

**FINAL
OPERATIONAL RANGE ASSESSMENT PROGRAM
PHASE I QUALITATIVE ASSESSMENT REPORT
LOVELL LOCAL TRAINING AREA
LOVELL, WYOMING**

JUNE 2008

Prepared for:

UNITED STATES ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
P.O. Box 1715
Baltimore, Maryland 21203

and

UNITED STATES ARMY ENVIRONMENTAL COMMAND
Aberdeen Proving Ground, Maryland 21010

Prepared by:

MALCOLM PIRNIE, INC.
1300 E. 8th Avenue
Suite F100
Tampa, Florida 33605



EXECUTIVE SUMMARY

The United States (U.S.) Army is conducting qualitative assessments at operational ranges to meet the requirements of Department of Defense policy and to support the U.S. Army Sustainable Range Program. The operational range qualitative assessment (hereinafter referred to as Phase I Assessment) is the first phase of the U.S. Army Operational Range Assessment Program. This Phase I Assessment evaluates the operational range area at Lovell Local Training Area (LTA) to assess whether further investigation is needed to determine if potential munitions constituents of concern (MCOC) are or could be migrating off-range at levels that may pose an unacceptable risk to human health or the environment. In conducting the Phase I Assessment, MCOC sources, potential off-range migration pathways, and potential off-range human and ecological receptors are evaluated as appropriate.

Lovell LTA, occupying approximately 3,606 acres of land in north-central Wyoming, is located three miles southeast of the town of Lovell in Big Horn County. The LTA is located approximately 22 miles south of the Montana state boundary, along U.S. Highway 310. The site is used four to five times per year to train soldiers and ensure military readiness.

As part of the Operational Range Inventory Sustainment (ORIS), an update to the Army Range Inventory Database-Geodatabase (ARID-GEO) was submitted to the U.S. Army Environmental Command (USAEC) in June 2007. The ARID-GEO (2007) identified three operational range areas encompassing a total of 3,611.57 acres and an other than operational area encompassing 2.71 acres. The total operational range area was derived from the Operational Use Area (total range area) acreage as reported in ARID-GEO (2007). In ARID-GEO (2007), the ranges overlap each other; hence, the sum of the range areas is greater than the total operational range area. The actual operational footprint is 3,603.67 acres.

The ARID-GEO (2007) identified three operational range areas: a rifle range, a heavy demolition range, and a training and maneuver area. However, based on observations made during the site visit and information obtained from Wyoming Army National Guard (WYARNG) personnel, there are only two operational ranges on the property: a rifle range and a training and maneuver area. The rifle range is located southeast of the location indicated in ARID-GEO (2007) and comprises an estimated 7.45 acres in the northern portion of the installation. The training and maneuver area comprises the remaining operational range area acreage of 3,596.22 acres. Since there was no evidence of a demolition range at the site and WYARNG personnel had no knowledge of this range, it is not discussed in this Phase I Assessment report, and an ORIS Discrepancy Memorandum will be submitted to the USAEC to correct the ARID-GEO (2007) data for the Lovell LTA.

The Lovell LTA was established in 1934, and the rifle range was constructed around the same time period. The rifle range was last used by the WYARNG for live-fire exercises over 30 years ago (Retired CWO, pers. comm.). However, as observed during the site visit, an impact berm (approximately five feet high) remains intact at the range. The WYARNG uses the training and maneuver area for mounted and dismounted land navigation exercises and review of standard operating procedures associated with establishing field camps and preparing convoys (WYARNG, n.d.).

Small caliber military munitions were used on the rifle range. Lead, antimony, copper, and zinc were identified as potential MCOC in soil (impact berm soil and surface soil) at the rifle range. Small caliber blank munitions, pyrotechnics, and obscurants are used infrequently (approximately four to

five times per year) and in small quantities on the training and maneuver area. Although perchlorate is a potential MCOC associated with pyrotechnics, the requirement that spent munitions items be collected at the conclusion of training exercises, the large area over which training occurs (i.e., approximately 3,596 acres), and the low frequency and small quantity of pyrotechnic usage, preclude the accumulation of MCOC in any one area. Therefore, it is unlikely that there is an MCOC source at the training and maneuver area.

Migration of MCOC from the rifle range impact berm is unlikely due to the significant distance from the berm to an ephemeral stream and off-range areas (across which the topography is flat with shrubby vegetation), and soil pH is neutral to moderately alkaline, limiting dissolution of metals. Also, precipitation is limited (less than seven inches per year). Groundwater is not considered a potential migration pathway due to the depth to the water table and soil characteristics (specifically neutral to alkaline pH). Therefore, no groundwater or surface pathways were identified for the rifle range.

The two operational ranges at Lovell LTA are categorized as Unlikely.

Unlikely – Five-Year Review

Two ranges at Lovell LTA are categorized as Unlikely, totaling 3,603.67 acres. These ranges consist of a rifle range and a training and maneuver area. Ranges where, based upon a review of readily available information, there is sufficient evidence to show that there are no known releases or source-receptor interactions off-range that could present an unacceptable risk to human health or the environment are categorized as Unlikely. Ranges categorized as Unlikely are required to be re-evaluated at least every five years. Re-evaluation may occur sooner if significant changes (e.g., change in range operations or site conditions, regulatory changes) occur that affect determinations made during this Phase I Assessment.

Table ES-1 summarizes the Phase I Assessment findings.

Table ES-1: Summary of Findings and Conclusions for Lovell LTA

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	Two operational ranges; 3,603.67 acres	Soil (impact berm and surface soil)	None	Not evaluated (no pathway / release mechanism identified)		Re-evaluate during the five-year review. No pathway / release mechanism was identified.
		Limited source—limited military munitions use	Not evaluated (limited source identified)		Re-evaluate during the five-year review. Limited source was identified.	

ABBREVIATIONS/ACRONYMS

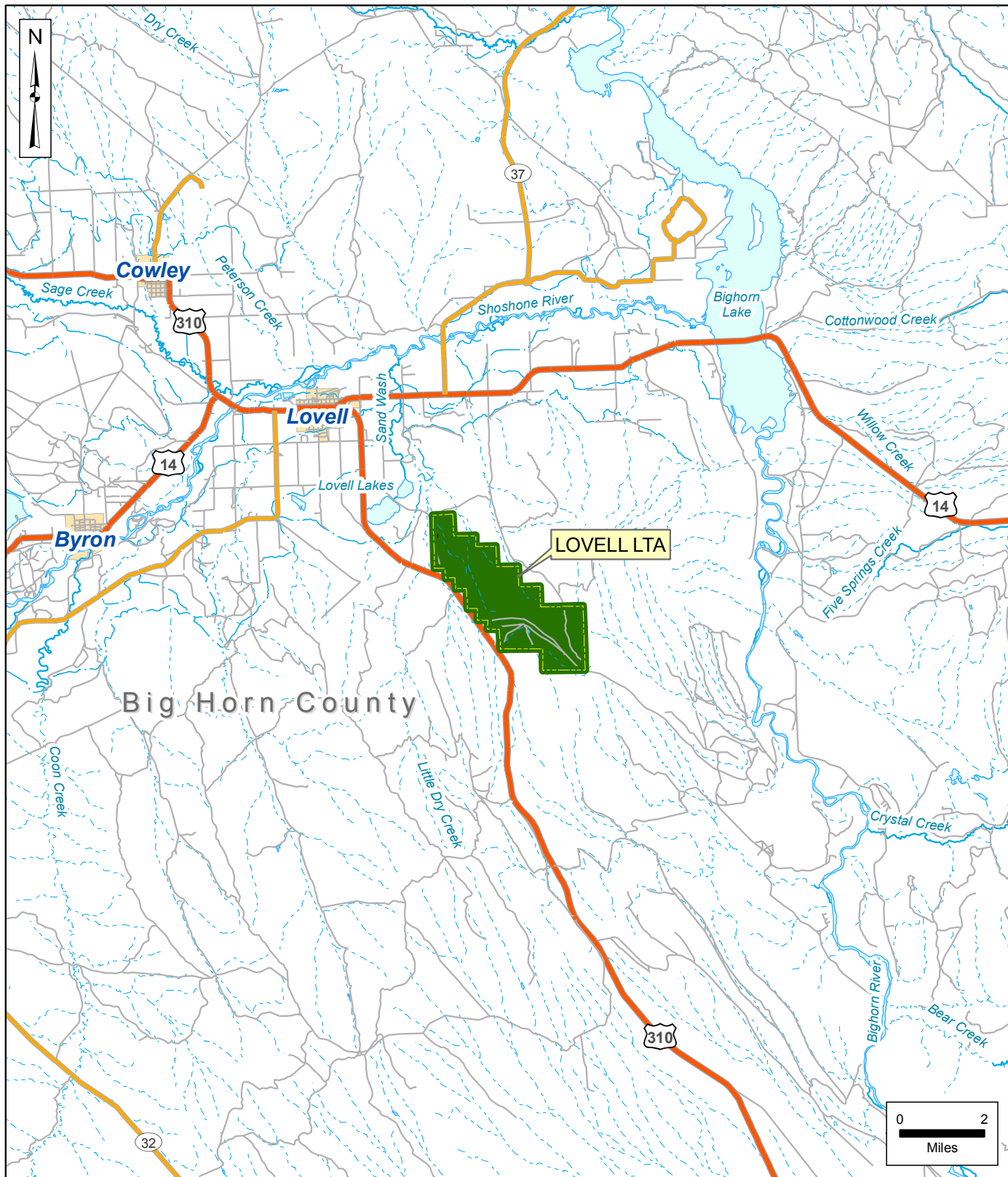
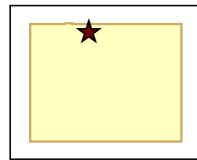
amsl	Above Mean Sea Level
ARID-GEO	Army Range Inventory Database-Geodatabase
bgs	Below Ground Surface
BLM	Bureau of Land Management
CSM	Conceptual Site Model
DoD	Department of Defense
DODI	Department of Defense Instruction
E	Ecological receptors identified. (This refers to range grouping; pathway designation always precedes E designation.)
GW	Groundwater pathway identified. (This refers to range grouping; M designation always precedes GW designation.)
H	Human receptors identified. (This refers to range grouping; pathway designation always precedes H designation.)
LS	Limited Source
LTA	Local Training Area
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
mm	Millimeters
MCOC	Munitions Constituents of Concern
NG	Nitroglycerin
ORAP	Operational Range Assessment Program
ORIS	Operational Range Inventory Sustainment
PU	Pathway unlikely or incomplete. (This refers to range grouping; M designation always precedes PU designation.)
SW	Surface water pathway identified. (This refers to range grouping; M designation always precedes SW designation.)
U.S.	United States
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Command
USDA NRCS	United States Department of Agriculture, Natural Resource Conservation Service
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WES	Waterways Experiment Station
WSEO	Wyoming State Engineer's Office
WYARNG	Wyoming Army National Guard
°F	Degrees Fahrenheit



**MALCOLM
PIRNIÉ**

**Operational Range Assessment Program
Phase I Qualitative Assessment
Lovell LTA, WY**

**Figure 1-1
General Location of Lovell LTA**



- Installation**
- Installation Boundary
 - Operational Area
 - Other than Operational Area

- Hydrology**
- River/Stream (Perennial)
 - Stream (Intermittent)
 - Canal/Ditch
 - Water Body

- Transportation**
- Highway
 - Major Road
 - Local Road

Data Sources:
AEC, ARID-GEO, June 2007
ESRI, StreetMap USA, 2005

Date: June 2008
Prepared By: Malcolm Pirnie, Inc.
Prepared For: U.S. Army
Contract: W912DR-05-D-0004