Badlands Bombing Range Report

U.S Army Corp of Engineers

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The Badlands Bombing Range Report is produced by the U.S. Army Corps of Engineers, Omaha District to present current information about environmental cleanup programs underway at the Former Badlands Bombing Range (BBR). Many state, federal, and tribal agencies are involved in the project including the Oglala Sioux Tribe (OST) and its BBR Project Office, the U.S. Army Corps of Engineers, the U.S. Air Force, and the National Park Service.
The U.S. Army Corps of Engineers is conducting an Engineering Evaluation and Cost Analysis (EE/CA) to evaluate the cost and feasibility of environmental investigations and the resulting cleanup for contaminated sites. EE/CA field activities are underway at the Former BBR, which will address sites with residual ordnance and explosives (OE). Upon completion of the EE/CA, the sites will be further evaluated for potential hazardous and toxic waste. A look at recent fieldwork is provided in this issue.
Also included in this issue are:

- Updates on new technology being utilized at the BBR
- The Ogala Sioux Rural Water Supply System (OSRWSS) pipeline
- Groundwater well and spring sampling activities
- The status of the OE environmental cleanup process
- Information on the next Restoration Advisory Board (RAB) meeting
- Project point of contact
- Acronym definitions

BBR Project Updates

Many exciting things have happened at the Badlands Bombing Range (BBR) since the last newsletter.

Parsons Engineering Science recently distributed the Draft Final Vol II EE/CA for Agency and Public Review. The Final EE/CA is scheduled for submittal Spring 2003.

Unexploded Ordnance (UXO) sampling and clearance is a unique skill that is increasingly needed and often required at numerous military and former military installations throughout the United States and the world. Unfortunately, there are few contractors trained to perform this difficult and important service. To assist in the BBR clearance, a collaborative employee training program was created betwee the Oglala Sioux Tribe (OST) and the Department of Defense. To date, numerous members of the OST have been successfully trained in the location, removal and detonation of UXO. The BBR UXO Staff is currently working across the nation.

The Oglala Sioux Rural Water Supply System (OSRWSS) pipeline that will supplement existing local water supplies is nearing completion. A cooperative effo between the OST and USACE resulted in UXO clearance along the pipeline route. The OST project, estimated to be 90% complete, should come on-line summer 2002.

A well and spring survey will also be conducted this summer to gather information for a water sampling plan. The survey will determine whether groundwater wells and natural springs are useful for sampling, based on existing conditions.

The development of the Lakota Heritage and Education Center by the OST and the National Park Service (NPS) is in the initial planning stages. The locations have been narrowed down and architectural designs are under review. This center promises to be a cultural icon for many generations seeking information about the rich history of the Lakota people and their land.

In the fall of 2001, the U.S. Air Force utilized the Naval Research Lab (NRL) to complete a survey and ordnance removal on 150 acres of land. Using both airborn and vehicular technology, numerous live projectiles were located and safely removed. More information on this field effort is on page 3.

≈ ***Partners in Progress*** ≈

U.S. Army Corps of Engineers ❁ Oglala Sioux Tribe ❁ National Park Service ❁ U.S. Air Force

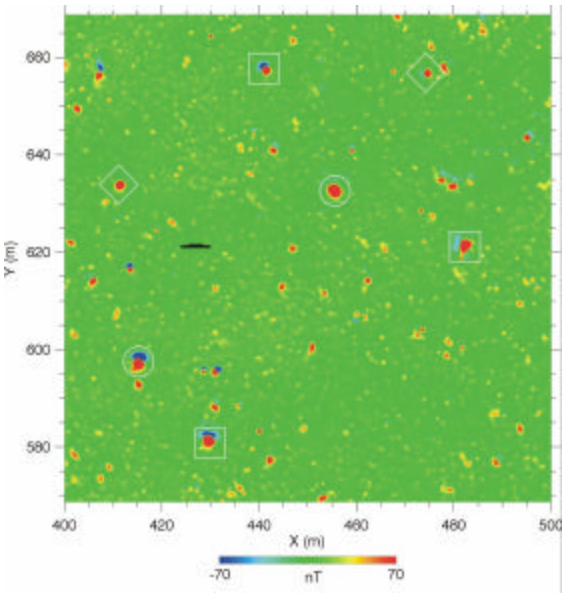
New Application of Old Technology Assists in Range Clearance

In September 2001, scientists from the U.S. Naval Research Lab (NRL) in Washington D.C., conducted experiments at the Badlands Bombing Range (BBR) to assist in the clearance of UXO on Air Force retained areas totaling approximately 24,000 acres. Clearance is achieved through a combination of detection and actual removal of the UXO. Detection is generally achieved through magnetometer and electromagnetic sensors (metal detectors). The magnetometer sensors rely on changes in the earth's field (passive). These sensors detect small changes in the earth's magnetic field caused by buried metal. The electromagnetic sensors (active) excite the targets themselves and look at the decaying excitation. These changes, or anomalies as they are called, are mapped using a Global Positioning System (GPS) and stored on a computer so the site can be easily located and cleared at a later date (lower right figure). Recent advances in software technology enable scientists to distinguish between actual ordnance and metallic scrap based on their shape.

One of the challenges of UXO clearance at the BBR is the vastness of the site, which encompasses 341,179 acres. Past magnetic sensor technology included man-portable and vehicular magnetometers. These systems could only survey up to 3 or 25 acres/day respectively making them less than ideal for this large area. However, new technology developed by the NRL utilizes a helicopter for surveying the site much more efficiently and quickly (see figure below). Detection sensors are housed in a boom located in front of the helicopter. Although this technology enables up to 500 acres of very flat terrain to be surveyed in a single day, making it ideal for certain areas of the BBR, there still remain areas of badlands where this technology would not be practical.

Fieldwork, which included surveying and remediation, started in early September 2001 and lasted through late November. During these 14 weeks, almost 1,600 residual targets were detected and analyzed through a combination of airborne and vehicular surveys. Of the identified airborne sites, nearly 500 were chosen for selective remediation. Approximately 30 live projectiles were removed in the total project and an additional 25 inert objects. Additional NRL fieldwork is scheduled for this summer. Look for the results of this future field work in upcoming newsletters.

U.S. Naval Research Laboratory (NRL) helicopter completing a scanning run. Note forward positioned boom containing GPS, magnetometer and electromagnetic imaging equipment.



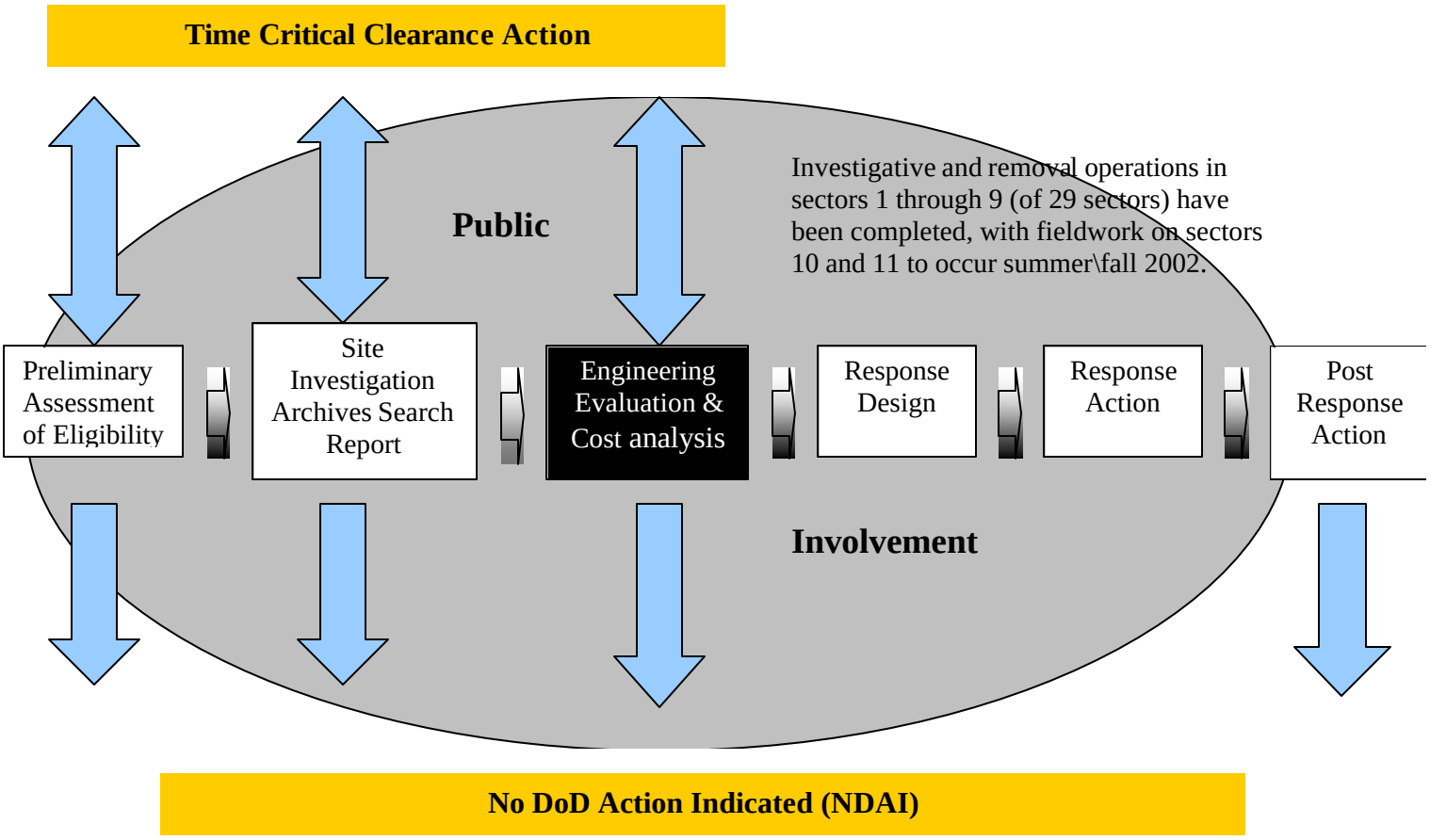
Airborne survey of a 2.5 acre region of the BBR Impact Area showing signals from two 8-in (circles), three 155-mm (squares), and two 105-mm (diamonds) projectiles.

Engineering Evaluation/Cost Analysis (EE/CA) News

The Vol I EE/CA report is complete. The Action Memorandum is soon to be out for public review and then submitted to the Department of the Army for approval. The Draft Vol II (currently distributed for public review) and Vol III EE/CA's, which address BBR sectors 4,5, 6, 7, and 8 and 9 respectively, were recently completed and submitted to the USACE. The reports include recommendations for clearance actions on a total of 1,290 acres.

In February 2002, with support from Environmental Management Inc. (EMI), the Oglala Sioux Tribe completed the Reconnaissance Report on BBR sector 10. The purpose of this report was to develop field logistics, plane coordinates, and planning methodologies to aid in this summers fieldwork on the Vol IV EE/CA in sectors 10 and 11. Field activities will include geophysical and investigative actions to identify various UXO in these areas.

Ordnance and Explosive Process



Minuteman Missile National Historic Site

Although not directly related to the Badlands Bombing Range Project, the Minuteman Missile National Historic Site represents the conversion of an inactive missile silo into a museum and visitor center complex. The missile site borders the Badlands National Park to the northeast along Interstate 90. This is an incredible opportunity for a partnership among the National Park Service, the U.S. Air Force, and the South Dakota Air and Space Museum in Rapid City. The project is currently midway through the development of its General Management Plan. The plan will discuss future development, interpretive themes, and access to the facilities. The location of a future visitor center along Interstate 90 will soon be chosen. Funding for this new unit of the National Park System was received to provide a core team of park staff, including a park ranger and a park historian. Public facilities and tours are not likely to be available in 2002. A dedication ceremony recognizing the transfer of responsibility for the site from the U.S. Air Force to the National Park Service is in the planning stages. It is certainly an exciting time to be a park manager and this remnant of the Cold War will resonate with a significant portion of the American public.

Contributed by: William Supernaugh, Superintendent- Badlands National Park

USACE Badlands Bombing Range Newsletter Contact

The Badlands Bombing Range Report is researched, written, compiled, and distributed by members of the U.S. Army Corps of Engineers, Omaha District BBR Project team. Articles relating to the environmental restoration of the Former BBR may be submitted for publication by members of the RAB; the Oglala Sioux Tribe; federal, state, or local agencies; and the general public. Mr. Thomas O'Hara has been designated as the official point of contact for all public inquiries concerning the corps efforts at the Former BBR. All calls and letters directed to other corps representatives will be re-routed through the Public Affairs Office. To avoid delays in response time and/or to be added to the BBR Newsletter mailing list, please contact Mr. O'Hara directly at the following address: Public Affairs Office U.S. Army Corps of Engineers,CENWO-PA (T. O'Hara), 106 South 15th Street, Omaha, NE 68102-1618, Telephone: (402) 221-3918, Toll free: (888) 835-5971, Fax: (402) 221-4195, e-mail: thomas.a.o'hara@usace.army.mil

ACRONYMS

BBR	Badlands Bombing Range
EE/CA	Engineering Evaluation/Cost Analysis
EMI	Environmental Management, Inc.
EOD	Explosives and Ordnance Demolition
EPA	U.S. Environmental Protection Agency
OE	Ordnance and Explosives
ORNL	Oak Ridge National Laboratory
OSRWSS	Oglala Sioux Rural Water Supply System
OST	Oglala Sioux Tribe
RAB	Restoration Advisory Board
ROE	Right-of-Entry
USACE	U.S. Army Corps of Engineers
UXO	Unexploded Ordnance

BBR Project Document Repository Locations:

- Badlands Bombing Range Project Office
  Pine Ridge, South Dakota
- Oglala Lakota College
  Kyle, South Dakota
- Rapid City Public Library
  Rapid City, South Dakota

RAB NOTES

The BBR Restoration Advisory Board (RAB) meetings are held in a workshop format to better meet the needs of the public. This format allows tribal and public members to freely interact one-on-one with BBR Project personnel, agency members, and others involved with the project.

The next BBR RAB meeting will be held on June 13, 2002, at the Pass Creek District CAP Bldg in Allen, South Dakota. An open forum for public browsing will begin at 10:30 a.m. At noon, the meeting will break for lunch and at 1:00p.m., the co-chairs will hold a short, formal discussion. Members of the public are encouraged to stop and visit with the project team and share their experiences at the former bombing range and any information that will assist in the cleanup efforts. The open forum will continue after the short formal presentation.

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