

FACT Sheet

Former Nebraska Ordnance Plant ■ Mead, Nebraska

January 2007

Evaluation of Surface Water Screening Levels for TCE and RDX

For more information or any questions concerning the Mead project, please contact:

Garth Anderson
U.S. Army
Corps of Engineers
Kansas City District
601 E. 12th Street
Kansas City, Missouri 64106
Phone: (816) 389-3255
email:
H.Garth.Anderson@
USACE.army.mil

Information repository documents are available for review at:

Mead Public Library
316 South Vine Street
Mead, Nebraska 68041
(402) 624-6605



US Army Corps
Of Engineers
Kansas City District

Background

As part of activities associated with the Operable Unit No. 3 (OU3) Remedial Investigation (RI), surface water samples were collected from Johnson Creek and analyzed for volatile organic compounds (VOC) and explosives. TCE ($6.9 \mu\text{g/L}$) and RDX ($1.8 \mu\text{g/L}$) were present in the surface water samples collected from Johnson Creek (See OU3 RI Report, WCC, 1997). In 2000, upon completion of all of the OU3 RI activities, a Risk Assessment (RA) was conducted as part of OU3. At the time, the RA looked at various uses of the creek and concluded that there were no unacceptable risks.

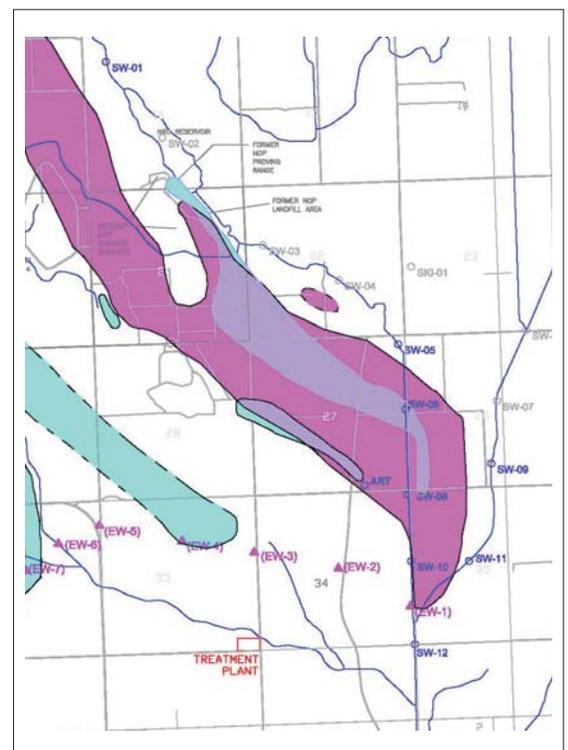
Since that time, surface water samples have been collected on a regular schedule as part of the site-wide groundwater monitoring program (GMP). The highest TCE concentration detected in Johnson Creek was $56.1 \mu\text{g/L}$ (Location SW-8) in November 2005 and $2.04 \mu\text{g/L}$ (Location SW-8) of RDX in November 2005. In September 2006 at surface water sampling location SW-8, TCE was $12.3 \mu\text{g/L}$ and RDX was $6.8 \mu\text{g/L}$.



Questions

1. Do the current concentrations of TCE and RDX in the surface water along a portion of Johnson Creek pose a risk?
2. What are safe concentrations for TCE and RDX in the creek?

There is no simple answer. The degree of risk is related to how much a person is exposed to the creek water, contaminant concentration and the contaminant toxicity. USACE, U.S. Region VII (EPA) and Nebraska Department of Environmental Quality (NDEQ) looked at these questions and each used a slightly different approach to evaluate the possible risks.



See other side

USACE Approach

USACE used the scenario from the OU3 RA (URS, February 2000) evaluating a recreational creek use with the following assumptions for adults and children:

- Enter the most contaminated portion of the creek once every week in the summer (17 days/year)
- 70 years of exposure for adults and 6 years for small children
- One-half of the body gets wet each visit, and stays wet for 2 hours (adult) and 6 hours (small children)
- Accidentally drinks 5 milliliters (approximately 1 teaspoon) of water each visit
- Eat fish from the stream

EPA Approach

EPA looked at a juvenile in a recreational scenario.

- The juvenile enters the most contaminated portion of the creek once every week (52 days/year)
- 10 years of exposure for a juvenile
- One-fourth of the body gets wet each visit and stays wet for 5 hours (juvenile)
- Accidentally drinks 50 milliliters (approximately 1/5 cup) of water each visit (juvenile)

NDEQ Approach

- Evaluated TCE only
- Looked at potential impacts to public water supply (the Platte River); does not evaluate exposures or risk in Johnson Creek
- Target concentration in the Platte is the MCL (5 $\mu\text{g/L}$) (the drinking water standard)
- Used MCL therefore doesn't require use of toxicity value
- Back-calculated allowable concentrations at SW-13, correcting for dilution/mixing



What Are The Conclusions?

- RDX does not pose a risk at the current levels detected in the creek.
- TCE does not pose a risk to the public drinking water supply (Platte River) at the current levels detected in the creek.
- Considering a conservative exposure scenario, risks due to TCE in surface water are within the CERCLA acceptable range.

Where Do We Go From Here?

- Continue monitoring surface water locations on a quarterly basis site wide.
- Talk to landowners and nearby residents along this stretch of creek (between SW-8 and SW-12) to verify their use of the creek.
- TCE toxicity value is still under review by EPA headquarters.