Final

Baseline Ecological Risk Assessment Problem Formulation for Small Arms Ranges at Iron Mountain Road

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List of Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
AUF	area use factor
BCF	bioconcentration factor
BCT	BRAC cleanup team
BERA	Baseline Ecological Risk Assessment
BRAC	Base Realignment and Closure
BTV	background threshold value
COPEC	constituents of potential ecological concern
ESV	ecological screening values
EE/CA	Engineering Evaluation and Cost Analysis
EPA	U.S. Environmental Protection Agency
ER-L	effects range-low
ER-M	effects range-medium
FTMC	Fort McClellan
HQ_{screen}	screening-level hazard quotient
IMR	Iron Mountain Road
IT	IT Corporation
LOAEL	lowest observed adverse effect level
MDCC	maximum detected constituent concentration
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
µg/L	micrograms per liter
NAS	National Academy of Sciences
NOAEL	no observed adverse effect level
PAH	polycyclic aromatic hydrocarbon
ppb	parts per billion
ppm	parts per million
SLERA	Screening-Level Ecological Risk Assessment
SAIC	Science Applications International Corporation
SCM	site conceptual model
SVOC	semivolatile organic compound
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

1.0 Introduction

A screening-level ecological risk assessment (SLERA) was conducted as part of the engineering evaluation and cost analysis (EE/CA) at the Small Arms Ranges at Iron Mountain Road (Skeet Range, and Ranges 12, 13, and 19) (IT Corporation [IT], 2002). Based on discussions and agreements made at the April 16, 2002 Base Realignment and Closure (BRAC) Cleanup Team (BCT) meeting and site walks conducted May 9 and 10, 2002, a Final SLERA report (IT, 2002) was prepared and submitted. The results of the SLERA indicated that several constituents in environmental media at the Iron Mountain Road (IMR) ranges have the potential to pose adverse ecological risks. Therefore, a Baseline Ecological Risk Assessment (BERA) will be completed for the IMR ranges in order to reduce the level of uncertainty inherent in the SLERA process and better define the potential for ecological risks. Per the U.S. Environmental Protection Agency's (EPA) *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, 1997), the first step in the BERA process is the "Problem Formulation." The Problem Formulation also constitutes "Step 3" of the EPA's eight-step process (EPA, 1997).

The Problem Formulation at the IMR ranges will utilize the results of the SLERA (IT, 2002) and on-site reconnaissance to identify the specific ecological values to be protected at the IMR ranges, which will then be used to establish assessment endpoints. The questions and issues that need to be addressed in the BERA will also be defined in this Problem Formulation.
The Problem Formation phase of the BERA addresses and expounds upon a number of issues described in the SLERA, including:

- Refinement of the constituents of potential ecological concern (COPEC) identified in the SLERA;
- Description of the ecotoxicity of the COPECs;
- Description of the fate and transport of the COPECs;
- Description of the ecosystems potentially at risk;
- Development and refinement of the site conceptual model;
- Refinement of the complete exposure pathways; and
- Identification of the assessment endpoints.

Following approval of this BERA Problem Formulation, a detailed BERA Study Design will be completed which will utilize the information gathered and presented in the Problem Formulation to establish measurement endpoints and to design studies that are appropriate to test the hypotheses concerning the assessment endpoints. Data quality objectives as well as statistical approaches will also be presented in the BERA Study Design.