



FINAL

# Operational Range Assessment Program Phase I Qualitative Assessment Report Kekaha, Kaua'i, Hawai'i

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 Kekaha 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.

The Kekaha range complex was established on the island of Kaua'i, Hawai'i in 1957 as a firing range through Executive Order Number 1794. The area was set aside for management by the Hawai'i Army National Guard (HIARNG) (HIARNG – Facilities Management Office, 1994). The range complex encompasses approximately 61 acres and is located adjacent to the southwest coast of Kaua'i on the Mānā Plain. The range complex is located approximately one and a half miles west of the city of Kekaha, Kaua'i, adjacent to the eastern boundary of the U.S. Navy-operated Pacific Missile Range at Barking Sands. The primary mission of the HIARNG at the Kekaha range complex is to provide a trained and ready force to support national military strategies as well as to train civil authorities in various missions.

The 2005 Army Range Inventory Database-Geodatabase (ARID-GEO) identified three operational ranges encompassing 68 acres. In the 2005 ARID-GEO, the ranges overlap; hence, the sum of range areas is greater than the total operational range area (61 acres). Training activities at the Kekaha range complex include the use of two firing ranges and a maneuver and training area. The two firing ranges at the range complex comprise the only weapons qualification range for HIARNG soldiers on Kaua'i. The firing ranges are authorized for use by the HIARNG, various state law enforcement agencies, the Department of Land and Natural Resources, and the Garden Island Pistol Club.

A review of available records and background data as well as interviews with HIARNG personnel indicates that the three ranges located at the Kekaha range complex have been used for training involving military munitions (live-fire and non-live-fire). As such, potential sources of MCOC may exist at the Kekaha range complex. Potential source areas of MCOC identified at the Kekaha range complex include soil in the impact berms and along firing lines associated with the firing ranges.

Release mechanisms for potential MCOC from soil may include leaching from soil to groundwater. The soils at the Kekaha range complex are porous and support rapid infiltration. Recharge to the adjacent aquifers is through percolation of precipitation from soil to groundwater. Due to rapid infiltration of precipitation into soils at the Kekaha range complex, it is unlikely for potential MCOC to migrate off-range via soil erosion. In addition, there are no surface water features on site; therefore, no mechanisms for transport of potential MCOC exist via surface water / sediment.

Both human and ecological receptors may exist within the Pacific Ocean located down gradient of groundwater flow from the Kekaha range complex. While there is a likely pathway for potential MCOC to be released into groundwater, it is unlikely that the small amount of recharge that occurs in this area and released as groundwater into the high volume of the exposure media, the Pacific Ocean, will result in any source-receptor interactions that could present an unacceptable risk to human health or the environment. Therefore, the three operational ranges at Kekaha are categorized as Unlikely.

**Unlikely – Five-Year Review**

Three ranges at Kekaha are categorized as Unlikely, totaling 61 acres. These ranges consist of two firing ranges and one maneuver training area. Based upon a review of readily available information, ranges where 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 Kekaha**

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	2 operational ranges; 7.34 acres	Firing lines and impact berms	Groundwater (Kekaha Aquifer)	Not evaluated (no exposure route identified)		Re-evaluate during the five-year review. No exposure route was identified.
	1 operational range; 53.39 acres	No source – no live-fire military munitions use	Not evaluated (no source 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
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.)
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.)
HIARNG	Hawai'i Army National Guard
HMX	Cyclotetramethylenetetranitramine
LS	Limited Source.
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
MCOC	Munitions Constituents of Concern
mgd	Million Gallons Per Day
NG	Nitroglycerin
ORAP	Operational Range Assessment Program
PETN	Pentaerythritoltetranitrate
PMRF	Pacific Missile Range Facility
PU	Pathway unlikely or incomplete. (This refers to range grouping; M designation always precedes PU designation.)
RDX	Cyclotrimethylenetrinitramine
RFMSS	Range Facility Management Support System
SW	Surface water pathway identified. (This refers to range grouping; M designation always precedes SW designation.)
T&E	Threatened and Endangered
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
USEPA	United States Environmental Protection Agency
°F	Degrees Fahrenheit



# Operational Range Assessment Program Phase I Qualitative Assessment Kekaha, HI

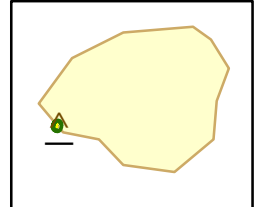
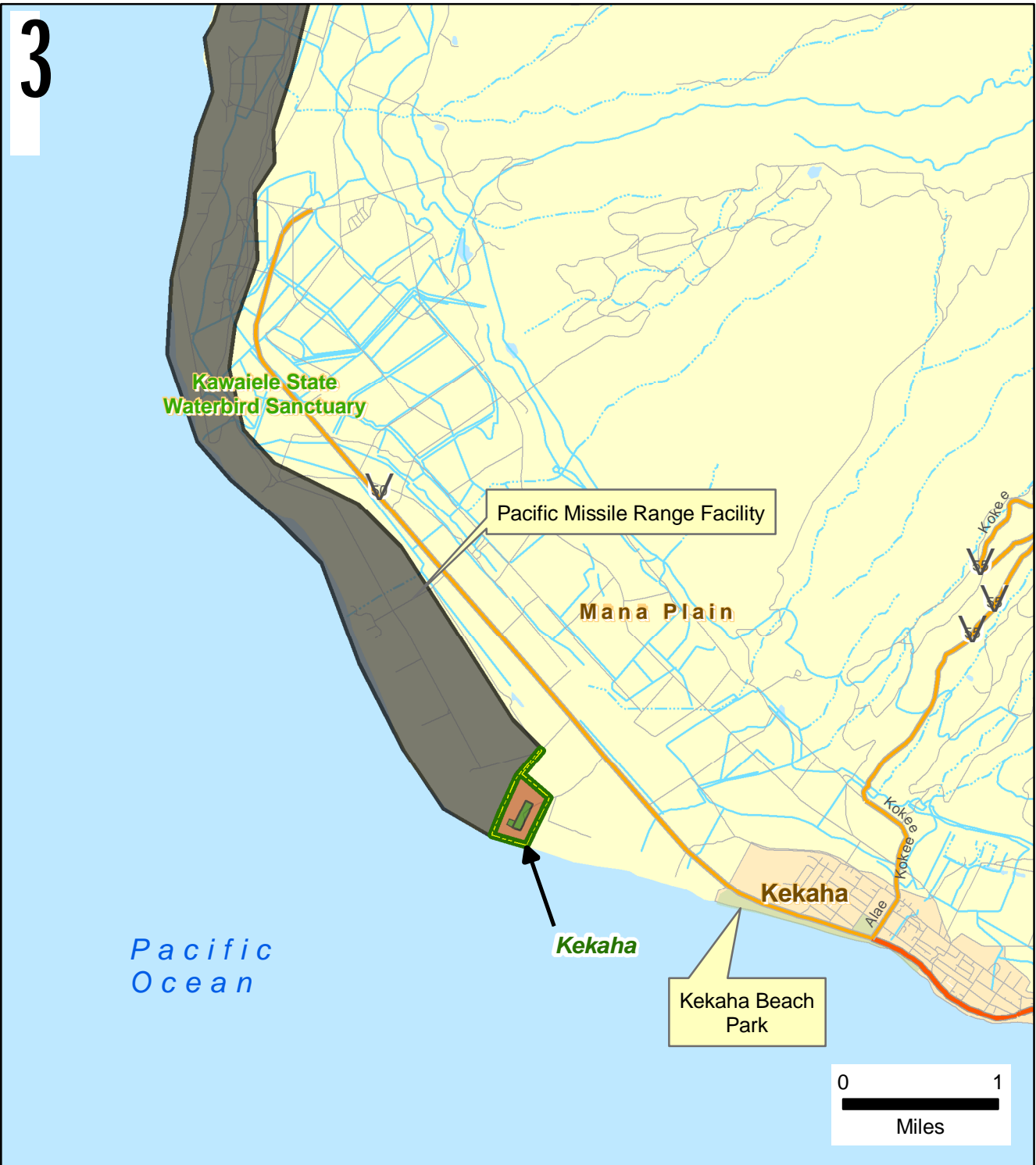


Figure 1-1  
General Location of Kekaha



- Range Data**
- Range Boundary
  - Firing Ranges
  - Maneuver Training Area

- Highways**
- Highway
  - Major Road

- Hydrology**
- Rivers/Streams
  - Waterbody

Data Sources:  
ARID-GEO, March 2006  
ESRI, StreetMap, 2006

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