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Omaha District

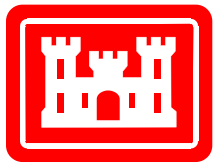


Operable Units 1 and 3 Program Update – October 2020 through October 2021

**Cornhusker Army Ammunition Plant
(CHAAP)
Grand Island, Nebraska**

16 November 2021

**Prepared by:
Brice Engineering and
AECOM**



Operable Units 1 and 3 Program Update

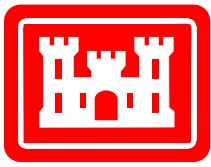
- **Year in Review: Oct 2020 – Oct 2021**
 - OU1 Rebound Study
 - OU1 Subsurface Injections
 - Annual OU1 and OU3 Groundwater Long-Term Monitoring (LTM)
- **Up Next: Oct 2021 – Oct 2022**
 - OU1 Rebound Study
 - Post OU1 Rebound Study
 - Annual OU1 and OU3 Groundwater LTM



Groundwater Sampling



Subsurface Injection



OU1 Rebound Study

- **Background**

- Decreasing explosives concentration trends and numerical modeling simulations suggested that on-post groundwater extraction/treatment was no longer needed to prevent off-post plume migration

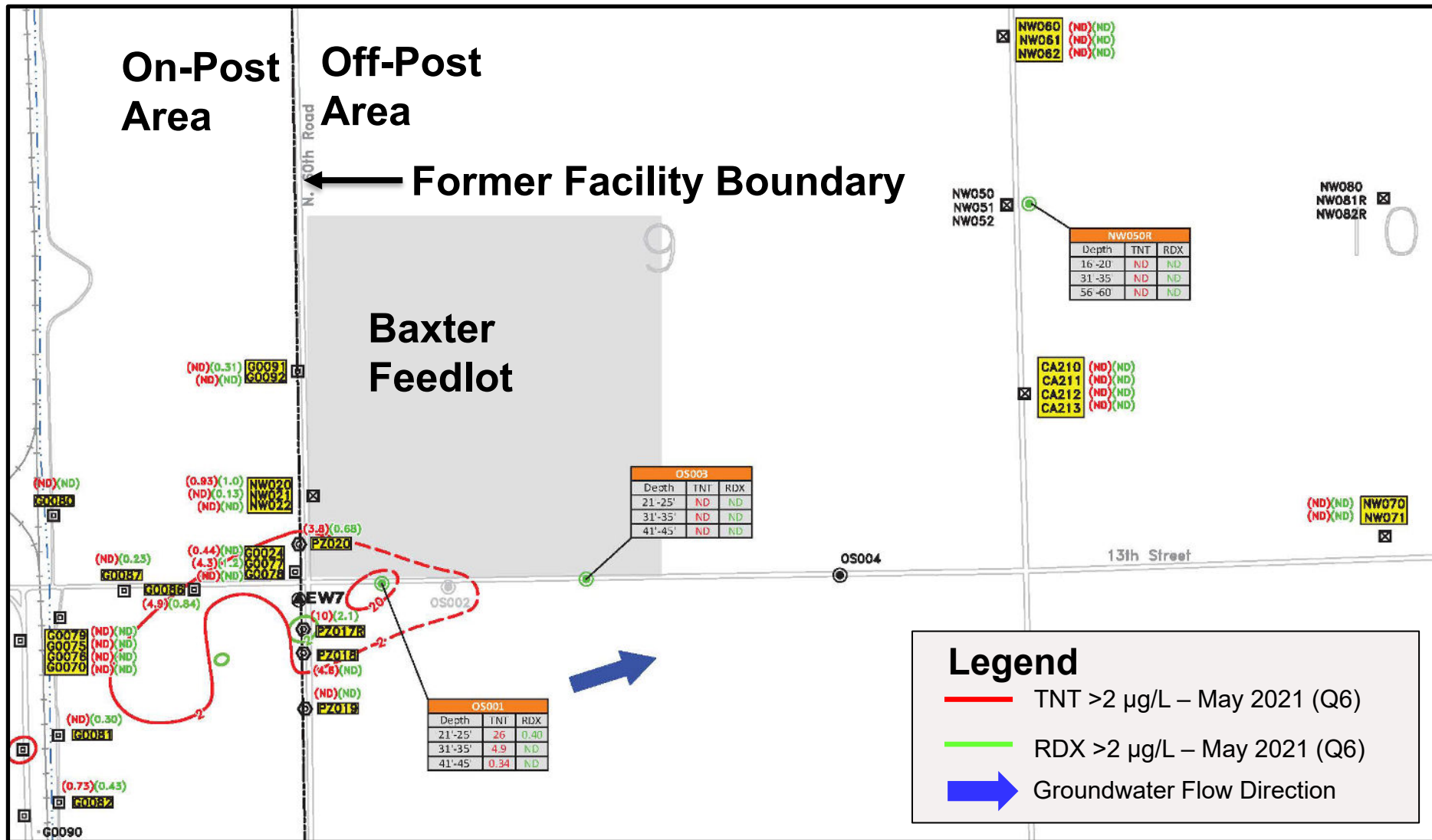
- **Rebound Study Components**

- Rebound Study initiated in Oct 2019 to ensure plume remains stable and not migrating, and included eight (8) quarterly Groundwater Monitoring Events – final event in Jan 2022
- Temporary shutdown of extraction well EW7 and Groundwater Treatment Facility (GWTF) occurred in Nov 2019 – GWTF remains in standby status

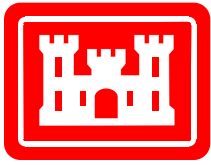
- **Rebound Study Results**

- No evidence of plume mobilization and the plume is attenuating
- All permanent off-post wells sampled as part of the OU1 Rebound Study remain below the U.S. Environmental Protection Agency (USEPA) Health Advisory Levels (HALs) of 2 micrograms per liter ($\mu\text{g/L}$)

May 2021 (Q6) Rebound Study Results



• Rebound Study results indicate plume is stable and not migrating



OU1 Subsurface Injections

- **Background**

- Previously completed subsurface injection of proprietary amendment has been successful at reducing explosives concentrations at CHAAP
- Injections will help to ensure shutdown of extraction well and GWTF is successful
- Injections will reduce overall remedial timeframe and lifecycle costs

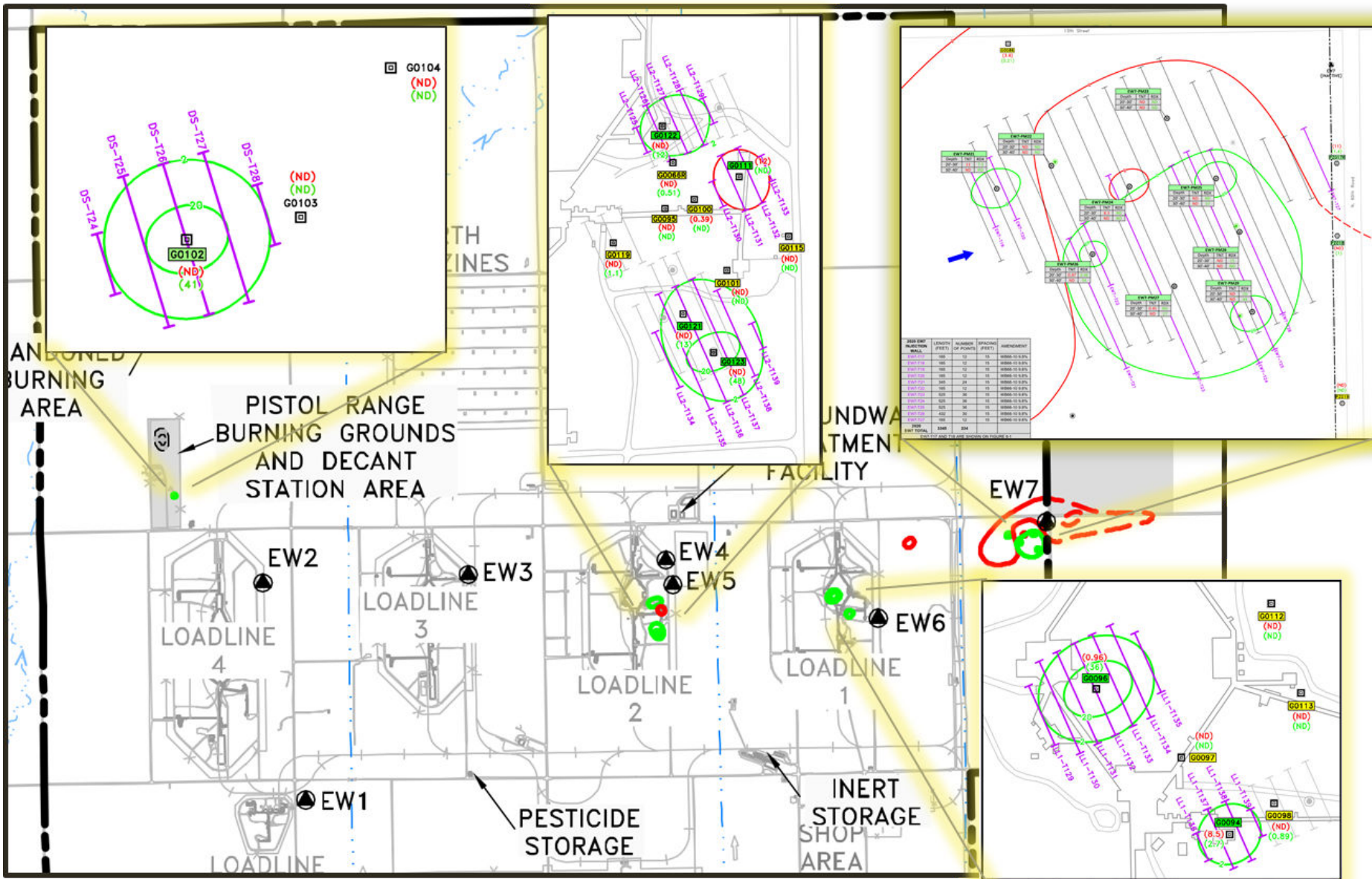
- **Subsurface Injection Components**

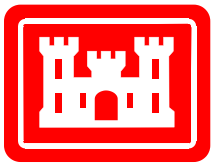
- Injected at 600 points within the explosives plume (600,000 gallons of amendment injected) in Oct and Nov 2020
- Quarterly Groundwater Performance Monitoring (Feb 2021 to Feb 2022)

- **Subsurface Injection Results**

- Explosives concentrations significantly decreased near injection locations
- Permanent and temporary wells generally show decreasing or stable trends
- Continued reduction in explosives concentrations is anticipate

2020 Subsurface Injections





Annual OU1 and OU3 Groundwater LTM

- **Background**

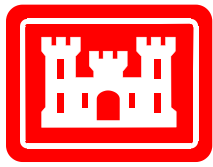
- Groundwater LTM continues annually at CHAAP to monitor explosives concentration trends on- and off-post

- **Groundwater LTM Components**

- Site-wide (OU1 and OU3) groundwater level measurements (102 wells)
- OU1: Groundwater sampling at 75 on-post and 12 off-post wells
- OU3: Groundwater sampling at 2 Shop Area wells

- **Groundwater LTM Results**

- OU1 off-post: explosives in all off-post annual LTM permanent wells below Health Advisory Levels (2 $\mu\text{g/L}$); have been below since 2014
- OU1 on-post: explosives concentrations generally continued decreasing trends or remain below Health Advisory Levels; 13 of 75 wells above Health Advisory Levels in May 2021
- OU3 on-post: volatile organic compounds have, overall, decreased over time, but do fluctuate above/below USEPA maximum contaminant levels (5 $\mu\text{g/L}$); no evidence of plume mobilization



Up Next – October 2021 through October 2022

- **Annual OU1 and OU3 Groundwater Monitoring (May/June 2022)**
- **OU1 Rebound Study**
 - Maintain shutdown of EW7 and GWTF
 - Continue Quarterly Monitoring until February 2022 (eighth and final round of quarterly monitoring)
- **Post OU1 Rebound Study**
 - Rebound Study results to date indicate the plume core is shrinking, concentrations are declining, and there has been no further plume migration downgradient (further off-post)
 - Starting to take the necessary next steps to modify the current on-post remedy from Groundwater Extraction and Treatment to Monitored Natural Attenuation with Institutional Controls (same as off-post remedy)
 - Next round of documents to modify remedy will include a Focused Feasibility Study, Proposed Plan (with public meeting and public comment period), and Record of Decision Amendment