



PROPOSED PLAN – AIR FORCE PROPOSES LAND USE CONTROLS FOR GROUNDWATER AT FORMER BUILDING 922 OIL/WATER SEPARATOR (SD027) BASED ON 1,4-DIOXANE SITE INSPECTION RESULTS
Public Comment Invited

INTRODUCTION

The United States Air Force (Air Force) invites the public to review and comment on this **proposed plan (PP)** for the former Building 922 Oil/Water Separator (OWS) (Installation Restoration Program Site SD027) (hereafter referred to as Site SD027) at former Chanute Air Force Base (AFB), Rantoul, Illinois (Figure 1). The purpose of this PP is to explain why interim land use controls (LUCs) that restrict **groundwater** use on a portion of the site are needed to protect human health from 1,4-dioxane contamination until the Air Force can investigate the extent of the contamination and choose a final remedy.

1,4-dioxane is a cyclic ether with many current and former industrial applications (Air Force Civil Engineer Center [AFCEC], 2013). Most relevant to the Air Force Environmental Restoration Program is the historic use of 1,4-dioxane as an additive to chlorinated solvent formulations, primarily 1,1,1-trichloroethane and trichloroethene (TCE), to increase shelf life and prevent corrosion of metal surfaces during various degreasing operations (AFCEC, 2013). A 1,4-dioxane **Site Inspection (SI) (Administrative Record [AR] 591990**, Bhate Environmental Associates, Incorporated [Inc.] [Bhate], 2019) was conducted in 2017 for the presence of 1,4-dioxane in Wisconsinan groundwater at several sites at the former Chanute AFB. Analytical results showed that groundwater at Site SD027 exceeded the current Illinois Groundwater Quality Standard (IGWQS) for Class II Groundwater of 7.7 micrograms per liter (µg/L) for 1,4-dioxane. Site SD027 achieved site closure status for TCE and associated breakdown products in 2020 (AR 597558, Aptim Federal Services, Limited Liability Company [AFS], 2020) for the remedy specified in the **Record of Decision**

(**ROD**) (AR 3648, Shaw Environmental, Inc. [Shaw], 2011) and LUCs for groundwater were no longer required. Therefore, the portion of Site SD027 impacted with 1,4-dioxane in groundwater requires interim LUCs to restrict groundwater use. The interim LUCs will be in place until a new **remedial investigation (RI)** and **feasibility study (FS)** are complete, a final remedy is proposed in a PP, and a final remedy is selected in a ROD to address the 1,4-dioxane contamination.

The Air Force encourages the public to review site-specific documents to gain a better understanding of the location and the investigations conducted. The public is also encouraged to review and comment on this PP. The last page of this document can be used for submitting comments.

MARK YOUR CALENDAR!
COMMUNITY INVOLVEMENT OPPORTUNITIES
PUBLIC COMMENT PERIOD

30 JANUARY 2023 – 28 FEBRUARY 2023

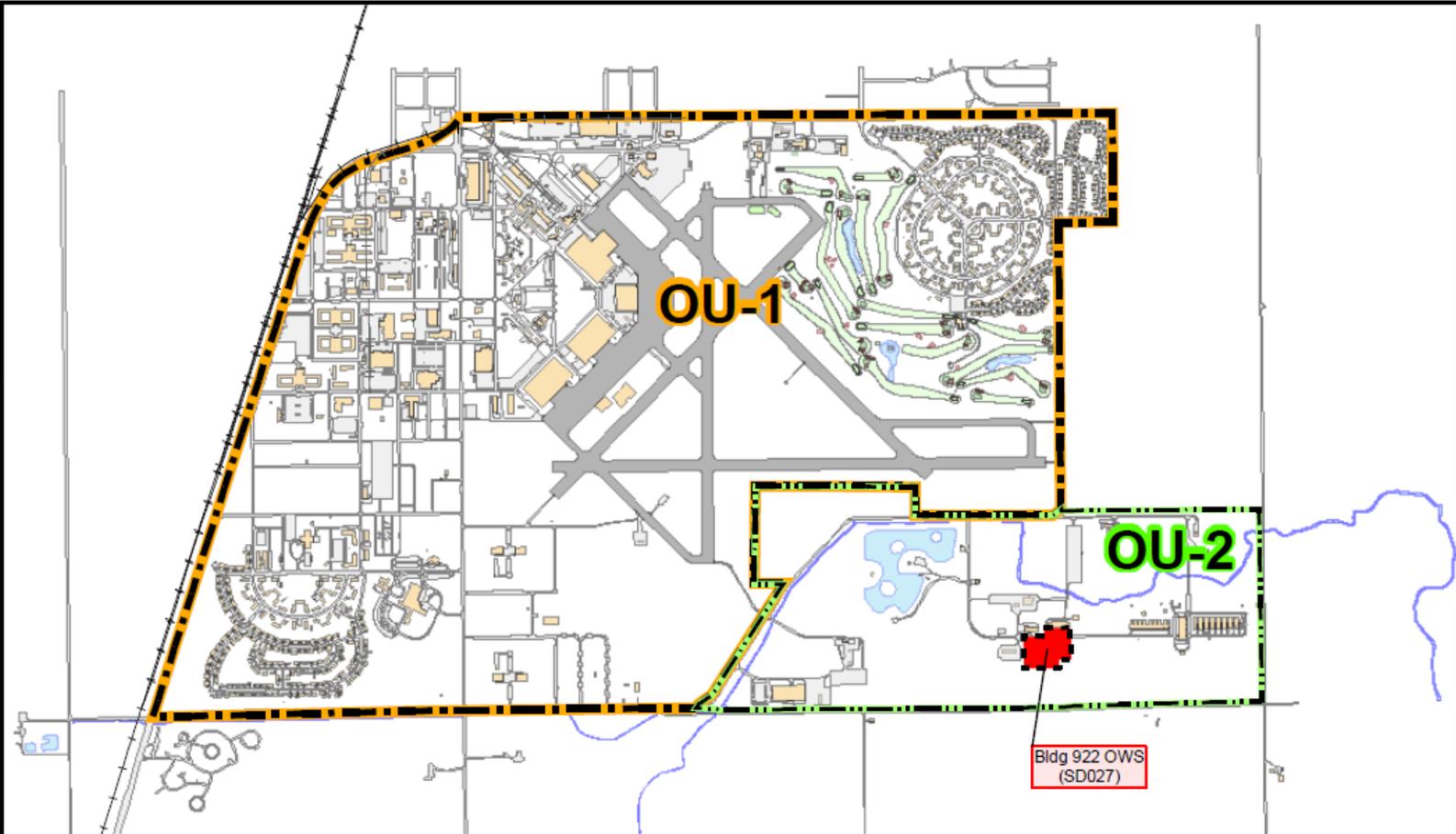
The Air Force will accept written comments on the proposed plan during the public comment period. Comment letters must be postmarked by 28 February 2023, and should be submitted to:

Mr. Paul Carroll, AFCEC/CIBC
 9801 Reese Boulevard North, Suite 210
 Lubbock, Texas 79416-2107
 E-mail: paul.carroll.1@us.af.mil

PUBLIC MEETING

If requested, the Air Force will provide the opportunity for a public meeting to explain the proposed plan.

BRANNA WYATT/ARL | CHECKED BY: S. BIRDA | APPROVED BY: A. BURD
 DOC: DCL-187M-022 | REV: 0 | DATE:



Legend

- | | |
|--|-------------------|
| OU-1 Boundary | Road/Paved Area |
| OU-2 Boundary | Existing Facility |
| Installation Restoration Program Site Boundary | Airfield |
| Golf Course Fairway | Lake/Pond |
| Golf Course Putting Green | |
| Golf Course Bunker | |

FIGURE 1

**1,4-DIOXANE SITE
 BUILDING 922 OIL/WATER
 SEPARATOR (SD027)
 LOCATION MAP**

PROPOSED PLAN

FORMER CHANUTE AIR FORCE BASE
 RANTOUL, ILLINOIS
 CONTRACT NO. FA8903-16-D-0066

CHANUTE AFB HISTORY

Former Chanute AFB occupies an area of 2,174 acres in the Village of Rantoul, Champaign County, Illinois, approximately 12 miles north of Champaign-Urbana.

Over its 76-year history, the Chanute AFB primary mission was Air Force technical training. The base originally trained airmen for service overseas during World War I. During World War II, Chanute AFB ran a variety of training programs, such as aircraft maintenance, weather observation, life support, and military warfare. At the end of the war, Chanute AFB provided military and technical training for aerospace weapon systems, missiles, vehicle maintenance, and firefighting. As a result of the 1988 Base Realignment and Closure (BRAC) Act, the base was officially closed on 30 September 1993.

ENVIRONMENTAL RESTORATION PROGRAM

For purposes of environmental investigation and remediation, the former Chanute AFB was divided into two operable units (OUs): OU-1 and OU-2. Each OU was comprised of numerous sites. Site SD027 is located in OU-2 (Figure 1).

The environmental investigation for 1,4-dioxane at Site SD027 is following the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process. An SI has been completed at Site SD027. This PP to address 1,4-dioxane contamination in groundwater has been developed for public review. After comments from the public have been received and considered, an Interim ROD will be developed. The Interim ROD will include a summary of any significant comments received regarding the PP and the Air Force's responses to those comments.

Today, AFCEC manages the environmental cleanup at the former Chanute AFB. The AFCEC BRAC Environmental Coordinator and the Illinois EPA Remedial Project Manager comprise the BRAC Cleanup Team (BCT). The BCT is working to investigate and clean up (remediate)

contaminated sites and prepare the land for transfer. BCT contact information is provided in the "Contact Information" text box.

FOR MORE INFORMATION

The following documents and reports form the basis for this PP:

- **Final Third Five-Year Review (AR 604580, AECOM, 2020)**
- **Final Remedial Action Completion Report (RACR), OU-1: Building 7 Hangar 2 (SS076); and OU-2: Building 916 Concrete Tanks OWS (ST024), Building 927 ICBM/IRBM Training and LOX/Cryogenics Operations (ST036), and Building 922 OWS (SD027) (AR 597558, AFS, 2020).**
- **Final 1,4-Dioxane SI Report, Multiple Sites (AR 591990, Bhate, 2019)**

ADMINISTRATIVE RECORD

View these documents and other historical documents at the following locations:

- **Air Force Administrative Record located online at:**
<https://ar.afcec-cloud.af.mil/Search.aspx>
- **Chanute Information Repository**
<http://www.afcec.af.mil/Home/BRAC/Chanute.aspx>

Instructions for accessing the Information Repository online and computers available for public use are located at the Rantoul Public Library, 106 West Flessner Avenue, Rantoul, Illinois.

CONTACT INFORMATION CHANUTE BCT

AFCEC BRAC Environmental Coordinator:

Mr. Paul Carroll

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Illinois EPA Federal Site Remediation Section:

Mr. Christopher Hill

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Email: Christopher.Hill@Illinois.gov

PUBLIC PARTICIPATION ACTIVITIES

The Air Force encourages public input to ensure that concerns of the community are addressed. This PP summarizes information presented in the available reports listed in the “For More Information” text box. The Air Force is issuing this PP as a part of its public participation responsibilities under Section 117(a) of the CERCLA and to fulfill the requirements of **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** Section Title 40 Code of Federal Regulations 300.430(f)(2). The specific opportunities to comment or ask questions regarding this PP are listed in the “Community Involvement Opportunities” text box on page 1.

CURRENT/FUTURE/POTENTIAL GROUNDWATER USE

The **Wisconsinan groundwater** system is not currently used by private or public parties at the former Chanute AFB. The water-bearing zones occur in thin, discontinuous sandy silty lenses within the clayey Wisconsinan deposits that are much less productive than the underlying **Illinoian groundwater systems (aquifer)** and **pre-Illinoian aquifer** systems. The Mahomet aquifer that provides potable water in the area is part of the pre-Illinoian aquifer system. In 2018, the majority of the Wisconsinan groundwater at the former Chanute AFB was reclassified by Illinois EPA from Class I (Potable Resource Groundwater) to Class II (General Resource Groundwater).

The depth to Wisconsinan groundwater in the impacted area range from 0.5 to 3 feet below ground surface (708 to 738 feet above mean sea level [MSL]). Water levels in the Illinoian wells are typically 50 feet below those in the Wisconsinan monitoring wells (673 to 680 feet above MSL), which indicates limited (if any) vertical groundwater flow (AR 2404, URS Corporation, 2004). The Tiskilwa Formation serves as an **aquitard** between the Wisconsinan and Illinoian groundwater systems. The water levels in the pre-Illinoian aquifer system range

from 660 to 690 feet above MSL in the former Chanute AFB vicinity.

CURRENT/FUTURE/POTENTIAL LAND USE

The current and designated land use for Site SD027 is aviation support/industrial. Future residential land use for the site is unlikely given the location in the industrial area of the former base and use of surrounding properties by the University of Illinois for research purposes.

SITE HISTORY, INVESTIGATIONS, AND REMEDIAL ACTIONS

Site SD027 is located adjacent to Titan Drive, east of Building 923 and south of Buildings 927 and 933 (Figure 2). The site occupies approximately 6.8 acres and includes Building 922 and the associated concrete and asphalt driveways and parking areas. Several french drains and concrete-lined or earthen drainage ditches are located around the building perimeter. Building 922, constructed in 1956, served as a rocket propulsion building for the Intercontinental Ballistic Missile/Intermediate-Range Ballistic Missile (ICBM/IRBM) training. The building contained cells where rocket engines were tested with various fuels (e.g., jet propulsion fuel and liquid oxygen [LOX]).

Previous Remedial Actions

The selected remedy for Site SD027 established in the *Group 6 – Record of Decision for Operable Unit 2: Building 922 UST (LUST) (ST014); Test Cell Fuel Lines (LUST) (ST015); Building 916 Concrete Tanks OWS (ST024); Building 927 OWS (SD025); B975/B995 TCE Spills (SS026); Building 922 OWS (SD027); Former Cryogenics Fuels Building 923 (SS035); Building 927 ICBM/IRBM Training and LOX/Cryogenic Operations (ST036); and Building 995 Engine Test Cells (SS041)* (AR 3648, Shaw, 2011), specified soil excavations for polynuclear aromatic hydrocarbons and in-situ bioremediation treatment for groundwater impacted with chlorinated solvents. The Group 6 ROD also included groundwater LUCs with the following objectives:

DRAWN BY: C. Tumill
 CHECKED BY: S. Biello
 DOC DCN: RPTM-02
 REV: 0
 APPROVED BY: A. Bumb
 DATE:

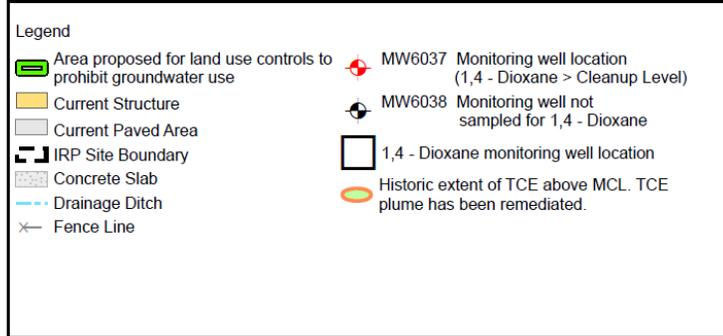
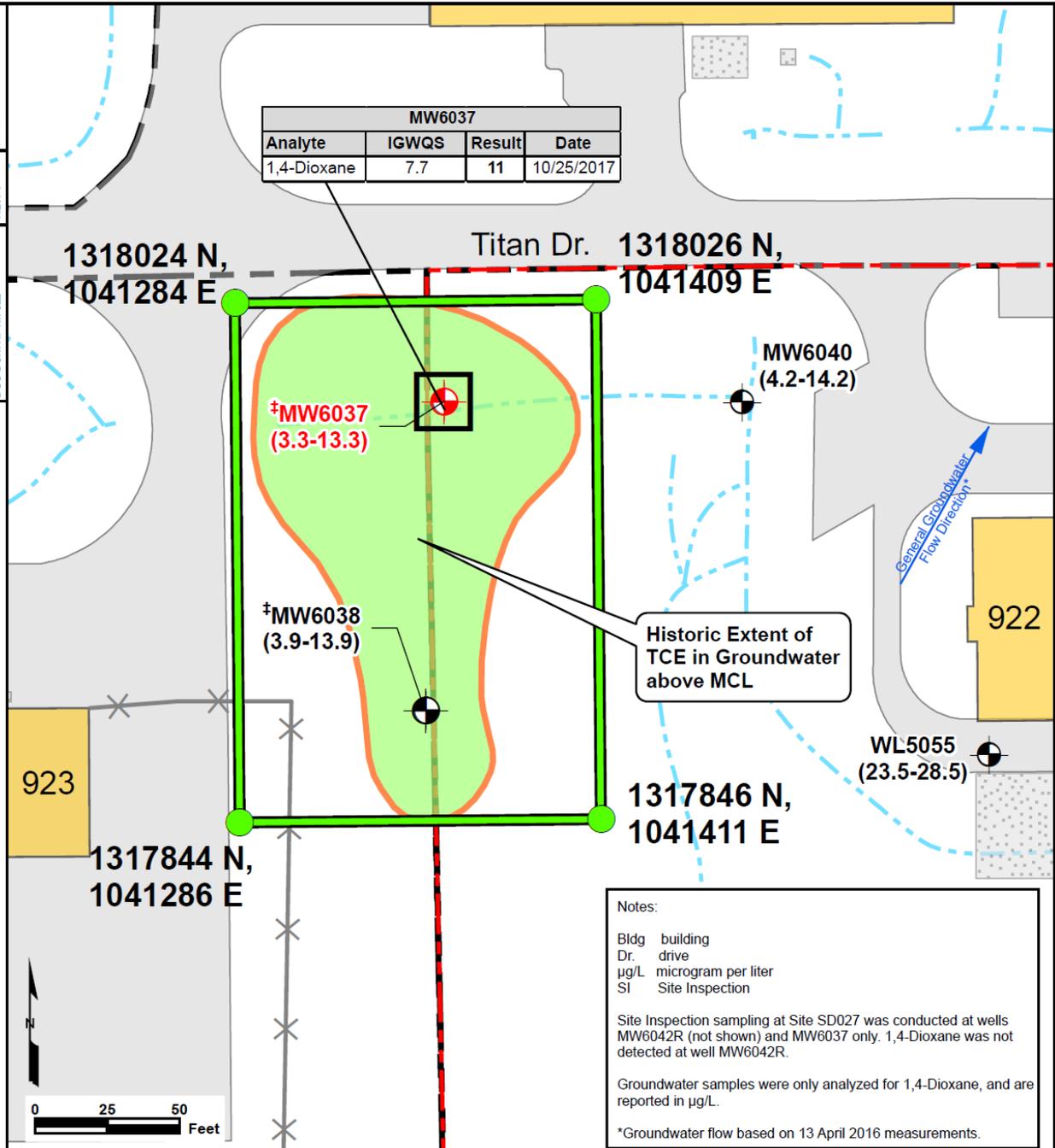


FIGURE 2
SITE INSPECTION GROUNDWATER ANALYTICAL RESULTS AND PROPOSED LAND USE CONTROL BOUNDARY BUILDING 922 OIL/WATER SEPARATOR (SD027)
 PROPOSED PLAN
 FORMER CHANUTE AIR FORCE BASE
 RANTOUL, ILLINOIS
 CONTRACT NO. FA4890-06-D-0010

- Prevent extraction of the groundwater for any purpose other than remediation or monitoring;
- Prevent disturbances of any equipment or systems associated with groundwater remediation or monitoring; and
- Preserve access to any equipment or systems associated with groundwater remediation or monitoring for the Air Force and regulatory agencies.

The prohibited land uses under the restricted land use included wells for potable water, wells to water livestock or crops, and excavating without a dig permit. The Illinois EPA signed the Group 6 ROD on July 25, 2011.

Soil excavations were completed in 2011. Initial enhanced-reductive dechlorination groundwater injection activities at Site SD027 were started in September 2011 and final injections were completed July 2015. As documented in the Remedial Action Completion Report for Site SD027 along with three other sites (AR 597558, APTIM, 2020), Site SD027 met all **Remedial Action Objectives (RAOs)** for soil and groundwater and did not pose an unacceptable risk to human health or the environment for **unlimited use and unrestricted exposure**. Therefore, continued implementation of LUCs for groundwater were not required.

1,4-Dioxane Site Inspection

In October 2017, an SI was conducted at the former Chanute AFB to determine the presence or lack thereof of 1,4-dioxane at sites historically impacted with TCE or 1,1,1-trichloroethane, including Site SD027 (AR 591990, Bhate, 2019).

Two potential source area monitoring wells (SD027-MW6042R and SD027-MW6037), from two distinct TCE plumes, associated with Site SD027 were sampled during the 1,4-dioxane SI (Figure 2). At potential source area monitoring well SD027-MW6037, 1,4-dioxane was detected at 11 µg/L, above the current IGWQS for Class II Groundwater (7.7 µg/L) (Figure 2). However, at the potential source area well SD027-MW6042R

1,4-dioxane was not detected (AR 591990, Bhate, 2019).

SCOPE AND ROLE OF THE ACTION

This PP presents the proposed interim action to address potential human health exposures to 1,4-dioxane in Wisconsin groundwater at a portion of Site SD027. The action described in this PP is intended as an interim remedial action to restrict groundwater use to protect human health. LUCs will remain in place until a final remedy is proposed in a PP and selected in a ROD. It is intended that this interim action will not be inconsistent with nor preclude implementation of the final remedy.

SUMMARY OF SITE RISKS

The SI results indicate the extent of 1,4-dioxane in groundwater at sites sampled during the SI was limited to the historical extent of the TCE plumes. At Site SD027, 1,4-dioxane was detected above the current IGWQS for Class II Groundwater (7.7 µg/L) at one monitoring well within the boundary of an historic TCE plume approximately one-half acre in size. Wisconsin groundwater is not used for drinking water; however, there are currently no LUCs for the site.

It is the Air Force's current judgment that the preferred alternative of implementing LUCs at a portion of Site SD027 is necessary to protect public health or welfare from potential exposures to pollutants or contaminants from this site.

REMEDIAL ACTION OBJECTIVE

RAOs are site-specific cleanup objectives established based on the nature and extent of contamination, the potential for human exposure, and **applicable or relevant and appropriate requirements**. This interim action's only RAO is to prevent exposure of future human receptors to 1,4-dioxane in Wisconsin groundwater at concentrations greater than the IGWQS for Class II Groundwater.

SUMMARY OF PROPOSED INTERIM REMEDY

Based on the 1,4-dioxane SI groundwater analytical results at Site SD027, the Air Force proposes interim LUCs to restrict groundwater use to protect human health. LUCs will remain in place until an RI and FS is complete, a final remedy is proposed in a PP and selected in a ROD, and groundwater is remediated. Figure 2 shows the proposed LUC boundary. The rationale for the proposed LUC boundary is based on the historic TCE plume associated with monitoring well SD027-MW6037 where 1,4-dioxane was detected above the current IGWQS for Class II Groundwater (7.7 µg/L) (Figure 2).

No other interim remedies were considered. The only currently known unacceptable risk from the contaminated groundwater would be the use of the Wisconsin groundwater for drinking water. However, because the risks from other human exposures to groundwater will not be fully evaluated until the Air Force conducts a remedial investigation, the Air Force also is imposing interim land use controls to prohibit all other site uses that could expose human receptors to groundwater. The interim LUCs will address all potentially unacceptable human health risks until the Air Force is able to complete its investigation and choose a final remedy for Site SD027.

- LUCs in the existing lease to the Village of Rantoul are comparable to the LUCs that will be imposed when the property is transferred through restrictive covenants in the deed to: Prohibit extraction of the groundwater for any purpose other than remediation or monitoring
- Prohibit disturbances of any equipment or systems associated with groundwater remediation or monitoring
- Preserve access to any equipment or systems associated with groundwater remediation or monitoring.
- Prohibit conducting or allowing others to conduct activities that would cause disturbance to soil within the LUC boundaries without first requesting a dig permit through State of Illinois' Joint Utility Locating Information for Excavators (JULIE) system and

obtaining Air Force approval for those activities.

The Air Force expects the proposed LUCs will satisfy CERCLA requirements by being protective of human health until a final remedy is selected.

ACRONYMS AND ABBREVIATION

µg/L	microgram per liter	Illinois EPA	Illinois Environmental Protection Agency
AFB	Air Force Base	JULIE	Joint Utility Locating Information for Excavators
AFCEC	Air Force Civil Engineer Center	LOX	liquid oxygen
AFS	Aptim Federal Services, Limited Liability Company	LUC	land use control
AR	Administrative Record	NCP	National Oil and Hazardous Substances Pollution Contingency Plan
BCT	BRAC Cleanup Team	OU	operable unit
Bhate	Bhate Environmental Associates, Inc.	OWS	oil/water separator
BRAC	Base Realignment and Closure	PP	proposed plan
CERCLA	Comprehensive Environmental Response Compensation, and Liability Act of 1980	RAO	remedial action objective
FS	feasibility study	RI	remedial investigation
ICBM/IRBM	Intercontinental Ballistic Missile/Intermediate-Range Ballistic Missile	ROD	Record of Decision
IGWQS	Illinois Groundwater Quality Standard	Shaw	Shaw Environmental, Inc.
		SI	Site Inspection
		TCE	trichloroethene
			United States
		Air Force	United States Air Force

GLOSSARY OF TERMS

Administrative Record: A file the Air Force maintains of the documents that form the basis for the selection of a response action, as well as public comments on the response action. The file also contains any post-decision documents that modify the response action. The Chanute Administrative Record is found at <https://ar.afcec-cloud.af.mil/Search.aspx>.

Applicable or Relevant and Appropriate Requirement: The set of federal and state laws and regulations for which the substantive requirements must be met for implementation of a cleanup remedy.

Aquifer: A distinguishable rock or soil unit capable of providing usable quantities of groundwater.

Aquitard: A distinguishable rock or soil unit that may contain groundwater but is not capable of transmitting significant quantities of groundwater.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980: Law (42 USC Sec. 9601 and following) authorizing federal response to the release, or threat of release, of hazardous substances, pollutants, or contaminants into the environment that pose an imminent danger to the public. A CERCLA release is defined as "Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant)."

Feasibility Study (FS): A phase in the CERCLA process that analyzes potential remediation methods based on human health and ecological risk assessment results. The feasibility study emphasizes RAOs and evaluates the relative advantages and disadvantages of selected

potential remedial alternatives at hazardous waste sites.

Groundwater: Underground water that fills fractures, voids, or space between grains in saturated soil and rock. The top of the saturated zone is referred to as the water table.

Illinoian Groundwater System: The Illinoian Stage glacial sediments (sand and gravel outwash deposits associated with the Mahomet Sand), constitute the Illinoian aquifer. Water levels in the Illinoian wells are typically 50 feet below those in the Wisconsinan monitoring wells. The Illinoian aquifer is first encountered at depths ranging from approximately 35 to 100 feet below ground level (673 to 680 feet above MSL). The sand unit containing productive aquifer materials ranges from about 50 to 100 feet in thickness. The Illinoian aquifer is used as a public water supply in areas outside the former base.

Information Repository: A file the Air Force maintains at or near the location of the response action that contains information found in the administrative record, as well as other information useful to the public.

Land Use Control (LUC): Any type of physical, legal, proprietary or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health and the environment. Physical mechanisms (i.e., engineering controls) encompass a variety of engineered remedies to contain or reduce contamination and physical barriers to limit access to property, such as landfill caps, fences, or signs. The legal, proprietary, or administrative mechanisms used for LUC are generally the same as those used for institutional controls. Examples of institutional controls include deed notices; institutional control registries, property easements and covenants; installation administrative controls, such as construction and work request review and approval processes; and administrative orders and cleanup agreements.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The National

Oil and Hazardous Substances Pollution Contingency Plan (Title 40 Code of Federal Regulation Part 300), more commonly called the NCP, is the federal government's plan for responding to both oil spills and releases of hazardous substances (actual and potential). The NCP is at the heart of the National Response System, under which federal departments and agencies help state and local officials protect public health and the environment during hazardous materials emergencies, including emergency removal actions at hazardous waste sites.

Pre-Illinoian Aquifer: The pre-Illinoian sediments (glacial till, lacustrine deposits, loess, fluvial sand, and gravel outwash deposits) constitute the Pre-Illinoian aquifer. Pre-Illinoian sediments fill the Mahomet Bedrock Valley and directly overlie Mississippian or Pennsylvanian age shale. The Mahomet Bedrock Valley contains the highly permeable sand and gravel of the Mahomet Sand Member of the Middle Banner Formation. The top of the pre-Illinoian aquifer is approximately 220 feet below ground level (660 to 690 feet above MSL), and the aquifer extends to depths of over 300 feet below ground level. Public water supply wells located on the former base have screened intervals across the pre-Illinoian aquifer.

Proposed Plan (PP): A CERCLA document that briefly describes the remedial alternatives analyzed by the lead agency, proposes a preferred remedial action alternative, and summarizes the information relied upon to select the preferred alternative. The purpose of the proposed plan is to supplement the RI/FS and provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action, as well as alternative plans under consideration, and to participate in the selection of remedial action at a site.

Remedial Action Objectives (RAOs): Refers to specific goals for protecting human health and the environment. RAOs provide a general description of what the cleanup will accomplish.

These goals serve as the design basis for many of the remedial alternatives and development of PRGs.

Remedial Investigation (RI): A CERCLA process to determine the nature and extent of the contamination resulting from the release of a hazardous substance. The remedial investigation emphasizes data collection and site characterization of hazardous waste sites.

Site Inspection (SI): A CERCLA process to determine the nature and extent of the contamination resulting from the release of a hazardous substance. The site inspection emphasizes data collection and site characterization of hazardous waste.

Wisconsinan Groundwater: The interbedded sand lenses and layers within low permeability

clayey soil of the Batestown Member of the Lemont Formation comprise the Wisconsinan groundwater system at the former Chanute AFB. The Wisconsinan groundwater system is much less productive than the pre-Illinoian or Illinoian aquifers. Groundwater within the Wisconsinan system is typically encountered within 10 feet below ground level (708 to 738 feet above MSL), and this system extends to depths ranging from about 30 to 50 feet below ground level. The Wisconsinan groundwater system is typically recharged by downward percolation of rain/snow through the host glacial drift deposits.

Unlimited Use and Unrestricted Exposure: Unlimited use and unrestricted exposure means that there are no restrictions placed on the potential use of land or other natural resources. The land would be available for residential use.



**PROPOSED PLAN – AIR FORCE PROPOSES LAND USE CONTROLS FOR GROUNDWATER AT FORMER BUILDING 922
 OIL/WATER SEPARATOR (SD027) BASED ON 1,4-DIOXANE SITE INSPECTION RESULTS
 PUBLIC COMMENT INVITED**

Your input on the proposed plan for the site is important to the Air Force. Comments provided by the public are valuable in helping the Air Force implement an interim remedy for the site.

Written comments may be submitted using the comment form below, then fold and mail. If additional space is needed, comments may be written neatly on plain white paper. Any mailed comments must be postmarked by 28 February 2023.

If you have questions about the comment period, please contact Mr. Paul Carroll at paul.carroll.1@us.af.mil.

After the comment period closes on 28 February 2023, the Air Force will respond to all comments, which will be included in the Responsiveness Summary of the Interim Record of Decision.

Name _____

Address _____

City _____

State _____ Zip _____

Phone _____ E-mail _____

- I support the Air Force’s Interim Land Use Controls
- I do not support the Air Force’s Interim Land Use Controls

Additional Comments:

From:

Place
stamp
here

Mr. Paul Carroll
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