



FINAL

Operational Range Assessment Program Phase I Qualitative Assessment Report Camp Navajo, Arizona

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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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 Camp Navajo 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.

Camp Navajo is a 28,442.3-acre facility located in Bellemont, Arizona, 12 miles west of Flagstaff. The facility consists of 17 operational ranges, totaling 26,397.55 acres: a small arms range, 15 maneuver and training areas, and a light demolition range. According to munitions data collected during the Phase I Assessment, the types of munitions fired at Camp Navajo include small caliber, pyrotechnics, and obscurants. Potential MCOC associated with these munitions types include lead, antimony, copper, zinc, tungsten, and nitroglycerin. Pyrotechnics and obscurants are expended in drums and potential MCOC with these munitions are contained.

There are several areas located within Camp Navajo, which are not considered part of this qualitative assessment. A historical open burn / open detonation (OB/OD) area totaling 2,044.75 acres is located in the south-central portion of the installation, west of Volunteer Canyon. This closed range contains several Resource Conservation and Recovery Act (RCRA) permitted areas, which were used for demolition of historical munitions stored on the installation. Additionally, there is a historical pyrotechnic range located in one of the maneuver and training areas and a historical explosive ordnance demolition area located in the light demolition range. Within these operational range areas, the historical portions are being remediated under the National Guard Bureau's Installation Restoration Program (IRP), which encompass where military munitions activities occurred.

Despite the utilization of military munitions on the operational ranges at Camp Navajo, the migration of on-range MCOC to off-range receptors is unlikely. Pathways via surface water and groundwater do not exist due to the soil composition, high evapotranspiration rates, depth to groundwater, and sporadic precipitation.

The 17 operational ranges at Camp Navajo are categorized as Unlikely.

Unlikely – Five-Year Review

The 17 ranges at Camp Navajo are categorized as Unlikely, totaling 26,397.55 acres. These ranges consist of a small arms range, 15 maneuver and training areas, and a light demolition range. 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 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, 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 Camp Navajo

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	One operational range; 419.82 acres	Small caliber impact berms	None given the low mobility of metals in neutral soils, sporadic rainfall, on-range surface water catchment, and high evapotranspiration rates	Not evaluated (no migration pathways were identified)		Re-evaluate during the five-year review. No migration pathways were identified.
	16 operational ranges; 25,977.73 acres	Limited source – no live-fire military munitions use	Not evaluated (no MCOC source was identified)		Re-evaluate during the five-year review. No MCOC source was identified.	

ABBREVIATIONS/ACRONYMS

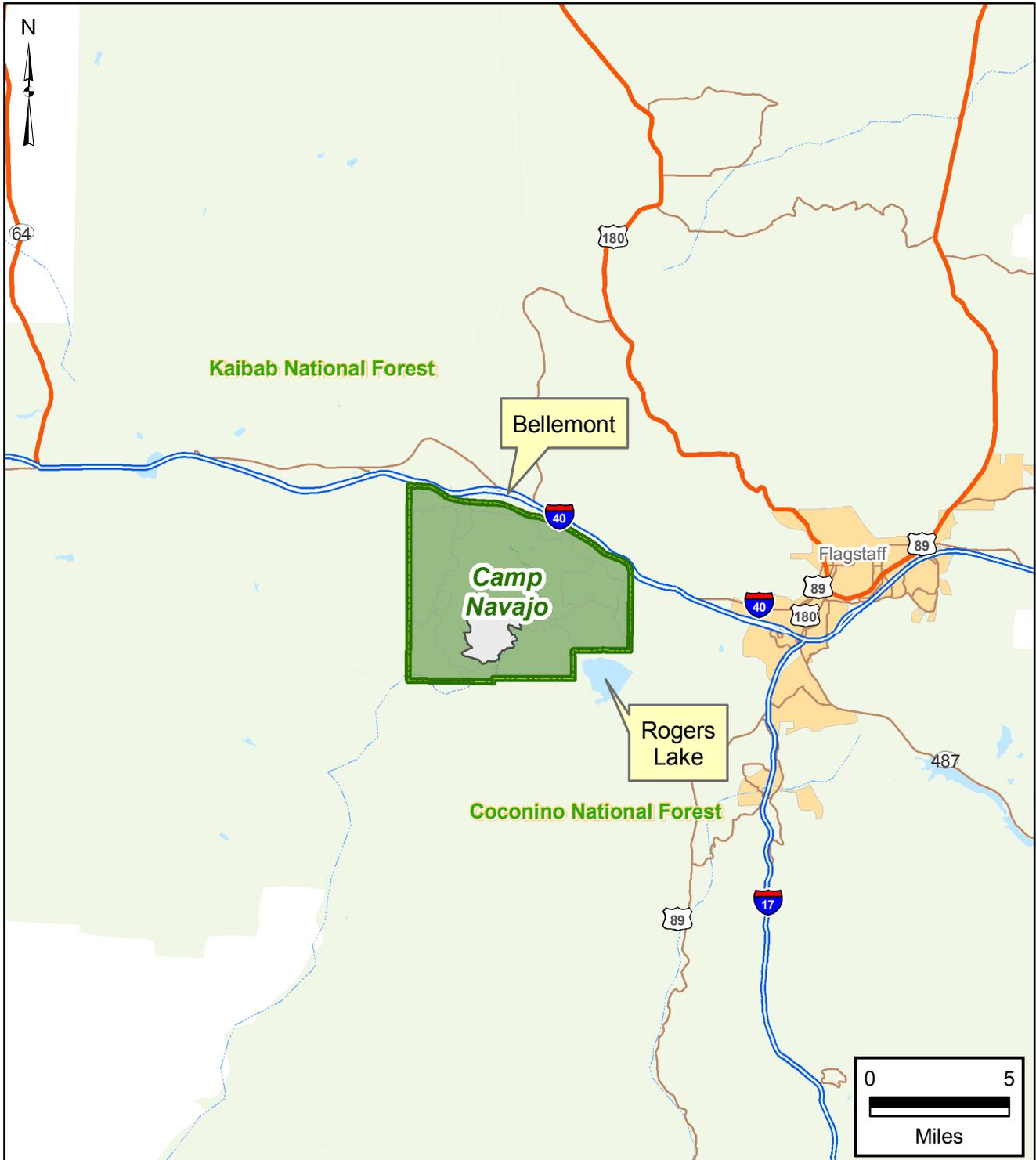
amsl	Above Mean Sea Level
ARID-GEO	Army Range Inventory Database-Geodatabase
ARNG	Army National Guard
AZARNG	Arizona Army National Guard
AZDEQ	Arizona Department of Environmental Quality
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual Site Model
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.)
EAD	Environmental Assessment Division
EDMS	Environmental Data Management 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.)
HEGI	Harris Environmental Group, Inc.
IRP	Installation Restoration Program
LS	Limited Source
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
MCOC	Munitions Constituents of Concern
NG	Nitroglycerin
NGB	National Guard Bureau
OB/OD	Open Burn / Open Detonation
ORAP	Operational Range Assessment Program
PU	Pathway unlikely or incomplete. (This refers to range grouping; M designation always precedes PU designation.)
RCRA	Resource Conservation and Recovery Act
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
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
°F	Degrees Fahrenheit



**Operational Range Assessment Program
Phase I Qualitative Assessment
Camp Navajo, AZ**



**Figure 1-1
General Location of Camp Navajo**



Installation Data

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

Highways

- Interstate Highway
- Highway
- Major Road

Hydrology

- Rivers/Streams
- Waterbody

Data Sources:
ARID-GEO, June 2005
ESRI, StreetMap, 2006

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