

**FINAL
OPERATIONAL RANGE ASSESSMENT PROGRAM
PHASE I QUALITATIVE ASSESSMENT REPORT
GERSTLE RIVER ARCTIC TEST SITE
DELTA JUNCTION, ALASKA**

AUGUST 2008

Prepared for:

UNITED STATES ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
P.O. Box 1715
Baltimore, Maryland 21203

and

UNITED STATES ARMY ENVIRONMENTAL COMMAND
Aberdeen Proving Ground, Maryland 21010

Prepared by:

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.
15 Loveton Circle
Sparks, Maryland 21152



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 Gerstle River Arctic Test Site 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.

Gerstle River Arctic Test Site encompasses 20,589.60 acres of land located approximately three miles south of the Alaska Highway, 11 miles southeast of Delta Junction, and 130 miles southeast of Fairbanks in central interior Alaska. Both the Donnelly Training Area and former Fort Greely boundaries are located northwest of Gerstle River Arctic Test Site at nine and 21 miles, respectively. The Gerstle River Arctic Test Site is primarily located in the Tanana Lowlands with the exception of the southwestern corner which extends into the foothills of the Granite Mountains. Rectangular in shape and oriented from southeast to northwest, the Gerstle River Arctic Test Site is approximately five miles north to south and nine miles east to west.

Gerstle River Arctic Test Site was utilized historically from 1954 through 1967 for static and dynamic testing and observation of chemical agent, biological simulant, and high explosives munitions. An additional parcel of land, located between Fort Greely and Gerstle River Arctic Test Site and known as the Gerstle River Expansion Area, was leased from the state of Alaska and Bureau of Land Management for use of additional munitions testing in the 1960s. After munitions testing ceased on both properties in 1967, the Expansion Area lease expired and the property was returned to the state. Gerstle River Arctic Test Site remained in caretaker status from 1967 until 1978 and was later utilized in the 1980s and 1990s as a biathlon course and as a Forward Arming and Refueling Point for aviation units.

Currently, the Gerstle River Arctic Test Site consists of a single operational range utilized by the U.S. Army Garrison – Alaska as a training and maneuver area for light forces (Army Range Inventory Database-Geodatabase [ARID-GEO], 2006).

The primary sources of MCOC identified at Gerstle River Arctic Test Site include historical firing points, impact areas, Blueberry Lake, and small arms firing at the former biathlon range. These primary sources of MCOC may impact the soil in the area and infiltrate to the Tanana Basin aquifer. However, groundwater located within four miles of the operational range is not utilized by human or ecological receptors. Additionally, the limited amount of surface water exiting the range may have the potential to mobilize MCOC off-range to reach potential wetland areas.

Unlikely – Five-Year Review

The single range at Gerstle River Arctic Test Site is categorized as Unlikely, totaling 20,589.60 acres of light maneuver and training area. 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 Gerstle River Arctic Test Site

Category	Total Number of Ranges and Acreage	Source(s)	Pathway(s)	Human Receptors	Ecological Receptors	Conclusions and Rationale
Unlikely	One operational range; 20,589.60 acres	Undesignated historical firing points, impact areas, Blueberry Lake, and small arms firing at biathlon targets	Infiltration of surface water to underlying Tanana Basin aquifer and surface water runoff from Sawmill Creek	None	Wetlands located down gradient	Re-evaluate during the five-year review. Potential MCOC may infiltrate to groundwater near Blueberry Lake. Unfavorable soil conditions reduce the likelihood of transport off-range. There are no human or ecological receptors which utilize groundwater within four miles of the range. While Sawmill Creek may feed potential wetland areas, there is no concentrated source available and surface water exiting the range is limited.

ABBREVIATIONS/ACRONYMS

ARID-GEO	Army Range Inventory Database-Geodatabase
BG	<i>Bacillus globigii</i>
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual Site Model
CWM	Chemical Warfare Material
DA	Department of Army
DERP	Defense Environmental Restoration Program
DPW	Directorate of Public Works
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.)
FUDS	Formerly Used Defense Site
GA	Tabun
GB	Sarin
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.)
HD	Sulfur Mustard
HE	High Explosives
HMX	Cyclotetramethylenetetranitramine
LS	Limited Source
M	Munitions used. (This refers to range grouping; M designation always precedes applicable pathway.)
MCOC	Munitions Constituents of Concern
MCL	Maximum Contaminant Level
mg/kg	Milligrams Per Kilogram
NG	Nitroglycerin
NGB	National Guard Bureau
ODEP	Office of the Director of Environmental Programs
ORAP	Operational Range Assessment Program
OSWER	Office of Solid Waste and Emergency Response
PETN	Pentaerythritoltetranitrate
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.)
TNT	Trinitrotoluene
U.S.	United States
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine

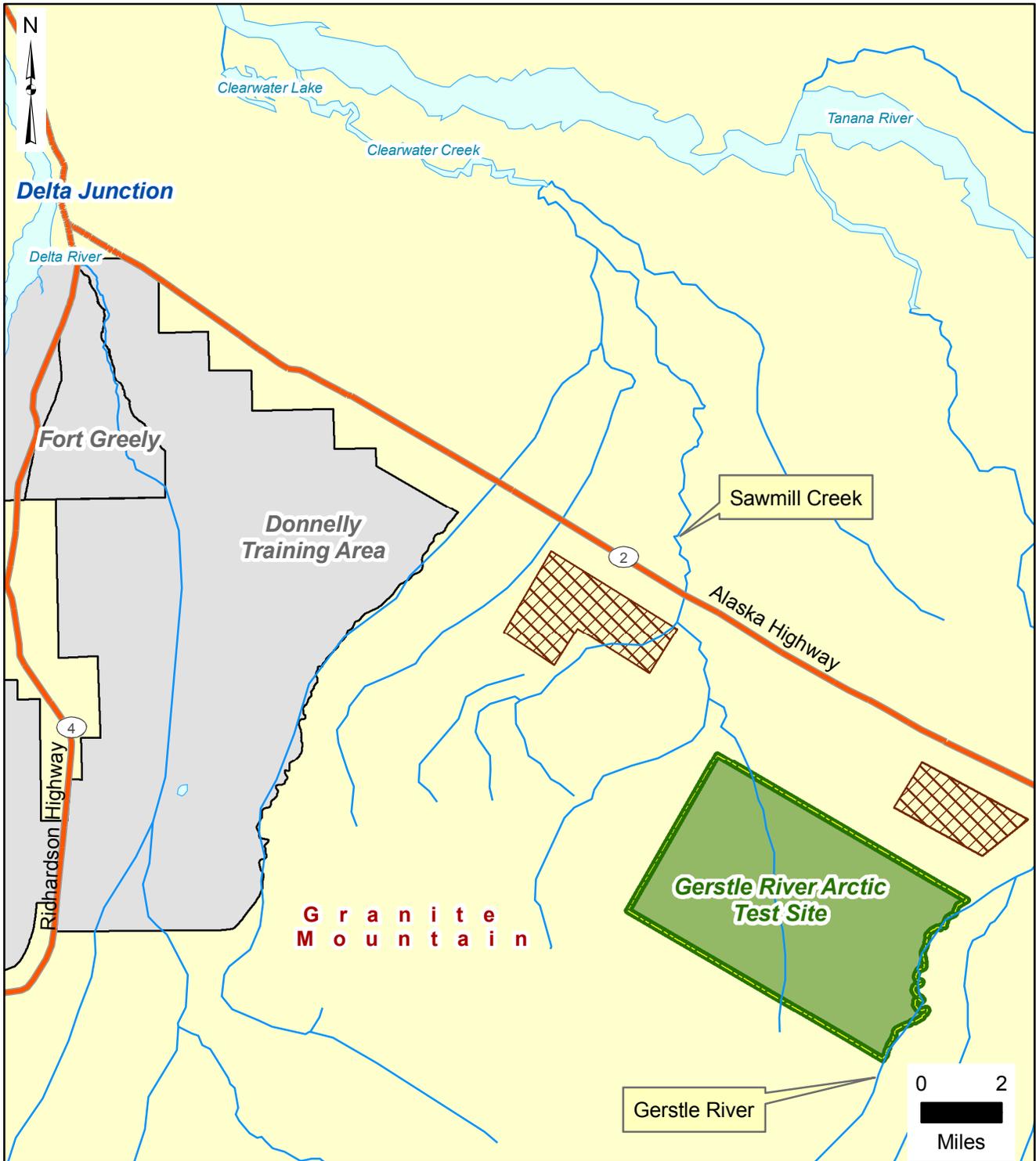
USAEC	United States Army Environmental Command
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USEPA	United States Environmental Protection Agency
UXO	Unexploded Ordnance
VS	Phosphonothioic Acid
VX	Methylphosphonothioic Acid
°F	Degrees Fahrenheit
µg/L	Micrograms Per Liter



Operational Range Assessment Program
Phase I Qualitative Assessment
Gerstle River Arctic Test Site, AK



Figure 1-1
General Location of Gerstle River Arctic Test Site



Installation Data

- Installation Boundary
- Operational Range Area
- Bison Ranges

Highways

- Highway

Hydrology

- Rivers/Streams
- Waterbody

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

Date:.....August 2008
Prepared By:EA Engineering, Science, and Technology
Prepared For:.....U.S. Army
Contract Number:..... W912DR-05-D-0008