



FINAL

Operational Range Assessment Program
Phase I Qualitative Assessment Report
McAlester Army Ammunition Plant, Oklahoma
U.S. Army Operational Range Assessment Program
Qualitative Operational Range Assessments

Prepared for:
U.S. Army Environmental Command and
U.S. Army Corps of Engineers Baltimore District



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Final Operational Range Assessment Program Phase I Qualitative Assessment Range Assessment Reports will be released beginning in March 2008 per the Direction of Army Headquarters. The cover page of this Report reflects the official finalization date. The date on subsequent pages/figures reflects the date upon which this document's conclusions are based.



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 (ORAP). This Phase I Assessment evaluates the operational range area at McAlester Army Ammunition Plant 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.

McAlester Army Ammunition Plant (MCAAP) is a 44,957.44-acre facility located nine miles southwest of McAlester, Oklahoma. The facility consists of 11 operational ranges, totaling 2,245.33 acres: three live-fire ranges; two Open Burn / Open Detonation (OB/OD) ranges; one Research, Development, Testing, and Evaluation (RDT&E) range, also referred to as the DAC range, used for demolitions training; two maneuver/training areas; two helicopter landing pads; and a gas chamber. According to munitions data collected during the Phase I Assessment, only small caliber munitions are currently expended on the live-fire ranges at MCAAP while large caliber and other munitions are used for demolition training activities at the DAC range. Additional munitions are authorized for use at MCAAP according to the Army Range Inventory Database-Geodatabase (ARID-GEO) 2006. These authorized munitions include large caliber practice rounds and pyrotechnics; however, no data exists denoting their use at MCAAP. Potential MCOC associated with authorized and currently used munitions types include lead, antimony, copper, zinc, tungsten, nitroglycerin (NG), cyclotrimethylenetrinitramine (RDX), trinitrotoluene (TNT), 2,4-dinitrotoluene (2,4-DNT), 2,6-DNT, pentaerythritol tetranitrate (PETN), and perchlorate. No potential MCOC are associated with small caliber blanks.

There are several areas located within MCAAP which are not considered part of this qualitative assessment. MCAAP contains two operational ranges used for OB/OD, totaling 673.09 acres. These areas are Resource Conservation and Recovery Act (RCRA) permitted areas and are therefore not evaluated under the ORAP program. These areas are used for disposal of munitions produced and stored on the installation. Additionally, there are five historical ranges distributed throughout the eastern portion of the installation which are being evaluated under the Military Munitions Response Program (MMRP).

Despite the utilization of military munitions on the operational ranges at MCAAP, the migration of on-range MCOC to off-range receptors is unlikely. A surface water pathway from the three live-fire ranges and the DAC range evaluated under ORAP does exist; however, the habitat for potential ecological receptors does not contact surface water and no part of the life-cycle of potential ecological receptors has an aquatic component. Sampling data shows that human receptors are not affected. The groundwater pathway does not exist due to the local hydrogeologic conditions.

The nine operational ranges, assessed under ORAP, at MCAAP are categorized as Unlikely.

Unlikely – Five-Year Review

The nine operational ranges, assessed under ORAP, at MCAAP are categorized as Unlikely, totaling 1,572.24 acres. These ranges consist of three live-fire ranges, one RDT&E range, two

maneuver/training areas, two helicopter landing pads, and a gas chamber. 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 on ranges 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 McAlester Army Ammunition Plant

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	One operational range; 28.82 acres	Large caliber and other munitions from the demolition training area	Unnamed intermittent stream flowing into Brown Lake during heavy rain events	MCOC concentrations in Brown Lake are below associated regulatory standards. Human receptors are not affected.	Not evaluated (no ecological receptors identified)	Re-evaluate during the five-year review. Sampling data from Brown Lake shows that MCOC are not present or are below regulatory standards in the potable water source.
	Three operational ranges; 476.17 acres	Small caliber, large caliber practice, and pyrotechnics	Unnamed intermittent streams flowing off-range to the southeast	Not evaluated (no receptors were identified)		Re-evaluate during the five-year review. No receptors were identified.
	Five operational ranges; 1,067.25 acres	Limited source –no military munitions use	Not evaluated (no source was identified)			Re-evaluate during the five-year review. No source was identified.

ABBREVIATIONS/ACRONYMS

ARID-GEO	Army Range Inventory Database-Geodatabase
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual Site Model
DAC	Defense Ammunition Center
DNB	Dinitrobenzene
DNT	Dinitrotoluene
DoD	Department of Defense
DODI	Department of Defense Instruction
E	Ecological receptors identified. (This refers to range grouping; pathway designation always precedes E designation.)
EEM	engineering-environmental Management
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.)
HMX	Cyclotetramethylenetetranitramine
LS	Limited Source.
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
MCOC	Munitions Constituents of Concern
MCAAP	McAlester Army Ammunition Plant
mg/L	Milligram(s) Per Liter
MMRP	Military Munitions Response Program
msl	Mean Sea Level
MWR	Morale, Welfare, and Recreation
NB	Nirtobenzene
NG	Nitroglycerin
OB/OD	Open Burn / Open Detonation
ODEP	Office of the Director of Environmental Programs
ORAP	Operational Range Assessment Program
PETN	Pentaerythritoltetranitrate
PU	Pathway unlikely or incomplete. (This refers to range grouping; M designation always precedes PU designation.)
RCRA	Resource Conservation and Recovery Act
RDX	Cyclotrimethylenetrinitramine
RDT&E	Research, Development, Testing and Evaluation
RFMSS	Range Facility Management Support System
SCS	Soil Conservation Service
SW	Surface water pathway identified. (This refers to range grouping; M designation always precedes SW designation.)
TNB	Trinitrobenzene
TNT	Trinitrotoluene
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	United States Department of Agriculture

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
°F	Degrees Fahrenheit
µg/L	Microgram(s) Per Liter



Operational Range Assessment Program Phase I Qualitative Assessment McAlester Army Ammunition Plant, OK

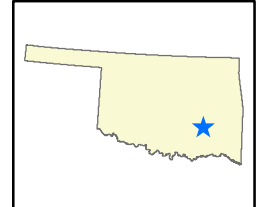
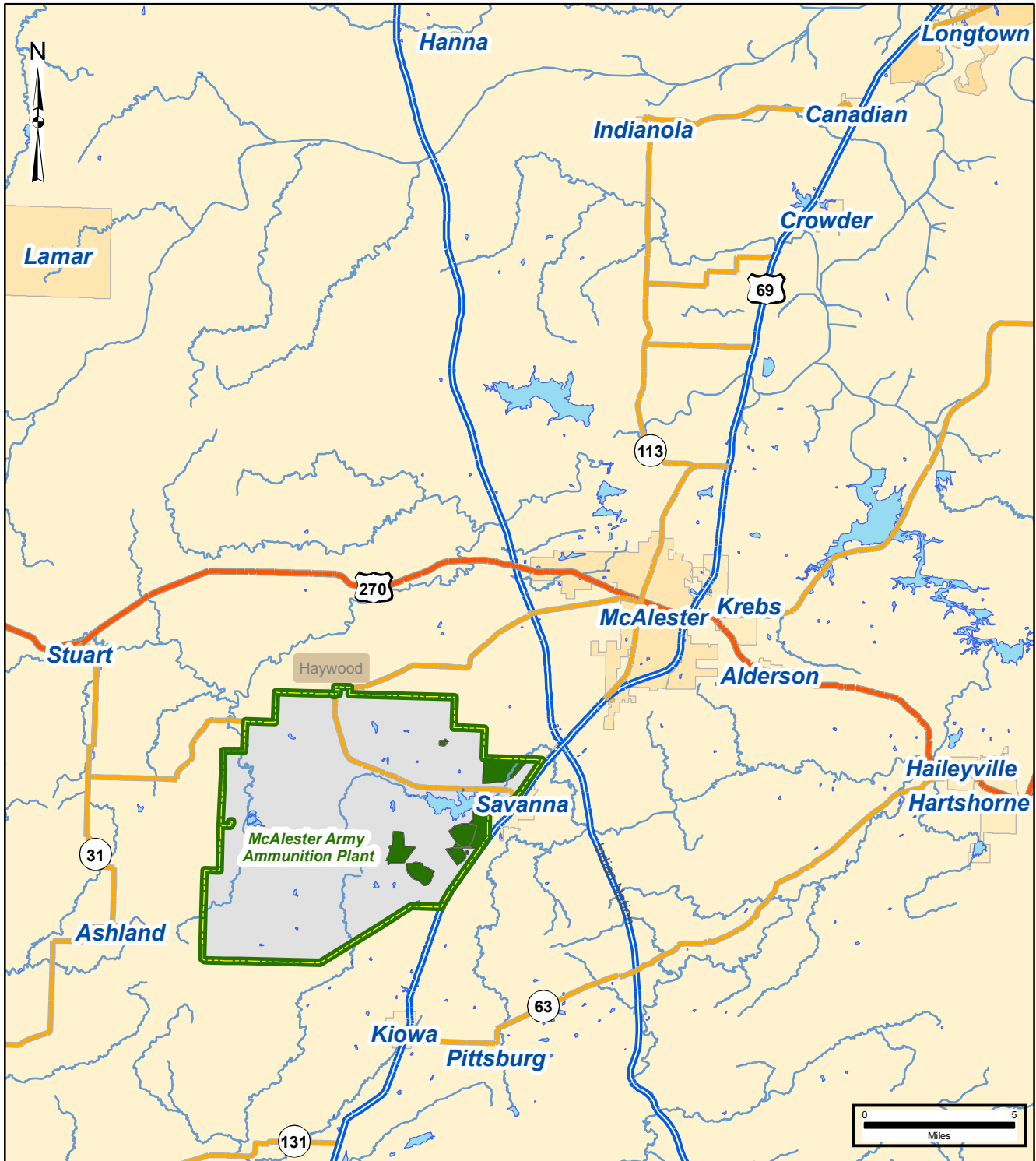


Figure 1-1
General Location of McAlester Army Ammunition Plant



Installation Data

- Installation Boundary
- Operational Range Area
- Non-Operational Range Area

Highways

- Limited Access
- Highway
- Major Road

Hydrology

- Lakes and Reservoirs
- Streams and Rivers

Data Sources:
ORIS-GEO, November, 2006
ESRI, StreetMap, 2006

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