



FINAL

Operational Range Assessment Program Phase I Qualitative Assessment Report Hawthorne Army Depot, Nevada

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



Printed on
recycled
paper



March 2009



ABBREVIATIONS/ACRONYMS

| | |
|----------|--|
| ARID-GEO | Army Range Inventory Database-Geodatabase |
| ASROC | Anti-Submarine Rocket |
| 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 |
| DU | Depleted Uranium |
| E | Ecological receptors identified. (This refers to range grouping; pathway designation always precedes E designation.) |
| ESRI | Environmental Systems Research Institute, Inc. |
| FY | Fiscal Year |
| 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.) |
| HDSOC | High Desert Special Operations Center |
| HMX | Cyclotetramethylenetetranitramine |
| HNAD | Hawthorne Naval Ammunition Depot |
| HWAAP | Hawthorne Army Ammunition Plant |
| HWAD | Hawthorne Army Depot |
| 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 |
| MMRP | Military Munitions Response Program |
| NG | Nitroglycerin |
| OB/OD | Open Burn / Open Detonation |
| ORAP | Operational Range Assessment Program |
| PETN | Pentaerythritoltetranitrate |
| ppb | Parts per Billion |
| PU | Pathway unlikely or incomplete. (This refers to range grouping; M designation always precedes PU designation.) |
| RCRA | Resource Conservation and Recovery Act |
| RDT&E | Research, Development, Testing, and Evaluation |
| RDX | Cyclotrimethylenetrinitramine |
| SW | Surface water pathway identified. (This refers to range grouping; M designation always precedes SW designation.) |
| 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 |
| USAEHA | United States Army Environmental Hygiene Agency |

| | |
|-------|---|
| USEPA | United States Environmental Protection Agency |
| UXO | Unexploded Ordnance |
| WP | White Phosphorus |
| °F | Degrees Fahrenheit |

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 Hawthorne Army Depot (HWAD) 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.

HWAD encompasses 149,402.60 acres of Mineral County, in west-central Nevada, enclosing three sides of the town of Hawthorne. HWAD is bounded by the Gillis Mountains on the northeast, Garfield Hills on the southeast, Excelsior Mountains on the south, and Wassuk Mountains on the west. The current mission of HWAD is to “receive, issue, store, and dispose of conventional ammunition.” The installation provides training activities, special mission assignments, as well as support for the High Desert Special Operations Center. In addition to training activities, the installation has been and currently is used for the testing of various types of ordnance.

HWAD has an operational footprint consisting of 20 operational ranges covering 35,788.71 acres¹: seven live-fire ranges; one maneuver training area; one dudded impact area; nine research, development, testing, and evaluation (RDT&E) impact areas; and two open burn / open detonation (OB/OD) ranges. The two OB/OD ranges are addressed under separate Resource Conservation and Recovery Act Part B permits. As such, these ranges are programmatically excluded from this Phase I Qualitative Assessment as the conditions of their permit already address potential migration of munitions constituents. One of the live-fire ranges is a skeet range, which is managed and operated by the town of Hawthorne for recreational use only and is, therefore, also programmatically excluded from this assessment. Additionally, there are 10 sites located within operational range areas that are being assessed under the Installation Restoration Program and, therefore, programmatically excluded from the ORAP.

Potential MCOC sources at HWAD consist of current and historical firing lines, firing points, impact areas, and localized areas surrounding targets, and backstops, as well as buried munitions debris. In general, potential MCOC from primary source areas may impact soil. MCOC in soil found at source areas have the potential to migrate off-range via surface water, groundwater, and the food chain. Surface water / sediment source media also exist based on historical munitions being directly deposited into Walker Lake.

No potential source-receptor interactions were determined to have an adverse effect or pose an unacceptable risk to human health or the environment based on surface water, sediment, fish tissue, and groundwater sampling data. Additionally, no off-range receptors are identified down gradient within the extent of ephemeral washes.

¹ The total operational range area was derived from the Operational Use Area (total range area) acreage as reported in Army Range Inventory Database-Geodatabase (2005).

The 17 operational ranges evaluated at HWAD are categorized as Unlikely (e.g., Referred, Inconclusive, or Unlikely).

Unlikely – Five-Year Review

Seventeen ranges at HWAD are categorized as Unlikely, totaling 32,390.48 acres. These ranges consist of six live-fire ranges, one maneuver training area, one duded impact area, and nine RDT&E impact 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. The two OB/OD ranges and the skeet range are programmatically excluded from this Phase I Assessment.

Table ES-1 summarizes the Phase I Assessment findings.

Table ES-1: Summary of Findings and Conclusions for Hawthorne Army Depot

| Category | Total Number of Ranges and Acreage | Source(s) | Pathway(s) | Human Receptors | Ecological Receptors | Conclusions and Rationale |
|----------|---|---|--|--|--------------------------|---|
| Unlikely | 17 operational ranges; 32,390.48 acres | Current impact areas / historical impact areas and buried munitions debris | Surface water (on-range groundwater discharge to Walker Lake) and food chain | Recreational users of Walker Lake | Lahontan cutthroat trout | Re-evaluate during the five-year review. Due to surface water, sediment, and fish tissue sampling at Walker Lake. |
| | | Current impact area / historical impact area and buried munitions debris | Groundwater (surficial aquifer) and food chain | Recreational users of Walker Lake | Lahontan cutthroat trout | Re-evaluate during the five-year review. Due to surface water, sediment, and fish tissue sampling at Walker Lake. |
| | | Current firing lines, firing points, impact areas, localized areas surrounding targets, and backstops / historical firing points, impact areas, and buried munitions debris | Surface water (ephemeral washes) and groundwater (underlying alluvial aquifer) | Users of down gradient domestic and public use wells | None identified | Re-evaluate during the five-year review. No ecological receptors identified and groundwater source-receptor interaction unlikely to pose unacceptable risk to human health. |
| | | No source—limited or no military munitions use | Not evaluated (no source identified) | | | Re-evaluate during the five-year review. No source was identified. |