

## EXECUTIVE SUMMARY

This design options report has been developed to assist Hill Air Force Base in determining the most cost-effective means of discharging contaminated groundwater that is extracted from the on-Base portions of Operable Units 1 (OU 1) and 2 (OU 2). Currently, this groundwater is pumped through the on-Base 3-Mile Pipeline (3MP) to the Base Industrial Wastewater Treatment Plant (IWTP), where it receives treatment to remove metals and organic compounds, before being discharged to the North Davis County sanitary sewer system. The current average daily flowrate of 65 gallons per minute (gpm) is expected to increase to approximately 130 gpm in the near future, due to reconfigured and expanded remedial systems at the on-Base areas of the operable units. Also, future off-Base remedial systems at the operable units could require additional discharges of up to 250 gpm.

This report presents background information, a screening of possible discharge alternatives, a detailed evaluation and cost analysis for positively screened alternatives, and a recommended discharge alternative. Alternatives are screened and analyzed on the basis of ease of compliance with applicable or relevant and appropriate requirements (ARARs), flexibility, and cost.

Table ES-1 summarizes alternative costs that are developed in Section 3. Table ES-2 presents the overall evaluations of the screened alternatives. This report recommends that a new

discharge scheme (Alternative 3b) be implemented to handle the discharge needs for OU 1 and OU 2.

Alternative 3b involves sending contaminated groundwater from the on-Base portions of OU 1 and OU 2 to the OU 2 Source Recovery System (SRS) via an existing 6 inch pipeline. The groundwater would be treated with a new air stripping system to decrease volatile organic compound (VOC) concentrations to below 1 part per million. The effluent would then be transferred off-Base through a proposed gravity-feed pipeline to a new 10-inch pipeline beneath 475 East Street in South Weber City. This 10-inch pipeline would connect directly to the Central Weber Sewer Improvement District (CWSID) 30-inch trunk line that lies to the north. The Base would pay the CWSID a negotiated fee for discharge of the effluent. The total estimated Alternative 3b cost given in this report could change substantially if the CWSID discharge fee for Hill AFB varies from the standard industrial fee.

The recommended alternative has a substantially lower total present worth cost (Table ES-1) than continued and expanded use of the existing discharge scheme (evaluated as Alternative 1). The primary cost savings between the alternatives comes from eliminating the relatively high IWTP treatment fee. Also, the recommended alternative has greater flexibility to handle future off-Base groundwater discharges from the OU 1 and OU 2 source areas.

**Table ES-1**  
**Cost Summary for 3-Mile Pipeline Alternatives**

Alternative	Capital Cost	Operations and Maintenance Present Worth Cost <sup>a</sup>	Total Present Worth Cost <sup>a</sup>
1 Present baseline scenario: On-Base Groundwater Sent Through the 3MP for Full IWTP Treatment	\$546,000	\$9,355,000	\$9,901,000
2a On-Base Water Sent Through the 3MP for Organics-Only IWTP Treatment	\$663,000	\$3,152,000	\$3,815,000
2b Optional Bypass of All IWTP Treatment	\$1,119,000	\$1,544,000	\$2,663,000
3a On-Base Water to SRS Pretreatment and Discharge to the South Weber City Sanitary Sewer System; Eventual Discharge to the CWSID	\$434,000	\$764,000	\$1,198,000
3b On-Base Water to SRS Pretreatment and Discharge Directly to the CWSID Trunk Line	\$665,000	\$795,000	\$1,460,000

<sup>a</sup>Evaluated for a period of 15 years at 5% interest

IWTP = Industrial Waste Treatment Plant  
CWSID = Central Weber Sewer Improvement District  
SRS = Source Recovery System

**Table ES-2**  
**Overall Alternative Evaluation**

Alternative	Ease of Compliance with ARARs	Flexibility	Cost
1 On-Base Groundwater Sent Through the 3MP for Full IWTP Treatment	High	Medium	High
2a On-Base Water Sent Through the 3MP for Organics-Only IWTP Treatment	High	Medium	Medium
2b Optional Bypass of All IWTP Treatment	Low	Medium	Medium
3a On-Base Water to SRS Pretreatment and Discharge to the South Weber City Sanitary Sewer System; Eventual Discharge to the CWSID	Medium	Medium	Low
<b>3b On-Base Water to SRS Pretreatment and Discharge Directly to the CWSID Trunk Line</b>	<b>High</b>	<b>High</b>	<b>Low</b>

Cost Evaluation Criteria

High = Total Alternative Cost > \$6,000,000  
 Medium = \$2,000,000 < Total Alternative Cost < \$6,000,000  
 Low = Total Alternative Cost < \$2,000,000

Ease of Compliance with ARARs Criteria

High = Determined to comply with all ARARs  
 Medium = Determined to potentially comply with all ARARs  
 Low = Regulatory negotiation necessary to determine compliance

Flexibility Criteria

High = Allows the greatest capacity for future flows; can be easily implemented  
 Medium = Marginal capacity for future flows; some retrofitting necessary  
 Low = No capacity for future flows; difficult to implement