



**REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
BURNING GROUNDS, SANITARY LANDFILL, AND PISTOL RANGE AREAS
(REMAINING PROPERTY OF THE U.S. GOVERNMENT)**

**CORNHUSKER ARMY AMMUNITIONS PLANT (CHAAP)
GRAND ISLAND, NEBRASKA**



Presentation Overview

- RI/FS Task Order Objectives
- Project Delivery Team
- Major Work Elements of the RI/FS
- Period of Performance and Schedule
- Technical Approach
- Reporting

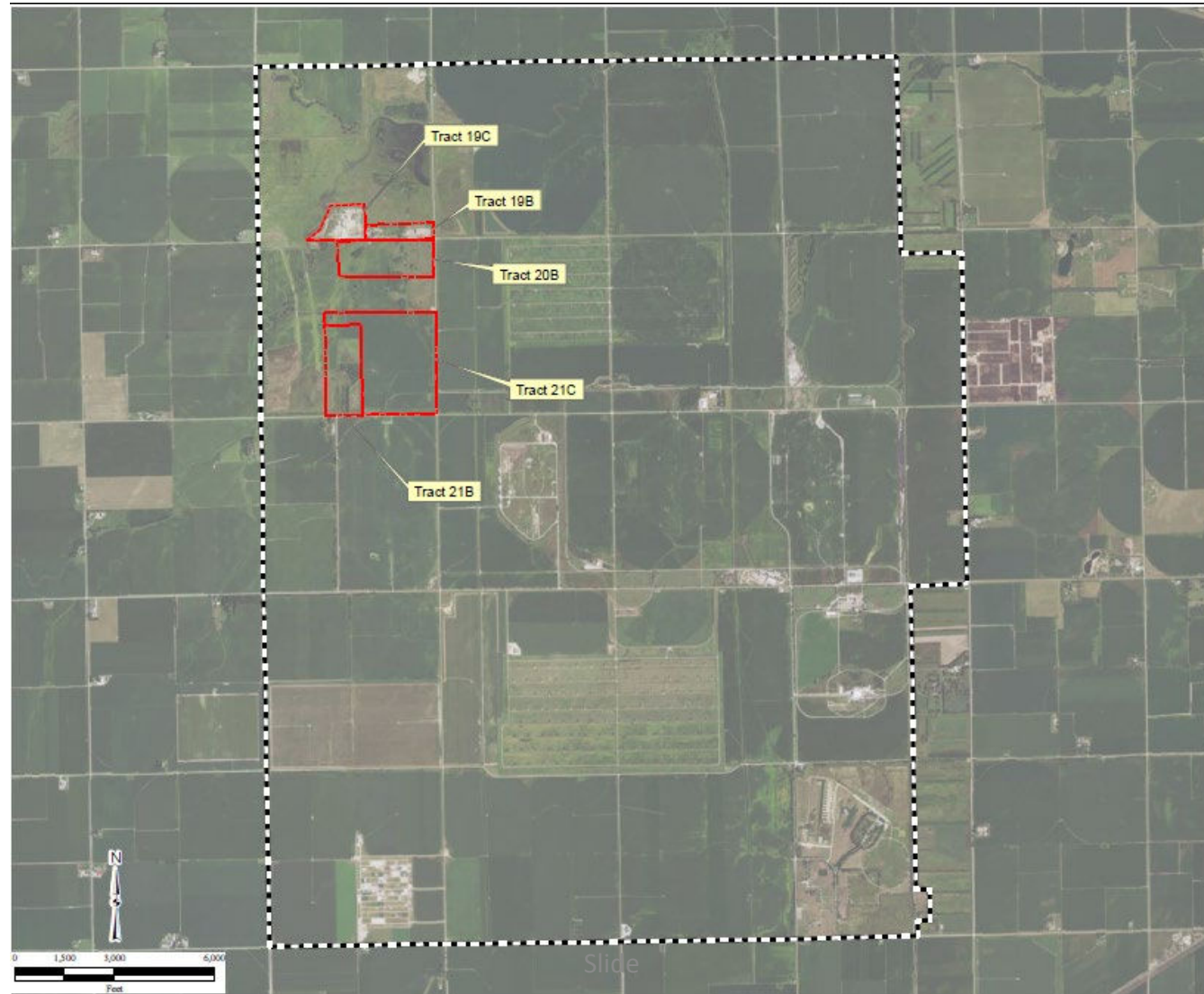


RI/FS Task Order Objectives

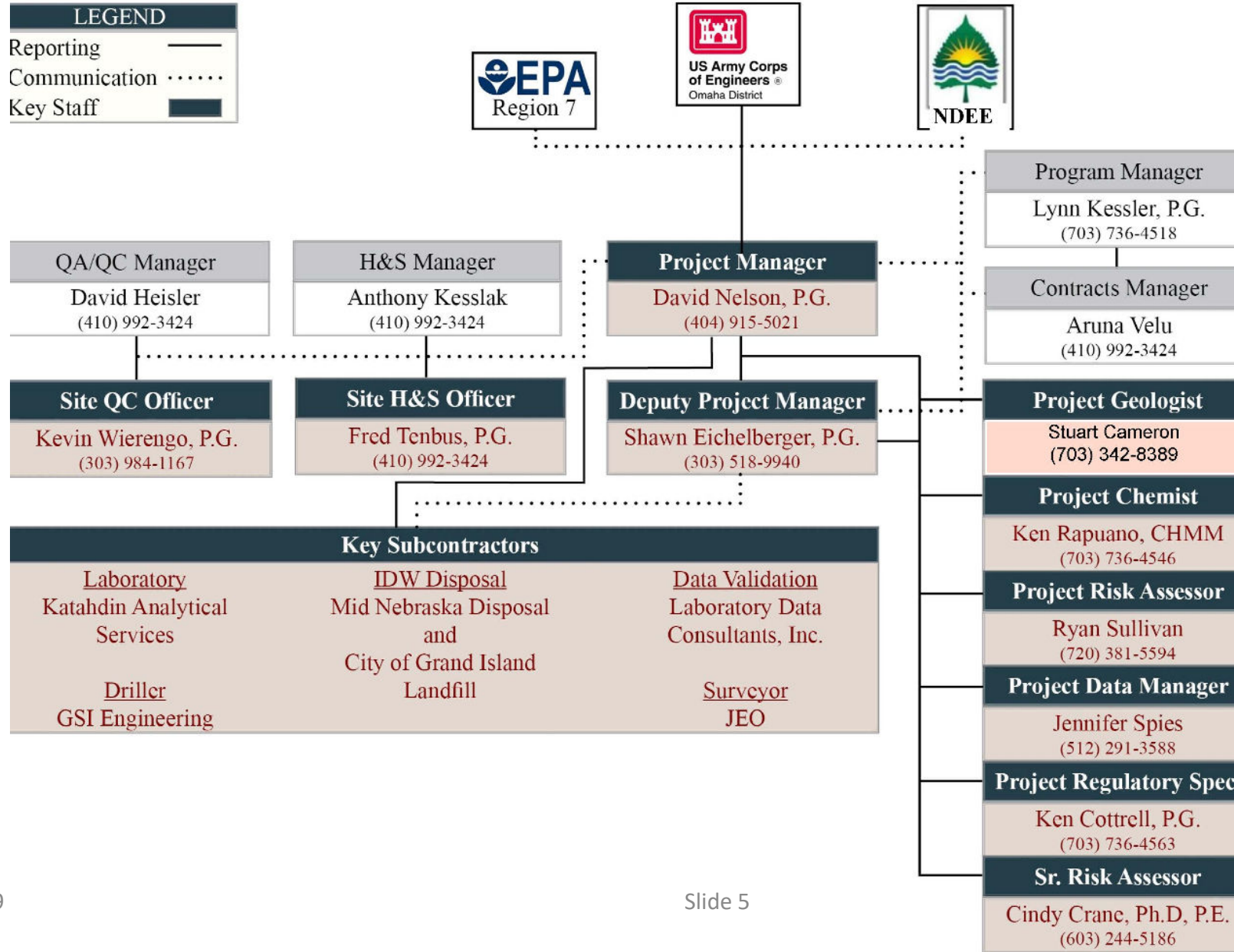
- Complete investigative fieldwork to include delineation of vertical and horizontal extent of contamination in soil and groundwater to the standards required for an RI (including a baseline risk assessment), and subsequent FS at:
 - Tract 19B (property east of Tract 19C with stockpiled soil from Tract 19C)
 - Tract 19C (Demolition Burning Grounds aka Open Burning/Open Detonation Area)
 - Tract 20B (South Fuze Destruction Area)
 - Tract 21B (Firing Range/Backstop Berm and Static Ejection and Test Site, Burning Pit Area, Decanting Station and Leaching Pit Area)
 - Tract 21C (potential groundwater contamination migrating from east from Tract 21B)
- Perform a Background Study including soil and groundwater sampling to develop a background dataset to determine whether site data reflects natural background conditions, anthropogenic influences, or site-related contamination



CHAAP Tract Locations



RI/FS Project Delivery Team



Major Work Elements of the RI/FS

Site	Tasks
All Sites	<ul style="list-style-type: none"> • Planning Documents • Evaluation of Current Conditions/Existing Wells/Existing Structures • Filling of Data Gaps and Collection of Data Sufficient to Support RI/FS • Update to Final Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP)
Tracts 19B, 19C, 20B, 21B, and 21C	<ul style="list-style-type: none"> • Investigation field work (types and quantities defined in following slides) • Handling, transport, and disposal of wastes • Geophysical Mapping of Abandoned Burning Areas and South Fuze Destruction Area
Background Study	<ul style="list-style-type: none"> • Collection of Surface and Subsurface Soil Samples • Installation of Monitoring Wells (UGIA/LGAI) and Groundwater Sampling
Reporting for each Tract	<ul style="list-style-type: none"> • Remedial Investigation Report (including Human Health Risk Assessment [HHRA] and Screening Level Ecological Risk Assessment [SLERA]) • Feasibility Study Report
Optional Tasks	<ul style="list-style-type: none"> • Prepare Proposed Plans • Prepare Record of Decision • Well Abandonment

*Green text indicates completed activity



Technical Approach

- UFP-QAPP completed in March 2018. UFP-QAPP includes:
 - Field Sampling Plan
 - Waste Management Plan
 - Background Study Plan
 - Accident Prevention Plan
 - Risk Assessment Plan
 - Standard Operating Procedures
- Major investigative phase for all tracts and background conducted from May 2018 through October 2018.
- Assessment and review of data and development of RI document in process.



Technical Approach (cont.)

- In early 2019, UFP-QAPP updated and submitted for review. Backcheck review almost complete.
- Updated UFP-QAPP includes geophysical mapping of the Abandoned Burning and South Fuze Destruction Areas (Tract 20B).
 - Adds RI objective of determining lateral extent of potential munitions and explosives of concern (MEC) and munitions debris (MD) anomalies identified in 2 locations:
 - Near the southern extent of the 2012 investigation at the South Fuze Destruction Area.
 - 100-foot by 300-foot region of higher ground conductivity identified in the 1991 geophysical survey at the Abandoned Burning Area.



Technical Approach (cont.)

- Updated UFP-QAPP (cont.)
 - Adds:
 - Additional Standard Operating Procedures
 - Explosives Management Plan
 - Explosive Site Plan
 - Blind Seed Firewall Plan
 - MEC Field Forms



Tract 19B

(Property east of Demolition Burning Grounds)

- Field Activities and Sampling:

Matrix	Sampling Details	Analytical Parameters	Objectives
Topographic survey will be conducted to identify stockpiles and more accurately define volume.			
Stockpiled Soil	Composite from surface, center and base of each 800 cy portion of @131,000 cy of stockpiled soil (@ 164 composite samples)	<ul style="list-style-type: none"> • PAHs • Explosives 	Determine if stockpiled soil (@131,000 cy) needs to be removed based on regulatory and/or risk levels or may remain onsite and be contoured for permanent placement
SPLP	20 samples analyzed using SPLP for composite analytical results exceeding leachability screening levels; SPLP results exceeded tap water RSLs, native soil beneath the associated stockpiled soil was sampled)	<ul style="list-style-type: none"> • SPLP PAHs • SPLP Explosives 	Determine if contaminants in stockpiled soil have leached to underlying soil and to delineate contamination to present an accurate remedial cost evaluation in an FS
Groundwater	23 DPT locations upgradient, downgradient, and within suspected source areas within upper and lower Grand Island aquifer (TBD); 6 MW locations screened within upper and lower Grand Island aquifer (TBD); sampling from existing wells	<ul style="list-style-type: none"> • VOCs • PAHs • Explosives • Metals 	To identify and delineate groundwater contamination associated with the stockpiles or offsite contamination that may have migrated into the area



Tract 19C (Demolition Burning Grounds)

- Field Activities and Sampling

Matrix	Sampling Details	Analytical Parameters	Objectives
Surface Soil	<ul style="list-style-type: none"> • 76 grid sample locations from previous removal (5-point composite samples from each grid) 	<ul style="list-style-type: none"> • PAHs • Explosives • Metals 	<p>To characterize, delineate, and evaluate risk associated w/ any contamination remaining on the property</p>
Subsurface Soil	<ul style="list-style-type: none"> • 25 samples collected between 4.5 and 8 ft bgs - above water table 		
Surface and Subsurface Soil	10 DPT locations		
Groundwater	<ul style="list-style-type: none"> • 30 groundwater samples collected from DPT locations • 6 new monitoring wells (3 UGIA/3 LGIA) installed • 15 groundwater samples collected (9 existing and 6 new monitoring wells) 	<ul style="list-style-type: none"> • VOCs • PAHs • Explosives • Metals 	<p>To identify and delineate GW contamination associated w/in the site or offsite contamination that may have migrated into the area</p>



Tract 20B

(Abandoned Burning Area and Fuze Destruction Area)

- Field Activities and Sampling:

Site ID, Site Name	Matrix	Sampling Details	Analytical Parameters	Objectives
Subareas: South Fuze Destruction Area (SFDA) Abandoned Burning Area (Ammonium Nitrate Burning Area or Old Nitrate Burning Area)	Surface and Subsurface Soil	<ul style="list-style-type: none"> 10 surface soil samples collected (0 to 0.5 ft bgs) 24 subsurface soil samples collected at select depths to 10 ft bgs at the above 10 locations 10 initial soil samples analyzed for PAHs, explosives, and metals 13 subsequent samples analyzed only for parameters exceeding RSLs 	<ul style="list-style-type: none"> PAHs Explosives Metals 	Characterize and delineate potential soil contamination remaining on the property
	Groundwater	<ul style="list-style-type: none"> 8 monitoring wells (4 UGIA/4 LGIA) installed 19 groundwater samples analyzed from new and existing wells 	<ul style="list-style-type: none"> VOCs PAHs Explosives Metals 	To identify and delineate groundwater contamination associated with site or offsite contamination that may have migrated into the area



Tract 21B

(Burning Pit, Decanting Station, Backstop Berm)

- Field Activities and Sampling:

Subareas	Matrix	Sampling Details	Analytical Parameters	Objectives
Subareas: Burning Pit Area, Decanting Station and Leaching Pit Area; Firing Range Backstop Berm/Static Ejection Test Site	Surface Soil and Subsurface Soil	<ul style="list-style-type: none"> Burning Pit Area: 22 surface soil samples collected (0 to 0.5 ft bgs) 28 subsurface soil samples collected (3-4 and 7-8 ft bgs at 12 sample locations; 4-5 ft bgs at two soil sample locations; and 2-3 and 5-6 ft bgs at one of sample location) Decanting Station and Leaching Pit Area: 12 surface soil samples collected (0 to 0.5 ft bgs) 17 subsurface soil samples collected (12 from 4 to 5 ft bgs, 5 also from 9 to 10 ft bgs) Firing Range Backstop Berm/Static Ejection Test Site: 6 surface soil samples collected (0 to 0.5 ft bgs) 6 subsurface soil samples collected (3 to 4 ft bgs) 1 surface soil and 1 subsurface soil sample analyzed for SPLP metals 	<ul style="list-style-type: none"> VOCs Explosives Metals 	To characterize and delineate potential soil contamination remaining on the property
	Groundwater	<ul style="list-style-type: none"> Burning Pit Area: 8 monitoring wells installed (3 UGIA/5 LGIA) 12 groundwater samples collected (from 8 newly installed and 4 existing wells) Decanting Station and Leaching Pit Area 14 groundwater samples collected (7 newly installed and 7 existing wells) Firing Range Backstop Berm/Static Ejection Test Site: 2 monitoring wells installed 6 groundwater samples collected (2 newly installed and 4 existing wells) 	<ul style="list-style-type: none"> VOCs Explosives Metals 	To identify and delineate groundwater contamination associated with site or offsite contamination that may have migrated into the area



Tract 21C

(Property east of Tract 21B)

- Site Description:
 - 166.14 acres
- Field Activities and Sampling:

Site ID, Site Name	Matrix	Sampling Details	Analytical Parameters	Objectives
Subareas: Northwest Sewage Treatment Plant (located at southern, operated from 1944-1974, no longer Present)	Groundwater	<ul style="list-style-type: none"> • 10 monitoring wells (5 UGIA/5 LGIA) installed • 20 DPT groundwater samples collected (10 UGIA/10 LGIA) • 30 groundwater samples analyzed 	<ul style="list-style-type: none"> • VOCs • Explosives 	To identify and delineate GW contamination associated w/ upgradient contamination associated w/ tract 21B to W that migrated into the area



Background Study

- Background dataset previously established; however, 2 issues:
 - Long distance between the historical background locations and sites to be investigated.
 - Existing data is more than 20 years old.
- 40 surface and subsurface soil samples collected within Tracts and analyzed for VOCs, PAHs, explosives, and metals.
- Sample location basis - Tracts contain areas that, according to available historical documentation, were not used during or affected by CHAAP's operational history.
- 20 monitoring wells (10 UGIA/10 LGIA) installed, 20 groundwater samples collected VOCs, PAHs, explosives, and metals (total and field filtered).
- Sample locations located typically hydraulically and topographically up- or cross-gradient from other contaminant sources.



Geophysical Mapping in South Fuze Destruction Area and Abandoned Burning Area (Tract 20B)

- To achieve the project DQOs, three primary components to be conducted: 1) QC seeding, 2) a DGM detection survey, and 3) intrusive investigation of identified anomalies based on the threshold determined in the IVS Technical Memorandum. See following slides for work locations.
- Definable Features of Work:
 - Site preparation (vegetation removal and personnel mobilization)
 - GIS Data Management
 - Instrument verification strip construction
 - Analog test strip
 - Blind seeding
 - Detection survey (DGM)
 - Intrusive investigation
 - MEC/MPPEH handling



Tract 20B Field Effort

- Mobilization
 - Winter 2019-2020
- Mapping
 - Winter 2019-2020
- Intrusive Investigation
 - Winter 2019-2020
- Demobilization
 - Winter 2019-2020



Reporting

- RI Report
 - Spring 2020
- FS Report
 - Summer 2020
- Proposed Plan (Optional task)
 - Fall 2020
- Record of Decision (Optional task)
 - Winter 2020

