equipped with an electronic sensor that monitors the level of acid in the storage tank. Automated software would convert the liquid level to volume in gallons. The quantity of acid ordered would be less than the available unfilled volume of the tank. As an extra safety measure to prevent overfilling, the tank would be equipped with an audible high level alarm on the sensor to notify the delivery truck driver when the tank is nearly full.

Should a leak occur during either the system check or during delivery, the driver would shut off the valve at the top of the tanker, attach the air hose to the blow out valve on the downstream side of the shutoff valve, and push the contents of the hose into the district's tank. If a leak should occur, the maximum spill would happen while the truck is unloading at the maximum rate of approximately 45 gallons per minute. It would take the driver about 30 seconds to access the shut off valve. This would result in a spill of 22.5 gallons, plus the volume of the 2-inch diameter, 20-foot hose, which is another 3 to 4 gallons, for a total spill volume of approximately 27 gallons.

No spill response equipment would be present on the delivery truck. Hill AFB emergency response personnel can be reached by calling 911 from an on-base telephone, or (801) 777-1911 from an off-base or cellular telephone. The supplier of the acid (Thatcher Company) maintains a fully trained spill response team, able to respond to any spill (up to the entire 46,000 pounds of acid). The team is located in Salt Lake City, and would be mobilized by calling (801) 972-4587. Weekdays from 7:00 AM through 11:59 PM, the time to reach Hill AFB is the drive time from Salt Lake City. It is anticipated acid deliveries would occur during these hours; however, at other times, the response

time would be increased by the time necessary to contact on-call team members and have them respond.

Thatcher Company’s standard response equipment includes pumps, 250-gallon containers (as many as required), and neutralizing material (soda ash in the case of hydrofluosilicic acid). In the event of any drips, leaks, or spills of hydrofluosilicic acid, any waste liquid, sorbent materials, soil, or disposable PPE would be managed in accordance with the requirements of 40 CFR 262, *Standards Applicable to Generators of Hazardous Waste*. Thatcher and district personnel would also coordinate with Hill AFB hazardous waste managers to ensure all applicable conditions of the *Hill AFB Hazardous Waste Management Plan* are met.

As stated in Section 1.4, off-site releases of 100 pounds or more (approximately 10 gallons) of hydrofluosilicic acid would constitute a reportable spill according to Table 302.4 in 40 CFR 302, and the emergency release notification provisions of 40 CFR 355. If a reportable spill would occur, the following spill notifications would be made (the Davis County notification would only be required if the hydrofluosilicic acid were to reach the nearby irrigation canal owned by the Davis & Weber Counties Canal Company).

Hill AFB Fire Department	24-hour assistance	(801) 777-1911 or 911 on-base
Local Sheriff’s Office	24-hour assistance	911
National Response Center	24-hour reporting	(800) 424-8802
State of Utah Division of Environmental Response and Remediation (DERR)	Business Hours Other Times (pager)	(801) 536-4100 (801) 536-4123
Weber County Environmental Health (location of the proposed facility)	Business Hours Other Times (pager)	(801) 399-8381 (801) 591-7168
Davis County Environmental Health (irrigation canal flows to Davis County)	Business Hours Other Times (pager)	(801) 451-3296 (801) 482-3250

**4.2.1.3 During Operations**

Weber Basin Water Conservancy District personnel would visit the fluoride injection facility on a daily basis (including weekends and holidays) to ensure proper operation of the equipment, and visually observe any drips, leaks, or potential maintenance concerns. District personnel would be equipped with acid-resistant gloves, face shields, aprons, and rubber boots. Respirators with acid cartridges are available to district personnel should irritation to the nose or throat occur.

The proposed 12 foot by 26 foot fluoridation building would be constructed with a curb, directing any liquids to floor drains. The floor drains within the building would direct liquids to a lined concrete sump, with interior dimensions of 6 feet long, 6 feet wide, and 5 feet high (1,346 gallons), providing containment for daily rinse water and miscellaneous drips or leaks. Both the 3,500-gallon main tank and the 250-gallon day tank are double-walled tanks (providing their own secondary containment) equipped with leak detection systems that monitor the interstitial space. The floor of the fluoridation building and the sump would receive two coats of sealant, and the sump would receive two or more coats of polyurethane floor enamel after the sealant was applied.

On an as-needed basis, district personnel would activate a pump to refill the day tank from the contents of the main tank. The pump would be deactivated while district personnel were still present at the facility.

The liquid in the sump would be expected to contain 99 percent clean water (and be non-hazardous), since district personnel would be rinsing their PPE on a daily basis. When the sump is nearly full, its contents would be tested for pH, and pumped to a tanker truck. The district would be responsible for proper transportation and disposal of the pumped liquids (pH below 2.5 as hazardous, pH of 2.5 or greater as non-hazardous; *for purposes of comparison, lemon juice exhibits a pH below 2.5*).

Because of the design and construction of the fluoride injection station, no spills would be expected to occur. Should unexpected conditions contribute to a leak or spill, Hill AFB emergency response personnel would be contacted by calling 911 from an on-base telephone, or (801) 777-1911 from an off-base or cellular telephone. Management of any hazardous waste and spill notifications would be performed as previously described in Section 4.2.1.2.

#### **4.2.2 Impacts of Alternative B**

Since the 3 fluoride injection stations required to implement Alternative B would use the same annual volume of hydrofluosilicic acid in aggregate as would the single facility for the proposed action, impacts related to solid and hazardous wastes would be the same as identified for the proposed action.

#### **4.2.3 Impacts of the No Action Alternative**

With respect to solid and hazardous wastes, the no action alternative has no impacts.

#### **4.2.4 Cumulative Impacts**

Proper handling of solid and hazardous wastes eliminates releases of contaminants to the environment. There are no cumulative solid or hazardous waste impacts associated with

the proposed action or Alternative B. There are no cumulative solid or hazardous waste impacts associated with the no action alternative.

### **4.3 Physical Environment**

#### **4.3.1 Surface Soils**

##### **4.3.1.1 Impacts of the Proposed Action**

Near surface soils may be compacted by construction vehicles during the proposed action. Annual winter frost heave activity (from the freezing of normal soil moisture) would later counteract the compaction process.

Construction projects can increase soil erosion. Most of the area of proposed construction is relatively flat and the potential for erosion is therefore small. Hill AFB construction specifications would mitigate any erosion potential that does exist by requiring the contractor to restore the land to its original condition. The area disturbed by excavation would be backfilled and subsequently re-planted, re-seeded, or sodded to prevent soil erosion.

##### **4.3.1.2 Impacts of Alternative B**

Since Alternative B would require construction of 3 separate fluoride injection stations, temporary impacts to surface soils associated with Alternative B may be greater than those described for the proposed action.

##### **4.3.1.3 Impacts of the No Action Alternative**

With respect to surface soils, the no action alternative has no impacts.

##### **4.3.1.4 Cumulative Impacts**

There are no cumulative impacts to surface soils associated with the proposed action, Alternative B, or the no action alternative.

## **4.3.2 Surface Water**

### **4.3.2.1 Impacts of the Proposed Action**

The Davis & Weber Counties Canal Company operates an irrigation canal down slope from, and within 100 feet of the proposed fluoride injection station. Because of stringent engineering controls and safe operating procedures, no releases are expected from the facility or delivery vehicles that would reach the canal. See Section 4.2. for descriptions of spill prevention and response controls and procedures.

### **4.3.2.2 Impacts of Alternative B**

Because of stringent engineering controls and safe operating procedures, no releases are expected from the facility or delivery vehicles that would reach surface waters. See Section 4.2 for descriptions of spill prevention and response controls and procedures.

### **4.3.2.3 Impacts of the No Action Alternative**

With respect to surface water, the no action alternative has no impacts.

### **4.3.2.4 Cumulative Impacts**

There are no cumulative impacts to surface water resources associated with the proposed action, Alternative B, or the no action alternative.

## **4.3.3 Groundwater**

### **4.3.3.1 Impacts of the Proposed Action**

Contaminated groundwater exists approximately 100 feet to the south of the proposed action, at a depth of 65 feet bgs (see Section 3.3.2). Because of stringent engineering controls and safe operating procedures, no releases are expected from the facility or delivery vehicles that would reach groundwater. See Section 4.2 for descriptions of spill prevention and response controls and procedures.

#### **4.3.3.2 Impacts of Alternative B**

Because of stringent engineering controls and safe operating procedures, no releases are expected from the facility or delivery vehicles that would reach groundwater. See Section 4.2 for descriptions of spill prevention and response controls and procedures.

#### **4.3.3.3 Impacts of the No Action Alternative**

With respect to groundwater, the no action alternative has no impacts.

#### **4.3.3.4 Cumulative Impacts**

There are no cumulative impacts to groundwater resources associated with the proposed action, Alternative B, or the no action alternative.

### **4.4 Biological Resources**

#### **4.4.1 Impacts of the Proposed Action**

As stated in Section 3.4, no species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area. No suitable habitat for any such species is likely to be disturbed by the project.

During excavation, the vegetation of the area would be entirely removed, and any animal species present would be displaced. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. Failing to revegetate the area, or planting with a single species of non-native plant, could lead to a long-term degradation of the site, and reduced suitability for wildlife use.

#### **4.4.2 Impacts of Alternative B**

Since Alternative B would require construction of 3 separate fluoride injection stations, temporary impacts to biological resources associated with Alternative B may be greater than those described for the proposed action.

#### **4.4.3 Impacts of the No Action Alternative**

With respect to biological resources, the no action alternative has no impacts.

#### **4.4.4 Cumulative Impacts**

The proposed action would disturb approximately 0.11 acres, and Alternative B may disturb up to 0.33 acres. The loss of these small areas does contribute in a minor way to cumulative impacts on the biological resources across the landscape. However, revegetating the portions of the proposed site(s) that are used for temporary construction purposes would mitigate long-term degradation of the wildlife habitat in the area and increase suitability for wildlife use.

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## 7.0 REFERENCES

**CFR:** *Code of Federal Regulations*, US Government Printing Office, Office of the Federal Register (various sections and dates).

**Davis 2001:** *Order to Add Fluoride to the Public Water Supplies Within Davis County*, Davis County Health Department, 2001

**DAQ 2002:** *State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance (Effective May, 1999)*, Utah Division of Air Quality Website, November, 2002.

**EPA 1996:** *National Air Pollutant Emission Trends, Procedures Document for 1900-1996*, US Environmental Protection Agency, Page 4-285, 1996.

**EPA 1985:** *AP-42, Computation of Air Pollution Emission Factors, Volume I, Stationary Point and Area Sources, and Volume II, Mobile Sources*, US Environmental Protection Agency, 1985.

**Hill AFB:** *Construction Specifications, Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection*, Hill AFB, UT, current version.

**Weber 2002:** Fluoride Information by e-mail with telephone clarification, Darren Hess, Weber Basin Water Conservancy District, 11/14/02.

## FINDING OF NO SIGNIFICANT IMPACT

1. **NAME OF ACTION:** Construct a fluoride injection station (to serve northern Davis County) in the northwestern portion of Hill Air Force Base (AFB), Utah.

2. **DESCRIPTION OF THE PROPOSED ACTION:** Hill AFB proposes to grant a lease in the northwest portion of the base, on which Weber Basin Water Conservancy District (the district) would construct a fluoride injection station. This facility would provide current and future residents of northern Davis County with fluoridated culinary water pursuant to the outcome of an election held on November 7, 2000, and a subsequent order from the Davis County health department.

The proposed action includes all work necessary to construct, on Hill AFB, a fluoride injection station, to be owned and operated by the district. Hill AFB would grant a lease for the proposed action of less than 1 acre on Air Force property, to construct the following items:

- a 12 foot by 26 foot building to contain double-walled liquid holding tanks and equipment;
- a 7 foot by 7 foot miscellaneous spill containment vault adjacent to the building;
- an 8 foot by 12 foot injection vault located (off base) adjacent to an existing water line; and
- associated small diameter piping and buried electric service (partly off base).

The deepest point of excavation would be 12 feet below ground surface at the location of the off-base injection vault. The on-base portion of the system would be installed by excavating 7 feet of soil or less. While open, the sides of the excavation would be sloped at 1.5 horizontal to 1.0 vertical or other such angle as approved by the design and geotechnical engineering contractors. The district would restore all impacted surfaces to their original condition.

3. **SELECTION CRITERIA:** The following criteria were used to assemble alternatives. The alternative should:

- deliver only culinary water that has been fluoridated as per order of the Davis County health department (Davis 2001); and
- be protective of facilities, human health, and the environment.

4. **ALTERNATIVES CONSIDERED OTHER THAN THE PROPOSED ACTION:**

Alternative B includes all work necessary to construct fluoride injection stations at alternate locations. No other candidate site exists that could accomplish the fluoridation by constructing a single new facility. Alternative B would include constructing three fluoride injection stations instead of one. Under this alternative, the district would propose to construct the three facilities: along 1900 West Street in the City of Sunset; on

2400 North Street in Sunset; and at a City of Clinton water storage facility (on Hill AFB property).

Under the no action alternative, the district would be unable to comply with the Davis County health department order to deliver fluoridated culinary water within the portions of its system that lie downstream of the district's Davis North water treatment plant. It is not known whether other means of providing compliant water to these customers could be identified.

**5. SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS:**

**a. Proposed Action:** This alternative fully satisfies all applicable regulations and provides for accomplishment of mission objectives without impacts to human health or the environment. The proposed action could be implemented with minor short-term environmental impacts such as air emissions during construction activities. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. Neither generation of hazardous waste nor acid spills would be anticipated; however, waste management plans and adequate spill response resources exist should the need arise. No long-term environmental impacts are expected.

**b. Alternative B:** Alternative B would have similar impacts to the proposed action. Air emissions during construction would be greater due to constructing 3 facilities instead of one.

**c. No Action Alternative:** There are no environmental impacts associated with the no action alternative. The no action alternative would not provide water containing fluoride to the customers of the district. It is not known whether other means of providing compliant water to these customers could be identified, or if litigation due to this failure would occur.

**6. FINDING OF NO SIGNIFICANT IMPACT:** Based on the above considerations, a Finding of No Significant Impact (FONSI) is appropriate for this assessment.

Approved by:

\_\_\_\_\_  
Environmental Protection  
Committee Chairman

Date: \_\_\_\_\_