



**Draft Final**

**Record of Decision  
for  
SITE 7, FORMER WASTEWATER TREATMENT  
PLANT AREA**

**BUCKLEY AIR FORCE BASE  
AURORA, COLORADO**

**December 2010**

**DRAFT FINAL**

**RECORD OF DECISION**

**FOR**

**SITE 7**

**FORMER WASTEWATER TREATMENT PLANT  
AREA**

**Buckley Air Force Base, CO**

**Prepared By:**

**United States Air Force  
460th Space Wing  
Buckley AFB, Colorado**

**December 2010**

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### Acronyms and Abbreviations

AFB	Air Force Base
AFSPC	Air Force Space Command
ANG	Air National Guard
AR	Administrative Record
bgs	below ground surface
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
CSEV	Colorado Soil Evaluation Value
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
ERP	Environmental Restoration Program
°F	degrees Fahrenheit
ft	feet
IR	Information Repository
IRP	Installation Restoration Program
LUC	land use control
MCL	maximum contaminant level
MMRP	Military Munitions Response Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PAH	polynuclear aromatic hydrocarbon
Plant	Wastewater Treatment Plant
PRGs	Preliminary Remediation Goals
RI	Remedial Investigation
ROD	Record of Decision
SAIC	Science Applications International Corporation
SARA	Superfund Amendments and Reauthorization Act
SSC	Supplemental Site Characterization
SVOC	semi-volatile organic compound
URS	URS Group, Inc.
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

## **1.0 Declaration**

### **1.1 Site Name and Location**

Facility Name: Buckley Air Force Base (AFB)  
Site Location: 18500 East 6th Avenue, Aurora, Colorado  
USEPA ID: ID Number: CO9570025644  
Operable Unit/Site: Site 7, Former Wastewater Treatment Plant Area

### **1.2 Statement of Basis and Purpose**

This Record of Decision (ROD) presents the Selected Remedy for Installation Restoration Program (IRP) Site 7 (Former Wastewater Treatment Plant Area), at Buckley AFB, Colorado, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this site.

This document is issued by the United States Department of the Air Force (USAF), as the lead agency. The USAF is managing remediation of contamination at Site 7 (Former Wastewater Treatment Plant Area) in accordance with CERCLA as required by the Defense Environmental Restoration Program (DERP). As the lead agency, the USAF has selected the final remedy for the site. The U.S. Environmental Protection Agency (USEPA) and the Colorado Department of Public Health and Environment (CDPHE) concur with the selected remedy.

For completeness in content and for consistency with other Buckley AFB reports, this report follows the format contained in *A Guide to Preparing Superfund Proposed Plans, Records of Decision (ROD), and Other Remedy Selection Decision Documents* (USEPA, 1999); this document follows the format for a no further action ROD found in Chapter 8.

### **1.3 Description of Selected Remedy**

Based on the current conditions at this site, the USAF as lead agency has determined that no significant risks or threats to public health or the environment exist at Site 7. USEPA and CDPHE, as support agencies, concur with this determination. Therefore, no further action under CERCLA, as amended, is necessary to protect public health or welfare or the environment.

### **1.4 Statutory Determinations**

A previous soil removal action response at the site eliminated the need to conduct further remedial action. Therefore, USAF has determined that no remedial action is necessary at Site 7 for protection of human health and environment. A five-year review will not be required under NCP 300.430(f)(4)(ii) because this no further action remedy will not result in hazardous

substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure.

### **1.5 Authorizing Signatures**

This signature sheet documents the United States Air Force approval of the remedy selected in this Record of Decision for Site 7 at Buckley Air Force Base, Colorado.

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CLINTON E. CROSIER  
Colonel, United States Air Force  
Commander, 460<sup>th</sup> Space Wing

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Date

The undersigned representative concurs with the Record of Decision for Site 7 at Buckley Air Force Base, Colorado.

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GARY W. BAUGHMAN  
Director, Hazardous Materials and  
Waste Management Division  
Colorado Department of Public Health and Environment

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Date

## **2.0 Decision Summary**

The Decision Summary identifies the Selected Remedy, explains how the remedy fulfills statutory and regulatory requirements, and provides a substantive summary of the Administrative Record file that supports the remedy selection decision.

### **2.1 Site Name, Location, and Description**

Buckley AFB occupies 3,540 acres east of Denver, Colorado, as shown in Figure 1. The closest population center is located just west of the base and is in the City of Aurora, a suburb of Denver. Land use around Buckley AFB includes industrial and agricultural to the north, commercial and residential to the west, residential and agricultural to the south, and primarily agricultural to the east. IRP Site 7, Former Wastewater Treatment Plant Area, is a small separate parcel (about 6 acres) of Buckley AFB that is approximately 700 feet outside the main boundary of the base, within the city of Aurora and Arapahoe County (Figure 2), and north of East 6<sup>th</sup> Avenue (Figure 3).

As the lead agency for remedial activities, the USAF has conducted environmental restoration at Site 7 in accordance with CERCLA under the DERP, which was established by Section 211 of SARA of 1986.

As the support agencies, the USEPA and CDPHE provide primary oversight of the environmental restoration actions. In addition, the USAF is supported by the Tri-County Health Department and City of Aurora. Buckley AFB is a federal facility, and site cleanup is funded by the DERP through the Environmental Restoration Program (ERP), which presently addresses six open IRP sites and 14 open Military Munitions Response Program (MMRP) sites. The Defense Environmental Restoration Account is a funding source approved by Congress to clean up contaminated sites on U.S. Department of Defense (DoD) installations.

### **2.2 Site History and Enforcement Activities**

The Department of the Army opened this facility as Buckley Field in 1942 to train the Army Air Corps. By 1945, Army training activities declined, and operation of the facility transferred to the Department of the Navy. The facility subsequently became known as the Naval Air Station, Denver. The Navy deactivated the facility in 1959, and property access transferred to the State of Colorado. Under the State of Colorado, the base became known as Buckley Air National Guard Base and was used for military aviation and support activities for the Colorado Air National Guard (ANG).

Effective October 1, 2000, the 821<sup>st</sup> Space Group became the host group. The base was reassigned from the ANG to the Air Force Space Command (AFSPC) and renamed Buckley AFB. In October 2001, the 460<sup>th</sup> Air Base Wing was established at Buckley AFB and assumed control of the installation. The Wing supports the USAF mission by providing space-based missile warning data, space communication data, and data relay operations, as well as sustaining related base support functions. On August 19, 2004, the Wing accepted several additional

missile warning missions from the 21<sup>st</sup> Space Wing. With a full operational mission, the 460<sup>th</sup> Air Base Wing was re-designated the 460<sup>th</sup> Space Wing.

Operation of the Wastewater Treatment Plant (Plant) at Site 7 began in 1942 and continued until 1978. Plant equipment included bar screens, primary clarifier, secondary clarifier, two trickling filters, sludge digester, chlorine contact chambers, and sludge drying beds. The sludge drying beds included a filtrate collection system that was constructed of clay tiles. Tiles reportedly collapsed shortly after operations began. Following sludge treatment, the effluent was discharged via a pipeline to a concrete structure on the southern bank of Sand Creek (the Outfall). The Outfall is being addressed separately, as indicated in the Basewide Site Inspection Report (URS, 2010). Sand Creek is located approximately 4,800 feet (ft) to the northeast of the former Plant. Plant structures on the site have been largely demolished; however, some foundations and walls are still present.

The Plant generally treated residential and light industrial sewage wastes. Periodically, however, waste including limited quantities of petroleum products, organic solvents, trace metals, and pesticides were processed (Dames and Moore, 1987). Because the bottoms of the sludge drying beds were permeable and the Plant had a history of treating light industrial constituents, concerns were raised about potential impacts to the sludge drying bed area from the light industrial waste, petroleum products, organic solvents, trace metals, and pesticides.

The following environmental remedial investigation (RI) and remediation activities were conducted at Site 7 between 1982 and 2010.

- In 1982, the first study at the Site 7 was the Phase I records search, which involved interviewing base personnel, conducting file searches, and inspecting sites with historical hazardous waste activity (Simons, Li & Associates, Inc., 1982).
- Environmental samples were collected from the site during five investigations, including the 1985 Phase II investigation (Dames & Moore, 1987); an RI in 1988 (Science Applications International Corporation [SAIC], 1995); a 2002 Supplemental RI (Parsons, 2003); a 2005 Supplemental Site Characterization (SSC) in support of the Site 7 Engineering Evaluation/Cost Analysis (EE/CA) (URS, 2008); and a limited 2009 investigation in support of the proposed removal action (Versar, 2009).
- A soil removal action was conducted from October 2009 through March 2010 (Versar, 2010).

The investigation results are documented in the following reports, which can be found in the Buckley AFB Administrative Record/Information Repository (AR/IR) at the Aurora Public Library, Central Branch:

- Dames & Moore. 1987. *Phase II – Confirmation/Quantification Stage 1, Buckley Air National Guard Base, Colorado*. Park Ridge, Illinois. May 28.

- Parsons. 2003. *Final Supplemental Remedial Investigation Report for the Former Sludge Drying Beds (Site 7), Buckley Air Force Base, Colorado*. Denver, Colorado. August.
- SAIC. 1995. *Remedial Investigation Report, Colorado Air National Guard, Buckley Air National Guard Base, Aurora, Colorado*. Golden, Colorado. August.
- Simons, Li & Associates, Inc. 1982. *Phase I Records Search Buckley Air National Guard Base, Colorado*. Fort Collins, Colorado. September.
- URS Group, Inc. (URS). 2008. *Final Site 7 – Sludge Drying Beds Engineering Evaluation/Cost Analysis, Buckley Air Force Base*. Denver, Colorado. April.
- URS. 2009. *Final Site 7 Action Memorandum, Buckley Air Force Base*. Denver, Colorado. September.
- URS. 2010. *Final Basewide Site Inspection Report, Buckley Air Force Base*. Denver, Colorado. March.
- Versar, Inc. (Versar). 2009. *Final Letter Report of the Site 7 Sludge Drying Beds Characterization Sampling Conducted in Support of the Proposed Removal Action, Buckley Air Force Base, Colorado*. Westminster, Colorado. October 23.
- Versar. 2010. *Final Removal Action Report for Site 7 Former Wastewater Treatment Plant, Buckley Air Force Base, Colorado*. Westminster, Colorado. May.

There have been no enforcement activities at Site 7.

### **2.3 Community Participation**

NCP Section 300.430(f)(3) establishes a number of public participation activities that the lead agency must conduct following preparation of the Proposed Plan and review by the support agencies. The Proposed Plan is the document that indicates the lead agency's preferred remedy for the site. Components of these public participation activities and documentation of how each component was satisfied for Site 7 are described in Tables 2-1 and 2-2.

The USAF has prepared and implemented a Community Involvement Plan (CIP) in accordance with CERCLA requirements. The CIP describes community involvement activities that the USAF will undertake during remedial activities at Buckley AFB. The USAF has followed the CIP requirements, including holding public meetings and providing the opportunity for public comment.

As indicated in Table 2-2, a public meeting was held on October 21, 2010 to present the Proposed Plan to a larger community audience than those who had already been involved at the site. Several community members, in addition to representatives from the USAF and its contractors, USEPA, and CDPHE attended the meeting. At this meeting Buckley AFB representatives and contractors answered questions about Site 7. Verbal comments that were received during the public meeting, along with USAF responses to written public comments received on the Site 7 Proposed Plan, are discussed in the Responsiveness Summary, which is provided as Section 3 of this ROD. Verbal comments made by the public during the meeting did not change the remedy selection process. An excerpt from the official public meeting transcript, which includes the verbal comments, is included as Appendix A. The official public meeting transcript was placed in the AR/IR.

**Table 2-1**  
**Public Notification of Document Availability**

<b>Requirement:</b>	<b>Satisfied by:</b>
Notice of availability of the Proposed Plan must be made in a general circulation major local newspaper.	Notice of Availability was published in the <i>Aurora Sentinel</i> and <i>Buckley Guardian</i> , Aurora, CO.
Notice of availability must include a brief abstract of the Proposed Plan which describes the alternatives evaluated and identifies the preferred alternative (NCP Section 300.430(f)(3)(i)(A))	The Notice of Availability and Fact Sheet prepared for Site 7 included these components and are included for reference as Attachment 1 to this ROD.
Notice of availability should consist of the following information: <ul style="list-style-type: none"> <li>• Site name and location</li> <li>• Date and location of public meeting</li> <li>• Identification of lead and support agencies</li> <li>• Alternatives evaluated in the detailed analysis</li> <li>• Identification of preferred alternative</li> <li>• Request for public comments</li> <li>• Public participation opportunities including:               <ul style="list-style-type: none"> <li>➤ Location of information repositories and Administrative Record file</li> <li>➤ Methods by which the public may submit written and oral comments, including a contact person</li> <li>➤ Dates of public comment period</li> <li>➤ Contact person for the Community Advisory Group (e.g., Restoration Advisory Board), if applicable</li> </ul> </li> </ul>	The Notice of Availability and Fact Sheet included this information. The Notice of Availability was published in the <i>Aurora Sentinel</i> on October 14, 2010 and the <i>Buckley Guardian</i> on October 15, 2010. The Fact Sheet was emailed to interested parties and the Community Advisory Group on October 14, 2010.

**Table 2-2  
Public Comment Period Requirements**

<b>Requirement:</b>	<b>Satisfied by:</b>
Lead agency should make document available to public for review on same date as newspaper notification.	The document was made available to the public on October 14, 2010. The Notification of Availability was made on October 14, 2010.
Lead agency must ensure that all information that forms the basis for selecting the response action is included as part of the Administrative Record file and made available to the public during the public comment period.	Buckley AFB maintains the Administrative Record file for the Buckley IRP, including Site 7. The collected data and CERCLA primary documents produced for Site 7 are maintained as part of this file and the Information Repository, which is available to the public at Aurora Public Library, Central Branch.
CERCLA Section 117(a)(2) requires the lead agency to provide the public with a reasonable opportunity to submit written and oral comments on the Proposed Plan.  NCP Section 300.430(f)(3)(i) requires the lead agency to allow the public a minimum of 30 days to comment on the Proposed Plan and other supporting information located in the Administrative Record and Information Repository.	The USAF provided a public comment period for the Proposed Plan from October 14, 2010 to November 12, 2010.
The lead agency must extend the public comment period by at least 30 additional days upon timely request.	The USAF received no requests to extend the public comment period.
The lead agency must provide the opportunity for a public meeting to be held at or near the site during the public comment period. A transcript of this meeting must be made available to the public and be maintained in the Administrative Record and Information Repository for the site (pursuant to NCP Section 300.430(f)(3)(i)(E)).	A public meeting was held on October 21, 2010 at the Aurora Chamber of Commerce (Address: 14305 E. Alameda Ave, Suite 300, Aurora, CO 80012). A transcript of this meeting has been added to the Administrative Record file and Information Repository.

## **2.4 Scope and Role of Operable Unit or Response Action**

Site 7 is one of eleven Buckley IRP program sites. Activities for this IRP site have been and are currently being performed in accordance with the CERCLA remedial process and, to the extent practicable, the NCP. Future investigations, remedy selection, and closure for the other IRP sites are pending; however, these activities do not impact the closure of Site 7.

This ROD selects the final action for Site 7. Because no significant risk to human health and the environment is posed, the appropriate response is No Further Action.

## **2.5 Site Characteristics**

### **2.5.1 Physiography and Climate**

The Buckley AFB climate is characterized by low relative humidity, abundant sunshine, and large daily and seasonal temperature variations. For the City of Aurora, the average daily temperature is a high of 64.4 degrees Fahrenheit (°F) with a low of 36.7 °F. The City of Aurora has more than 310 days of sunshine per year, and the average annual precipitation is approximately 14.82 inches ([www.sunsetcities.com](http://www.sunsetcities.com)).

### **2.5.2 Geology**

Buckley AFB is located within the shallow, bowl-shaped Denver Basin (Basin) that covers an area of approximately 6,700 square miles. The Basin has been filled with sedimentary rocks associated with erosion processes occurring to the west in the Rocky Mountains. The sedimentary rocks deposited in the Basin are comprised of six geologic formations including the following in descending stratigraphic order: Castle Rock Conglomerate; Dawson Arkose; Denver, Arapahoe, and Laramie formations; and the Fox Hills Sandstone. The Fox Hills Sandstone is underlain by the relatively impermeable Pierre Shale Formation.

Buckley AFB is situated on the Denver Formation as the Castle Rock Conglomerate and Dawson Arkose formations are not present. At Buckley AFB, the Denver Formation is approximately 850 feet thick. The Denver Formation is an approximately 600 to 1,000-foot thick sequence of variably consolidated, interbedded shale, claystone, siltstone, and sandstone occurring in poorly defined lenticular beds. Approximately 70 % of the Denver Formation is composed of thick sequences of shale and claystone. Approximately 30 % is composed of coarser grained sediments that are irregularly dispersed in lenticular beds that range from a few inches to as much as 50 feet thick. The Denver Formation is characterized by its olive, green-grey, brown, and tan colors. Additional characteristics include thin lignite seams.

The thickness of the Denver Formation is expected to inhibit the potential environmental impact to underlying geological units (i.e., Arapahoe and Laramie formations and Fox Hills Sandstone). Overlying the Denver Formation is a thin mantle of windblown loess and fine sand ranging from 8 to 15 feet thick. However, the mantle is generally less than 10 feet thick. Alluvial deposits derived from the relatively recent erosion of the Denver Formation are located in stream valleys.

Specifically, the alluvial deposits are located along Sand Creek, Toll Gate Creek, and tributaries in the Buckley AFB vicinity. Sand Creek is located northeast of Buckley AFB. Toll Gate Creek is located west of Buckley AFB (URS, 2009a).

Soils encountered at Site 7 are characteristic of the Denver Formation and overlying alluvial deposits described above. Alluvial deposits, and possibly eolian and colluvium soils were encountered from ground surface to approximately 12 ft below ground surface (bgs). Below the alluvium is predominately the weathered claystone of the Denver Formation with minor weathered interbedded sandstone (URS, 2008).

Subsurface conditions encountered in the soil borings at Site 7 generally consist of 20 feet or less of fine sand and silts, which are underlain by the Denver Formation. Claystone bedrock was encountered at 50 feet bgs in one boring (Versar, 2010).

### **2.5.3 Hydrogeology**

Aquifers within the Denver Basin are typically found in the variably consolidated sandstone, conglomerate, and siltstone deposits. The claystone within the Denver Formation impedes the hydraulic flow both vertically and horizontally within the aquifers. Because of the conditions noted above, unconfined (i.e., water table) and confined conditions exist within the Denver Aquifer. Generally, unconfined conditions exist within the weathered Denver Formation or overlying surficial deposits, as at Buckley AFB. Confined conditions generally are present in the south and central portions of the Denver Basin where the Dawson Formation overlies the Denver Formation. Recharge to the Denver Aquifer occurs in outcrop areas by direct infiltration of precipitation or irrigation water, and downward leakage from alluvial aquifers in the upland reaches of stream and river valleys. Groundwater discharge occurs primarily in the form of seepage and evapotranspiration where the aquifer formation crops out. At Buckley AFB, groundwater flow is to the northwest toward the South Platte River, which serves as a groundwater divide within, and a major discharge area for, the aquifer.

At Site 7, groundwater occurs at approximately 40-50 ft bgs, within variably weathered portions of the Denver Formation. The groundwater flow is generally from east to west/northwest, and the hydraulic gradient is approximately 0.05 to 0.07 ft/ft in the vicinity of the former sludge drying bed area of the Plant.

### **2.5.4 Surface Water Hydrology**

Sand Creek and East Toll Gate Creek exist along the northeast and southwest sides of Buckley AFB, respectively. Coal Creek and Murphy Creek flow into Sand Creek from the south, with the confluence of the streams located east of the Base. Both Sand Creek and East Toll Gate Creek originate in the high plains east of Buckley AFB. Surface water runoff at Site 7 drains by overland flow to surrounding fields to the north and west. These fields drain toward Sand Creek, following local topography.

### **2.5.5 Ecology**

Native habitat at the Base includes short grass prairie rangelands and a riparian strip along East Toll Gate Creek. The excellent condition of these rangelands supports numerous non-game species of animals that include ground-nesting birds and small mammals.

Several species of birds that are protected under federal and State of Colorado statute have been observed at Buckley AFB including the following:

- Mature and immature bald and golden eagles,
- Several breeding pairs of western burrowing owls, and
- Ferruginous hawks.

Other federally- and/or state-protected bird species that potentially exist at Buckley AFB include the mountain plover, Baird's sparrow, and loggerhead shrike.

The black-footed ferret, Preble's meadow jumping mouse, and swift fox are mammal species that are protected by federal and/or state statute. Although these mammal species have not been seen at Buckley AFB, they could be present. Of the listed mammals, Preble's meadow jumping mouse is most likely to inhabit the Base because of available suitable habitat.

No sensitive ecological populations, habitat, or natural resources are at or adjacent to Site 7.

### **2.5.6 Previous Site Characterization Activities**

As indicated in Section 2.2, various environmental investigations were conducted at Site 7 between 1982 and 2010. These investigations are listed again in this section, with additional detail added.

The first study at Site 7 was the Phase I records search, which involved interviewing base personnel, conducting file searches, and inspecting sites with historical hazardous waste activity (Simons, Li & Associates, Inc., 1982).

The second study at Site 7 was the Phase II investigation (Dames & Moore, 1987). Under this investigation, limited soil and groundwater sampling was conducted in 1985. The third study at Site 7 was the basewide RI, which included an initial field investigation conducted from October 1988 through January 1989, and a follow-on RI, conducted from July 1991 through August 1991 (SAIC, 1995).

In 2002, a Supplemental RI was conducted. To address remaining concerns about potential contaminant migration in groundwater from Site 7, additional wells were installed and groundwater monitoring was conducted (Parsons, 2003).

In addition, in 2005 a Supplemental Site Characterization for the Site 7 former sludge drying bed area was conducted. The investigation included the collection of soil samples from 36 borings and collection of groundwater samples (URS, 2008).

A soil removal action was conducted in 2009 and 2010 to remove impacted soil at Site 7 (Versar, 2010). Additional soil samples were collected in support of this removal action.

### **2.5.7 Nature and Extent of Contamination**

Investigations conducted at Site 7 included groundwater monitoring well installation and groundwater sampling. Wells were installed downgradient of the former sludge drying bed area to evaluate potential effects from past site activities. As the groundwater flow direction is toward the west to northwest, wells MW-1 and MW-2 were upgradient of the former drying beds and wells MW-3, MW-4, and MW-5 were downgradient. The wells were determined to be in appropriate locations for evaluating potential effects from the former drying beds. A well in the northeast corner of the site was not needed because that would be cross gradient of the drying beds. The investigation results (Parsons, 2003 and URS, 2008) indicated there are no volatile organic compound (VOC), semi-volatile organic compound (SVOC), or polynuclear aromatic hydrocarbon (PAH) chemicals of concern (COC) in groundwater, as these constituents either were not detected or were detected at concentrations below the applicable screening criteria, including the Colorado Basic Standards for Groundwater. These are standards established by the state of Colorado to protect beneficial uses of groundwater. Metal concentrations, except for selenium, were also below groundwater screening criteria. The selenium concentrations were attributed to background levels and not to previous site activities.

Most of the site soil samples were collected during the 2005 SSC. The investigation included the collection of soil samples from 36 borings and identified chromium, lead, and five PAHs as COCs in soil at the site. As no analytes were identified as COCs in groundwater (URS, 2008), no additional groundwater monitoring at Site 7 was deemed necessary, and no further action for groundwater was deemed necessary. Soil sample analytical results for the site indicate metals and PAHs were present in soil at the site at the time of sampling. The source of releases to the environment was removed when Plant activities ceased.

The soil removal action was conducted in 2009 and 2010 with remedial action objectives to eliminate continuing sources of soil contamination, minimize migration of the contaminated soil source, and reduce exposure risk to human health and the environment from COCs in soil. These objectives were to be met by removing soil containing COCs at concentrations above the CDPHE residential Colorado Soil Evaluation Values (CSEVs) (CDPHE, 2007). The CSEVs are constituent concentration screening levels for soil, established by the state of Colorado, based upon residential or worker exposure to soil and associated human health risk. Soil with constituent concentrations below the residential CSEVs may be used for unrestricted purposes including residential development. The cleanup goals for the Site 7 removal action were based upon the residential CSEVs, which is appropriate for Site 7 considering proposed future land use as discussed in Section 2.6.1.

Due to the potential risk to human health and the environment and the potential for migration of the contamination, approximately 1,606 cubic yards of soil at Site 7 were excavated and disposed at an approved off-base facility. The excavation was backfilled with imported clean fill soil and topsoil was placed over the backfilled area. The area was then reseeded. Post-removal confirmation soil sample data indicate the removal action cleanup values were met. During the removal action, the five Site 7 groundwater monitoring wells were abandoned in accordance with state regulations. The removal action activities are summarized in the Site 7 Removal Action Report (Versar, 2010).

## **2.6 Current and Potential Future Land Use and Resource Uses**

### **2.6.1 Land Use**

The current land use in the vicinity of Site 7 includes light industrial, agricultural, open space, and limited residential development. The USAF proposes to construct a military personnel processing facility at this site, but a construction date has not been established.

No land use controls (LUCs) will be needed because the removal action reduced the hazardous substances and pollutants or contaminants on the site to levels that allow for unlimited use and unrestricted exposure.

### **2.6.2 Ground and Surface Water Beneficial Uses**

The aquifer beneath and in the vicinity of Site 7 is the Denver Aquifer as described in Section 2.5.3. Currently, groundwater in the Site 7 area is not used for drinking water or irrigation. In addition, the site investigation results indicated no analytes were identified as COCs in groundwater. No surface water exists directly on the site.

## **2.7 Summary of Site Risks**

This section summarizes the human health and ecological risk assessments that have been performed at Site 7.

### **2.7.1 Summary of Human Health Risk Assessment**

A risk assessment conducted during a remedial investigation estimates what risks the site poses if no action were taken. The assessment provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. Human health risk may again be assessed after a remedial action to confirm that the remedial action was effective in reducing the human health risk. This section of the ROD summarizes the approaches used and the results of the risk assessments conducted for this site.

Risk to human health and the environment from Site 7 has been evaluated several times during the site environmental investigation and remediation activities. These evaluations are briefly discussed below.

### ***Remedial Investigation Risk Assessment***

A human health risk assessment was conducted as part of the initial RI (SAIC, 1995). Contaminant concentrations measured at the site were evaluated based on concentration, mobility, persistence, and toxicity. The assessment considered contaminated soil in the sludge drying bed areas and site groundwater. During the RI, organic compounds were not detected. Therefore, the risk assessment evaluated risk from inorganic compounds (metals) only.

The assessment concluded that inorganic compound concentrations in groundwater were below the screening criteria and thus a risk assessment for human exposure to groundwater was not conducted. The screening criteria used to make this determination included the federal drinking water standards and the Colorado Basic Standards for Groundwater. The federal drinking water standards are also known as the maximum contaminant levels (MCLs), established under the Safe Drinking Water Act.

The risk assessment for inorganic soil contaminants evaluated human exposure to Site 7 contaminated soil for Buckley AFB personnel and hypothetically exposed children (child exposure not anticipated, but evaluated) for carcinogenic (cancer-related) and noncarcinogenic risk. The risk assessment indicated no adverse noncarcinogenic effects would be anticipated for chronic exposure to soil for these potential human receptors. The carcinogenic risk was found to be within an acceptable risk range. Overall, the RI risk assessment indicated there was no significant human health risk associated with soil contamination from inorganic compounds in the Site 7 sludge drying bed areas (SAIC, 1995).

### ***EE/CA Risk Evaluation***

Additional site investigation activities were conducted in 2005 to address data gaps identified in the RI. The results of this investigation, referred to as the SSC, were reported in the Site 7 EE/CA. The EE/CA is a document that summarizes site characterization activities, identifies soil removal action objectives, identifies and evaluates removal action alternatives, and recommends a removal action alternative that can meet the identified objectives.

A streamlined risk evaluation was performed as part of the Site 7 EE/CA. This risk evaluation considered previously collected data and the SSC data. In terms of potential human exposure at Site 7, two exposure areas were identified – the sludge drying bed area and the Outfall area. The USAF is addressing the Outfall separately, as indicated in the Basewide SI Report (URS, 2010). The risk assessment compared concentrations of organic and inorganic compounds in soil (from the SSC sampling activities) in the sludge drying beds to USEPA Region 9 Preliminary Remediation Goals (PRGs) and CDPHE CSEVs for residential and industrial land uses. The PRG and CSEV values were used in the risk assessment, as they are appropriate screening levels based upon potential human exposure to contaminated soil and human health risks. As indicated above in Section 2.5.7, the CSEVs are constituent concentration screening

levels for soil, established by the State of Colorado, based upon residential or worker exposure to soil. The CSEVs are based on either an acceptable carcinogenic lifetime risk of  $1 \times 10^{-6}$  (excess cancer risk of one in a million) or a noncarcinogenic risk corresponding to a hazard quotient of 1. Sites with soil constituent concentrations below the residential CSEVs may be used for unrestricted purposes including residential development.

Based on comparison of constituent concentrations in site soil to PRGs and CSEVs, only metals and PAHs were identified as requiring further consideration at Site 7. Because metal and PAH concentrations in soil at this site exceeded the PRGs and CSEVs, and because future commercial/industrial or residential land use is a possibility, a removal action for these constituents was proposed and conducted to reduce risk at the site.

### ***Removal Action Risk Evaluation***

The human health risk was evaluated again during and after the 2009 – 2010 soil removal action by comparing confirmation soil sample results to the CSEV risk-based soil screening values. Confirmation soil samples are additional investigation samples collected from soil remaining on site after excavation. The samples were collected from the excavation bottom and sides.

The confirmation sample results were used to confirm that the impacted soil was removed and that the soil remaining on site met the cleanup goals, which included meeting the residential CSEVs. During the excavation activities, if the soil sample results indicated the CSEVs had not been achieved for a particular COC, then additional soil was excavated and confirmation soil samples were again collected (stepout samples) from the new excavation bottom and sides. The excavation work ceased when the confirmation soil samples representing the excavation bottom and sides indicated soil above the CSEVs had been removed and the remaining soil met the CSEVs. By achieving residential CSEVs, the risk to human health from soil remaining at the site is considered negligible and the site is considered safe for future unrestricted use, including human residential use.

The confirmation results are summarized in Tables 2-3 and 2-4 and are presented and discussed in more detail in the Removal Action Report (Versar, 2010). Tables 2-3 and 2-4 also compare the confirmation soil sample results to the residential CSEVs. The tables show that constituent concentrations in site soil after the removal action are below the CSEVs for residential land use. In some excavation areas, an initial confirmation sample such as sample 7SDB-C01 exceeded the residential CSEVs, so additional soil was excavated, and a stepout confirmation sample (7SDB-C27) was obtained and analyzed. The tables show the initial confirmation sample results and the stepout sample results.

Currently, groundwater in the Site 7 area is not used for drinking water or irrigation, and there are no direct human receptor exposure pathways to groundwater. In addition, the site investigation results indicated no analytes were identified as COCs in groundwater. Through the removal action, soil containing metals and PAHs about residential standards was excavated and removed from the site, mitigating the potential for these contaminants to migrate to groundwater. Therefore, because the soil removal action achieved residential CSEVs, there is

no unacceptable human health risk to future site users from soil or groundwater at Site 7, and the site meets the criteria for unrestricted reuse.

The removal action at Site 7 has reduced site contaminants to levels below site remediation goals (CSEVs). No further action is necessary to ensure protection of human health or the environment.

### **2.7.2 Summary of Ecological Risk Assessment**

An ecological risk assessment was not deemed necessary and was not performed for Site 7. Currently, groundwater in the Site 7 area is not used for irrigation, and there is no direct ecological receptor or exposure pathway to the groundwater. Because the soil excavation is complete, there is no complete exposure pathway for an ecological receptor to impacted soil and there is no unacceptable ecological risk from soil or groundwater at Site 7.

## **2.8 Documentation of Significant Changes**

The Proposed Plan for Site 7 was released for public comment on October 14, 2010, and identified No Further Action as the preferred alternative for the site. The Proposed Plan did not identify any actions that were not protective of human health and the environment. Verbal comments from the public meeting (see Appendix A) were the only comments submitted during the public comment period. Written comments regarding the Proposed Plan were received from a member of the public prior to the comment period. Appendix A also includes the responses to these comments. It was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

**Table 2-3  
Soil Removal Action Confirmation Sample Results  
at Northern Site 7 Removal Action Area**

Chemical of Concern:			Benzo(a)pyrene	Chemical of Concern:			Benzo(a)pyrene	Chemical of Concern:			Benzo(a)pyrene
CSEV (mg/kg):			0.022	CSEV (mg/kg):			0.022	CSEV (mg/kg):			0.022
Sample Number	Sample Date	Interval Depth (ft bgs)	Results (mg/kg)	Sample Number	Sample Date	Interval Depth (ft bgs)	Results (mg/kg)	Sample Number	Sample Date	Interval Depth (ft bgs)	Results (mg/kg)
<b>Initial Confirmation Samples</b>				<b>Stepout/down Confirmation Samples<sup>b</sup></b>				<b>Stepout Confirmation Samples<sup>b</sup></b>			
7SDB-C01	11/2/2009	0 - 1	<b>0.119</b>	7SDB-C27	11/5/2009	0 - 1.5	0.00101 J	--	--	--	--
7SDB-C02	11/2/2009	0 - 1	0.0159 F	--	--	--	--	--	--	--	--
7SDB-C03	11/2/2009	0 - 1	<b>0.0717</b>	7SDB-C28	11/5/2009	0 - 1.5	<b>0.0237</b>	7SDB-C31	11/5/2009	0 - 1	0.00208 F
7SDB-C04	11/2/2009	0 - 1	<b>0.111</b>	7SDB-C29 (at wall)	11/5/2009	1.5 - 1.5	<0.000809	--	--	--	--
7SDB-C05	11/2/2009	1 - 1	<0.0150	--	--	--	--	--	--	--	--
7SDB-C06	11/2/2009	0 - 1	<b>0.0292 F</b>	7SDB-C30	11/5/2009	0 - 1.2	0.00101 J	--	--	--	--
7SDB-C07	11/2/2009	0 - 1	0.0179 F	--	--	--	--	--	--	--	--
7SDB-C08	11/2/2009	0 - 1	0.0200 F	--	--	--	--	--	--	--	--
7SDB-C09	11/2/2009	0 - 1	<0.00257	--	--	--	--	7SDB-C01 stepout 7SDB-C27 met CSEV 7SDB-C03 second stepout 7SDB-C31 met CSEV 7SDB-C04 stepout 7SDB-C29 met CSEV 7SDB-C06 stepout 7SDB-C30 met CSEV  Remaining soil on site meets CSEV Site 7 meets criteria for unrestricted site use			
7SDB-C09D	11/2/2009	0 - 1	<0.00321	--	--	--	--				
7SDB-C10	11/2/2009	1 - 1	0.00286 M	--	--	--	--				
<b>Additional Confirmation Samples</b>				--	--	--	--				
7SDB-C36	2/25/2010	0 - 1.2	0.00944 <sup>a</sup>	--	--	--	--	Remaining soil on site meets CSEV Site 7 meets criteria for unrestricted site use			
7SDB-C37	2/25/2010	0.7 - 1.2	0.00832 <sup>a</sup>	--	--	--	--				
7SDB-C37D	2/25/2010	0.7 - 1.2	<0.00312 <sup>a</sup>	--	--	--	--				
<b>Exceedances of CSEV</b>			4	<b>Exceedances of CSEV</b>			1	<b>Exceedances of CSEV</b>			0

## Notes:

&lt; = not detected (less than the listed MDL)

CSEV = Colorado Soil Evaluation Value

D = duplicate (at end of Sample Number)

ft bgs = feet below ground surface

MDL = method detection limit

mg/kg = milligrams per kilogram

**BOLD** = Result is above the cleanup level (CSEV)<sup>a</sup> Other polynuclear aromatic hydrocarbons (PAHs) were analyzed, but were not above cleanup levels.<sup>b</sup> The stepout samples were taken after additional excavation was performed to remove soil that did not meet the CSEVs. For example, sample 7SDB-C01 did not meet the CSEVs. Soil in that area was excavated and stepout sample 7SDB-C27 was collected to represent the new excavation bottom. That sample met the CSEVs. 7SDB-C31 was taken in an unexcavated area adjacent to the excavation and indicated that excavation to that area would achieve the CSEVs.

Reference: Colorado Soil Evaluation Values, December 2007, Colorado Department of Public Health and Environment. Table referenced from Versar, 2010.

**Table 2-4  
Soil Removal Action Confirmation Sample Results  
At Southern Site 7 Removal Action Area**

Chemical of Concern:			Lead	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Dibenz(a,h) anthracene	Indeno(1,2,3- c,d) pyrene
CSEV (mg/kg):			400	0.22	0.022	0.22	0.022	0.22
Sample Number	Sample Date	Interval Depth (ft bgs)	Results (mg/kg)					
<b>Initial and Deeper Confirmation Samples Collected November 2 - 5, 2009</b>								
7SDB-C11	11/2/2009	0 - 1	18.2	<0.00313	<0.00313	<0.00313	<0.00313	<0.00313
7SDB-C12	11/2/2009	0 - 1	16.6	<0.00320	<0.00320	<0.00320	<0.00320	<0.00320
7SDB-C13	11/3/2009	0 - 2	12.7	<0.00311	<0.00311	<0.00311	<0.00311	<0.00311
7SDB-C14	11/3/2009	0 --2	68.0	0.0151	0.0220	0.0245	0.0117 F	0.0398
7SDB-C14	11/5/2009	0 - 2	NA	0.0283	0.00514	0.0351	0.00151 F	0.168
7SDB-C15	11/3/2009	0 - 2	13.7	<0.00332	<0.00332	<0.00332	<0.00332	<0.00332
7SDB-C15D	11/3/2009	0 - 2	13.0	<0.00324	<0.00324	<0.00324	<0.00324	<0.00324
7SDB-C16	11/2/2009	0 - 1	22.8	<0.0136	<0.0136	0.0145 F	<0.0136	0.0170 F
7SDB-C17	11/2/2009	1 - 1	64.1	0.0464 F	<b>0.0684</b>	0.0710	<0.0292	0.0773
7SDB-C17D	11/2/2009	1 - 1	68.2	0.0384 F	<b>0.0509 F</b>	0.0607	<0.0267	0.0634
7SDB-C17	11/5/2009	2 - 2	NA	<0.00154	<0.000835	<0.000489	<0.000531	<0.000503
7SDB-C18	11/3/2009	2 - 2	18.2	0.110	<b>0.0803</b>	0.0734	0.0166	0.0492 M
7SDB-C18	11/4/2009	2 - 2.6	10.5	<0.00147	<0.000792	<0.000464	<0.000504	<0.000477
7SDB-C19	11/3/2009	2 - 2	89.1	0.0173 F	<b>0.0275 F</b>	0.0412	<0.0142	0.0378
7SDB-C19	11/4/2009	2 - 2.6	11.2	<0.00156	<0.000842	<0.000493	<0.000535	<0.000507
7SDB-C20	11/3/2009	2 - 2	37.8	0.00857 F	0.0124	0.0157	<0.00620	0.0177
7SDB-C20	11/4/2009	2 - 2.6	12.4	NA	NA	NA	NA	NA
7SDB-C21	11/3/2009	0 - 2	11.5	<0.00281	<0.00281	<0.00281	<0.00281	<0.00281
7SDB-C22	11/2/2009	0 - 1	66.8	0.0722	<b>0.116</b>	0.0997	<b>0.0438 F</b>	0.134
7SDB-C22	11/5/2009	0 - 2	NA	0.0620	0.0149	0.0788	0.00836	<b>0.285</b>
7SDB-C23	11/2/2009	0 - 1	80.4	0.0478 F	<b>0.0781</b>	0.0652	<0.0292	0.082
7SDB-C23	11/5/2009	1 - 2	NA	0.00853 J	<0.000899	<0.000526	<0.000572	<0.000542
7SDB-C24	11/3/2009	0 - 2	51.2	0.0631	<b>0.0758</b>	0.0633	0.0163	0.0568
7SDB-C24	11/5/2009	1.2 - 2.4	NA	<0.00153	<0.000828	<0.000484	<0.000527	<0.000499
7SDB-C25	11/3/2009	0 - 2	40.2	0.159	<b>0.176</b>	0.138	<b>0.0546</b>	0.131
7SDB-C25	11/5/2009	0.5 - 2.5	NA	<0.00144	<0.000777	<0.000455	<0.000494	<0.000468
7SDB-C26	11/3/2009	0 - 2	16.2	0.0371	<b>0.138</b>	0.114	<b>0.0603</b>	0.159
7SDB-C26	11/5/2009	0 - 3	NA	0.110	<b>0.0795</b>	0.128	<b>0.0303</b>	<b>0.315</b>
<b>Exceedances of CSEV:</b>			0	0	<b>10</b>	0	<b>4 - 7</b>	<b>2</b>

After completion of initial and deeper excavations, confirmation sample results indicated all areas met CSEVs except 7SDB-C22 and 7SDB-C26. Excavation in a horizontal direction was needed for these two areas. The following provides the results for these stepout confirmation samples.

**Table 2-4, continued**  
**Soil Removal Action Confirmation Sample Results**  
**at Southern Site 7 Removal Action Area**

Chemical of Concern:			Lead	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Dibenz(a,h) anthracene	Indeno(1,2,3-c,d) pyrene
CSEV (mg/kg):			400	0.22	0.022	0.22	0.022	0.22
Sample Number	Sample Date	Interval Depth (ft bgs)	Results (mg/kg)					
<b>Stepout Samples for 7SDB-C22 and 7SDB-C26 Collected November 10, 2009</b>								
7SDB-C32	11/10/2009	0 - 2.2	NA	0.0936	<b>0.0583</b>	0.117	<b>0.0269</b>	0.142
7SDB-C33	11/10/2009	0 - 1.8	NA	0.0164	0.0109	0.0246	0.0153	0.0453
7SDB-C33D	11/10/2009	0 - 1.8	NA	0.0108	0.00856	0.0197	0.0140	0.0366
7SDB-C34 (for C26)	11/10/2009	0 - 3.7	NA	<0.00149	<0.000805	<0.000471	<0.000512	<0.000485
7SDB-C35	11/10/2009	0 - 1	NA	0.0484	<b>0.0228</b>	0.0635	<b>0.0249</b>	0.0985
<b>Exceedances of CSEV:</b>			NA	0	<b>2</b>	0	<b>2</b>	0
<b>Stepout/down Samples for 7SDB-C32 and 7SDB-C35 Collected February 25, 2010</b>								
7SDB-C32	2/25/2010	1.1 - 2.2	NA	0.00544 F	0.00446 F	0.00518 F	<0.00276	0.00413 F
7SDB-C35	2/25/2010	1.7 - 1.7	NA	<0.00307	<0.00307	<0.00307	<0.00307	<0.00307
7SDB-C38	2/25/2010	0 - 1.5	NA	<0.00303	<0.00303	<0.00303	<0.00303	<0.00303
7SDB-C39	2/25/2010	1.1 - 1.9	NA	<0.00703	0.00866 F	0.0115 F	<0.00703	0.0117 F
<b>Exceedances of CSEV:</b>			NA	0	0	0	0	0
Stepout samples met CSEVs								
Remaining soil on site meets residential CSEV – Site 7 meets criteria for unrestricted site use								

## Notes:

&lt; = not detected (less than the listed MDL)

COC = chemical of concern

CSEV = Colorado Soil Evaluation Value

D = duplicate (at end of Sample Number)

ft bgs = feet below ground surface

MDL = method detection limit

mg/kg = milligrams per kilogram

NA = not analyzed

**BOLD** = Result is above the cleanup level*Italics* = Sample dilution was required, because of the concentration of another COC, resulting in an MDL above the cleanup level.Data Qualifiers

F = The analyte was positively identified, but the associated value is below the reporting limit.

M = A potential matrix effect was present.

J = The analyte was positively identified, and the quantitation is an estimation.

The stepout samples were taken after additional excavation was performed to remove soil that did not meet the CSEVs. For example, sample 7SDB-C26 did not meet the CSEVs. Soil in that area was excavated and stepout sample 7SDB-C34 was collected to represent the new excavation bottom. That sample met the CSEVs.

Reference: Colorado Soil Evaluation Values, December 2007, Colorado Department of Public Health and Environment. Table referenced from Versar, 2010.

### 3.0 Responsiveness Summary

This section provides a summary of the public comments regarding the Proposed Plan for No Further Action at Site 7, Buckley Air Force Base and the USAF response to comments. At the time of the public review period, the USAF had selected No Further Action as the preferred alternative for the site.

No written comments were received from the community during the public comment period. As indicated previously, written comments on the Proposed Plan were received prior to the comment period and are included in Appendix A. During the public meeting, verbal comments and questions were received. The portion of the meeting transcript that documents the comments, questions, and responses, also is included in Appendix A. Those comments did not change the selected remedy.

The written comments received on the Proposed Plan prior to the comment period, and the comments and questions received during the public meeting, are related and inquire about groundwater impacts at Site 7. The multi-part comment and response are briefly summarized below. Refer to Appendix A for additional information and detail.

**Comment:** "...while I recognize that the potential impact to groundwater is probably negligible, I still think that if you're looking out into the future, to say there was no impact to the groundwater by Site 7, it's just too big of a statement."

**Response:** In clarification, the site investigation data do not indicate that there was no impact to groundwater by Site 7. Rather, the data and the risk assessment based on the data, indicate there is no unacceptable risk to human health and the environment related to site groundwater.

Groundwater and soil investigations were conducted at Site 7 between 1987 and 2005 and included groundwater sampling in the wells downgradient of the former waste water treatment plant sludge drying beds. The sludge drying beds were the primary site area of concern as the beds had permeable bottoms. The groundwater depth at Site 7 is approximately 40-50 feet below ground surface and the groundwater flow direction is generally towards the west to northwest.

The site investigations and groundwater sampling were conducted on various dates and groundwater was sampled several times. The investigation results indicated there are no volatile organic compound, semi-volatile organic compound, or polynuclear aromatic hydrocarbon contaminants of concern in groundwater as these constituents either were not detected or were detected at concentrations below applicable screening criteria, including the Colorado Basic Standards for Groundwater. These are standards established by the state of Colorado to protect beneficial uses of groundwater. Metal concentrations, except for selenium, were also below groundwater screening criteria. The selenium concentrations were attributed to background levels and not to previous site activities.

As the data indicate there is no unacceptable risk to human health and the environment related to site groundwater, the site is suitable for unrestricted future use.

### **3.1 Stakeholder Comments and Lead Agency Responses**

The USEPA and CDPHE have worked closely with Buckley AFB throughout the investigation and decision process. USEPA and CDPHE reviewed the Proposed Plan and did not have comments concerning the selected remedy for Site 7. USEPA and CDPHE comments on the Draft Final version of this ROD, and responses to those comments, are included in Appendix B. USEPA and CDPHE concur with this No Further Action ROD.

### **3.2 Technical and Legal Issues**

No technical or legal issues have been identified.

## 4.0 References

Colorado Department of Public Health and Environment (CDPHE). 2007. *Table 1 – Colorado Soil Evaluation Values (CSEV), Version 1, 12/28/2007* (replaces the Soil Remediation Objectives originally included in the December 1997 *Proposed Soil Remediation Objectives Policy Document Outlining the Process for Developing Site-Specific Soil Remediation Objectives*, which were last updated March 2005). Hazardous Materials and Waste Management Division. Denver, Colorado. December.

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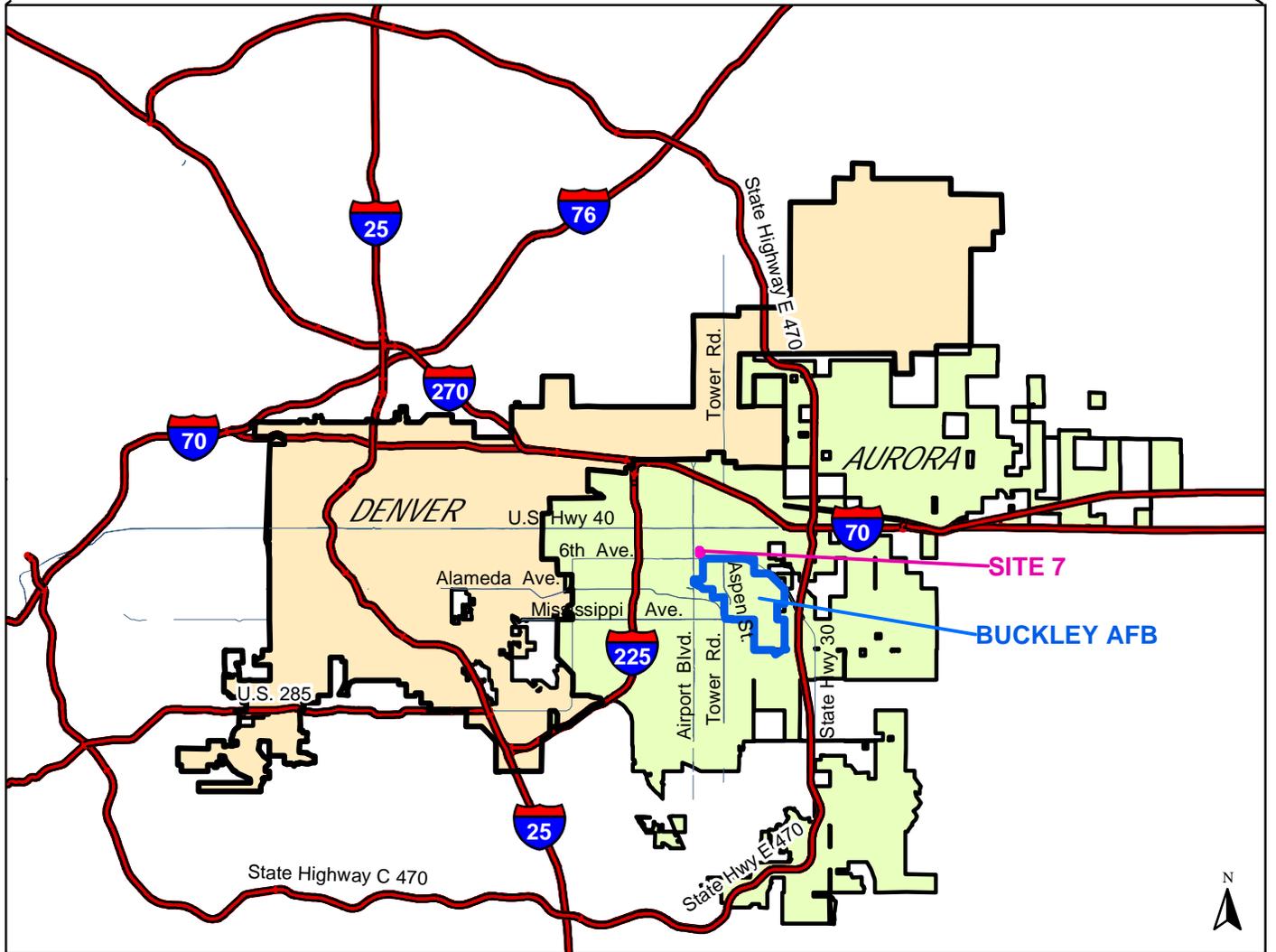
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United States Environmental Protection Agency (USEPA). 1999. *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. July.

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Versar. 2010. *Final Removal Action Report for Site 7 Former Wastewater Treatment Plant, Buckley Air Force Base, Colorado*. Westminster, Colorado. May.

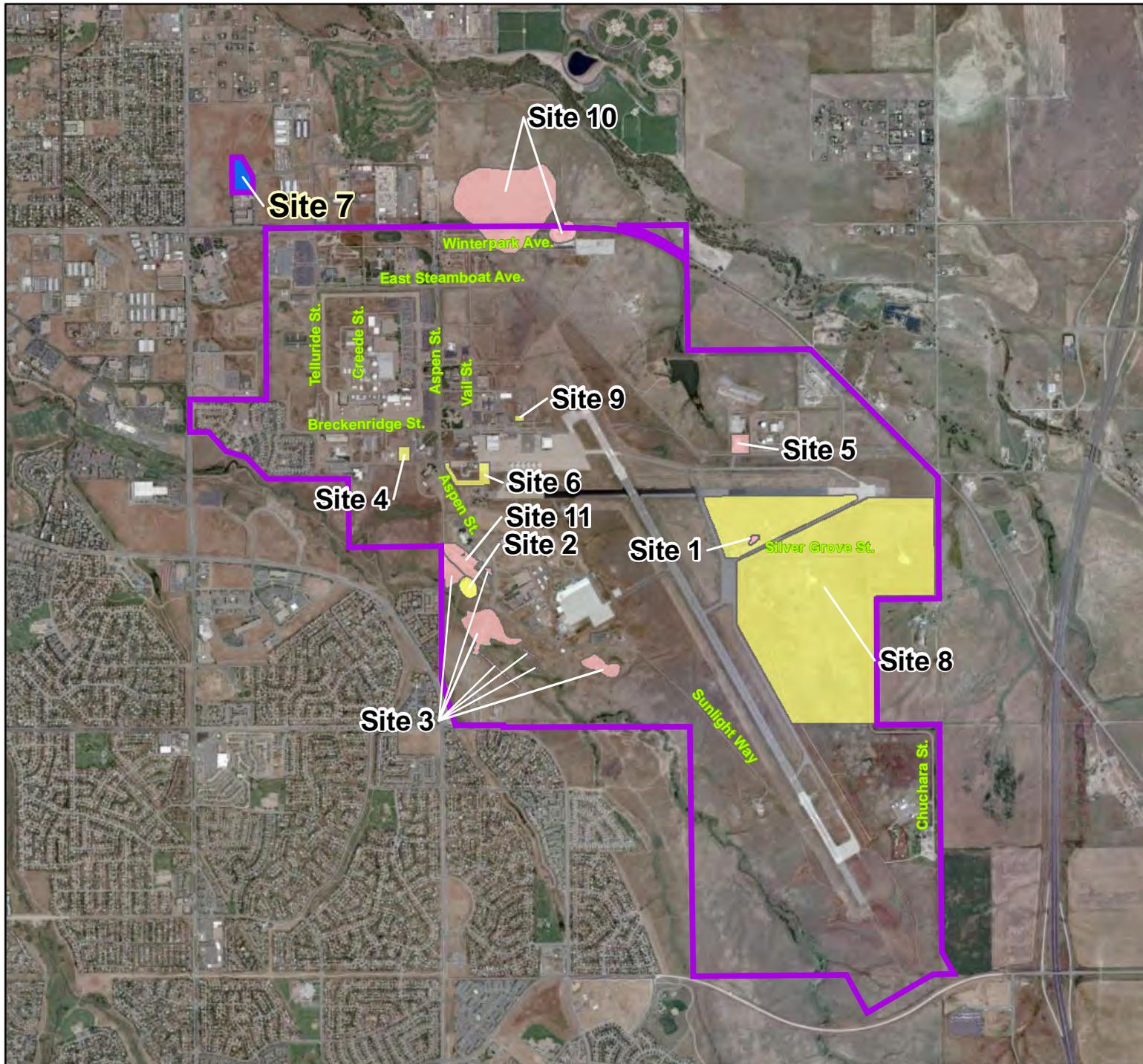
## **FIGURES**



**Legend**

- Major Highway
- Road
- Site 7
- Installation
- Denver
- Aurora

**Figure 1**  
Regional Map  
Buckley Air Force Base



**Legend**

- Site 7
- IRP Site
- IRP Site (Closed)
- Installation Boundary

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Scale in Feet

**Figure 2**  
**Location of IRP Sites**  
**Buckley Air Force Base**



**Legend**

- IRP Site 7
- Base Boundary

Scale in Feet

**Figure 3**  
IRP Site 7 Location Map  
Buckley Air Force Base

**APPENDIX A**  
**Written and Verbal Public Comments for Site 7**

**Responses to Written Comments Received Prior to the Public Comment Period**

**Responses to TWG and CAG Technical Review Comments  
Draft Final Site 7 Proposed Plan and Fact Sheet, June 2010  
Buckley Air Force Base, Colorado**

**General Comments:**

The purpose of these documents is to present the Draft Final Proposed Plan and Fact Sheet for Site 7 at Buckley AFB for review by the Buckley Technical Working Group (TWG) and Community Advisory Group (CAG). The work was performed by URS under AFCEE Contract FA8903-08-D-8783, Task Order 0121.

The TWG is comprised of the Colorado Department of Public Health and Environment (CDPHE), U.S. Environmental Protection Agency Region 8 (EPA), Tri-County Health Department, and City of Aurora. CDPHE and EPA typically provide document technical reviews on behalf of the TWG.

In a letter dated 23 June 2010, CDPHE indicated that CDPHE “reviewed the subject documents and has no substantive comments on either document. Both Draft Final document[s] are approved in their current forms and the Division concurs with the No Further Action proposal as the Preferred Remedy for Site 7.” In a letter dated 6 July 2010, EPA also indicated concurrence with the document.

The following table responds to a comment from the Buckley CAG, with follow-on comments from both CDPHE and the CAG. The comments have been paraphrased.

**Comments:**

Item	Section	Page	Comment	Response
1	--	--	<p>The westward groundwater flow direction stated in the proposed plan is not consistent with a flow toward Sand Creek. I'm not sure the groundwater contours are right from the Final Site 7 Engineering Evaluation/Cost Analysis. If groundwater is mounded by 10 feet on the west side of the site compared to the southeast well, then isn't flow toward the southeast, not the west. Based on the groundwater well locations, can a statement be made that there is no problem with groundwater? Why wasn't there a groundwater well in the northeast corner of the site? From a soil perspective, site closure appears okay. So is the [EE/CA] report saying no contaminants reached the groundwater? Ever? That's unlikely given the levels in the drying beds and the depth to groundwater. The "draft final proposed plan" needs to more clearly reference that there is no groundwater problem. It should also be clear that the no action recommendation is based on no soil problems (Above thresholds) and not "quality" or change thereto of groundwater. – comment from R. Clayshulte of CAG 6/15/10</p>	<p>The EE/CA (URS, 2008) indicates that groundwater elevations are higher on the southeast side (MW-1 and MW-2) and lower on the northwest side (MW-5) of Site 7, with groundwater flow towards the west to northwest. As the groundwater flow direction is toward the west to northwest, wells MW-1 and MW-2 are upgradient of the former drying beds and wells MW-3, MW-4, and MW-5 are downgradient. The wells were determined to be in appropriate locations for evaluating potential effects from the former drying beds. A well in the northeast corner of the site was not needed because that would be upgradient of the drying beds. The groundwater depth at Site 7 is approximately 40-50 feet below ground surface.</p> <p>Groundwater and soil investigations were conducted at Site 7 between 1987 and 2005, as discussed in the EE/CA and Proposed Plan, and included groundwater sampling at the wells downgradient of the drying beds. The investigation results indicated there are no volatile organic compound, semi-volatile organic compound, or polynuclear aromatic hydrocarbon contaminants of concern in groundwater, as these constituents either were not detected or were detected at concentrations below the applicable screening criteria, including the Colorado Basic Standards for Groundwater. Metal concentrations, except for selenium, were also below groundwater screening criteria. The selenium concentrations were attributed to background levels and not to previous site activities.</p> <p>The Proposed Plan text has been revised to more clearly explain the groundwater conditions at Site 7. Text was added to page 4 under the heading "Site Characteristics." A sentence was added to the Fact Sheet under "Summary of Site Risks" to indicate there is no unacceptable risk [to human health and the environment] related to site groundwater.</p>

Item	Section	Page	Comment	Response
2	--	--	<p>I read the response to Mr. Clayshulte’s comment. If I’m following along with the discussion at hand, and if the groundwater flow direction is to the west/northwest, wouldn’t the well that is not needed...to the northeast... be cross gradient/side gradient and not upgradient? I realize this point is academic, as a well to the northeast remains unjustified in any case, but I thought it might need some clarification with Mr. Clayshulte. – comment from L. Pivonka of CDPHE 7/19/10</p>	<p>The text added to the Proposed Plan per the response above was revised to indicate a well in the northeast corner of the site was not needed because that would be cross gradient of the drying beds.</p>
3	--	--	<p>While I’ve read through the URS 2008 report, which was supposed to clarify the groundwater flow direction, this report refers back to a 2003 Parsons report on groundwater. After reading the URS 2008 report, I see the groundwater flow was more “estimated” than determined. But I’ll assume the 2 groundwater wells monitored in the URS 2008 report (after the second testing) provide enough information to state “no problem with groundwater within standard limits.” On page 4, first sentence paragraph 3 left column “investigations conducted...” should cite Parsons 2003 report because the response to my comment that notes the URS 2008 report as the source for the groundwater flow information isn’t the source of the groundwater flow conclusion and the URS 2008 report relies on the Parsons 2003 report to conclude “no impact to groundwater.” While I’m not completely convinced of “no groundwater issues,” I’m okay with new language in the final Site 7 Proposed Plan. And since I’m okay with soil findings, close the site down and we’ll look more closely at the outfall in the future. – comment from R. Clayshulte of CAG 7/22/10</p>	<p>The 2003 Parsons report reference has been added to page 4 of the Proposed Plan. In addition, groundwater results for Site 7 will be thoroughly presented at the Site 7 public meeting; any additional concerns/questions can be addressed then.</p>

**Public Meeting Transcript Excerpt Containing Comments, Questions, and Responses**

1           At this time, I want to address any questions  
2 that any of you may have.

3           Russell?

4           MR. CLAYSHULTE: Russ Clayshulte, co-chair for  
5 the CAG. I've actually had some correspondence on this  
6 topic, and I've read a whole lot more about Site 7 than I  
7 thought I ever was going to.

8           One of my original questions dealt with  
9 groundwater flow because the comment has been made that  
10 there -- the groundwater has not been impacted by Site 7,  
11 which is a bold statement to be made. So when I went back  
12 and took a look on the groundwater -- looking at the  
13 groundwater gradient, you end up having to trace back  
14 through the series of documents to get back to the  
15 original document where they looked at two wells to make a  
16 determination of the groundwater flow.

17           The conclusion from the first study is simply  
18 just carried forward into subsequent reports. What I had  
19 been promised tonight was to hear a little bit more about  
20 this groundwater flow is something that really  
21 substantiates that the flow was from the west to  
22 northwest. There's a limited number of groundwater wells  
23 that were used for the sampling. As you'll notice, there  
24 was no well that was sampled up off of that northeast side  
25 where potentially the outfall went and looking at that

1 particular area.

2           So the question had been: Why wasn't there a  
3 well put in that area? And then how -- if you're not  
4 looking at some of these other areas, how are you drawing  
5 the conclusion that there was no impact to groundwater?

6           MS. COCHRAN: Okay.

7           MR. CLAYSHULTE: I'm still concerned that --  
8 on that particular -- on that one particular issue.

9           Now, I want to state further that I do agree  
10 with no further action. I mean, the soil stuff is very  
11 clear, and the soil studies that were done show that you  
12 meet the requirements, you meet the action levels and  
13 stuff. And while I recognize that the potential impact to  
14 groundwater is probably negligible, I still think that if  
15 you're looking out into the future, to say there was no  
16 impact to the groundwater by site 7, it's just too big of  
17 a statement.

18           MS. COCHRAN: Okay. So on this map here -- it  
19 might be a little hard to read the numbers -- but there  
20 are four wells that have water in them at the site. So we  
21 have one here, one here, one here, and one up in this  
22 corner. And so on the basis of those four wells,  
23 groundwater levels were measured in the various  
24 investigations, and they were fairly consistent over time.  
25 So when that group of wells was measured in 2002, 2005 and

1 2007, and when the first couple of wells were measured in  
2 the early investigation, consistently, the flow direction  
3 has showed that it is off in this direction.

4 Now, the lines here which show the elevations  
5 of groundwater and represent the elevations of groundwater  
6 with the higher groundwater elevation being here at MW-2,  
7 the lower elevations being here at MW-4 and MW-5, indicate  
8 that groundwater flow is generally to the west/northwest.  
9 And it may change a little bit over time. But the  
10 different investigations showed consistently that the  
11 groundwater flow direction was in that direction.

12 So in this case, if there had been an impact  
13 from the tanks, it likely would have been detected in MW-2  
14 or MW-4 because there might have been a little bit of a  
15 shift in the groundwater also heading up a little bit more  
16 to the northwest. Impacts from the sludge drying beds  
17 indicated that they would be picked up likely here at MW-4  
18 and up here at MW-5 based on this flow direction. Again,  
19 sometimes it was more to the west; sometimes a little bit  
20 more to the northwest. So MW-4 and MW-5 are downgradient  
21 from the sludge drying beds.

22 This area here, this represents the outfall  
23 pipe which was a pipe which was not assumed, based on some  
24 of the historical reviews, to be a potential source of  
25 contaminants. The reason why the sludge drying beds were

1 the focus is because they had permeable bottoms. And so  
2 material was taken into the sludge drying beds. There  
3 could have been some drainage from the sludge drying beds  
4 as opposed to a pipe, which has a solid bottom, which is  
5 not likely to leak. In this case, there was the potential  
6 that material could come out of the sludge drying beds and  
7 go into the soil. And that's what the investigations  
8 showed.

9           So overall, the site was evaluated with  
10 various soil borings. And in the various investigations,  
11 the soil borings showed that the contaminated soil was in  
12 the area of the sludge drying beds. So if there had been  
13 a pipe leak, there was no evidence that there was a pipe  
14 leak going to the outfall. But there was evidence that  
15 there was material coming out of the sludge drying beds  
16 going into shallow soil. And that is the area that was  
17 then addressed by the removal action.

18           So overall, the site investigation data showed  
19 that there were constituents in shallow soil in the area  
20 of the sludge drying beds. And if there was material then  
21 that would have gone down, that would have probably have  
22 been seen as the soil sampling continued below the 10-foot  
23 depth. So in the various investigations, soil samples  
24 were collected below 10 feet. And the investigation data  
25 showed that the constituents were detected primarily in

1 the upper 5 feet, a little at around a 10-foot level, but  
2 really nothing was detected below 10 feet. So there was  
3 no evidence that constituents in soil had been driven  
4 downward through the soil down to groundwater, which is  
5 down at about 40 or 50 feet.

6 So there were continuous investigations, and  
7 they all had more or less the same conclusions. With  
8 respect to the constituents that were found in the sludge  
9 drying beds, those were lead and PAHs, and lead is not  
10 easily driven down through the soil down to groundwater.  
11 And so looking at the type of constituent and looking at  
12 the profile in the soil of where that lead was or where  
13 those PAHs were, they seemed to be confined primarily to  
14 the upper 5 feet of soil and did not show evidence that  
15 they had been driven down through the soil profile to  
16 groundwater.

17 So these wells were sampled on various  
18 occasions, and they were investigated for constituents  
19 that would relate to those that were found in soil. So  
20 they were investigated for the metals and they were  
21 investigated for constituents that would relate to the  
22 PAHs that were found in the soil. And those constituents  
23 were not detected above screening criteria. And so it was  
24 determined in the different investigations that  
25 groundwater was not an issue on that basis.

1 Does that help answer your question?

2 MR. CLAYSHULTE: Perhaps, in part. I mean,  
3 the thing is that you've got a select set of parameters  
4 that you're looking at. When you take a look at waste  
5 water -- even today when we look at what's coming out of  
6 our waste water facilities -- we have lots of new and  
7 different types of chemicals that are coming out, many of  
8 them that aren't processed by those plants and get through  
9 the system and get discharged.

10 So for the set of constituents that you looked  
11 at, you're making the conclusion that -- and even you just  
12 said it; it's likely that the stuff didn't get down there.  
13 And I'm just saying that I just always thought that it  
14 should have been cautioned that it's likely that the  
15 groundwater was not impacted instead of saying,  
16 absolutely, that the groundwater is not impacted when you  
17 have such a limited number of wells. And, really, the  
18 ground -- and the gradient stuff, when you go back and  
19 read the reports, they made a determination and they used  
20 specific language and said, Here it is. And what do you  
21 know? That same exact language gets mirrored in  
22 subsequent reports.

23 So was it relooked at? I don't know. Not  
24 when the language is the same language that came out of  
25 the original report. It makes me think that they looked

1 at two wells and made a gradient determination and not  
2 necessarily followed up on the gradients on the  
3 groundwater. Like I say, for the soils and what you  
4 found, it doesn't make that big of a difference. But it's  
5 that -- couching it that you likely didn't have an impact,  
6 that I agree with.

7 MS. COCHRAN: And in the investigations that  
8 were conducted in 2002, 2005, and 2007, the gradient and  
9 the groundwater flow direction is based on looking at  
10 water-level measurements in the four wells that had water  
11 in them. So it was not based just on the two wells; it  
12 was based on taking water-level measurements at the four  
13 well sites.

14 MR. PIVONKA: I was just going to say, Noelle,  
15 too, the handout here shows the data much clearer than we  
16 can see it here. It is pretty straightforward. The  
17 gradient appears to be west/northwest here, based on  
18 what's on the handout. There's four heads that are shown  
19 here.

20 THE REPORTER: I'm sorry. Could you tell me  
21 your name, please?

22 MR. PIVONKA: Lee Pivonka with the  
23 Colorado Department of Public Health. Thanks.

24 MS. COCHRAN: So when the groundwater was  
25 analyzed at those two wells in 2002, as part of the

1 supplemental remedial investigation, a comprehensive list  
2 of constituents was performed. So it was not just limited  
3 to looking at what was in the soils. So it was looking at  
4 volatile organic compounds, which is a fairly  
5 comprehensive list; the semi-volatile organic compounds --  
6 again, a very comprehensive list; and looking at various  
7 metals, not just lead, which was the primary constituent  
8 found in soil. So it looked at a bigger list of analytes  
9 than just what was detected in the soil.

10 In 2005, the groundwater was looked at again  
11 for that comprehensive list of the volatile organic  
12 compounds, as well as in 2007. So those were evaluated  
13 through time, and those -- each time, the conclusions were  
14 similar to the investigation results from the previous  
15 time period.

16 MR. WRIGHT: Did that help?

17 MR. CLAYSHULTE: Sure.

18 MS. COCHRAN: So do we have any other  
19 questions?

20 MR. SPANN: Just to comment -- John Spann,  
21 Public Affairs from Buckley -- the documents are  
22 electronically on the Buckley Web site at [www.buckley.mil](http://www.buckley.mil).  
23 Because the PDF document icon is not there, it forced  
24 all -- those two documents to the bottom of that listing.  
25 So if you go there, click on it, there is a link to those

1 documents already there. I will try to get the PDF icon  
2 put on, which will drive it up to the top, as soon as I  
3 can. I'm limited on a couple of people helping me do that  
4 piece. But they are there and available on the Web site.  
5 They are also available at -- copies are available at the  
6 library.

7 MR. WRIGHT: If there are no other questions,  
8 I think that concludes the public meeting for Site 7.

9 MS. COCHRAN: Thank you.

10 (The proceedings were concluded at 6:39 p.m.,  
11 on Thursday, October 21, 2010.)  
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REPORTER'S CERTIFICATE

I, Wendy Evangelista, Registered Professional Reporter and Notary Public in and for the State of Colorado, do hereby certify that said proceedings were taken in shorthand by me at the time and place hereinabove set forth and was thereafter reduced to typewritten form under my supervision, as per the foregoing transcript; that the same is a full, true, and correct transcription of my shorthand notes then and there taken.

I further certify that I am not related to, employed by, nor counsel for any of the parties or attorneys herein, nor otherwise interested in the event of the within action.

My commission expires August 12, 2012; and I have hereunto set my hand November 2, 2010.



Registered Professional Reporter  
and  
Notary Public

**APPENDIX B**  
**Response to Agency Comments on Draft Final Record of Decision for Site 7**  
**(as needed)**

**ATTACHMENT 1**  
**Notice of Availability and Fact Sheet**

**AURORA SENTINEL  
PROOF OF PUBLICATION**

**STATE OF COLORADO  
COUNTY OF ARAPAHOE }ss.**

*I HARRISON COCHRAN, do solemnly swear that I am the PUBLISHER of the AURORA SENTINEL; that the same is a weekly newspaper published in the County of Arapahoe, State of Colorado and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said County of Arapahoe for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 30, 1923, entitled "Legal Notices and Advertisements", or any amendments thereof, and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.*

*That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspaper for the period of 1 consecutive insertions; and that the first publication of said notice was in the issue of said newspaper dated October 14 A.D. 2010 and that the last publication of said notice was in the issue of said newspaper dated October 14 A.D. 2010.*

*In witness whereof I have hereunto set my hand this 14 day of October.*

*H. Harrison Cochran*

*Subscribed and sworn to before me, a notary public in the County of Arapahoe, State of Colorado, this 14 day of October A.D. 2010.*



*Janie C. Hilton*  
Notary Public  
Commission Expires December 15, 2012

**PUBLIC NOTICE**

<b>Air Force Proposes No Further Action for IRP Site 7 (Former Wastewater Treatment Plant Area)</b>	<b>Buckley AFB Aurora, CO October 14, 2010</b>
<p>The United States Air Force (USAF), in cooperation with the Colorado Department of Public Health and Environment (CDPHE) and the U.S. Environmental Protection Agency (EPA) announce the public comment period for the Proposed Plan for Installation Restoration Program (IRP) Site 7 at Buckley Air Force Base, Aurora, Colorado. The USAF has conducted environmental investigations and a soil removal action at Site 7, the Former Wastewater Treatment Plant Area. The investigations and removal action are complete. The USAF determined there is no unacceptable risk to human health or the environment at the site, as contaminated soil has been removed. Therefore, the Proposed Plan recommends No Further Action as the final remedy for the site. CDPHE and EPA concur with the No Further Action recommendation.</p> <p>The Proposed Plan summarizes the site history and background, site characteristics, removal action, and site risks. Copies of the Proposed Plan document for IRP Site 7 have been placed in the Information Repository located at the Aurora Public Library, Central, and are available for public review and comment. The Proposed Plan is expected to lead to closure of IRP Site 7.</p> <p>Although No Further Action is proposed for IRP Site 7 at the present time, the USAF welcomes the public's comments on the plan. The formal public comment period for IRP Site 7 is 30 days and ends on November 12, 2010. Upon timely receipt of a request (i.e., received by November 12, 2010), the public comment period may be extended 15 additional days. The USAF will choose the final remedy after the comment period ends and after taking comments into account.</p>	<p>Copies of the Proposed Plan for IRP Site 7 are available for review at:</p> <p>Aurora Public Library, Central 14949 E. Alameda Pkwy. Aurora, CO 80012 (303) 739-6600</p> <p>Monday-Thursday 9 a.m. to 9 p.m. Saturday 10 a.m. to 6 p.m. Sunday 12:30 p.m. to 6 p.m.</p> <p>The Proposed Plan is also available at <a href="http://www.buckley.af.mil">www.buckley.af.mil</a> under the Library Tab (in Environmental Information).</p> <p><b>Public Meeting</b></p> <p>The public is invited to a meeting to hear about the Proposed Plan for Site 7. At the meeting, you will be able to state your views about the site. The meeting will be:</p> <p>October 21, 2010 6:00 p.m. at Aurora Chamber of Commerce 14305 East Alameda Avenue, Suite 300, Aurora, Colorado 80012</p> <p>Buckley Air Force Base operates a Community Advisory Group that meets on a quarterly basis to discuss environmental cleanup projects at the base. For more information, contact the Buckley Public Affairs Office at 720-847-9431.</p>
<p>For further information or to submit written comments, please contact:</p> <p>Mr. John Wright Remedial Project Manager Phone: (307) 773-4147 Fax: (307) 773-4153 <a href="mailto:John.Wright@warren.af.mil">John.Wright@warren.af.mil</a></p>	<p>90 MW/EM 300 Veslo Drive, Suite 600 F. E. Warren AFB, WY 82005-2266</p>

Publication: October 14, 2010  
Aurora Sentinel

**BUCKLEY GUARDIAN  
PROOF OF PUBLICATION**

STATE OF COLORADO  
COUNTY OF ARAPAHOE }ss.

I HARRISON COCHRAN, do solemnly swear that I am the PUBLISHER of the AURORA SENTINEL AND BUCKLEY GUARDIAN; that the same is a weekly newspaper published in the County of Arapahoe, State of Colorado and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said County of Arapahoe for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 30, 1923, entitled "Legal Notices and Advertisements", or any amendments thereof, and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspaper for the period of 1 consecutive insertions; and that the first publication of said notice was in the issue of said newspaper dated October 15 A.D. 2010 and that the last publication of said notice was in the issue of said newspaper dated October 15 A.D. 2010.

In witness whereof I have hereunto set my hand this 15 day of October.

*H. Harrison Cochran*

Subscribed and sworn to before me, a notary public in the County of Arapahoe, State of Colorado, this 15 day of October A.D. 2010.



*Janie C. Hilton*  
Notary Public  
My Commission expires December 15, 2012

**Air Force Proposes No Further Action for IRP Site 7 (Former Wastewater Treatment Plant Area)**

**Buckley AFB  
Aurora, CO  
October 14, 2010**

The United States Air Force (USAF), in cooperation with the Colorado Department of Public Health and Environment (CDPHE) and the U.S. Environmental Protection Agency (EPA) announce the public comment period for the Proposed Plan for Installation Restoration Program (IRP) Site 7 at Buckley Air Force Base, Aurora, Colorado. The USAF has conducted environmental investigations and a soil removal action at Site 7, the Former Wastewater Treatment Plant Area. The investigations and removal action are complete. The USAF determined there is no unacceptable risk to human health or the environment at the site, as contaminated soil has been removed. Therefore, the Proposed Plan recommends No Further Action as the final remedy for the site. CDPHE and EPA concur with the No Further Action recommendation.

The Proposed Plan summarizes the site history and background, site characteristics, removal action, and site risks. Copies of the Proposed Plan document for IRP Site 7 have been placed in the Information Repository located at the Aurora Public Library, Central, and are available for public review and comment. The Proposed Plan is expected to lead to closure of IRP Site 7.

Although No Further Action is proposed for IRP Site 7 at the present time, the USAF welcomes the public's comments on the plan. The formal public comment period for IRP Site 7 is 30 days and ends on November 12, 2010. Upon timely receipt of a request (i.e., received by November 12, 2010), the public comment period may be extended 15 additional days. The USAF will choose the final remedy after the comment period ends and after taking comments into account.

**For further information or to submit written comments, please contact:**

Mr. John Wright  
Remedial Project Manager  
Phone: (307) 773-4147  
Fax: (307) 773-4153  
John.Wright@warren.af.mil

90 MW/EM  
300 Vesle Drive, Suite 600  
F. E. Warren AFB, WY 82005-2266

**Copies of the Proposed Plan for IRP Site 7 are available for review at:**

Aurora Public Library, Central  
14949 E. Alameda Pkwy.  
Aurora, CO 80012  
(303) 739-6600

Monday-Thursday 9 a.m. to 9 p.m.  
Saturday 10 a.m. to 6 p.m.  
Sunday 12:30 p.m. to 6 p.m.

The Proposed Plan is also available at [www.buckley.af.mil](http://www.buckley.af.mil) under the Library Tab (in Environmental Information).

**Public Meeting**

The public is invited to a meeting to hear about the Proposed Plan for Site 7. At the meeting, you will be able to state your views about the site. The meeting will be:

**October 21, 2010  
6:00 p.m.**

at  
Aurora Chamber of Commerce  
14305 East Alameda Avenue, Suite 300,  
Aurora, Colorado 80012

Buckley Air Force Base operates a **Community Advisory Group** that meets on a quarterly basis to discuss environmental cleanup projects at the base. For more information, contact the Buckley Public Affairs Office at 720-847-9431.



# FACT SHEET

## 460TH SPACE WING

460th Space Wing Office of Public Affairs • 510 S. Aspen St (Stop 88) • Buckley AFB, CO 80011 • Phone (720) 847-9431

### Invitation to Comment on the Proposed Plan for Site 7 at Buckley Air Force Base, Colorado

You have the opportunity to comment on the Proposed Plan for the final remedy for Site 7 at Buckley Air Force Base, Colorado. The location of Site 7, known as the Former Wastewater Treatment Plant Area, is shown on Figure 1. Following environmental investigations and a soil removal action at Site 7, the recommended remedy is no further action. The investigations and removal action are complete and no unacceptable risk to human health or the environment remains at the site. Therefore, the Proposed Plan/Record of Decision administrative process is leading to a no further action final remedy for the site.

The United States Air Force (USAF), United States Environmental Protection Agency (EPA), and Colorado Department of Public Health and Environment (CDPHE) want to hear your views about the plan for this site. A public meeting will be held on October 21, 2010 at the Aurora Chamber of Commerce, 14305 East Alameda Avenue, Suite 300, Aurora, Colorado. You may make comments at the public meeting. You also have from October 14, 2010 until November 12, 2010 to supply written comments on the Proposed Plan or other information in the Information Repository. At the end of the comment period, the USAF, in conjunction with EPA, and CDPHE, will review your comments or other information and make a final decision about this site. Your input on the Proposed Plan is an important part of the decision-making process. We want to hear from you and will give serious attention to what you have to say.

#### Site History

Site 7 is a small, separate parcel of Buckley AFB that is about 700 feet outside the main boundary of the base, north of East 6<sup>th</sup> Avenue and west of Salida Way. The former Wastewater Treatment Plant, which occupied about 6 acres, operated from 1942 to 1978. During its operation, the plant received occasional industrial discharges of chemical wastes, including petroleum, organic solvents, trace metals, and pesticides from the base. Plant equipment included bar screens, primary clarifier, secondary clarifier, two trickling filters, sludge digester, chlorine contact chambers, and sludge drying beds. The sludge drying beds and the trickling filters were lined with permeable tiles that may have collapsed and potentially transmitted contaminants to the soil and groundwater at the site. After completion of several investigations dating back to 1985, a 2008 Engineering Evaluation/Cost Analysis and 2009 Action Memorandum called for the removal of soil contaminated with chromium, lead, and polynuclear aromatic hydrocarbons. In accordance with the Final Removal Action Work Plan, pre-characterization sampling was conducted in June 2009 to further assess concentrations of hexavalent chromium and polynuclear aromatic hydrocarbons for the soil removal.

A soil removal action was conducted from October 2009 through March 2010 to eliminate continuing sources of soil contamination, minimize migration of the contaminated soil source, and reduce exposure risk to human health and the environment from chemicals of concern in soil. These objectives were to be met by removing soil containing chemicals of concern at concentrations above the CDPHE residential Colorado Soil Evaluation Values. Due to the potential exposure risk to human health and the environment and the potential for contaminant

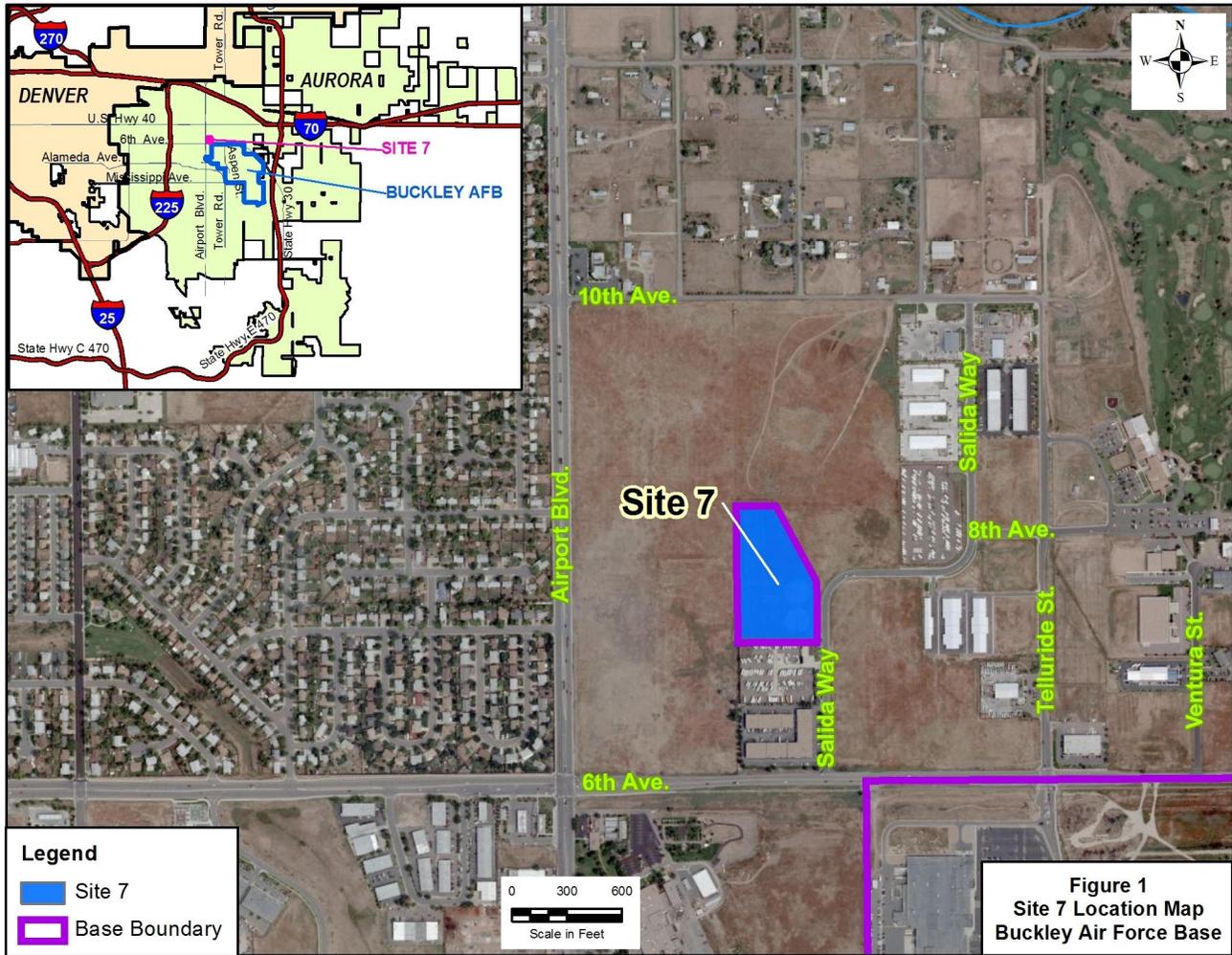
migration to deeper soil and groundwater, approximately 1,606 cubic yards of soil at Site 7 were excavated and disposed at an approved off-base facility. Post-removal confirmation soil sample data indicate the removal action cleanup values and objectives were met. The removal action activities are summarized in the Site 7 Removal Action Report.

#### Summary of Site Risks

The removal action reduced the hazardous substances and contaminants or pollutants in soil to levels that allow for unlimited use and unrestricted exposure, with the conclusion that contaminants remaining at the site pose no unacceptable risk to human health or the environment. There also is no unacceptable risk related to site groundwater. These conditions satisfy criteria for site close out of Site 7, and no further response action for site soil is planned. The Proposed Plan recommends no further action for Site 7 on this basis. EPA and CDPHE concur with this recommendation.

#### Your Comments

We will welcome your comments at the public meeting. You also have until November 12, 2010 to supply written comments on the Proposed Plan or related information in the Information Repository. At the end of the comment period, the USAF will review your comments and make a decision about the final remedy. Your input on the Proposed Plan is an important part of the decision-making process. Once the final decision is made, it will be formalized in a Record of Decision. That document will include a summary of comments received from the public along with how these comments changed the decision that was reached.



**Figure 1**  
**Site 7 Location Map**  
**Buckley Air Force Base**

## Tell Us What You Think

### Location of Information Repository



Aurora Public Library, Central  
 14949 E. Alameda Parkway  
 Aurora, CO 80012  
 Phone: (303) 739-6600  
 Hours: Monday – Thursday 9 a.m. to 9 p.m.  
 Saturday 10 a.m. to 6 p.m.  
 Sunday 12:30 p.m. to 6 p.m.

**The Proposed Plan is also available at [www.buckley.af.mil](http://www.buckley.af.mil) under the Library Tab (in Environmental Information).**

**The comment period runs from:**  
**October 14, 2010**  
**through**  
**November 12, 2010**

### Submit Written Comments



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### Attend the Public Meeting



Public Meeting:  
 You are invited to a meeting to hear about the Proposed Plan for Site 7. At the meeting, you will be able to state your views about the site. The meeting will be:

**October 21, 2010**  
**6:00 p.m.**  
 at  
**Aurora Chamber of Commerce**  
**14305 East Alameda Avenue,**  
**Suite 300,**  
**Aurora, Colorado 80012**