FORMER LOWRY TRAINING ANNEX AND DENVER RESEARCH INSTITUTE SITE

TECHNICAL ADVISORY SERVICES - REPORT TO THE RESTORATION ADVISORY BOARD

PROGRESS REPORT

Keith Wegner ·

CORRELATION CORP.
Golden, Colorado

May 21, 2003

Technical Advisory Services Contracted By:

US Army Corps of Engineers - Tulsa District
Contract: DACA56-00-P-2001

Technical Advisory Services Sponsored By:

Office of Naval Research

Contact: Frederick Esposito

PROGRESS REPORT

- **TECHNICAL ADVISORY SERVICES CONTRACT WORK IN PROGRESS**

- **TASK 1 – ATTEND RAB MEETINGS**

- **TASK 2 – REVIEW TECHNICAL REPORTS AND WORK PLANS**
  - **RADIATION SURVEY AND SUMMARY REPORT (Ö)**
  - **ORDNANCE CLEARANCE REMOVAL WORK PLAN AND DRAFT REPORT (Ö)**
  - **GEOPHYSICAL SURVEY REPORT (Ö)**
  - **SITE INSPECTION WORK PLAN AND REPORT (Ö)**
  - **ADDENDUM 1 – HOT SPOT REMOVAL (Ö)**
  - **DEMOLITION REPORT – AMMO STORAGE AREAS (Ö)**
  - **DRAFT FINAL SUPLEMENTAL OE WORK PLAN (Ö)**
  - **DEMOLITION REPORT FOR FLTA AND DRI SITE (Ö)**
  - **OE SCRAP MANAGEMENT APPROACH ADDENDUM (Ö)**
  - **SUPPLEMENTAL OE REPORT (Ö)**
  - **VALIDATION WORK PLAN (Ö)**
  - **CLOSEOUT REPORT FOR DRI WEST SIDE (Ö)**

PROGRESS REPORT

- **TASK 3 – PRESENT SUMMARY BRIEFINGS**
- **TASK 4 – PROJECT ADMINISTRATION**

PROGRESS REPORT

- **REMAINING REVIEWS TO BE PERFORMED AND REPORTED AS REPORTS BECOME AVAILABLE:**

  - **REPORT REVIEWS COMPLETED**

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

1. The term "hot dirt" appears in the report in Section 5.2 (page 5-5, paragraph 1) without further definition. I am assuming that this term refers to rocks or soil with elevated radiation levels that were segregated and containerized for Navy disposition. Is this correct? Because this investigation involved environmental, ordnance, and radiological issues, the term "hot" has several possible connotations.

(Navy/CH2M Hill) Comment Response: The term "hot-dirt" refers to the naturally occurring high metallic content soils that were observed during the first phase of the ordnance work. The term comes from the field notes of the investigators who were digging up and identifying the anomalies.

2. Several places in the report refer to radiological contaminated soils and materials that were segregated and containerized for ultimate disposition by the Navy. What was the actual fate of these materials? Have they been disposed and where?

Comment Response: There is one drum remaining onsite containing radiological materials. The contents of the drum have been tested and the Navy is working with RASO for drum disposal at a low-level radiological disposal facility.

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

The Depleted Uranium (DU) radiation removal that was performed in November 1999 was documented in the Site Inspection Report for the Former Lowry Training Annex DRI Site and Ammo Storage Area dated February 28, 2001. The drums associated with that removal were disposed at a low-level radiological disposal facility and no longer remain onsite.

3. It is worth noting for the RAB that no UXO items were found within the test areas themselves. The identified UXO items were on the western part of the site with the majority found in the southwest corner (South Gallery area). This suggests that this area may be the far eastern edge of the Air Force's EOD Range scatter. It is further worth noting that it would have been surprising to discover much UXO within the actual test areas given that this was a research site and when items fail to detonate, researchers are usually interested in why an item might have failed.

Comment Response: Agree.

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

4. Although a case could be made for some additional investigation in the South Gallery area as 45 % of the anomalies were dug, it is clear that all signatures of greater than 400 millivolts (51 targets) were investigated and dug. (The "rockeye" bomblet was at 485 millivolts.) No additional UXO was found based on this signature discrimination.

Comment Response: Agree.

5. Given that the areas with the densest number of anomalies have been extensively investigated with no UXO detected, and that the areas where depleted uranium munitions were used were extensively investigated with all residues removed, it is unlikely that further intrusive work will yield more UXO or depleted uranium fragments without causing additional damage to the soil and grassland. I would concur that additional OE work at the site is not warranted unless additional data is discovered that suggests areas of concern not previously investigated.

Comment Response: Agree.

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

III. OE-Related Comments

6. Summarizing all investigations at the site, a total of 16,734 anomalies were identified and 7,779 items were dug (46.5%). Many dug items were detected in the 18-36 inch range indicating good penetration from the detection equipment.

Comment Response: Agree.

7. The MK-118 rockeye was found at the surface in the South Gallery. Much of the CROW fragmentation found in this area was also found at the surface. This suggests that the OE scrap found in this area may be scatter from the Air Force EOD Range and is not a likely impact area. It is also noteworthy that no fragmentation identified as MK-118 fragments were found in this area.

   [Review of the Air Force's Geophysical Mapping Report for the EOD Range also shows more anomalies on the eastern half of the EOD Range. A geophysical investigation in the southeast corner of the Air Force property would help determine whether there is OE scatter in this area originating from the OED Range rather than from any Navy/DRI activities.]

Comment Response: Agree.

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

8. The eight grids selected for detailed intrusive investigations yielded no UXO. Given that these grids contained the densest concentration of anomalies and no UXO was found provides additional levels of confidence that these areas were not potential impact/target areas and are not areas of concern for additional investigation.

Comment Response: Agree.

9. The trench investigation to identify the open detonation pit was disappointing in that definitive evidence of the detonation pit was not found. This seemed to me to be the only area of concern that still has a question mark. If indeed MK-118s were disposed of in this pit, lack of investigative data to confirm this is a notable data gap.

Comment Response: As stated in the Comprehensive OE Investigation Summary Report, all potential areas where the open detonation pit may be located have been investigated. There also is the possibility that

after the Arapahoe Sheriff's department responded to the open detonation incident, the remaining material was properly detonated and no evidence of the pit remains.

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

IV. Radiological Activities Comments

10. The radiation survey conducted on the materials removed from the Nixon Arena was performed with a Ludlum Model 3 survey meter. This is mentioned several times in the report without specifying what type of detector or probe was used. The Radiation Walkover Survey specified that a Ludlum 3 meter with a beta/gamma probe was used. It is a minor point but radiation meters can be used with a variety of detectors and it would have been useful to state the actual type of detector used with the Ludlum 3 meter.

Comment Response: A Ludlum 3 meter with a beta/gamma probe was also used for the radiation survey at the Nixon Arena.

11. It is worth noting for the RAB that the radiation survey detection equipment used was not capable of discriminating any of the uranium isotopes and could not detect alpha radiation. So uranium 238 (depleted) was actually measured indirectly through detection of the daughter products thorium 234 and protactinium 234 which are beta emitters. Confirmatory samples were analyzed for uranium 238,

235/236, and 233/234 and soils were within background limits. Only the contents of the radiation contaminated ORS drum showed elevated levels of uranium isotopes. The Navy's actual disposition of the radiation contaminated ORS was not discussed in the report.

PROGRESS REPORT

❑ TAPP COMMENTS ON FLTA/DRI SITE CLOSEOUT REPORT:

Comment Response: There is one drum remaining onsite containing radiological materials. The contents of the drum have been tested and the Navy is working with RASO for drum disposal at a low-level radiological disposal facility.

The Depleted Uranium (DU) radiation removal that was performed in November 1999 was documented in the Site Inspection Report for the Former Lowry Training Annex DRI Site and Ammo Storage Area dated February 28, 2001. The drums associated with that removal were disposed at a low-level radiological disposal facility and no longer remain onsite.

PROGRESS REPORT

BUDGET PERFORMANCE: