



# FINAL

## Operational Range Assessment Program

### Phase I Qualitative Assessment Report

#### Camp Pendleton State Military Reservation, Virginia

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



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.

Printed on  
recycled  
paper



March 2008



## 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 areas at the Camp Pendleton State Military Reservation (Camp Pendleton) 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 Pendleton is a 343-acre installation located in Virginia Beach, Virginia. The installation contains eight operational ranges, including maneuver and training areas and live-fire ranges; however, due to the small size and location, it is only used for small-scale training. There are three active, live-fire ranges; however, only one is currently used for training. Use of the operational range is only authorized from September through May because of its close proximity to Virginia Beach.

There is a potentially complete pathway for MCOC from the small arms ranges to migrate to surface water and to potentially impact offsite human and ecological receptors within Lake Christine, which is the primary receiving water body for the operational range. However, based on the characteristics of the lake, the lack of ecological receptors, and the location of potential human receptors, it is unlikely that MCOC could migrate off-range at levels that may pose an unacceptable risk to human health or the environment. Additionally, the results of a sampling event using U.S. Environmental Protection Agency Toxicity Characteristic Leaching Procedure analysis indicated that there was no significant leaching of MCOC from the surface soil and sediment, and that there were only low concentrations of MCOC detected in surface water samples collected from Lake Christine.

The eight operational ranges at Camp Pendleton are categorized as Unlikely.

### **Unlikely – Five-Year Review**

Eight ranges at Camp Pendleton are categorized as Unlikely, totaling 89 acres. These ranges consist of three small arms ranges and five maneuver and training areas. 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 Camp Pendleton State Military Reservation**

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	5 operational ranges; 74.86 acres	No source – limited or no military munitions use	Not evaluated (no source was identified)			Re-evaluate during the five-year review. The characteristics of the lake and the location of potential human receptors limit impacts of potential MCOC migration.
	3 operational ranges; 14.14 acres	Impact berm	Drainage ditch from small caliber range to Lake Christine	Recreational users of Lake Christine	None	Re-evaluate during the five-year review. Sampling data determined no MCOC migration.

**ABBREVIATIONS/ACRONYMS**

ARID-GEO	Army Range Inventory Database-Geodatabase
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
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.
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
MCOC	Munitions Constituents of Concern
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.)
TCLP	Toxicity Characteristic Leaching Procedure
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
VAARNG	Virginia Army National Guard

