

U.S. AIR FORCE  
ELLSWORTH AFB, SD

## Next RAB Meeting

Mark your calendars!  
The next Restoration Advisory Board meeting is scheduled for 7 p.m., November 8, 2011 at Douglas Middle School. For more information, please call 385-2688, or 385-5056.

## VISIT OUR WEBSITE!

<http://www.ellsworth.af.mil/library/environmental/index.asp>

### View the following:

- RAB presentations
- Public announcements
- Meeting information
- Past newsletters

## VISIT THE INFORMATION REPOSITORY!

The Information Repository is located at the South Dakota Air & Space Museum, and is available Monday through Friday from 7 a.m. to 4 p.m. View our website for more information.

## East Off-Base Groundwater Exit Strategy

Ellsworth Air Force Base, S.D. finalized an *Exit Strategy Report* for the east Off-Base Groundwater Plume in October 2010. The *Exit Strategy Report* can be viewed at the Information Repository.

The report outlines a short term strategy to allow landowners to install new wells, or use existing wells, within the east off-base plume and pump the groundwater for non-potable purposes. For more information, see the April 2011 *Restoration News* newsletter on our website.

The *Exit Strategy Report* also outlines a strategy to attain site closeout for the east off-base plume.

A groundwater investigation was conducted in 2009-2010. A total of 307 groundwater samples were collected from 335 soil borings. Based on these results, 19 additional monitoring wells were installed. These 19 new monitoring wells, in addition to 11 existing monitoring wells, make up the optimal monitoring network for the east off-base groundwater plume.

The exit strategy milestones for the east off-base plume are as follows:

- A minimum of four samples must be collected from each well starting in 2010 (total of 30 wells).
- Concentrations of contaminants must be stable or declining.
- Concentrations must be less than the Maximum Contaminant Level (MCL) for three consecutive years. At this point, sampling frequency at individual monitoring well changes from annual to every five years.
- Once all 30 wells have attained these milestones, all 30 wells will be sampled simultaneously for verification. Once these milestones have been met, the east off-base portion of the groundwater plume can be deleted from the National Priorities List (NPL), the monitoring wells abandoned, and groundwater use restrictions can be removed.

**After groundwater use restrictions are lifted, Ellsworth AFB will no longer be obligated to provide free water to those landowners currently receiving free water. At that point, landowners will be responsible for paying their own water bill. The earliest this could happen is during the**

**year 2015, although it is possible that it could take longer.**

The figures on the reverse page illustrate the off-base plume rapidly decreasing in size since treatment began at the base boundary in 1997. As of April 2011, only three off-base monitoring wells had concentrations equal to or above the MCL.

Sixteen existing east off-base monitoring wells were found to be not needed and are being abandoned in October/November 2011.

**Note: An exit strategy has not yet been developed for the southwest plume.**

## What is IRT?

In-situ reductive treatment (IRT) is a type of bioremediation. Bioremediation allows natural process to clean up harmful chemicals in the environment. Microbes that live in the soil and groundwater “eat” the harmful chemicals and change them into water and harmless gases such as carbon dioxide.

In order for microbes to clean up trichloroethylene (TCE), the main contaminant at Ellsworth AFB, the right temperature, nutrients, and amount of oxygen must be present in the soil and groundwater. If conditions are not right, they can be improved. One way to improve conditions is to pump nutrients or other substances (such as vegetable oil or molasses) underground.

Bioremediation is used because it takes advantage of natural processes. Groundwater can be cleaned at the site without having to pump it out. Once harmful chemicals are cleaned up and microbes have eaten their available “food,” the microbes die.

For additional information, see EPA’s *A Citizen’s Guide to Bioremediation*, available at <http://www.epa.gov/tio/download/citizens/bioremediation.pdf>

## Record of Decision Amendment

The Air Force is currently preparing a record of decision (ROD) amendment identifying changes to the selected remedy for cleaning up contaminated groundwater on-base at the OU-11 Basewide Groundwater Operable Unit.

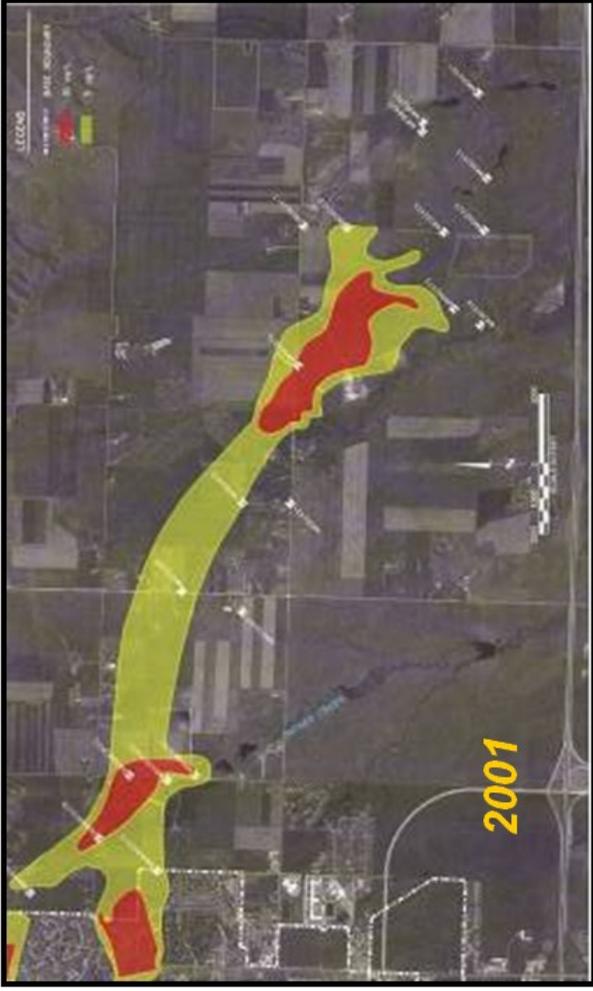
The proposed plan was available for public comment from June 20 to July 19, 2011 and a public meeting was held on July 13, 2011 at the South Dakota Air & Space Museum. There were no written or verbal comments received during the public comment period.

**Please note, there are no changes to the selected remedy (monitored natural attenuation) for the contaminated**

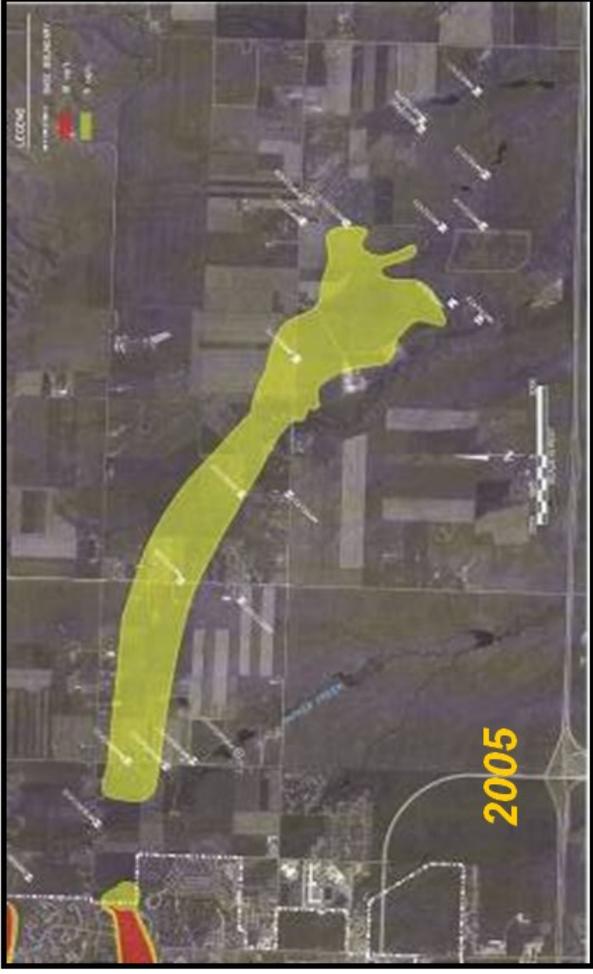
**off-base groundwater.**

Changes from the original 1997 ROD include:

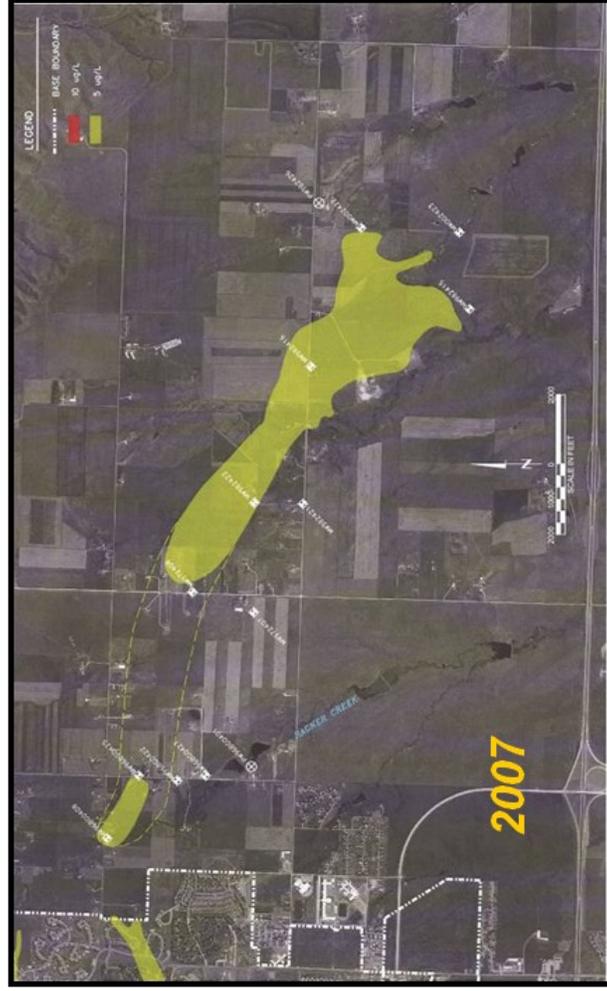
- Adding in-situ reductive treatment (IRT) and monitored natural attenuation (MNA) for on-base groundwater
- Shutting down extraction/treatment systems (to be maintained as backup)
- Preventing off-Base human exposure to groundwater with contaminants of concern (COCs) that pose an unacceptable health risk
- Attaining cleanup of COCs to groundwater standards throughout groundwater plumes.



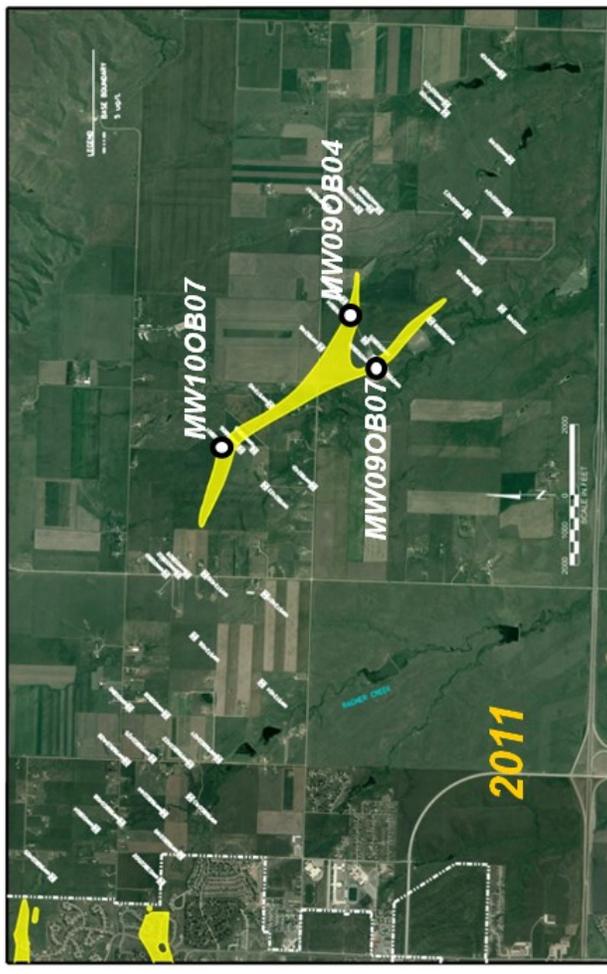
2001



2005



2007



2011

These figures show the off-base plume rapidly decreasing in size since treatment began at the base boundary in 1997. Removing the source at the base boundary has allowed the plume to rapidly decline, or naturally attenuate, over the last ten years. The Air Force monitors this natural attenuation, making this process *monitored natural attenuation*, or *MNA*. MNA works best at sites where the source of contamination has been removed. After the source has been removed, natural processes of dilution, dispersion, and degradation get rid of the small amount of contamination that remains in the groundwater. For additional information on MNA, see EPA's *A Citizen's Guide to Monitored Natural Attenuation*, available at <http://www.epa.gov/tio/download/citizens/mna.pdf>