

**FINAL  
OPERATIONAL RANGE ASSESSMENT PROGRAM  
PHASE I QUALITATIVE ASSESSMENT REPORT  
WACO TRAINING AREA  
WACO, MONTANA**

---

APRIL 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.**  
2000 Powell St  
Suite 1180  
Emeryville, California 94608



---

## 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 the Waco Training Area to assess whether further investigation is needed to determine if potential munitions constituents of concern (MCO) 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, MCO sources, potential off-range migration pathways, and potential off-range human and ecological receptors are evaluated as appropriate.

The Waco Training Area occupies 4,763 acres in Yellowstone County in south-central Montana. It is located 35 miles east of Billings, Montana's largest city. The northern boundary of the installation is directly south of Interstate 94 and one mile south from the Yellowstone River.

The Waco Training Area has been leased from a private party by the U.S. Army Corps of Engineers since 1984. The installation is used eight to 10 weekends per year for Army National Guard training. According to the Army Range Inventory Database-Geodatabase (ARID-GEO [2007]), there are four operational ranges on the Waco Training Area, including one training and maneuver area and three small arms ranges. Information from ARID-GEO (2007) shows that all three of the small arms ranges share a 10-acre footprint. This footprint also overlaps with the training and maneuver area, which occupies the entire 4,763-acre installation.

The Waco Training Area is used for training activities, including M16, pistol, and machine gun qualification and convoy training. M119 artillery simulators, improvised explosive device simulators, and pyrotechnics also are used periodically on the installation; however, pyrotechnics use is infrequent due to high fire danger during much of the year. Live-fire occurs only at the three small arms ranges and is prohibited on the rest of the installation.

The four operational ranges at the Waco Training Area are categorized as Unlikely.

### **Unlikely – Five-Year Review**

The four operational ranges at the Waco Training Area are categorized as Unlikely, totaling 4,763 acres. These ranges consist of a training and maneuver area and three small arms ranges. 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 Waco Training Area**

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	Three operational ranges; 10 acres	Soil at small arms firing points and natural berms	None	Not evaluated (no pathway identified)		Re-evaluate during the five-year review. No pathway was identified.
	One operational range; 4,753 acres	No source—limited or no military munitions use	Not evaluated (no source identified)		Re-evaluate during the five-year review. No source was identified.	

## ABBREVIATIONS/ACRONYMS

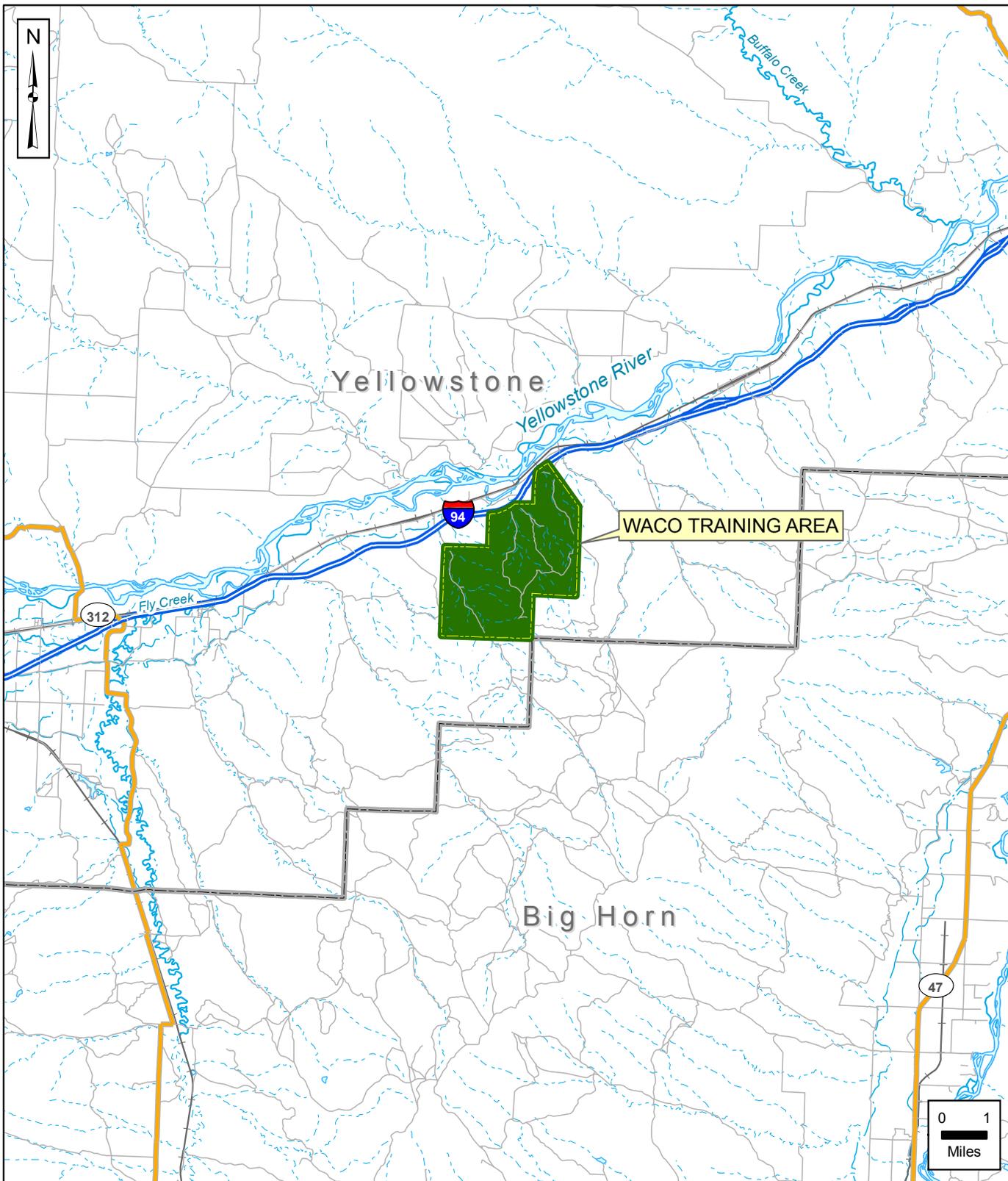
amsl	Above Mean Sea Level
ARID-GEO	Army Range Inventory Database-Geodatabase
CSM	Conceptual Site Model
DoD	Department of Defense
DODI	Department of Defense Instruction
E	Ecological receptors identified. (This refers to range grouping; pathway designation always precedes E designation.)
GIS	Geographic Information System
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.)
I	Interstate
IED	Improvised Explosive Device
LS	Limited Source
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
MCOC	Munitions Constituents of Concern
MTARNG	Montana Army National Guard
NG	Nitroglycerin
ORAP	Operational Range Assessment Program
PU	Pathway unlikely or incomplete. (This refers to range grouping; M designation always precedes PU designation.)
RFMSS	Range Facility Management Support System
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
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
°F	Degrees Fahrenheit



**MALCOLM  
PIRNE**

**Operational Range Assessment Program  
Phase I Qualitative Assessment  
Waco Training Area, MT**

**Figure 1-1  
General Waco Training Area Location**



**Installation**

- Installation Boundary
- Operational Area

**Hydrology**

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

**Transportation**

- Interstate
- Major Road
- Local Road
- Railroad

**Administrative**

- County Boundary

**Data Sources:**

AEC, ARID-GEO, 2007  
ESRI, StreetMap USA, 2005

Date: ..... April 2008

Prepared By: ..... Malcolm Pirnie, Inc.

Prepared For: ..... U. S. Army

Contract: ..... W912DR-05-D-0004