Restoration Advisory Board
Former Lowry Bombing and Gunnery Range (FLBGR)
20 April 2011
FINAL MEETING MINUTES

The 20 April 2011 meeting of the Restoration Advisory Board (RAB) was held at the U.S. Army Corps of Engineers (USACE) Site Compound, 25950 East Quincy Avenue, Aurora, CO 80016. The scheduled start time was 6:00 p.m.

WELCOME AND OPENING REMARKS

Mr. Jerry Hodgson, USACE, called the meeting to order at approximately 6:15 p.m. Mr. Hodgson then asked all attendees to introduce themselves.

ATTENDANCE

The following RAB members were present:

Jerry Hodgson, USACE, Co-Chair
Mark Harding, Rangeview Metro District
Julio Iturreria, Arapahoe County
Cindy O'Hare, Department of the Navy
Melissa Palmer, Department of the Navy
Jeff Swanson, Colorado Department of Public Health and the Environment (CDPHE)
Lynn Robbio Wagner, Tri-County Department of Health (TCHD)
Melissa Yoder, State Land Board (SLB)

Other attendees:

Bryan Bouldin, Citizen (landowner)
Heesoo Chung, Sky Research, Inc. (SKY)
Caleb J. Connor, Bennett Fire Department
Bob Culbertson, Shaw Environmental, Inc. (Shaw)
Morey Engle, Shaw
Ryan Field, USACE
Steven Gehring, Shaw
Randy Hawbaker, Cherry Creek School District
Jed Lowrey, Tetra Tech
Pat McGinnis, Shaw
John Mullen, M2R Solutions
Lee Pivonka, CDPHE
David Rathke, U.S. Environmental Protection Agency (EPA)
Hector Santiago, Shaw
Kathy Smiley, I-70 Scout
Lisa Stahl, Shaw
Chris Sundeen, Shaw
Elaine Tate, Shaw
Adam Wilms, Tetra Tech
Ken Vogler, CDPHE
Marvin William, American Automations

GENERAL RAB ITEMS

Mr. Hodgson asked if the Board had an opportunity to review the minutes from the 20 October 2010 RAB meeting. As there were no comments, the minutes from the October RAB meeting were approved.

NAVY/DRI
Navy Update (presentation posted on the project website: www.flbgr.org)

Ms. Cindy O'Hare, U.S. Navy, was introduced as Mr. Justin Peach's temporary replacement. Ms. Melissa Palmer, U.S. Navy, was also introduced as the newly appointed Project Manager for the Navy/Denver Research Institute (DRI) Site. Ms. O'Hare reviewed the ongoing work at the Navy/DRI Site, indicating that, in general, the work was on schedule. Anomaly removal is ongoing and is scheduled to be completed in June 2011, followed by demobilization. Teams have completed work in the North and South Tract areas of the DRI and are now focusing on the central area (i.e., the former Denver Test Area [DTA]) where most of the anomalies are located. The completed Geophysical Survey identified 33,715 targets of interest, with the highest density of anomalies in the DTA. "Mag-and-dig" teams will concentrate on approximately 10 acres in areas located in the northern and central DTA and along roadways. There are approximately 78,000 square feet of target areas, mostly located in the DTA.

To date, 678 munitions and explosives of concern (MEC) items have been recovered, of which 671 were identified as discarded military munitions (DMM) and 7 as unexploded ordnance (UXO). A total of 116,477 pounds of metallic items have been recovered. The Radiological Survey, which was focused on three depleted uranium areas, identified 25 radiological contaminated items. In addition, a cache of Cartridge Activated Devices were discovered. Soil surrounding any contaminated items was removed. Mr. Mark Harding, Rangeview Metro District, asked how many UXO technicians were currently in the field. Mr. Jed Lowrey, Tetra Tech, responded that currently there were 19 UXO techs in the field, which is down from a maximum of 24, and that completion of intrusive investigation was anticipated for early to mid-May.

FORMER LOWRY TITAN I MISSILE COMPLEX
Complexes 1B and 1C Update (presentation posted on the project website: www.flbgr.org)

Mr. Hector Santiago, USACE, provided an update on ongoing cleanup work at the Former Lowry Titan I Missile Complex. At Complex 1B, the small business contractor (Tidewater, Inc.) has been tasked to perform all work needed to attain a Remedy-in-Place. The contractor has five years to produce a Remedy-In-Place, followed by one year of operation and maintenance. Tidewater began a Pilot Study to update the existing Conceptual Site Model and to inject potassium permanganate for bioremediation of elevated levels of contaminants of concern (COCs). The Pilot Study will be completed in May. After the Pilot Study is complete a Proposed Plan and Decision Document will be developed to outline to the public what the remedial action will entail. These documents will be made available to the public for review and comment. Once the Remedy-in-Place has been established, an additional five years will be given to confirm that the remedy worked. The Pilot Study will be considered successful when COC concentrations in monitoring wells are reduced 30 to 50 percent, at the locations where elevated levels of COCs were detected.

At Complex 1C, a Feasibility Study (FS) is being performed to identify the appropriate remedial action. Mr. Santiago indicated that the USACE may end up going with the same approach being used at 1B, but that will not be decided until the FS has been completed. Once the FS and associated reports have been approved by USACE, reports will be sent to EPA and CDPHE for review and concurrence.

Lynn Robbio-Wagner, TCHD, asked if these reports will be posted on the RAB website. Mr. Hodgson indicated that could be done. It was also pointed out that the reports would be included in the project

Information Repository for the former Titan Missile complexes located at the Aurora Public Library. Mr. Swanson asked if they would be seeing results within a year from the bioremediation process of injecting potassium permanganate into the groundwater. Mr. Santiago indicated that they should start seeing results within a matter of months. He further indicated that for the Pilot Study, the project is just concentrating on the center of the site where the highest concentrations of COCs are found. Mr. Swanson also asked Mr. Santiago to confirm that the site will be completed in 2013. Mr. Santiago stated that the contractor would have one additional year to prove that their remedy works.

FORMER LOWRY TRAINING ANNEX (FLTA)
Air Force Update

Mr. Hodgson reported that all munitions response activities are essentially complete at FLTA and that it is in the final reporting stage. Shaw has issued the draft report, which is under review internally by Mr. Hodgson. Shortly, the draft final report will be issued to both the state (CDPHE) and the EPA, as well as the SLB and Air Force, for review and comment.

FORMER LOWRY BOMBING AND GUNNERY RANGE (FLBGR)
Project Status and Field Work Update (presentation posted on the project website: www.flbgr.org)

Mr. Hodgson presented a briefing on the current project status of FLBGR activities, which included a summary of activities completed to date, ongoing activities, and planned future efforts. To date, the project has had 4,103 days without lost time due to injury. Mr. Hodgson acknowledged that the project had recently passed a significant milestone of 4,000 days without lost time due to injury.

The FLBGR currently encompasses 12 known munitions response sites (MRSs) and 3 Areas of Interest (AOIs) within approximately 59,000 acres (~100 square miles). To date, 4,331 acres have been cleared, 24,338 live items have been disposed, over 1,442,746 inert items have been recovered, over 633,695 pounds (~317 tons) of munitions scrap have been recovered, and over 286 tons of munitions scrap has been sent off-site for disposal. Currently, there are five munitions response teams in the field at FLBGR within three of the MRSs: three munitions response teams are working within Bombing Target 2 (BT2); one munitions response team is working within the Bombing Target 4 (BT4); and one munitions response team is working within the Rocket Range. Overall, the project is approximately 72 percent complete.

<u>Bombing Target 1 (BT1)</u>
Munitions response efforts are considered essentially complete at BT1. A 100 percent surface clearance over 163 acres was performed at BT1; no live munitions items were discovered. Shaw has prepared an After Action Report, which is currently in USACE review. Ultimately, some form of land use controls (deed restrictions, access restrictions, etc.) will be formalized to limit future use of the area and to assure that no underground work is done within the former target area.

<u>Bombing Target 2 (BT2)</u>
Since the last RAB meeting, no live items were found at BT2. To date, 541 live munitions items have been found within BT2. There are three "mag-and-dig" grids remaining within the target center. Mr. Hodgson pointed out that these remaining grids are taking a long time to clear because they are heavily contaminated with extremely high densities of munitions debris. Other remaining activities include post removal verification (PRV), final USACE Quality Assurance (QA) review, preparation of the Site-Specific Final Report, and regulatory concurrence.

<u>Bombing Target 3 (BT3)</u>
Munitions response efforts are approximately 60 percent complete at BT3. A final post-removal surface clearance has also been performed one 200-ft grid width out from the current MRS boundary. Though the project status slide showed that BT3 is only 60 percent complete, the Project Team is currently discussing

appropriate land use controls that could be implemented across the remainder of the MRS. To date, one live munitions item has been found at BT3. Remaining activities include ten step-out "map-and-dig" grids along the target boundary, designation of areas applicable for land use controls (to be coordinated with CDPHE and the SLB), PRV, final USACE QA review, preparation of the Site-Specific Final Report, and regulatory concurrence.

Bombing Target 4 (BT4)
Munitions response efforts are approximately 96 percent complete at BT4. To date, 15 live munitions items have been found at BT4. Currently, one "map-and-dig" step-out grid along the boundary of the MRS and three "mag-and-dig" grids near the target center remain for the ongoing clearance effort. Only one team is currently working in BT4 because of team separation distance requirements.

Bombing Target 6 (BT6)
Munitions response activities at the approximately 1 square mile BT6 are considered essentially complete. To date, 1,162 live items have been found at BT6. Activities that remain at BT6 include the ongoing PRV, final USACE QA, regulatory concurrence, and submittal of the Site-Specific Final Report.

Bombing Target 7 (BT7)
Munitions response activities at BT7 are essentially complete. To date, four live items have been found at BT7. PRV efforts are mostly complete with final PRV reporting in progress. Remaining activities at BT7 include final USACE QA, regulatory concurrence, and preparation of the Site-Specific Final Report.

Jeep/Demolition Range (JDR)
Munitions response efforts are considered 90 percent complete at JDR. However, the interior berm area still has significant issues because of the numerous disposal pits and the density of MEC/MD located there. The USACE is considering splitting the JDR into two separate MRSs: one consisting of the uncleared grids remaining within the central triangular berm, and one consisting of the cleared grids located outside of the berm. PRV will be performed within the portion of the MRS containing the cleared grids so the area can be closed. Currently, 30 uncleared grids remain within the central triangular "berm" area, which will require large scale earth moving, and manual and mechanical screening. Within these grids, 17 open burn/open detonation pits have been discovered so far. The project has yet to determine whether any of these pits are connected or if they are separate pits. To date, 20,222 live munitions items have been found within the JDR; however, Mr. Hodgson pointed out that though the number of live items found is quite high, they are actually localized. Many of the pits have been found to contain barrels full of DMM. Approximately 30,000 to 40,000 DMM items have been pulled from the pits so far.

Circle of Bricks AOI
Munitions response efforts at the Circle of Bricks AOI are considered 85 percent complete. No demolition shots were performed since the last RAB meeting. Currently, there are 10 "map-and-dig" grids remaining. Because only small arms munitions are expected to remain within the area, Mr. Hodgson does not expect that the AOI will require a huge effort to complete. To date, 11 live munitions items have been found within the AOI.

Miscellaneous Target AOI
Munitions response efforts at the Miscellaneous Target AOI are considered essentially complete. Activities anticipated for the remainder of the year include PRV, final USACE QA, regulatory concurrence, and preparation of the Site-Specific Final Report.

Mortar Range
Munitions response activities at the Mortar Range are considered essentially complete. To date, 12 live items have been found within the MRS. Remaining activities at the range include the ongoing PRV, final

USACE QA, regulatory concurrence, and preparation of the Site-Specific Final Report. Closure of the Mortar Range is anticipated for 2011.

No Name AOI

Munitions response activities at the No Name AOI are considered to be essentially complete. To date, 60 live items have been found within the AOI. Activities that remain at the AOI include the ongoing PRV, final USACE QA, regulatory concurrence, and preparation of the Site-Specific Final Report.

Rocket Range

Munitions response efforts are considered 95 percent complete at the Rocket Range. To date, 504 live munitions items have been found within the Rocket Range. Currently, 2 "mag-and-dig" grids remain at the northeast corner of the MRS and 25 "map-and-dig" step-out grids remain along the southern and western boundaries. Mr. Hodgson pointed out that the 2 remaining "mag-and-dig" grids are also taking a long time to clear because they are heavily contaminated with extremely high densities of munitions debris. Additional activities that remain at the MRS include the PRV, final USACE QA, regulatory concurrence, and preparation of the Site-Specific Final Report.

Field Work Update

Work for the last several months has focused on BT4. However, progress has been slow because of the density of the remaining grids. Field teams have spent an entire month in the same grid.

Mr. Randy Hawbaker (Cherry Creek School District) asked if there was any removal action currently happening in the JDR and if there would be any work done in JDR over the summer. Mr. Hodgson responded that no work was currently being performed in JDR because of expiring contracts and the possible need to transition to new contractors. He explained that JDR was likely being subdivided so that the completed portions could be finalized and that central berm area could be smoothly transitioned to a different contract, as required. He added that he would prefer not discussing the matter further until a contract transition plan was in place, hopefully by the next RAB meeting.

Five-Year Review

Mr. Hodgson announced that a Five-Year Review for the FLBGR project had begun. As required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and hazardous Substances Pollution Contingency Plan (NCP), the Five-Year Review process was triggered as it has been five years since the response effort at the first MRS, Bombing Target 5 (BT5), was completed. The Five-Year Review process seeks to determine if the current work efforts are consistent with project objectives (i.e., is the project continuing to accomplish its objectives).

The process includes assessing all 15 MRSs and AOIs at the FLBGR to determine if the response action is functioning as intended, if assumptions used at the time of the response action are still valid, and if any new information suggests that the removal action no longer minimizes safety risks and no longer protects the public. The review will also assess whether or not conditions are being controlled that could result in unacceptable risk at the areas where the response action is ongoing. For example, because the FLBGR is such a large site (~100 square miles), the Five-Year Review process looks to determine whether there is any new development or proposed land use that could affect the viability of completed/planned work. Mr. Hodgson noted that this Five-Year Review is a little different than most other reviews because the majority of the FLBGR MRSs/AOIs are being cleared to the unrestricted land use performance standard.

The Five-Year Review Work Plan has been finalized and is can be download from the project website for public review. The Five-year Review includes interviews with the stakeholders and community. A draft of the interview list will be given to Mr. David Rathke (EPA) and Jeff Swanson for review and concurrence.

After the Five-Year Review report has been approved by the USACE Office of the Council and CDPHE and EPA have provided concurrence, the report will be put out for a 30-day public comment period. The Five-Year Review report will be available in the FLBGR Information Repository at the Aurora Public Library, as well as on the project website. A public meeting will also be held during the 30 day public review and comment period, concurrent with a quarterly RAB meeting.

Subsequent Five-Year Reviews are required to be conducted within 5 years from the signature date on the previous Five-Year Review report. The Five-Year Review process will be repeated until the decision makers decide that future reviews are no longer needed. Mr. Julio Iturreria, Arapahoe County, asked who the decision maker was for the FLBGR. Mr. Hodgson responded that his commander at the USACE was the primary decision maker. Mr. Swanson added that the decision would be made in concurrence with the other stakeholders. Ms. Melissa Yoder, SLB, asked how long, typically, reviews are performed after a site has been closed. Mr. Hodgson and Mr. Swanson admitted that it was uncertain, as the FLBGR is the first project of its size and type to reach this stage.

Mr. Hodgson concluded by reminding the RAB members and other attendees that future RAB meetings will be held quarterly. The upcoming meetings for 2011 are scheduled for 20 July 2011 and 19 October 2011. Mr. Hodgson expressed his preference that future meetings continue to be held at the USACE Site Compound; RAB members concurred.

GENERAL DISCUSSIONS AND ADJOURNMENT

Area landowner, Mr. Brian Bouldin, asked if there were any other similar sites that could provide him with any available data to determine what his liability is as a property owner. Mr. Hodgson explained that each of these sites were cleared using the best technology available. However, because this is a bombing range there is the potential that not everything has been discovered. Mr. Swanson added that this demonstrates the importance of the Five-year Review process and if people are still finding munitions items, additional clearance work would be required. A site this size has certain residual risks; the areas that have been cleared have the lowest residual risks, but it is a large area and there is the potential for undocumented sites, as well as items that missed the target being located where they are not expected. As for other similar sites, Mr. Swanson noted that there are few sites on this scale and not at this level of completion. Mr. Hodgson added that there are thousands of sites, but none near being closed out.

It was then asked if a landowner does an excavation, should they just be cautious. Mr. Hodgson responded in the affirmative. Mr. Swanson pointed out that citizens generally get hurt or killed when they find something (e.g., MEC) and then abuse it. Mr. Hodgson agreed, pointing out that munitions do not always look like munitions.

As there were no further questions, the meeting was adjourned at 7:05 pm.