

OFFUTT AIR FORCE BASE

PUBLIC NOTICE – OFF-SITE GROUNDWATER IMPACT AT SD041

The Offutt Air Force Base (OAFB) Environmental Restoration Program (ERP) has been monitoring the groundwater both on and off the base for many years in connection with ERP Site SD041, also referred to as Old Jet Engine Test Stand (OJETS). This notice is to advise Offutt's neighbors of actual and potential impacts to off-base groundwater associated with SD041. Groundwater sampling from on-base and off-base wells has been performed semiannually to monitor the impact to groundwater from multiple ERP sites at OAFB.

The purpose of groundwater sampling is to monitor plume migration as well as changes in the concentrations of identified contaminants of concern (COCs). The locations of wells sampled and the current location of impacted groundwater is shown on attached **Figure 1 – Impacted Groundwater, Offutt Air Force Base and Surrounding Area, 2014**.



Recommended Action: Additional action is not required at this time.

(After analyzing samples of groundwater, additional action is not needed; continue following active land use controls [LUCs]).

OAFB is located just south of Bellevue, Nebraska. In 1987, the U.S. Environmental Protection Agency (EPA) issued a federal Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management permit to OAFB that allowed operating a hazardous waste storage facility at SD041. Under the permit, environmental contamination is investigated and remediated. Contamination in the form of chlorinated solvents including trichloroethene (TCE); cis-1,2-dichloroethene; and vinyl chloride (VC) have been found in soil and groundwater at OAFB. Contamination at SD041 was caused by using contaminated waste oils for dust suppression.

SD041 (OJETS): The remedy for SD041 focuses on preventing plume migration and treating contaminant mass by injecting a biostimulant into groundwater to stimulate natural attenuation of the groundwater plume. Monitored natural attenuation (MNA) is the longer-term remedial component that will eventually treat the contaminants to concentrations below the EPA recommended maximum contaminant levels (MCLs). LUCs are currently (and will continue to be) used to prevent exposure to contamination until the remedial objectives are achieved.

GROUNDWATER IMPACT INFORMATION

- **COCs:** TCE and VC
- **COC Concentrations:** TCE and VC are above their EPA MCLs of 5 micrograms per liter (ug/L) and 2 ug/L, respectively. The EPA MCLs listed are designated for drinking water only.
- **Effects of Exposure to COCs:** Potential long-term effects of drinking TCE- or VC-impacted groundwater above the MCLs could include central nervous system depression, liver and kidney effects, cancer, and birth defects.
- **Location of COCs:** Found in groundwater extending from within OAFB boundary beyond Harlan-Lewis Road, east of base, and north and south of Cunningham Road. See attached **Figure 1**.

OAFB RCRA PART II PERMIT

- Approved in September 2010, will remain in effect for 10 years.
- Groundwater treatment with in situ reductive treatment (IRT) zones with monitoring until remedial action objectives (RAOs) are met.
- MNA
- Administrative LUCs

COC Concentrations Exceedances:

- TCE is currently above the EPA MCL for drinking water of 5 ug/L in off-base monitoring well OJET-MW7-D (located south of Cunningham Road, and just east of Harlan-Lewis Road).
- VC is currently above the EPA MCL for drinking water of 2 ug/L in off-base monitoring wells OJET-MW5D, OJET-MW6D, and OJET-MW9D.

Plume Status and Ongoing Remedial Activities: To maintain an environment for the enhanced reductive dechlorination process of the COCs to continue, emulsified vegetable oil (EVO) injections were completed at two IRT zones (IRT-NP5 and IRT-SP3) within the affected off-base area at SD041 in October 2014 (**Figure 1**). A total of approximately 1,012 gallons of EVO solution were injected into the affected areas.

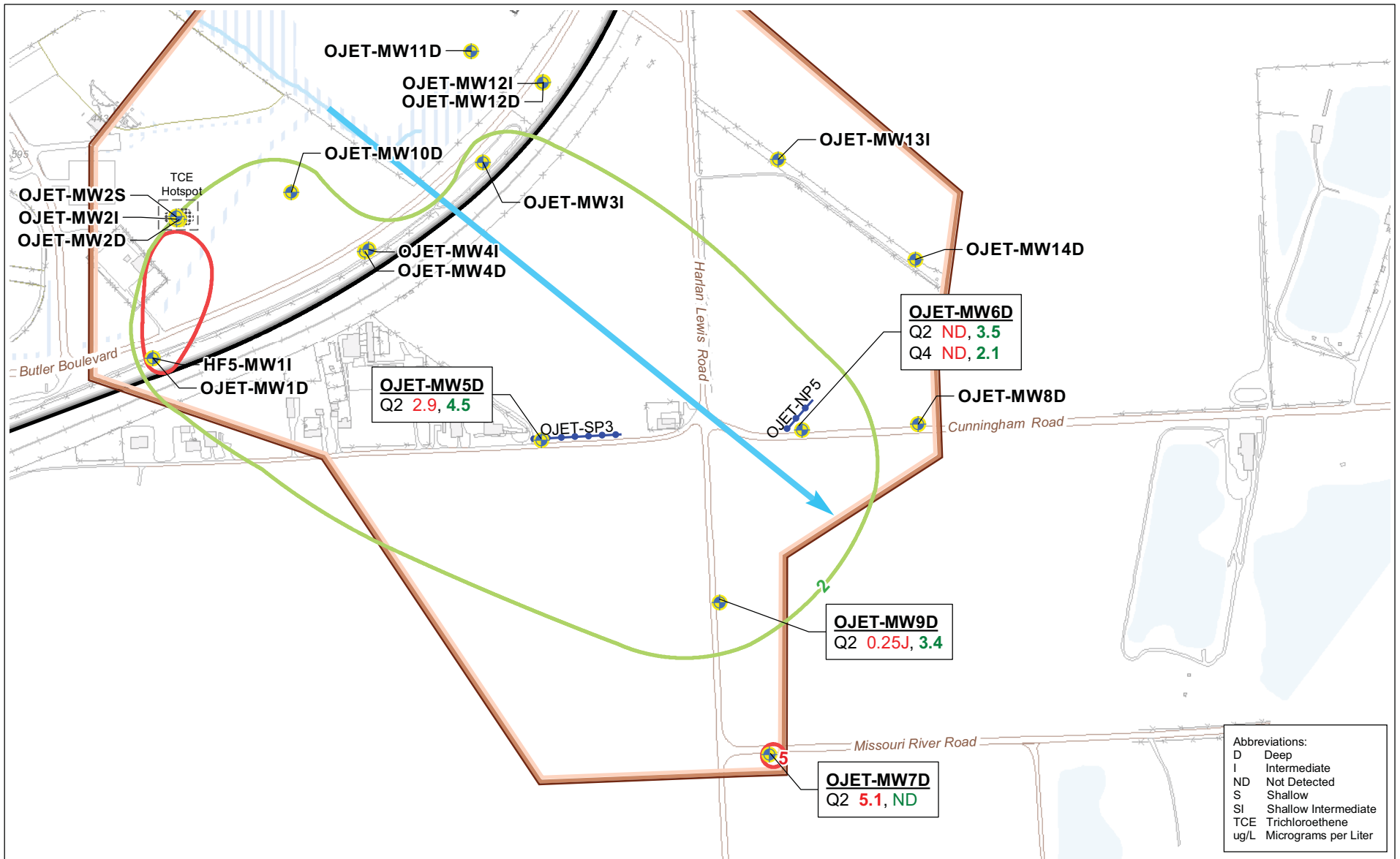
Potential LUC Impact: A search of the Nebraska Department of Natural Resources well registry found no groundwater production wells used for drinking water within SD041. Also, a review of the Sarpy County Plan: A Comprehensive Development Plan for Sarpy County, Nebraska, found no new planned developments within SD041.

Future Planned Activities: Semiannual groundwater monitoring will be conducted at SD041 in 2015. The analytical data will be used to evaluate the effectiveness of recent EVO injections, and the continued reduction of contaminant concentrations within the plume through MNA. Additional EVO injections may be necessary in the future.

RCRA PART II PERMIT REQUIREMENTS

- **Groundwater Treatment IRT Zones** consisting of injections of biostimulant were installed to enhance natural attenuation of the COCs at key areas within the groundwater plume. COC monitoring will continue until cleanup criteria are met for the RAOs at SD041.
- **MNA** will be used as a “polishing” step to further reduce COC concentrations throughout the plume. Additional measures will be evaluated and proposed if progress is not being made toward meeting RAOs.
- **Administrative LUCs** will be used to prevent unacceptable exposure of OAFB employees to hazardous substances remaining at the site and to prohibit installing on-base drinking water wells as long as contaminant levels remain above cleanup standards, including the following.
 - *On Base:* (1) Digging and excavating below 6 inches of the ground surface within the LUC areas are prohibited. (2) Installing wells to provide domestic water is prohibited within the LUC area.
 - *Off Base Within Easement Boundaries:* (1) Construction Control – The U.S. Air Force controls construction within and 1,000 feet southeast of the runway clear-zone area. These control measures also include restricting installation of domestic water wells. (2) Deed Notification – OAFB will complete the deed-notification process for all affected properties to inform potential future land owners of the potential contamination. (3) Notification of Contamination – OAFB will send a notification letter to off-base private landowners describing the contaminant plume and its location, as well as general information regarding the COCs and their toxicity under the drinking water well scenario.
 - *Off Base Outside Easement Boundaries:* (1) OAFB will work with owners of affected property to abandon existing wells, where practical. Current Bellevue City Code (Section 15-91 through 15-93) requires connection to the water main, when present, and prevents installing domestic water wells where the water has become polluted. (2) Notification of Contamination. (3) OAFB will gain access and conduct annual inspections of the affected areas and verify that no domestic drinking water wells have been installed within the off-base footprint of the plume. An annual review will also be conducted of Sarpy County planning board records to determine if any proposed development or construction may increase the potential for human exposure to contamination and/or the integrity of the remedy.

**Please do not hesitate to call the OAFB contact below if you have questions or concerns.
Mr. Ed Zuelke, Chief of Environmental Restoration, Offutt AFB, 509-247-8152; paul.zuelke.3@us.af.mil**

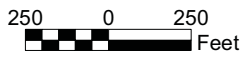
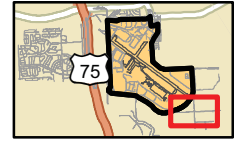


Abbreviations:
 D Deep
 I Intermediate
 ND Not Detected
 S Shallow
 SI Shallow Intermediate
 TCE Trichloroethene
 ug/L Micrograms per Liter

- Monitoring Wells to be Sampled in 2015
- Offutt AFB Boundary
- SD041 Boundary
- Building
- 2014 IRT Injection Location
- TCE Concentration Contour in ug/L
- Vinyl Chloride Concentration Contour in ug/L
- Groundwater Flow Direction
- Fence
- Railroad
- Road
- Runway
- Creek/Ditch
- Wetland
- TCE Hotspot Injection Area

Maximum Contaminant Levels (ug/L)	
TCE	5
Vinyl Chloride	2

Notes:
 1. Results are from the 2014 quarterly sampling events and are in micrograms per liter.
 2. **Red** results for TCE in ug/L
Green results for Vinyl Chloride in ug/L
 3. Bold results exceeded the maximum contaminant level



Coordinate System:
 NAD 1983 StatePlane
 Nebraska FIPS 2600 Feet



FIGURE NUMBER
1

**U.S. AIR FORCE
 CIVIL ENGINEER CENTER**

**Impacted Groundwater
 Offutt Air Force Base and Surrounding Area
 2014**