

U.S. AIR FORCE
ELLSWORTH AFB, S.D.

Next RAB Meeting

Mark your calendars!
The next Restoration Advisory Board meeting is scheduled for 7 p.m., Dec. 4, 2012, at Douglas Middle School. For more information, please call (605) 385-2677, or (605) 385-5056.

VISIT OUR WEBSITE!

<http://www.ellsworth.af.mil/library/environmental.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.

New RAB Meeting Chairperson

There will be a new face at the Dec. 4, 2012, Restoration Advisory Board meeting! Please help us welcome the new RAB Meeting Chairperson, Col. Gentry Boswell, 28th Bomb Wing vice commander.

Contact Us!

- Let us know if you have any topics you would like us to address in the next newsletter or at the next RAB meeting
- You can also request results from recent groundwater sampling conducted on your property
- Contact us at (605) 385-2677 or send a request to:

**28 CES/CEANR
2125 Scott Drive
Ellsworth AFB, S.D.**

What is Monitored Natural Attenuation?

As we discussed in the last newsletter, the selected remedy for cleaning up the off-base groundwater is monitored natural attenuation.

Natural attenuation relies on natural processes to clean up or *attenuate* harmful chemicals in groundwater. Scientists test or *monitor* these conditions to make sure natural attenuation is working. This is called *monitored natural attenuation* or *MNA*.

When groundwater is contaminated with harmful chemicals, nature can work in four ways to clean it up:

1. *Microbes* that live in the soil and groundwater “eat” the harmful chemicals and change them into water and harmless gases such as carbon dioxide.
2. Chemicals can stick to or absorb into soil, which holds them in place. This doesn’t clean up the

chemicals, but it can keep them from polluting groundwater.

3. As contaminated groundwater moves, it mixes with clean water. This reduces or *dilutes* the contamination.
4. Some chemicals, like trichloroethylene (TCE), can evaporate, which means they change from liquids to gases within the soil. If these gases escape to the air at the ground surface, sunlight may destroy them.

MNA is not a “do nothing” way to clean up sites. Regular monitoring is still needed to ensure that people and the environment are protected. For more information, see Environmental Protection Agency’s *A Citizen’s Guide to Monitored Natural Attenuation*, available at www.epa.gov/superfund/community/pdfs/suppmaterials/treatmenttech/attenuation.pdf.

East Off-Base Groundwater Exit Strategy

Ellsworth Air Force Base finalized an *Exit Strategy Report* for the east off-base groundwater plume in October 2010. The *Exit Strategy Report* 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 the 11 existing monitoring wells, make up the optimal monitoring network for the east off-base groundwater plume (see figure on the reverse page).

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 wells 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 the milestones for site closeout 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 remaining groundwater use restrictions can be removed. In April 2011, only three off-base monitoring wells had concentrations equal to or above the MCL. In March 2012, all off-base monitoring wells had concentrations below the MCL!

After groundwater use restrictions are lifted, Ellsworth 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.

When groundwater use restrictions are lifted, it will be okay to install new wells and use existing wells without a modified Memorandum of Agreement (MOA). Currently, a modified MOA is required to pump the groundwater for non-potable purposes (irrigation and swimming). We will continue to provide updates on the east off-base plume in our newsletter and at RAB meetings.

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

East Off-Base Plume TCE Results (Starting in 2010)

Map ID	Well ID	Four or More Samples Available (starting 2010)?	Trend (requires four samples)	<MCL for three Consecutive Years?	Spring 2010 TCE Result (µg/L)	Spring 2011 TCE Result (µg/L)	Spring 2012 TCE Result (µg/L)	Consecutive Years <MCL
A	MW96BG0408	No - 3		Yes	2.1	1.6	1	3
B	MW96BG0422	No - 3		Yes	0.44F	0.78F	1.2	3
C	MW96BG0425	No - 3		Yes	2.7	2	1.6	3
D	MW972406	No - 3		Yes	2.4	2.4	3	3
E	MW972408	No - 3		Yes	3	3.1	2.4	3
F	MW972410	No - 3		No	5.3	4.2	3.3	2
G	MW982415	No - 3		Yes	0.32F	0.31F	0.36F	3
H	MW982416	No - 3		No	5.6	4.6	4.1	2
I	MW982422	No - 3		Yes	3.8	3	2.4	3
J	MW002422	No - 3		Yes	3.9	3	2.7	3
K	MW002423	No - 3		Yes	<1	<1	<1	3
L	MW09OB01	No - 3		Yes	3.6	3	2.7	3
M	MW09OB02	No - 3		Yes	3.9	3.2	2.9	3
N	MW09OB03	No - 3		Yes	4.9	3.6	3.6	3
O	MW09OB04	No - 3		No	6	5.3	4.5	1
P	MW09OB05	No - 3		No	5.3	4.4	3.9	2
Q	MW09OB06	No - 3		No	5.5	4.4	4.3	2
R	MW09OB07	No - 3		No	6	5.1	4.4	1
S	MW09OB08	No - 3		Yes	4.9	4.6	4.4	3
T	MW09OB09	No - 3		Yes	<1	<1	<1	3
U	MW10OB01	No - 3		Yes	3.6	2.5	2.5	3
V	MW10OB02	No - 3		Yes	4.8	3.6	2.6	3
W	MW10OB03	No - 3		Yes	2.4	2.6	3.7	3
X	MW10OB04	No - 3		Yes	2.8	2.4	2	3
Y	MW10OB05	No - 3		Yes	3.8	3.4	2.8	3
Z	MW10OB06	No - 3		No	5	4.3	3.5	2
AA	MW10OB07	No - 3		No	5.9	5	4.3	1
BB	MW10OB08	No - 3		Yes	3.2	3.5	3.1	3
CC	MW10OB09	No - 3		Yes	4.5	3.7	2.8	3
DD	MW10OB010	No - 3		Yes	1.2	1.5	1	3

Notes:

F = Result between method detection limit and reporting limit

<1 = Below reporting limit

Bold = Detected at or above the Maximum Contaminant Level (MCL) of 5 µg/L

