FINAL
REMEDIAL INVESTIGATION REPORT

REMEDIAL INVESTIGATION OF BURNING GROUNDS, SANITARY LANDFILL, AND PISTOL RANGE AREAS (REMAINING PROPERTY OF THE U.S. GOVERNMENT) CORNHUSKER ARMY AMMUNITION PLANT GRAND ISLAND, NEBRASKA

Prepared for:

U.S. Army Corps of Engineers
Omaha District

Contract: W9128F-16-D-0014
Task Order No. 0002
Prepared by:

ATI, Inc.
9220 Rumsey Road
Suite 100
Columbia, MD 21045

HydroGeoLogic, Inc.
12596 West Bayaud Avenue
Suite 300
Lakewood, CO 80228

October 2021

This page was intentionally left blank.

EXECUTIVE SUMMARY

This Remedial Investigation (RI) Report presents the activities conducted to investigate seven sites within five Government-owned tracts of land that include, or are adjacent to, the Demolition Burning Grounds, Sanitary Landfill area, and Pistol Range of the former Cornhusker Army Ammunition Plant (CHAAP) in Grand Island, Nebraska (Figures 1.1 and 1.2). The Demolition Burning Grounds, Sanitary Landfill area, and Pistol Range (shown on Figure 1.2) were identified as areas of concern in the 1989 Excessing Assessment for CHAAP, and are used as points of reference relative to the locations of the seven sites that were investigated as part of this RI. ATI, Inc. (ATI) and HydroGeoLogic, Inc. (HGL) have prepared this document under U.S. Army Corps of Engineers (USACE) - Omaha District Contract No. W9128F16-D-0014, Task Order Number 0002.

CHAAP, located west of Grand Island, Nebraska, produced artillery shells, mines, bombs, and rockets during periods of operation that occurred intermittently from 1942 to 1973. Since 2000, the inactive installation has been in the process of being transferred into the local county property tax rolls.

As shown in Figure 1.2, the five Government-owned tracts of land addressed in this RI (Tract 19B, Tract 19C, Tract 20B, Tract 21B, and Tract 21C) are located in the northwest region of CHAAP. Fieldwork to complete the RI included advancing soil borings to record lithology and collect subsurface soil samples; collecting composite soil samples representative of excavated and stockpiled soil from previous removal actions; collecting surface soil samples; installing direct push technology (DPT) points and monitoring wells to collect groundwater samples; and digital geophysical mapping (DGM). Soil and groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), explosives, and/or metals including hexavalent chromium (Cr VI).

In addition to sampling conducted in areas of known or suspected contaminant releases, soil and groundwater samples were collected from three areas within the five tracts that are not associated with CHAAP historical activities that may have altered native environmental conditions, to provide background data on metals and PAHs. Soil and groundwater data from potentially contaminated areas were compared to the background data through a combination of hypothesis testing, box-and-whisker plots, and direct comparison of statistical outliers to background threshold values (BTVs), to determine the metals and PAHs that are potential contaminants versus those that are natural background constituents. The results of this comparison were used to define the nature and extent of contamination and were incorporated into the risk characterization. Analytical data were also evaluated against BTVs, where available, and U.S. Environmental Protection Agency (EPA) regional screening levels (RSL) and maximum contaminant levels (MCLs) (where available and for groundwater only) to evaluate the nature and extent of contamination.

The analytical results of historical and current soil and groundwater data were used to quantitatively evaluate potential risks to human health under current and potential future land uses. The soil data were also used to assess potential risks to plants, invertebrates, birds, and mammals that could live and forage in the investigation areas. Because site groundwater does not discharge

to nearby surface water, there is no complete route by which ecological receptors could be exposed to groundwater contaminants. Therefore, the screening level ecological risk assessment (SLERA) did not evaluate the groundwater data.

The soil data were compared to EPA soil screening levels (SSLs) to evaluate the soil-to-groundwater migration pathway. In addition, soil samples from select tracts were analyzed with the synthetic precipitation leaching procedure (SPLP) to provide site-specific data on the leaching potential of soil contaminants to groundwater.

At Tract 20B, DGM was performed to identify and investigate anomalies so that the Abandoned Burning Area portion of the tract could be eliminated from consideration as a munitions and explosives of concern (MEC) Hazard site.

Where contaminants in soil and groundwater do not pose an unacceptable risk to human health and the environment, No Further Action is recommended. Where soil and/or groundwater contaminants result in an unacceptable risk to human health or the environment, risk drivers are identified and the report recommends preparation of a Feasibility Study (FS).

COLLECTION OF BACKGROUND DATA

Three areas were identified for the collection of samples appropriate to represent background concentrations associated with naturally occurring constituents or reference concentrations associated with ubiquitous anthropogenic constituents. Background Area 1 was established on the southwest side of Tract 21B. Background Area 2 was established on the southeast side of Tract 21C. Background Area 3 was established on the southwest side of Tract 20B. The areas were selected to encompass soil similar to the sites evaluated for the RI, but topographically upgradient and outside of known contamination (ATI/HGL, 2019).

Sufficient soil and groundwater samples were collected from each of the three areas to complete a background study and provide BTVs for comparison of PAHs and metals to chemical concentrations detected in site soil and groundwater samples from the different tracts. For each detected metal or PAH, the tract-specific background evaluation characterized the chemical based on the categories listed below:

- Contaminant (i.e., site dataset exceeds background);
- Hot spot contaminant (i.e., truncated [outlier(s) removed] dataset consistent with background, outlier(s) exceeds BTV); and
- Background constituent (i.e., entire site dataset, including any outlier(s), is consistent with background conditions).

TRACT 19B

Tract 19B encompasses 20.5 acres located on the northwestern side of CHAAP, adjacent to and east of Tract 19C. The Explosives Parking Area, an approximately 600-feet (ft) by 300-ft rectangular area within the central western side of Tract 19B, was used to temporarily store or stage materials designated for destruction from 1957 to 1978. Geophysical survey, surface soil sampling, and test pitting results summarized in a 1996 RI indicated that the western side of Tract

19B, where the Explosives Parking Area was located, had not been impacted by use at CHAAP. No data gaps were identified for this area, and a Record of Decision (ROD) completed for operable unit (OU) 3 at CHAAP recommended No Further Action for the Explosives Parking Area portion of Tract 19B with respect to soil contamination (IT Corporation, 1999). There is no other recorded use for Tract 19B during the operational history of CHAAP, and the area was subsequently made part of a cultivated, non-irrigated field.

Between 2012 and 2015, 130,600 cubic yards (cy) of soil removed from adjacent Tract 19C during interim non-time critical removal actions (NTCRAs) was stockpiled on Tract 19B. The stockpiled material was free of metal and other debris, including materials potentially presenting an explosive hazard (MPPEH) and asbestos-containing material (ACM). Composite soil samples representative of each 800-cy portion of the stockpiled soil were collected and analyzed for total petroleum hydrocarbon (TPH)-diesel range organics (DRO), PAHs, metals, and explosives. Risk-based screening level exceedances were observed for metals and explosives (Bay West and URS, 2015b).

The location of each composite sample relative to the 800-cy soil portions that they represent is not currently known (ATI/HGL, 2019). Accordingly, the soil stockpiles required recharacterization for the primary contaminants with screening level exceedances, metals and explosives.

Soil: A topographic survey was completed and the elevation differential between native soil and the top of the stockpiles was applied to demarcate 800-cy grids. Composite soil samples (representing top, middle, and base of stockpiled soil) were collected from 164 grid locations and analyzed for explosives and metals. Cyclotetramethylenetetranitramine (HMX), cyclotrimethylenetrinitramine (RDX), 1,3,5-trinitrobenzene (TNB), 2,4,6-trinitrotoluene (TNT), 2-Amino-4,6-dinitrotoluene (2-Am-DNT), and 4-Amino-2,6-dinitrotoluene (4-Am-DNT) were the primary explosives detected in the stockpiled soil. There were also a limited number of 2,4-dinitrotoluene (2,4-DNT) detections. Comparison of the metals and PAH (historical) data to the background data identified the contaminants listed below.

- Stockpile soil contaminants: aluminum, cadmium, lead, manganese, and zinc.
- Stockpile soil hot spot contaminants: antimony, arsenic, barium, chromium, cobalt, copper, iron, nickel, mercury, silver, thallium, vanadium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.

All PAH detections are less than the residential soil RSLs and SSLs. Metals and explosives were detected in multiple samples at concentrations exceeding residential soil RSLs and SSLs. To further evaluate the potential soil-to-groundwater migration pathway, select samples of stockpiled soil were analyzed with the SPLP. The SPLP explosives results confirmed the potential for explosives in the soil stockpiles to leach to groundwater, with several explosives and metals detected in leachate samples at concentrations greater than tap water RSLs.

Ten surface soil and 10 subsurface soil samples were collected from the native material beneath the stockpiles and analyzed for explosives and metals. Notably, arsenic in surface soil was the only contaminant detected at concentrations exceeding the BTV and residential soil RSL. HMX and

RDX were detected in only one native surface soil sample, indicating limited presence of explosives contamination in the native soil.

Groundwater: 10 Upper Grand Island Aquifer (UGIA) and 10 Lower Grand Island Aquifer (LGIA) DPT groundwater samples were collected across Tract 19B. Samples were analyzed for VOCs, explosives, and metals. VOCs and explosives were not detected in the DPT groundwater samples. The metals results were too affected by turbidity to provide meaningful information.

Groundwater samples collected from three UGIA/LGIA monitoring well pairs showed limited presence of VOCs and no explosives. The background comparison identified manganese as a sitewide groundwater contaminant and all detected manganese concentrations exceed the tap water RSL.

Human Health Risk Assessment (HHRA) and SLERA: The HHRA identified the risk drivers listed below for Tract 19B.

- Native soil and groundwater
  - Soil: aluminum and manganese
  - Groundwater: manganese
- Stockpile 1 and groundwater
  - Soil: manganese
  - Groundwater: manganese
- Stockpile 2/3 and groundwater
  - Soil: aluminum and manganese
  - Groundwater: manganese
- Stockpile 4 and groundwater
  - Soil: aluminum, manganese, and TNT
  - Groundwater: manganese

Aluminum and TNT are associated with historical operations at Tract 19C, which is the source of the stockpiled soil. The potential source of the elevated manganese concentrations observed in the stockpiled soil, native soil, and groundwater is not known. Additional sampling of manganese in groundwater should be considered to confirm this risk driver is a contaminant before identifying as a contaminant of concern. While detected manganese concentrations are statistically distinct from background concentrations, they could represent natural heterogeneity and/or be influenced by sample turbidity.

The SLERA concluded that contaminants in the Tract 19B stockpiled soil and native soil pose no to minimal risk to the ecological communities that could live or forage at the site.

Conclusion and Recommendation: The results of the RI indicate the potential for explosives and metals in the stockpiled soil to leach into groundwater at levels greater than the risk-based screening values. Only manganese was detected in groundwater at concentrations exceeding tap water RSLs, however the stockpiled soil has only been in place for approximately six years and manganese was not observed in underlying soil. The potential for explosives, primarily RDX, to

leach to groundwater is indicated if the stockpiled soil remains in place. In addition, the HHRA concluded that contaminants pose an unacceptable risk to human health.

Preparation of an FS is recommended at Tract 19B. Contaminants of concern (COCs) to be included in the FS are aluminum, manganese, and explosives in stockpiled soil, aluminum and manganese in native soil, and manganese in groundwater. For explosives in stockpiled soil, only TNT is a COC based on the conclusions of the HHRA. The remaining explosives (RDX, 2-Am-DNT, and 4-Am-DNT) are COCs in stockpiled soil based on the potential to migrate and impact underlying groundwater.

TRACT 19C

Tract 19C is a 33-acre area, located on the northwestern side of CHAAP, that was used for Open Burning/Open Detonation (OB/OD) throughout the operational history of the installation. Contaminants associated with the site include TNT, RDX, tritonal, aluminum powder, ammonium nitrate, trichlorotrifluoroethane (Freon 113), micro-gravel mines, and lead azide. Previous removal actions included excavation and incineration of soil in 1987-1988; soil removal in 1994; MEC removal in 1999-2002; and excavation to native soil to remove explosive hazards and asbestos-impacted soil between 2012 and 2015 (Bay West and URS, 2015b).

The objectives of 2018 RI field program at Tract 19C were to evaluate contamination remaining after completion of the historical removal actions and to characterize potential groundwater contamination.

Soil: Five-point composite surface soil samples were collected from seventy-seven 100-foot by 100-foot gridded sections in Tract 19C; 76 of the sampled grid sections were located within the area from which soil was removed and one (19C-01D) was immediately west of the removal area. Where surface soil sample results warranted further vertical investigation, subsurface soil samples were subsequently collected from immediately above the water table. Surface and subsurface samples were analyzed for various PAHs, explosives, and metals.

Current and historical data indicate that RDX, nitrobenzene, TNT, 2-Am-DNT, and 4-Am-DNT are present in isolated locations at concentrations that could result in groundwater contamination through leaching. Their isolated detections in surface soil and absence at elevated levels in the subsurface soils indicate that explosives are not leaching to the subsurface at significant levels. Explosives detected in both surface and subsurface soil are present at concentrations significantly less than RSLs.

Contaminants detected in Tract 19C surface soil samples at concentrations exceeding residential soil RSLs include arsenic and manganese. The exceedances are from samples in the central portion of the historical Tract 19C excavation grid and are delineated to concentrations less than RSLs (or to being consistent with background concentrations). All subsurface soil detections of metals contaminants are less than RSLs, indicating limited migration of metals from surface soil to subsurface soil.

Groundwater: Groundwater samples were collected from 30 DPT groundwater sampling locations, nine historical monitoring wells, and seven newly installed monitoring wells across

Tract 19C. Samples were analyzed for VOCs, explosives, and metals, with the three new UGIA/LGIA monitoring well pairs and one downgradient LGIA monitoring well also including PAH analysis.

No explosives were detected in the groundwater samples. Several PAHs were detected but only benzo(a)anthracene and benzo(a)pyrene were present at concentrations greater than the tap water RSLs. Arsenic is the only metal identified as a groundwater contaminant in Tract 19C. Arsenic contamination appears to be confined to isolated portions of the UGIA.

HHRA and SLERA: The HHRA identified arsenic in soil, and arsenic, Freon 113, dichlorodifluoromethane (also known as R-12 and Freon-12), benzo(a)anthracene, and benzo(a)pyrene in groundwater as risk drivers under unrestricted land use scenarios. Potential risks from Freon 113 and dichlorodifluoromethane were primarily for the vapor intrusion exposure pathway. The two PAHs were detected in only one groundwater sample. Because the background study identified no PAH contamination in the Tract 19C soil, the source of these isolated and apparently anomalous PAH detections is not known. The two PAHs contribute relatively little, 3E-06 for benzo(a)anthracene and 4E-06 for benzo(a)pyrene, to the cancer risk in comparison to the other carcinogenic risk drivers, which are arsenic in soil (1E-05) and arsenic in groundwater (5E-04). For these reasons, it is recommended that benzo(a)anthracene and benzo(a)pyrene not be identified as contaminants of concern for the FS.

For arsenic in groundwater, a single hot spot of contamination was identified. The measured turbidity (23.2 nephelometric turbidity units) was somewhat, but not significantly, elevated and the associated field-filtered arsenic result is consistent with arsenic concentrations in field-filtered samples from background monitoring wells. This information suggests that the total arsenic result was influenced by sample turbidity. Arsenic concentrations were consistent with background in the remaining 15 monitoring wells. For these reasons, it is recommended that arsenic in groundwater not be identified as a contaminant of concern for the FS.

The SLERA concluded that contaminants in the Tract 19C soil pose no to minimal risk to the ecological communities that could live or forage at the site.

Conclusion and Recommendation: The results of the RI indicate that significant explosives contamination is no longer present in soil. However, arsenic at soil hot spots, and Freon 113 and dichlorodifluoromethane in groundwater pose an unacceptable risk to human health. Preparation of an FS is recommended for Tract 19C. COCs to be included in the FS are arsenic in soil and Freon 113 and dichlorodifluoromethane in groundwater.

TRACT 20B

Tract 20B encompasses 71.6 acres immediately south of Tracts 19B and 19C. The South Fuze Destruction Area, located in the northern central side of Tract 20B, was used to flash defective or obsolete fuzes from 1957 until 1978, and is the primary site in Tract 20B that was investigated as part of this RI. The South Fuze Destruction Area was included in the 1999 OU 3 ROD, with the selected remedy of excavation and off-site disposal of RDX-contaminated soil and deed restriction to prevent future residential use. The remedy was completed in 2000, and approximately 40 cy of RDX-contaminated soil was removed from the northwest corner of the South Fuze Destruction

Area and disposed of off site (HGL, 2004). The Abandoned Burning Area (also known as the Ammonium Nitrate Burning Area or the Old Nitrate Burning Area), an approximately 150 ft by 100 ft area located on the northwest side of the South Fuze Destruction Area, was recommended for no further action with regard to soil in the 1998 OU2 ROD (ICF Kaiser, 1998), but required additional investigation for MEC hazard.

The objectives of the 2018 RI field program at Tract 20B were to evaluate contamination remaining at the South Fuze Destruction Area and characterize potential groundwater contamination and to obtain sufficient information to close the South Fuze Destruction Area and Abandoned Burning Area Munition Response Sites (MRSs).

Soil: Six surface soil and 12 subsurface soil samples were collected from six locations near the 2000 excavation footprint. Samples were analyzed for PAHs, explosives, and metals. Based on initial sampling results, six additional borings were advanced, and three surface soil and 15 subsurface soil samples were collected and analyzed for explosives, RDX, arsenic, and/or Cr VI. HMX, RDX, TNT, 2-Am-DNT, 4-Am-DNT, and multiple metals are contaminants in the Tract 20B soil. Of the explosives, only RDX was detected at concentrations greater than the residential soil RSL. Soil concentrations greater than the RDX residential soil RSL appear to be limited to an area approximately 3,000 square feet in size, extending from the surface to approximately 10 feet below ground surface (bgs), and overlying the 2000 excavation footprint. Arsenic was the only metal contaminant to be detected at concentrations greater than the residential soil RSL and at a single hot spot location within the RDX contamination footprint. The background study concluded that the PAH detections reported for the Tract 20B soil samples represent anthropogenic background conditions.

Groundwater: Groundwater samples were collected from four UGIA/LGIA well pairs installed near the 2000 excavation footprint at the South Fuze Destruction Area. Samples were analyzed for VOCs, PAHs, explosives, and metals. Based on sampling results from these eight wells, three additional UGIA wells were installed, including one upgradient, one cross gradient, and one downgradient of the South Fuze Destruction Area, and samples were collected for RDX analysis.

UGIA groundwater at Tract 20B has been impacted by explosives as indicated by the presence of HMX and RDX. Only RDX was detected at concentrations greater than the tap water RSL. These RSL exceedances were reported for monitoring wells located immediately upgradient of the 2000 excavation footprint and downgradient of the 2000 excavation footprint (an approximately 300 ft by 150 ft area). RDX was not detected in any of the other groundwater samples, indicating the contamination is limited to the UGIA groundwater near these two wells.

There is limited presence of PAH contamination in site groundwater. Two metals, copper and nickel, were identified as hot spot contaminants.

Munitions and Explosives of Concern: A MEC investigation was completed in the South Fuze Destruction Area and the Abandoned Burning Area. DGM was completed to identify and delineate areas of anomalies. Select anomalies were then intrusively investigated. Intrusive investigations at the South Fuze Destruction Area identified several munitions debris (MD) items to the west and southwest of the high density (HD) anomaly area where anomaly density is consistent with

background. Because the field where the South Fuze Destruction Area is located has been farmed intermittently, these items may have been relocated by farming activities. MD was identified at 11 of the 60 investigated targets (18 percent) and includes M404 fuze pieces, 2.36-inch rocket pieces, and unidentifiable fuze pieces. MD was recovered between 1 and 6 inches bgs. No MEC was found.

Sixty-one targets were intrusively investigated at the Abandoned Burning Area. Of these targets, 12 were associated with MD including M404 fuze pieces, a heat slug, and unidentifiable fuze pieces. MD items were recovered between 2 and 5 inches bgs. The MD was found in the eastern portion of the site, except for one MD item found near the middle of the site. The rest of the targets were associated with small pieces of non-munitions related debris. No MEC was found.

HHRA and SLERA: The HHRA identified risk drivers to be aluminum and arsenic in Tract 20B soil, and RDX and benzo(a)anthracene in Tract 20B groundwater. Benzo(a)anthracene was detected in only one groundwater sample and the soil data show no indication of a PAH contamination source at the site. In addition, benzo(a)anthracene contributes a minor fraction, 2E-06, to the cumulative cancer risk of 2E-04. For these reasons, it is recommended that benzo(a)anthracene in groundwater not be identified as a contaminant of concern.

The SLERA concluded that contaminants in the Tract 20B soil pose no to minimal risk to ecological receptors.

Risk Management Methodology for Potential Explosive Safety Hazards: A baseline risk assessment was conducted to evaluate potential explosive safety hazards from MEC at the South Fuze Destruction Area and Abandoned Burning Area MRSs. The method involves the use of four matrices to define acceptable and unacceptable risk at MRSs based on an evaluation of site conditions related to the likelihood of: (1) an encounter, (2) the severity of incident, (3) the likelihood of detonation based on sensitivity of MEC, and (4) the likelihood to impart energy on a MEC item from expected land use activities. The existing (i.e., baseline) conditions at the CHAAP MRSs using the risk matrices indicate that risks are unacceptable in HD and LD Areas in both MRSs.

Conclusion and Recommendation: RDX contamination is present in Tract 20B soil and groundwater. RDX in groundwater is a human health risk driver. The residual RDX contamination in soil may be an ongoing source of groundwater contamination. Preparation of an FS for Tract 20B is recommended. COCs to be included in the FS are aluminum and arsenic in soil, and RDX in groundwater. The FS will also include the evaluation of MEC response actions for HD and LD Areas in both MRSs.

TRACT 21B – BURNING PIT AREA

Tract 21B – Burning Pit Area (BPA) is an approximately 700-foot by 70-foot area within Tract 21B that was used for explosives demolition from 1968 to 1969. Historical records indicate the area was used for burning rejected scrap and explosives in a series of seven burning pits/trenches that were 4 ft deep, 2 to 4 ft wide, and ranged from 8 to 40 ft in length (ICF Kaiser, 1996).

Soil contamination, primarily lead and RDX, has been previously identified and an excavation was completed in 2000 to remediate soil from historical trenches PRST007 and PRST008 (HGL, 2004). The objectives of the 2018 RI field program for Tract 21B-BPA were to define the nature and extent of contamination in soil within and surrounding trenches PRST004, PRST007, and PRST008, as well as to characterize potential groundwater contamination.

Soil: Twenty-two (22) surface soil samples and 20 subsurface soil samples (collected at 3-4 and 7-8 ft bgs at eight sample locations; 4-5 ft bgs at two soil sample locations; and 2-3 and 5-6 ft bgs at one sample location) were collected in and around the former trenches. Samples were analyzed for explosives and metals.

Explosives, PAHs, and VOCs are contaminants in site soil, but historical and current soil data show these compounds to be present at concentrations less than the risk-based screening values. Arsenic (at six hot spot locations) and cobalt (at one hot spot location) were the only metals identified as contaminants in soil and detected at concentrations greater than the residential soil RSL.

Groundwater: Groundwater samples were collected from 12 new and four historical monitoring wells at Tract 21B-BPA. UGIA groundwater at Tract 21B-BPA has been impacted by VOCs and explosives, as evidenced by the presence of Freon 113, naphthalene, and RDX at concentrations exceeding tap water RSLs. All exceedances are delineated to concentrations less than the tap water RSLs. Selenium, copper, and nickel are groundwater contaminants but are present at concentrations less than the MCLs and tap water RSLs.

HHRA and SLERA: The HHRA identified no risk drivers for Tract 21B-BPA soil. In addition, soil contaminants pose no to minimal risk to ecological receptors.

Freon 113, dichlorodifluoromethane, biphenyl, and dibenzofuran in groundwater are human health risk drivers. Dibenzofuran was detected in one historical groundwater sample (the 2018 samples were not analyzed for this compound). There is no known source of contamination for this SVOC. Dibenzofuran was identified as a risk driver because it contributes a hazard quotient (HQ) of 0.3 to a body and organ weight hazard index (HI) of 2. Dichlorodifluoromethane, with an HQ of 2, is the primary contributor to this target organ HI. Based on dibenzofuran's limited presence, lack of known source, and minor contribution to the target organ HI, it is recommended that dibenzofuran not be identified as a contaminant of concern.

Biphenyl also was detected in one historical sample (the 2018 samples were not analyzed for this compound). This SVOC results in an HQ of 5 for the liver and kidneys through use of site groundwater as a potable water source. There is no known source of biphenyl at the site. Additional groundwater sampling should be considered to confirm that biphenyl is a groundwater contaminant before identifying this compound as a contaminant of concern.

Conclusion and Recommendation: No Further Action for soil is recommended. Additional groundwater sampling for biphenyl is recommended to confirm that this chemical should be identified as a contaminant of concern. Preparation of an FS is recommended. COCs to be included in the FS are Freon 113, dichlorodifluoromethane, and biphenyl in groundwater.

TRACT 21B – BACKSTOP BERM AND STATIC EJECTION TEST SITE

The Backstop Berm, used during the plant operational history as a small arms training area for CHAAP guards, is located northwest of the Static Ejection Test Site within Tract 21B. The Backstop Berm was removed as part of a lead removal action completed by the city of Grand Island in 2003, after which remnants of the berm were removed and the soil was re-graded across the site (Jacobson Helgoth Consultants, 2003).

The Static Ejection Site is a 50-foot by 50-foot area that was used to test ejection mechanisms by firing mine delivery canisters into a hooded 15-gallon container of Freon. After shutdown of static ejection testing, the area was used as a parking lot for security personnel and law enforcement conducting firearms training at the range (USACE, 2011a).

The objectives of the 2018 RI field program at the Backstop Berm and Static Ejection Test Site within Tract 21B (Tract 21B– BB) were to define the nature and extent of contamination in soil associated with use of the tract as a firing range and remaining after a removal action completed in 2003, as well as characterize potential groundwater contamination.

Soil: Five surface soil samples and five subsurface soil samples (collected at 3-4 ft bgs) were collected in and around the former backstop berm, and one surface and one subsurface soil sample were collected near the Static Ejection Test Site. Soil samples were analyzed for explosives and metals.

There is limited presence of explosives in the Tract 21B-Backstop Berm and Static Ejection Test Site soil. Although several metals appear to be soil contaminants, their concentrations are less than the residential soil RSLs. Comparison of subsurface soil SPLP data to the co-located surface soil SPLP results suggest that the potential for metals to leach to groundwater decreases with depth.

Groundwater: Groundwater samples were collected from four new monitoring wells, including one UGIA/LGIA monitoring well pair installed near the center of the backstop berm, and one UGIA/LGIA monitoring well pair installed in the southeast corner of the Static Ejection Test Site. Groundwater samples from the center of the backstop berm were analyzed for VOCs, explosives, and metals, and samples from the Static Ejection Test Site were analyzed for metals only.

The groundwater analytical results indicate that selenium is the only constituent present in site groundwater at concentrations greater than background levels. VOCs and explosives were not detected in the backstop berm monitoring wells.

HHRA and SLERA: The HHRA concluded that contaminants in soil and groundwater at Tract 21B-BB do not pose an unacceptable risk to human health. Similarly, the SLERA concluded that site contaminants pose no to minimal risk to ecological receptors.

Conclusion and Recommendation: The HHRA and SLERA concluded that contaminants at Tract 21B-BB do not pose an unacceptable risk to human health and the environment; therefore, No Further Action is recommended.

TRACT 21B – DECANTING STATION AND LEACHING PIT AREA

The Decanting Station and Leaching Pit Area (hereinafter referred to as Tract 21B – DS), located southeast of the Backstop Berm within Tract 21B, was used to capture Freon contaminated with explosives. The contaminated Freon was reportedly poured through a filter of cotton gabardine into clean receiving drums. The filters and filtered material were then placed in 5-gallon containers and transported to Tract 21B – BPA (USACE, 2011a). Tract 21B – DS is now part of a dry-crop field.

The objectives of the 2018 RI field program at Tract 21B – DS were to evaluate the presence of contaminants in soil from previous processing of Freon-containing RDX particulates, a potential soil source of the remediated RDX groundwater plume, as well as characterize potential groundwater contamination.

Soil: Twelve surface soil samples and 17 subsurface soil samples (12 collected at 4-5 ft bgs and five from 9-10 ft bgs) were collected from 12 locations in and around the area of the historical RDX groundwater plume. Historical and current soil analytical results show limited presence of VOCs, SVOCs, and explosives. RDX was not detected in historical and current soil samples, indicating that there is no residual source of this explosive in site soil. All contaminants, both metals and organic compounds, that were detected in the soil samples had reported concentrations less than the residential soil RSLs.

Groundwater: Seven UGIA/LGIA monitoring well pairs (including new and existing wells) were sampled and analyzed for VOCs, explosives, and metals. In addition, three new UGIA and three new LGIA wells were sampled and analyzed for Freon 113 only. Groundwater analytical results indicate that groundwater beneath the Tract 21B – DS site has been impacted by Freon 113, and this contamination migrates with groundwater flow to the east/northeast and into Tract 21C. Highest concentrations in UGIA groundwater were detected west of the highest LGIA concentrations, and the UGIA Freon 113 groundwater plume is narrower than the LGIA groundwater plume. Data suggest that contamination extends vertically and laterally with attenuation downgradient to the east northeast.

HHRA and SLERA: The HHRA identified no risk drivers in the Tract 21B – DS soil. In addition, soil contaminants pose no to minimal risk to ecological receptors.

The HHRA evaluated the groundwater contamination beneath Tract 21B – DS and Tract 21C as a single exposure area. The HHRA concluded that Freon 113 and dichlorodifluoromethane pose an unacceptable risk to potential future receptors.

Conclusion and Recommendation: No Further Action for soil is recommended. Preparation of an FS is recommended. COCs to be included in the FS are Freon 113 and dichlorodifluoromethane in groundwater.

TRACT 21C

Tract 21C encompasses 166 acres north and east of Tract 21B and includes the remnants of two buildings and multiple concrete structures that supported a former sewage treatment plant at the

southern edge of the property when CHAAP was operational. The Northwest Sewage Treatment Plant is currently abandoned and covered with native vegetation. No historical load, assemble, pack storage, or disposal activities occurred on this tract, and the Northwest Sewage Treatment Plant was included in the 1998 OU 2 No Further Action ROD (ICF Kaiser, 1998). However, in 2007 it was determined that groundwater contamination emanating from Tract 21B was present on Tract 21C (URS, 2008).

The objectives of the 2018 RI field program at Tract 21C were to characterize groundwater contamination and evaluate contaminant plumes that may be migrating to the tract from upgradient Tract 21B – BPA or Tract 21B – DS.

Soil: Soil at Tract 21C was included in the 1998 OU2 ROD, with No Further Action as the selected alternative, and no additional investigation was required as part of this RI.

Groundwater: Twenty UGIA/LGIA DPT groundwater samples were collected in areas identified to bound a Freon 113 plume inferred from historical groundwater sampling as well as current RI groundwater sampling for Tract 21B-Decanting Station. Samples were analyzed for VOCs and explosives. Based on evaluation of the analytical results, and to confirm current conditions in groundwater beneath Tract 21C, five UGIA/LGIA well pairs were installed on the north and south sides of Tract 21C and sampled for VOC and explosives analyses. Explosives were not detected in UGIA or LGIA groundwater samples collected across Tract 21C, indicating that there is not an explosives contaminant plume currently beneath Tract 21C. Freon 113 and dichlorodifluoromethane are present in groundwater across Tract 21C due to off-tract migration of groundwater contamination from the adjacent Tract 21B – DS. Freon 113 concentrations are delineated to concentrations less than the tap water RSL.

HHRA and SLERA: The HHRA evaluated the groundwater contamination beneath Tract 21B – DS and Tract 21C as a single exposure area because the Tract 21C groundwater contamination is due to downgradient migration from Tract 21B – DS. The HHRA concluded that Freon 113 and dichlorodifluoromethane pose an unacceptable risk to potential future receptors.

A SLERA was not completed for Tract 21C because there is no complete pathway by which ecological receptors could contact the groundwater contaminants.

Conclusion and Recommendation: Groundwater contamination from Tract 21B – DS has migrated onto Tract 21C. Freon 113 and dichlorodifluoromethane in groundwater pose an unacceptable health risk to potential future receptors. Preparation of an FS is recommended. COCs to be included in the FS are Freon 113 and dichlorodifluoromethane in groundwater. Because the contamination stems from Tract 21B – DS, it is recommended that the groundwater at Tract 21C and Tract 21B – DS be considered as a single site for the purposes of the FS and subsequent remedy implementation.

A summary of the recommendations for each of the tracts with respect to conducting an FS for soil, groundwater, or both is provided in Table ES.1 below. Additionally, an FS evaluating MEC response actions for the HD and LD Areas at the South Fuze Destruction Area and the Abandoned Burning Grounds Area is recommended.

Table ES.1 – Summary of Recommendations

Tract	Soil FS Recommended?	Soil COCs	Groundwater FS Recommended?	Groundwater COCs
Tract 19B	Yes	Aluminum Arsenic Explosives	Yes	Manganese
Tract 19C	Yes	Arsenic	Yes	Freon 113 Dichlorodifluoromethane
Tract 20B*	Yes	Aluminum Arsenic	Yes	RDX
Tract 21B – BPA	No	None	Yes	Freon 113 Dichlorodifluoromethane Biphenyl
Tract 21B – BB	No	None	No	None
Tract 21B – DS	No	None	Yes	Freon 113 Dichlorodifluoromethane
Tract 21C	No	None	Yes	Freon 113 Dichlorodifluoromethane

*An FS is also recommended to evaluate MEC response actions at Tract 20B for the HD and LD Areas at the South Fuze Destruction Area and the Abandoned Burning Grounds Area.

This page was intentionally left blank.

TABLE OF CONTENTS

Section **Page**

EXECUTIVE SUMMARY 1
COLLECTION OF BACKGROUND DATA 2
TRACT 19B 2
TRACT 19C 5
TRACT 20B 6
TRACT 21B – BURNING PIT AREA 8
TRACT 21B – BACKSTOP BERM AND STATIC EJECTION TEST SITE 10
TRACT 21B – DECANTING STATION AND LEACHING PIT AREA 11
TRACT 21C 11

1.0 INTRODUCTION 1-1
1.1 SCOPE OF WORK 1-1
1.2 OBJECTIVES 1-1
1.3 REPORT ORGANIZATION 1-2

2.0 SITE BACKGROUND 2-1
2.1 SITE ACTIVITIES 2-1
2.2 TRACTS INVESTIGATED 2-3
2.2.1 Tract 19B 2-3
2.2.2 Tract 19C 2-3
2.2.3 Tract 20B 2-4
2.2.4 Tract 21B 2-4
2.2.4.1 Burning Pit Area 2-4
2.2.4.2 Backstop Berm and Static Ejection Test Site 2-5
2.2.4.3 Decanting Station and Leaching Pit Area 2-5
2.2.5 Tract 21C 2-5
2.3 PREVIOUS INVESTIGATIONS 2-5
2.3.1 Tract 19B 2-6
2.3.2 Tract 19C 2-8
2.3.3 Tract 20B 2-9
2.3.4 Tract 21B 2-10
2.3.5 Tract 21C 2-12
2.4 PREVIOUS INTERIM REMEDIAL ACTIONS 2-13
2.4.1 Tract 19C 2-13
2.4.2 Tract 20B 2-14
2.4.3 Tract 21B 2-14

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA 3-1
3.1 REGIONAL CLIMATE 3-1
3.2 PHYSIOGRAPHY AND TOPOGRAPHY 3-1
3.3 GEOLOGY 3-1
3.3.1 Regional 3-1
3.3.2 Site-Specific 3-2
3.4 HYDROLOGY 3-2
3.4.1 Regional 3-2

Section **Page**

3.4.2 Site-Specific 3-3
3.5 SITE BIOLOGY 3-4
3.6 DEMOGRAPHY, LAND USE, AND WATER USE 3-4

4.0 REMEDIAL INVESTIGATION ACTIVITIES 4-1
4.1 PROJECT SCOPE 4-1
4.2 CHRONOLOGY OF EVENTS 4-2
4.3 SITE PREPARATION 4-3
4.4 MEC ANOMALY AVOIDANCE 4-3
4.5 BACKGROUND SAMPLING 4-4
4.5.1 Soil Sampling 4-5
4.5.2 Monitoring Well Installation 4-5
4.5.3 Groundwater Sampling 4-6
4.5.4 Survey 4-7
4.6 TRACT 19B INVESTIGATION 4-7
4.6.1 Phase 1 – Topographic Survey 4-7
4.6.2 Phase 2 – Stockpile Soil Sampling 4-8
4.6.3 Phase 3 – Synthetic Precipitation Leaching Procedure Sampling 4-8
4.6.4 Phase 4 – Soil and Groundwater Sampling 4-9
4.6.4.1 Soil Sampling 4-9
4.6.4.2 DPT Groundwater Sampling 4-9
4.6.5 Phase 5 – Monitoring Well Installation 4-10
4.6.5.1 Groundwater Sampling 4-10
4.6.6 Survey 4-11
4.7 TRACT 19C INVESTIGATION 4-11
4.7.1 Soil Sampling 4-11
4.7.1.1 Grid Soil Sampling 4-11
4.7.1.2 Subsurface Soil Sampling 4-11
4.7.2 DPT Groundwater Sampling 4-12
4.7.3 Monitoring Well Installation 4-12
4.7.4 Groundwater Sampling 4-13
4.7.5 Survey 4-13
4.8 TRACT 20B INVESTIGATION 4-13
4.8.1 Soil Sampling 4-13
4.8.2 Monitoring Well Installation 4-14
4.8.3 Groundwater Sampling 4-15
4.8.4 Survey 4-15
4.8.5 MEC Characterization 4-15
4.8.5.1 Vegetation Reduction and Surface Clearance 4-15
4.8.5.2 Geophysical Investigation 4-16
4.8.5.3 Anomaly Reacquisition and Resolution 4-19
4.8.5.4 Munitions Constituents Characterization 4-21
4.9 TRACT 21B – BURNING PIT AREA INVESTIGATION 4-21
4.9.1 Soil Sampling 4-21
4.9.2 Monitoring Well Installation 4-22
4.9.3 Groundwater Sampling 4-22

Section **Page**

4.9.4 Survey 4-23
4.10 TRACT 21B – BACKSTOP BERM AND STATIC EJECTION TEST SITE AREA INVESTIGATION 4-23
4.10.1 Soil Sampling 4-23
4.10.2 Monitoring Well Installation 4-24
4.10.3 Groundwater Sampling 4-24
4.10.4 Survey 4-25
4.11 TRACT 21B – DECANTING STATION AND LEACHING PIT AREA INVESTIGATION 4-25
4.11.1 Soil Sampling 4-25
4.11.2 Monitoring Well Installation 4-25
4.11.3 Groundwater Sampling 4-26
4.11.4 Survey 4-26
4.12 TRACT 21C INVESTIGATION 4-27
4.12.1 DPT Groundwater Sampling 4-27
4.12.2 Monitoring Well Installation 4-27
4.12.3 Groundwater Sampling 4-27
4.12.4 Survey 4-28
4.13 IDW MANAGEMENT 4-28
4.14 DEVIATIONS FROM UFP-QAPP 4-29
4.15 DATA USABILITY 4-30

5.0 NATURE AND EXTENT OF CONTAMINATION 5-1
5.1 TRACT 19B 5-1
5.1.1 Stockpiled Soil Sampling Analytical Results 5-2
5.1.1.1 Stockpile 1 Analytical Results 5-2
5.1.1.2 Stockpile 2/3 Analytical Results 5-4
5.1.1.3 Pile 4 Analytical Results 5-5
5.1.2 SPLP Sample Analytical Results 5-6
5.1.3 Soil Sample Analytical Results 5-9
5.1.4 Groundwater Sample Analytical Results 5-10
5.1.4.1 DPT Groundwater Samples 5-10
5.1.4.2 Monitoring Well Groundwater Samples 5-11
5.2 TRACT 19C 5-12
5.2.1 Soil Sample Analytical Results 5-12
5.2.1.1 Surface Soil 5-12
5.2.1.2 Subsurface Soil 5-14
5.2.2 Groundwater Sample Analytical Results 5-15
5.2.2.1 DPT Groundwater Samples 5-15
5.2.2.2 Monitoring Well Groundwater Samples 5-16
5.3 TRACT 20B 5-17
5.3.1 Soil Sample Analytical Results 5-17
5.3.2 Groundwater Sample Analytical Results 5-19
5.3.3 MEC Investigation 5-20
5.3.3.1 Anomaly Distribution Characteristics 5-21
5.3.3.2 Intrusive Results 5-22

Section **Page**

5.4 TRACT 21B – BURNING PIT AREA 5-26
5.4.1 Soil Sample Analytical Results 5-26
5.4.2 Groundwater Sample Analytical Results 5-27
5.5 TRACT 21B – BACKSTOP BERM AND STATIC EJECTION TEST SITE 5-29
5.5.1 Soil Sample Analytical Results 5-29
5.5.2 Groundwater Sample Analytical Results 5-31
5.6 TRACT 21B – DECANTING STATION AND LEACHING PIT AREA 5-31
5.6.1 Soil Sample Analytical Results 5-31
5.6.2 Groundwater Sample Analytical Results 5-33
5.7 TRACT 21C 5-34
5.7.1 DPT Groundwater Samples 5-34
5.7.2 Monitoring Well Groundwater Samples 5-34

6.0 CONTAMINANT FATE AND TRANSPORT 6-1
6.1 GENERAL FACTORS INFLUENCING FATE AND TRANSPORT 6-1
6.2 TRANSPORT PATHWAYS 6-3
6.2.1 Characteristics of Site Media 6-3
6.2.1.1 Soil 6-3
6.2.1.2 Groundwater 6-4
6.2.2 Contaminant Characteristics 6-4
6.2.2.1 VOCs 6-4
6.2.2.2 Explosives 6-5
6.2.2.3 PAHs 6-5
6.2.2.4 Metals 6-6
6.3 FATE AND TRANSPORT OF SITE CONTAMINANTS 6-6
6.3.1 Tract 19B 6-6
6.3.1.1 Stockpiled Soil 6-6
6.3.1.2 Native Soil 6-7
6.3.1.3 Groundwater 6-8
6.3.2 Tract 19C 6-8
6.3.3 Tract 20B 6-9
6.3.4 Tract 21B – Burning Pit Area 6-9
6.3.5 Tract 21B – Backstop Berm and Static Ejection Test Site 6-11
6.3.6 Tract 21B – Decanting Station and Leaching Pit 6-11
6.3.7 Tract 21C 6-12

7.0 BASELINE RISK ASSESSMENT 7-1
7.1 DATA USED IN THE RISK ASSESSMENT 7-2
7.1.1 Data Usability Evaluation 7-2
7.2 CONCEPTUAL SITE MODEL 7-3
7.3 HUMAN HEALTH RISK ASSESSMENT 7-4
7.3.1 Identification of Chemicals of Potential Concern 7-5
7.3.1.1 Calculation of Exposure Point Concentrations 7-6
7.3.1.2 Estimation of Chemical Intakes 7-6
7.3.2 Toxicity Assessment 7-6

Section **Page**

7.3.3 Risk Characterization 7-7
7.3.3.1 Cancer Risk and Non-Cancer Hazard Estimation 7-7
7.3.3.2 Risk Assessment Results 7-7
7.3.3.3 Lead Risks 7-9
7.3.3.4 Vapor Intrusion from Soil 7-9
7.3.4 Uncertainty Analysis 7-9
7.3.5 Human Health Risk Assessment Summary 7-9
7.4 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT 7-10
7.4.1 Summary of Approach 7-10
7.4.2 Results 7-11
7.4.3 Uncertainty Analysis 7-11
7.4.4 Screening Level Ecological Risk Assessment Summary 7-12
7.5 MEC RISK ASSESSMENT 7-12
7.5.1 High Use Areas, Low Use Areas, and No Evidence of Use Areas 7-12
7.5.2 South Fuze Destruction Area 7-13
7.5.3 Abandoned Burning Area 7-14
7.5.4 Summary 7-15

8.0 CONCLUSIONS 8-1
8.1 TRACT 19B 8-1
8.2 TRACT 19C 8-3
8.3 TRACT 20B 8-5
8.4 TRACT 21B-BPA 8-7
8.5 TRACT 21B-BACKSTOP BERM AND STATIC EJECTION TEST SITE 8-8
8.6 TRACT 21B-DECANTING STATION AND LEACHING PIT AREA 8-9
8.7 TRACT 21C 8-10

9.0 REFERENCES 9-1

LIST OF TABLES

Table ES.1 Summary of Recommendations

Table 2.1 Tract 19B Historical Stockpile Soil Data
Table 2.2 Tract 19C Historical Soil Data
Table 2.3 Tract 20B Historical Soil Data
Table 2.4 Tract 21B Burning Pit Area Historical Soil Data
Table 2.5 Tract 21B Burning Pit Area Historical Groundwater Data
Table 2.6 Tract 21B Decanting Station and Leaching Pit Historical Soil Data

Table 3.1 2018 Groundwater Level Measurements

Table 4.1 Chronology of Project Events
Table 4.2 Soil Sample Summary, Background Areas
Table 4.3 Well Construction Summary, Background Areas 1 and 3
Table 4.4 Groundwater Field Parameter Data, Background Areas 1 and 3
Table 4.5 Soil Sample Summary, Tract 19B
Table 4.6 Groundwater Sample Summary Tract 19B DPT
Table 4.7 Well Construction Summary, Tract 19B
Table 4.8 Groundwater Field Parameters, Tract 19B
Table 4.9 Soil Sample Summary, Tract 19C
Table 4.10 Well Construction Summary, Tract 19C
Table 4.11 Groundwater Field Parameters, Tract 19C
Table 4.12 Soil Sample Summary, Tract 20B
Table 4.13 Well Construction Summary, Tract 20B
Table 4.14 Groundwater Field Parameters, Tract 20B
Table 4.15 Summary of Field Activities Completed by MRS
Table 4.16 Soil Sample Summary, Tract 21B-BPA
Table 4.17 Well Construction Summary, Tract 21B-BPA
Table 4.18 Groundwater Field Parameters, Tract 21B-BPA
Table 4.19 Soil Sample Summary, Tract 21B-Backstop Berm and Static Ejection Site
Table 4.20 Well Construction Summary, Tract 21B-Backstop Berm and Static Ejection Site
Table 4.21 Groundwater Field Parameters, Tract 21B-Backstop Berm and Static Ejection Site
Table 4.22 Soil Sample Summary, Tract 21B-Decanting Station and Leaching Pit Area
Table 4.23 Well Construction Summary, Tract 21B-Decanting Station and Leaching Pit Area
Table 4.24 Groundwater Field Parameters, Tract 21B-Decanting Station and Leaching Pit Area
Table 4.25 Well Construction Summary, Tract 21C
Table 4.26 Groundwater Field Parameters, Tract 21C

Table 5.1a Tract 19B Stockpiled Soil, Stockpile 1, Analytical Data Summary
Table 5.1b Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Table 5.1c Tract 19B Stockpiled Soil, Stockpile 4, Analytical Data Summary
Table 5.2 Tract 19B SPLP Analytical Data Summary
Table 5.3 Tract 19B Surface and Subsurface Soil Analytical Data Summary
Table 5.4 Tract 19B DPT Groundwater Sample Analytical Data Summary
Table 5.5 Tract 19B Groundwater Analytical Data Summary
Table 5.6 Tract 19C Surface Soil Sample Analytical Data Summary

Table 5.7 Tract 19C Surface and Subsurface Soil Analytical Data Summary
Table 5.8 Tract 19C DPT Groundwater Sample Analytical Data Summary
Table 5.9 Tract 19C Groundwater Analytical Data Summary
Table 5.10 Tract 20B Surface and Subsurface Soil Analytical Data Summary
Table 5.11 Tract 20B Groundwater Analytical Data Summary
Table 5.12 Summary of Intrusive Results - South Fuze Destruction Area
Table 5.13 Summary of Intrusive Results - Abandoned Burning Area
Table 5.14 Tract 21B-Burning Pit Area: Soil Analytical Data Summary
Table 5.15 Tract 21B-Burning Pit Area: Groundwater Analytical Data Summary
Table 5.16 Tract 21B-Backstop Berm: Surface and Subsurface Soil Analytical Data Summary
Table 5.17 Tract 21B-Backstop Berm: SPLP Analytical Data Summary
Table 5.18 Tract 21B-Backstop Berm: Groundwater Analytical Data Summary
Table 5.19 Tract 21B-Decanting Station: Surface and Subsurface Soil Analytical Data Summary
Table 5.20 Tract 21B-Decanting Station: Groundwater Analytical Data Summary
Table 5.21 Tract 21C DPT Groundwater Analytical Data Summary
Table 5.22 Tract 21C Monitoring Well Groundwater Analytical Data Summary

Table 6.1 Contaminant Chemical Parameters
Table 6.2 Screening Comparisons for Soil-to-Groundwater Migration, Tract 19B
Table 6.3 Screening Comparisons for Soil-to-Groundwater Migration, Tract 19C
Table 6.4 Screening Comparisons for Soil-to-Groundwater Migration, Tract 20B
Table 6.5 Screening Comparisons for Soil-to-Groundwater Migration, Tract 21B-BPA
Table 6.6 Screening Comparisons for Soil-to-Groundwater Migration, Tract 21B-Backstop Berm
Table 6.7 Screening Comparisons for Soil-to-Groundwater Migration, Tract 21B-Decanting Station

LIST OF FIGURES

Figure 1.1 Site Location Cornhusker Army Ammunition Plant
Figure 1.2 Tract Locations Cornhusker Army Ammunition Plant

Figure 2.1 Tract and Site Locations
Figure 2.2 Tract 19B Historical Sample Locations
Figure 2.3 Tract 19C Historical Locations
Figure 2.4 Tract 19C Historical Sample Locations
Figure 2.5 Tract 20B South Fuze Destruction Area Historical Sample Locations
Figure 2.6 Tract 20B South Fuze Destruction Area Past Intrusive Results
Figure 2.7 Tract 21B Burning Pit Area Historical Soil Sample Locations
Figure 2.8 Tract 21B Burning Pit Area Historical Groundwater Sample Locations
Figure 2.9 Tract 21B Backstop Berm Historical Sample Locations
Figure 2.10 Tract 21B Decanting Station Historical Sample Locations
Figure 2.11 Tract 21C Historical Sample Locations

Figure 3.1 Geological and Hydrogeological Cross-section Locations
Figure 3.2 Geological and Hydrogeological Cross-section, A-A'
Figure 3.3 Geological and Hydrogeological Cross-section, B-B'
Figure 3.4 Geological and Hydrogeological Cross-section, C-C'
Figure 3.5 Geological and Hydrogeological Cross-section, D-D'
Figure 3.6 Groundwater Elevations and Potentiometric Surface May 2018

Figure 4.1 Background Sample Areas
Figure 4.2 Background Sample Locations
Figure 4.3 Tract 19B Stockpile Soil Sample Locations
Figure 4.4 Tract 19B SPLP Soil Sample Locations
Figure 4.5 Tract 19B Soil and Groundwater Sample Locations
Figure 4.6 Tract 19C Soil Sample Locations
Figure 4.7 Tract 19C Groundwater Sample Locations
Figure 4.8 Tract 20B Soil and Groundwater Sample Locations
Figure 4.9 Tract 20B Demolition and Burning Grounds Munitions Response Area
Figure 4.10 Tract 21B Burning Pit Area Soil Sample Locations
Figure 4.11 Tract 21B Burning Pit Area Monitoring Well Locations
Figure 4.12 Tract 21B Backstop Berm Soil and Groundwater Sample Locations
Figure 4.13 Tract 21B Decanting Station Soil and Groundwater Sample Locations
Figure 4.14 Tract 21C Groundwater Sample Locations

Figure 5.1 Tract 19B Stockpiled Soil Sample Exceedances
Figure 5.2 Tract 19B SPLP Soil Sample Exceedances
Figure 5.3 Tract 19B Soil Sample Exceedances
Figure 5.4 Tract 19B Groundwater Sample Exceedances
Figure 5.5 Tract 19C Soil Sample Exceedances
Figure 5.6 Tract 19C Groundwater Exceedances
Figure 5.7 Tract 20B Soil Sample Exceedances
Figure 5.8 Tract 20B Groundwater Sample Exceedances
Figure 5.9 Tract 20B South Fuze Destruction Area MRS DGM Survey

Figure 5.10 Tract 20B South Fuze Destruction Area MRS Anomaly Density
Figure 5.11 Tract 20B Abandoned Burning Area MRS DGM Survey
Figure 5.12 Tract 20B Abandoned Burning Area MRS DGM Density
Figure 5.13 Tract 20B South Fuze Destruction Area MRS Intrusive Investigation Results
Figure 5.14 Tract 20B Abandoned Burning Area MRS Intrusive Investigation Results
Figure 5.15 Tract 21B Burning Pit Area: Soil Sample Exceedances
Figure 5.16 Tract 21B Burning Pit Area: Groundwater Exceedances
Figure 5.17 Tract 21B Backstop Berm: Soil and Groundwater Sample Exceedances
Figure 5.18 Tract 21B and 21C Decanting Station Groundwater Sample Exceedances
Figure 5.19 Tract 21C DPT Groundwater Sample Exceedances

LIST OF APPENDICES

Appendix A	Photographs
Appendix B	Field Notes
Appendix C	Boring/Drilling Logs
Appendix D	Field Sampling Records
Appendix E	Monitoring Well Construction/Development Forms
Appendix F	Survey Data
Appendix G	Tract 20B Geophysical Investigation
Appendix H	IDW Documentation
Appendix I	Data Quality Evaluation
Appendix J	Laboratory Data Packages (Provided on CD)
Appendix K	Data Validation Reports (Provided on CD)
Appendix L	Background Study
Appendix M	Baseline Risk Assessment
Appendix N	MEC Risk Management Methodology Risk Matrices

LIST OF ACRONYMS AND ABBREVIATIONS

%	percent
2-Am-DNT	2-Amino-4,6-dinitrotoluene
4-Am-DNT	4-Amino-2,6-dinitrotoluene
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
ACM	asbestos-containing material
AGC	advanced geophysical classification
ALM	Adult Lead Model
amsl	above mean sea level
APA	anomalies per acre
ARAR	Applicable or Relevant and Appropriate Requirement
ATI	ATI, Inc.
bgs	below ground surface
BLL	blood lead level
BPA	Burning Pit Area
BTV	background threshold value
CENWO	United States Army Corps of Engineers Northwestern Division Omaha District
Ch2	Channel 2
CHAAP	Cornhusker Army Ammunition Plant
cm	centimeter(s)
COPC	chemical of potential concern
Cr VI	hexavalent chromium
CSM	conceptual site model
cy	cubic yards
DGM	digital geophysical mapping
DNT	2,4-Dinitrotoluene
DO	dissolved oxygen
DoD	Department of Defense
DPT	direct push technology
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ESP	Explosives Site Plan
EZ	exclusion zone
Freon 113	trichlorotrifluoroethane
FS	Feasibility Study
FSP	Field Sampling Plan
ft	feet or foot
GDB	geophysical database

GPR	ground penetrating radar
GPS	global positioning system
GSV	geophysical system verification
GWTP	Groundwater Treatment Plant
HD	high density
HGL	HydroGeoLogic, Inc.
HHRA	human health risk assessment
HMX	Cyclotetramethylenetetranitramine
HUA	high use area
Hz	hertz
IDQTF	Intergovernmental Data Quality Task Force
IDW	investigation-derived waste
IEUBK	Integrated Exposure Uptake Biokinetic
IRA	Interim Removal Action
ISO	industry-standard object
IT	IT Corporation
IVS	instrument verification strip
Katahdin	Katahdin Analytical Services, Inc.
K_d	partition (distribution) coefficient
K_{oc}	organic carbon partition coefficient
K_{ow}	octanol water partition coefficient
LAP	load, assemble, and pack
LD	low density
LGIA	Lower Grand Island Aquifer
LOAEL	lowest observed adverse effects level
LUA	low use area
MC	munitions constituents
MCL	maximum contaminant level
MDAS	material documented as safe
MD	munitions debris
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MGFD	munition with greatest fragmentation distance
MPC	measurement performance criteria
MPPEH	material potentially presenting an explosive hazard
MQO	measurement quality objective
MRS	Munitions Response Site
mS/cm	milli-Siemens per centimeter
MSD	minimum separation distance
mV	millivolts

NDEQ	Nebraska Department of Environmental Quality
NEU	no-evidence-of-use areas
NMRD	non-munitions related debris
NTCRA	Non-Time Critical Removal Action
NTU	nephelometric turbidity unit
OB/OD	Open Burning/Open Detonation
OESS	Ordnance and Explosives Safety Specialist
ORP	oxidation-reduction potential
OSWER	Office of Solid Waste and Emergency Response
OU	operable unit
PAH	polynuclear aromatic hydrocarbon
PID	photoionization detector
PM	Project Manager
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAGS	Risk Assessment Guidance for Superfund
RDX	cyclotrimethylenetrinitramine
RI	Remedial Investigation
RKG	RKG Associates, Inc.
RMM	Risk Management Methodology
ROD	Record of Decision
RSL	Regional Screening Level
RTK	real-time kinematic
SLERA	screening level ecological risk assessment
SPLP	synthetic precipitation leaching procedure
SPP	systematic project planning
SSL	soil screening level
SUXOS	Senior Unexploded Ordnance Supervisor
SVOC	semivolatile organic compound
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TNB	1,3,5-trinitrobenzene
TNT	2,4,6-trinitrotoluene
TPH	total petroleum hydrocarbon
UCL	upper confidence limit
UFP	Uniform Federal Policy
UGIA	Upper Grand Island Aquifer

USACE	U.S. Army Corps of Engineers
UXO	Unexploded Ordnance
UXOSO	UXO Safety Officer
UXOQCS	Unexploded Ordnance Quality Control Specialist
VISL	vapor intrusion screening level
VOC	volatile organic compound
VSP	Visual Sample Plan

FINAL
REMEDIAL INVESTIGATION REPORT

BURNING GROUNDS, SANITARY LANDFILL, AND PISTOL RANGE AREAS
(REMAINING PROPERTY OF THE U.S. GOVERNMENT)

CORNHUSKER ARMY AMMUNITION PLANT
GRAND ISLAND, NEBRASKA

1.0 INTRODUCTION

This Remedial Investigation (RI) Report presents the activities conducted to investigate five Government-owned tracts of land that include, or are adjacent to, the Demolition Burning Grounds, Sanitary Landfill area, and Pistol Range of former Cornhusker Army Ammunition Plant (hereafter referred to as "CHAAP") in Grand Island, Nebraska. CHAAP comprises 12,019 acres of land located approximately 2 miles west of Grand Island (Figure 1.1) in north-central Hall County. The Demolition Burning Grounds, Sanitary Landfill area, and Pistol Range (shown on Figure 1.2) were identified as areas of concern in the 1989 Excessing Assessment for CHAAP, and are used as points of reference relative to the locations of the seven sites that were investigated as part of this RI. As shown in Figure 1.2, the five tracts addressed in this RI (Tract 19B, Tract 19C, Tract 20B, Tract 21B, and Tract 21C) are located in the northwest region of CHAAP.

1.1 SCOPE OF WORK

RI field activities were conducted by ATI, Inc. (ATI) and HydroGeoLogic, Inc. (HGL), hereafter referred to as ATI/HGL, under U.S. Army Corps of Engineers (USACE) – Omaha District Contract No. W9128F-16-D-0014, Task Order Number 0002. Activities were conducted in accordance with the Final Field Sampling Plan (FSP) and Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) (ATI/HGL, 2019).

Fieldwork was completed to collect data to define the nature and extent of contamination and support completion of human health and ecological risk assessments. Activities included advancing soil borings for lithologic logging; collecting composite soil samples representative of excavated and stockpiled soil from previous removal actions; collecting surface and subsurface soil samples; collecting groundwater samples from installed direct push technology (DPT) points and monitoring wells; and digital geophysical mapping (DGM).

1.2 OBJECTIVES

The objectives of the RI activities were:

1. Define the nature and extent of contamination in soil and groundwater.
2. Establish a soil and groundwater background dataset to determine whether site data reflect natural background conditions, anthropogenic influences, or site-related contamination.

3. Evaluate the potential human health risks (including a residential land use scenario) and ecological risks associated with identified contamination.

This RI Report is comprehensive. To supplement data generated during the 2018 RI field activities, data from previous investigations were also incorporated into development of a comprehensive conceptual site model (CSM) that represents current site conditions, the nature and extent of contamination evaluation, the fate and transport of contamination evaluation, and the baseline risk assessment.

Site closeout (No Further Action) is recommended for areas where contaminants were not identified in soil and groundwater at concentrations that pose a risk to human health and the environment. A Feasibility Study (FS) to evaluate remedial alternatives to address the impacted media is recommended where contaminants in soil and/or groundwater pose a potential risk to human health and the environment. Once analysis of options for remediation is completed under the FS, Federal and State Applicable or Relevant and Appropriate Requirements (ARARs) will be identified. The State's guidance on soil and groundwater contamination when formulating remedies will be used in evaluating potential remedies resulting from this RI.

1.3 REPORT ORGANIZATION

This RI Report comprises the following sections:

Section 1: Introduction – This section provides the scope of work and the objectives of the RI.

Section 2: Site Background – This section provides the site history, descriptions of the five tracts and their associated sites, and previous investigations and interim remedial actions.

Section 3: Physical Characteristics of the Study Area – This section includes descriptions of the regional climate, topography, geology, and hydrology along with site-specific geology and hydrology. Additionally, this section provides information on site biology, demography, land use, and water use.

Section 4: Remedial Investigation Activities – This section details activities related to soil sample collection and analysis, groundwater sample collection and analysis, DGM, surveying, and investigation-derived waste (IDW) characterization and disposal.

Section 5: Nature and Extent of Contamination – This section discusses the sources of contamination and evaluates the soil and groundwater sample results with respect to the screening levels and background concentrations to ascertain their distribution and attribution.

Section 6: Contaminant Fate and Transport – This section discusses contaminant fate and transport in soil and groundwater at the site.

Section 7: Baseline Risk Assessment – This section presents human health and ecological risk assessments for the seven sites.

Section 8: Conclusions – This section presents the conclusions and recommended path forward based on the RI findings.

Section 9: References – This section lists the references cited in the preparation of the RI report.

Figures and tables are provided at the end of the main text, following Section 9. Appendices are provided at the end of the document.

2.0 SITE BACKGROUND

This section provides a general description of CHAAP and summarizes previous investigations completed at specific sites within Tracts 19B, 19C, 20B, 21B, and 21C. The location of the specific sites within the tracts are shown on Figure 2.1, and historical sample locations are shown on Figures 2.2 through 2.11.

CHAAP was a Government-owned and contractor operated facility that produced bombs, shells, booster, and supplementary charges for use during World War II. The plant operated from 1942 until 1945, then was placed on standby status for munitions production until 1950. During standby, an ammonium nitrate area that had been used for explosives production was converted to fertilizer production, and many of the buildings were used for grain storage. In 1950, CHAAP was reactivated to produce artillery shells and rockets to support the Korean conflict, then resumed standby status in 1957. In 1963, 809 acres from three parcels of land located at the northeast, northwest, and southeast corners of the plant were sold to the state of Nebraska as wildlife management areas. The remaining CHAAP plant was reactivated from 1965 to 1973 to produce bombs, projectiles, and micro-gravel mines used in the Vietnam conflict. CHAAP was not reactivated after 1973 and was declared excess in 1984. All production equipment was removed in 1991 (ATI/HGL, 2019).

2.1 SITE ACTIVITIES

The principal activities conducted at CHAAP during active production included load, assemble, and pack (LAP) activities for conventional munitions. Major components of the facility, in addition to the five load line production areas where LAP activities were conducted, included the following:

- A fertilizer production area,
- Two storage facilities associated with munitions production,
- A landfill, and
- Burning grounds.

In the early 1980s, the Army discovered that groundwater extending approximately 4 miles downgradient of the eastern boundary of the facility contained explosives compounds originating from activities conducted at CHAAP. Detected compounds included:

- Cyclotrimethylenetrinitramine (RDX),
- Cyclotetramethylenetetranitramine (HMX),
- 2,4,6 trinitrotoluene (TNT),
- 2,4-dinitrotoluene (DNT),
- 2,6-DNT, and
- 1,3,5-trinitrobenzene (TNB).

An alternative water supply was provided to replace residential drinking water supply wells. By December 1985, the public water supply was extended to residents of the cities of Grand Island and Capital Heights (west of Grand Island) that were formerly utilizing private wells for drinking water (USACE, 2015).

CHAAP was placed on the National Priorities List on July 22, 1987, and a Federal Facilities Agreement was signed in September 1990 by the Department of Defense (DoD), U.S. Environmental Protection Agency (EPA), and Nebraska Department of Environmental Quality (NDEQ) to address the environmental impacts from historical operations and waste disposal practices conducted at the facility (Cornhusker Army Ammunition Plant, 1990). Areas of environmental concern at CHAAP were divided into five operable units (OUs):

- OU1 – On-site and off-site explosives-contaminated groundwater plumes.
- OU2 – Administrative and base housing areas, abandoned burning area, drainage ditches, magazine areas, miscellaneous storage areas, and sewage treatment plants.
- OU3 – Pistol range, nitrate area, shop area, and sanitary landfill.
- OU4 – Unsaturated zone of Load Lines 1 through 5, and the gravel and clay pit area.
- OU5 – Pistol range area sites (firing range and static ejection test site), the burning grounds, and the fuze destruction areas on Tracts 19B and 20B. OU5 has been transferred to the Military Munitions Response Program (MMRP).

Records of Decision (ROD) and applicable amendments were completed for OUs 1 through 4 between 1994 and 2001 to establish remedial action objectives and select remedies for contaminated soil and groundwater, and a groundwater treatment plant (GWTP) was subsequently constructed to implement the selected groundwater remedies. A ROD was not prepared for OU5, which was redesignated Munitions Response Site (MRS) CAAP-005 (USACE, 2015).

Five-Year Reviews were completed in September 2004 (HGL, 2004), September 2010 (USACE, 2010), and June 2015 (USACE, 2015).

Descriptions of OUs associated with the five tracts addressed during this RI and how the OUs and tracts are related are provided, below:

- The 1999 OU3 ROD (IT Corporation, 1999) required No Further Action for the South Fuze Destruction Area portion of Tract 19B; the remaining portion of the tract was not addressed as no CHAAP LAP, storage, or disposal activities were associated. Soil from the removal action at Tract 19C was stockpiled at Tract 19B after 2010 (Bay West and URS, 2015b).
- A ROD was not prepared for OU5, which would include Tract 19C, and for which interim Non-Time Critical Removal Actions (NTCRAs) were performed in 2010-2015.
- The South Fuze Destruction Area and Sanitary Landfill of Tract 20B were included in the 1999 OU3 ROD (IT Corporation, 1999). Excavation of RDX-contaminated soil from the area was performed in 2000 (HGL, 2004) in accordance with the ROD; however, the presence of fuze components on the surface of the South Fuze Destruction Area was not addressed.
- OU3 comprises the sites within Tract 21B and was included in the 1999 OU3 ROD (IT Corporation, 1999). Soil removal and disposal was performed in 2000 (HGL, 2004) in accordance with the ROD, and additional investigation and groundwater subsurface injections have been performed since the date of the OU3 ROD (Bay West and

URS, 2015a). Due to the continued use of the firing range by local police authorities, the backstop berm and Static Ejection Test Site was separated from OU3 and included in OU5, which has no ROD. Lead removal was completed at the Backstop Berm and Static Ejection Test Site within Tract 21B Tract 21B – BB) in 2003 (Jacobson Helgoth Consultants, 2003) and the firing range is now permanently closed.

- The sewage treatment plant at Tract 21C was included in the 1998 OU2 ROD (ICF Kaiser, 1998), with No Further Action/No Response Action as the selected remedy. In 2007, it was determined that groundwater contamination emanating from the Decanting Station and Leaching Pit Area in Tract 21B (hereafter collectively referred to as Tract 21B – DS) was present at Tract 21C (URS, 2008).

2.2 TRACTS INVESTIGATED

Descriptions of the five tracts investigated as part of this RI are provided below.

2.2.1 Tract 19B

Tract 19B encompasses 20.5 acres located on the northwestern side of the CHAAP study area, east of the Demolition Burning Grounds (Tract 19C) (Figure 2.1). The Explosives Parking Area, an approximately 600 foot (ft) by 300 ft rectangular area within the central western side of Tract 19B, was used to temporarily store or stage materials designated for destruction from 1957 to 1978. There is no other recorded use for Tract 19B during the operational history of CHAAP, and the area was subsequently made part of a cultivated, non-irrigated field. Tract features are shown on Figure 2.2.

Between 2012 and 2015, soil removed from adjacent Tract 19C was stockpiled on Tract 19B during interim NTCRAs. It is estimated that approximately 60,000 cubic yards (cy) of soil excavated from Tract 19C during a 2012-2013 interim NTCRA and 70,600 cy of soil excavated from Tract 19C during a 2014-2015 interim NTCRA were staged on Tract 19B. The stockpiled material was free of metal debris and other objects including materials potentially presenting an explosive hazard (MPPEH) and asbestos-containing material (ACM); however, samples collected from the stockpiled material contained contaminants associated with the historical use of Tract 19C, including TNT, RDX, total petroleum hydrocarbon (TPH)-diesel range organics (DRO), arsenic, thallium, and lead (ATI/HGL, 2019).

2.2.2 Tract 19C

Tract 19C is a 33-acre area (Figure 2.1), located on the northwestern side of the CHAAP study area, that was used for open burning/open detonation (OB/OD) throughout the operational history of the installation. The tract is designated as the Demolition Burning Grounds MRS, which was reassigned from the Installation Restoration Program to the Military Munitions Response Program in 2004.

According to the 1996 RI (ICF Kaiser, 1996), Tract 19C includes three sites that potentially pose environmental concerns:

1. Interim Removal Action (IRA) Site 1 that contained explosives-contaminated soil;

2. Six-acre Restricted Zone that contained burning pads, a 100 ft by 500 ft drainage ditch area near the northeast corner of the site, a metals flashing area, an ammonium nitrate/aluminum powder burning area, and a dispersion area where residue certified to be composed of less than 1 percent (%) explosives was discarded onto the ground; and,
3. Groundwater contaminated by trichlorotrifluoroethane (Freon 113) released while being used as a desensitizer of lead azide during mine destruction activities.

Contaminants associated with these features include TNT, RDX, tritonal, aluminum powder, ammonium nitrate, Freon 113, micro-gravel mines, and lead azide (IT Corporation, 2000).

2.2.3 Tract 20B

Tract 20B is a 71.6-acre area located immediately south of Tracts 19B and 19C. The South Fuze Destruction Area, located on the northern central side of Tract 20B (Figure 2.1), is the primary site within Tract 20B that was investigated as part of this RI. Based on review of aerial photographs, the South Fuze Destruction Area was used to flash defective or obsolete fuzes from 1957 until 1978 (USACE, 2015). The Abandoned Burning Area is an approximately 150-ft by 100-ft area located on the northwest side of Tract 20B (Figure 2.1) that was used for a short time between 1951 and 1961 (based on review of aerial photographs) for small scale disposal or burning operations. DGM activities at the Abandoned Burning Area, were also completed as part of the RI.

2.2.4 Tract 21B

Tract 21B encompasses 66 acres located south of Tract 20B, and includes the Burning Pit Area (BPA), Backstop Berm and Static Ejection Test Site, and Decanting Station and Leaching Pit Area, as shown on Figure 2.1.

No ordnance was discovered during previous investigations at these sites within Tract 21B, and the DoD Explosives Safety Board approved a No DoD Action Indicated Explosives Safety Submission for Tract 21B in 2011 (ATI/HGL, 2019).

2.2.4.1 Burning Pit Area

The BPA is an approximately 700 ft by 70 ft area, located north of the Backstop Berm and Static Ejection Test Site (Figure 2.1), that was used for explosives demolition from 1968 to 1969. Historical records indicate the area was used for burning rejected scrap and explosives generated by activities conducted at former Load Line 5. The BPA consisted of a series of seven burning pits/trenches that were 4 ft deep, 2 to 4 ft wide, and ranged from 8 to 40 ft in length. During disposal activities, defective or off-specification micro-gravel mines, lead azide, and lead azide-contaminated materials were packed in Freon to desensitize the lead azide and transported from Load Line 5 to the BPA. Desensitized lead azide, micro-gravel mines, RDX, and explosives-contaminated burnable trash were regularly dumped into burning pits, doused with fuel oil, and ignited. Following demolition events, stray debris was collected, soaked in Freon, and transported back to the burn pits to be re-ignited (ICF Kaiser, 1996).

The BPA will hereafter be referred to as “Tract 21B – BPA”.

2.2.4.2 Backstop Berm and Static Ejection Test Site

The Firing Range/Backstop Berm was used during the plant operational history as a small arms training area for CHAAP guards. Following closure of CHAAP, the range was used for small arms training by local law enforcement personnel.

The Static Ejection Test Site is a 50 ft by 50 ft area, located to the southeast of the backstop berm, that was used to test ejection mechanisms by firing mine delivery canisters into a hooded 15-gallon container of Freon. After shutdown of static ejection testing, the site was used as a parking lot for security personnel and law enforcement conducting firearms training at the range (USACE, 2011a).

The Backstop Berm and Static Ejection Test Site will hereafter be collectively referred to as "Tract 21B – BB".

2.2.4.3 Decanting Station and Leaching Pit Area

The Decanting Station and Leaching Pit Area was used to capture Freon contaminated with explosives. The contaminated Freon was reportedly poured through a filter of cotton gabardine into clean receiving drums. The filters and filtered material were then placed in 5-gallon containers and transported to the BPA. The Decanting Station and Leaching Pit Area site is now part of a dry-crop field.

The Decanting Station and Leaching Pit Area will hereafter be collectively referred to as "Tract 21B – DS".

2.2.5 Tract 21C

Tract 21C encompasses 166 acres north and east of Tract 21B (Figure 2.1). The property includes the remnants of two buildings and multiple concrete structures that supported a former sewage treatment plant at the southern edge of the property when CHAAP was operational. The treatment plant, identified as the Northwest Sewage Treatment Plant, was built in 1944 to serve lines 4 and 5 during periods of construction. Use of the treatment plant ended in 1973 when production was discontinued. No CHAAP LAP, storage, or disposal activities occurred on this tract, and the Northwest Sewage Treatment Plant was included in the 1998 OU 2 No Further Action ROD. The Northwest Sewage Treatment Plant is currently abandoned and covered with native vegetation but retains the man-made depressions and structures that were used while the plant was in operation. No additional investigation of the Sewage Treatment Plant Area is anticipated. However, if the current land use or exposure assumptions (agricultural and industrial use) change for OU 2, the Army will reevaluate the decision.

2.3 PREVIOUS INVESTIGATIONS

Site-wide environmental investigations completed at CHAAP and listed chronologically in the Third Five-Year Review for CHAAP (USACE, 2015) are described below.

In 1980, an environmental investigation was conducted to identify conditions that might adversely affect human health and welfare or result in environmental degradation. The Installation Assessment (Army National Guard Directorate, Environmental Programs Division, 1980) identified the potential for groundwater contamination and migration from the load line cesspools and leaching pits. A survey to assess the extent of contamination migration via groundwater was recommended.

In 1981, explosives contamination was identified in groundwater outside of the facility boundary. Groundwater monitoring was conducted between 1981 and 1987 to identify the nature and extent of the off-site contamination.

In March 1982 and September 1991, historical photographs were reviewed to identify possible areas of past use, storage, treatment, and disposal of potentially hazardous material. In August 1982, a Preliminary Contamination Survey was completed. As part of the survey, 33 monitoring wells were installed to assess the water table configuration, estimate groundwater flow velocities, and serve as a groundwater sampling network.

Between 1989 and 1991, an Excessing Assessment was conducted to determine the existence of, or potential for, environmental contamination, and to assess human health and environmental risks associated with excessing the installation.

In 1993, on-site areas of concern and off-site areas to the east that had been impacted by contaminants from the facility were investigated and included in a Site Characterization Document.

In 1996, a site wide RI/FS was conducted to fill data gaps associated with the 1993 Site Characterization Document. A streamlined risk assessment was included in the RI. Soil and groundwater data were used to determine the nature and extent of contamination and to determine the potential impact to human health and the environment.

Site-specific investigations for Tracts 19B, 19C, 20B, 21B, and 21C are summarized in the following subsections. The summaries include discussions relative to historical screening values (e.g., industrial remedial action levels) and qualitative conclusions (e.g., the results did not show excessive contamination) that are not used in this RI Report, but are presented for informational purposes only. All historical, usable data that was considered representative of current site conditions was evaluated in the UFP-QAPP relative to EPA risk-based RSLs to identify likely contaminants and guide the sampling design for the RI field program (ATI/HGL, 2019). This data is presented in Tables 2.1 through 2.6 and was included in the nature and extent of contamination evaluation (Section 5), fate and transport of contamination evaluation (Section 6), and baseline risk assessment (Section 7).

2.3.1 Tract 19B

Historical sample locations for Tract 19B are shown on Figure 2.2.

In 1991, as part of the site-wide Environmental Assessment, EM31 and ground penetrating radar (GPR) surveys were conducted across Tract 19B to locate subsurface anomalies. No subsurface

buried wastes or disposal structures were identified. Two surface soil samples, FUDT-1 and FUDT-3, were collected adjacent to the Explosives Parking Area and analyzed for explosives, cadmium, chromium, and lead. Additionally, well G0037 was installed on the southeastern portion Tract 19B. Soil was sampled throughout the borehole column during well installation and analyzed for explosives, cadmium, chromium, and lead. Groundwater was sampled and analyzed for volatile organic compounds (VOC), semi-volatile organic compounds (SVOCs), target analyte list (TAL) metals, Freon 113, and explosives. No areas of contamination were identified based on analytical results (ICF Kaiser, 1991).

In 1993, the Explosives Parking Area was evaluated and an EM31 survey was conducted to evaluate the presence/absence of buried material. Two sediment samples, SLFLSE003 and SLFLSE004, were collected from the dry drainage east of the Explosives Parking Area. Sediment samples were analyzed for TPH, SVOCs, TAL metals, and explosives. Additionally, a test trench was advanced and soil sample SFSLST001 was collected from approximately 5 ft below ground surface (bgs) for SVOC, TAL metals, and explosives analysis to assess the presence of buried debris south of the Explosives Parking Area, and a three-well cluster was installed downgradient (northeast) of the site, with wells screened in the upper, middle, and lower portion (wells G0057, G0058, and G0059, respectively) of the Grand Island Aquifer.

Geophysical survey, surface soil sampling, and test pitting results indicated that the western side of Tract 19B, where the Explosives Parking Area was located, had not been impacted by past use of the site. No data gaps were identified for this area during the 1996 RI, and the 1999 OU 3 ROD, which presented the preferred remedial alternative to meet remedial action objectives that were protective of human health under non-residential conditions, recommended No Further Action for soil in the Explosives Parking Area portion of Tract 19B.

In 2005, Tract 19B monitoring well G0037 was included in the Burning Grounds Groundwater Sampling Event. Analyses included VOCs, SVOCs, metals, Freon 113, and explosives. VOCs, SVOCs, and explosives were not detected in the groundwater sample from well G0037, and Freon 113 was detected at a concentration of 16 micrograms per liter (µg/L), which is orders-of-magnitude less than the EPA tap water regional screening level (RSL) current at the time (55,000 µg/L) (URS, 2006). The EPA tap water RSL for Freon 113 is currently 10,000 µg/L.

Between 2012 and 2015, 60,000 cy of soil excavated from Tract 19C during a 2012-2013 NTCRA and 70,600 cy of soil excavated from Tract 19C during a 2014-2015 NTCRA were staged on Tract 19B. The stockpiled material was free of metal and other debris, MPPEH, and ACM. Composite soil samples representative of each 800-cy portion of the stockpiled soil were collected and analyzed for TPH-DRO, polynuclear aromatic hydrocarbons (PAHs), metals, and explosives (Bay West and URS, 2015b). The results are summarized below.

- TPH-DRO results were less than screening levels used for the evaluation (the source of the screening values could not be identified).
- PAH results were less than the residential and industrial soil RSLs (Table 2.1).
- Arsenic concentrations in each sample exceeded both the residential and industrial soil RSLs. Thallium concentrations exceeded the residential soil RSL in multiple samples, with

some detections also exceeding the industrial soil RSL. The lead concentration in one sample exceeded the residential soil RSL.

- Both TNT and RDX concentrations exceeded their respective industrial soil RSLs in multiple samples.

The location of each composite sample relative to the 800-cy soil portions that they represent is not currently known (ATI/HGL, 2019). Accordingly, the soil stockpiles require recharacterization for the primary contaminants with screening level exceedances, metals and explosives.

2.3.2 Tract 19C

Site features for Tract 19C are shown on Figure 2.3. Historical data representative of soil that was not removed during subsequent excavation activities (i.e., still reflects current site conditions) is summarized in Table 2.2. Historical sample locations are shown on Figure 2.4.

Although the use of liquid Freon as a desensitizer of lead azide during micro-gravel mine destruction activities at the Demolition Burning Grounds resulted in Freon 113 contaminated groundwater, no explosives were detected at elevated concentrations in historical groundwater samples from Tract 19C (USACE, 2015).

In 1991, EM31 and GPR surveys conducted across Tract 19C as part of the site-wide Environmental Assessment identified buried metallic debris east and west of the exclusion zone area. Surveys also identified excavated/disturbed soil with small metallic objects. Soil samples were collected across the site from depths of 0 to 0.5, 0.5 to 1, and 1 to 1.5 ft bgs and analyzed for explosives, cadmium, chromium, and lead. Although explosives (TNT, TNB, 2,4-DNT, HMX, and RDX) were detected in samples collected southwest of the exclusion area, only the TNT result at one location from within the metal flashing area exceeded the industrial remedial action level (ICF Kaiser, 1996).

In 1993, a follow-on EM31 survey was conducted across Tract 19C, and no large anomalies associated with buried debris were identified. A total of 115 surface soil samples were screened for TNT, cadmium, chromium, and lead, and 17 confirmation samples were analyzed for explosives and/or metals. Two trenches were advanced and subsurface soil trench samples were collected and analyzed for metals, Freon 113, and explosives. Four borings were advanced, and a total of one surface and seven subsurface soil samples were collected from the combined four borings and analyzed for VOCs, SVOCs, metals, Freon 113, and explosives. One sediment sample was collected from the marshy area on the northeastern side of the tract and analyzed for TPH, SVOCs, metals, and explosives. Groundwater samples were collected from 18 monitoring wells and analyzed for VOCs, SVOCs, metals, Freon 113, and explosives. No explosives were detected in subsurface soil or groundwater samples at concentrations exceeding industrial remedial action levels (Watkins-Johnson Environmental, Inc., 1993).

In 1995, as part of the site-wide RI, 36 direct-push borings were advanced downgradient of the exclusion zone (see Figures 2.3 and 2.4) and soil samples were collected and screened for Freon. Groundwater samples were collected from five monitoring wells (NBGW01, NBGW02, BGGW01, BGGW02, and BGGW03) downgradient of the Demolition Burning Grounds and

analyzed for Freon 113, explosives, and metals. Confirmation samples were collected from the footprint of the interim removal action performed at IRA 1 in 1991 (BGSL131, BGSL132, BGSL134, and BGSL135, shown on Figure 2.4). Soil and groundwater samples did not contain explosives, Freon 113, or lead at concentrations exceeding industrial screening levels. Arsenic in confirmation soil sample BGSL134 at IRA Site 1 (see Figures 2.3 and 2.4) was the only constituent to exceed its action level. However, subsurface characterization was not completed at the site for safety reasons. The 1995 RI identified three areas of potential environmental contamination : the IRA Site 1, the restricted zone, and Freon 113-contaminated groundwater (USACE, 2011b). Historical data for soil samples representing soil that was not removed during excavation activities contain exceedances of soil-to-groundwater screening values that were not removed.

In 2005, a sampling event was completed to evaluate VOCs, PAHs, Freon 113, explosives, and metals in groundwater. None of the groundwater samples collected from monitoring wells at Tract 19C contained VOCs, Freon 113, SVOCs, or explosives at concentrations exceeding the industrial standards. Arsenic was the only metal to exceed its maximum contaminant level (MCL) of 10 µg/L. The arsenic MCL was exceeded in 9 of the 26 wells sampled, both up and downgradient of the Demolition Burning Grounds. The ubiquitous occurrence of arsenic at concentrations greater than the MCL suggested it was naturally occurring (URS, 2006).

2.3.3 Tract 20B

In 1991, as part of the site-wide Environmental Assessment, a geophysical screening survey was performed over the Abandoned Burning Area of Tract 20B to assess potential impacts associated with the burning of explosives waste material. Electromagnetic measurements were collected on 20-ft centers using a Geonics EM38DL to evaluate soil conditions and larger conductivity variations potentially associated with soil contamination. Based on the EM38 survey results, GPR lines were collected over select anomalies. GPR did not identify metallic features associated with EM38 conductivity anomalies, and the Environmental Assessment concluded that conductivity variation was attributable to changes in soil composition associated with agricultural practices. The Abandoned Burning Area subsite was investigated for the 1996 RI Report (ICF Kaiser Engineers, 1996), and recommended for No Further Action in the OU2 ROD (ICF Kaiser, 1998) based on the absence of metals and explosives in soil and groundwater samples. Investigation of this area for this RI was required only for evaluation of munitions and explosives of concern (MEC) hazard. Only a small amount of scattered bulk explosives were discovered on the ground surface during the fieldwork for the 1996 RI Report (ICF Kaiser Engineers, 1996).

Historical sample locations for the South Fuze Destruction Area at Tract 20B are shown on Figure 2.5. Analytical results for historical soil samples are provided in Table 2.3.

In 1991, as part of the site-wide Environmental Assessment, EM31 and GPR surveys were conducted across the South Fuze Destruction Area. No subsurface buried wastes or disposal structures were identified in the areas surveyed. Surface soil samples were collected from 0-1 ft bgs at locations FUDT-2 and FUDT-4. Samples were analyzed for explosives, cadmium, chromium, and lead. A test trench was installed in the center of the South Fuze Destruction Area and sample SLFLST003 was collected and analyzed for explosives, SVOCs, and TAL metals. No areas of excessive contamination were identified based on sampling results (ICF Kaiser, 1991).

In 1993, the South Fuze Destruction Area was evaluated as part of the site-wide Site Characterization. An EM31 survey was conducted to confirm the absence of buried material. Soil, sediment, and groundwater samples were collected. RDX was detected in surface soil at 890 milligrams per kilogram (mg/kg), exceeding the action level of 52 mg/kg, in sample SLFL017, located at the northwest side of the site. Monitoring well G0064 was installed downgradient of the South Fuze Destruction Area and shallow groundwater was sampled and analyzed for VOCs, Freon 113, SVOCs, explosives, and TAL metals. Groundwater contamination was not identified based on comparison of the data to MCLs and tap water risk-based concentrations (ICF Kaiser, 1996).

In 1995, as part of the site-wide RI, surface soil samples SFSL01 through SFSL04 were collected along with surface and subsurface soil samples at location SFSB03 and analyzed for explosives and TAL metals to assess the horizontal and vertical extent of the contamination detected at location SLFL017 in 1993. Explosives were not detected in any of the soil samples. Arsenic was detected at SFSL01 at concentrations exceeding the industrial screening level (ICF Kaiser, 1996).

In 2005, the Tract 20B monitoring well network was sampled as part of the Burning Grounds Groundwater Sampling Event (URS, 2006). Samples were analyzed for explosives, metals, Freon 113, and SVOCs. Freon 113 was identified within the Upper Grand Island Aquifer (UGIA) at Tract 20B at concentrations less than the EPA tap water RSL current at the time (55,000 µg/L). No other contaminants were identified.

In 2012, a DGM survey and intrusive investigation of 100 anomalies were completed to characterize the nature of potential MEC within the South Fuze Destruction Area. An intrusive investigation of the 375 ft by 375 ft area recovered 65 pounds of MD, including empty/inert fuzes and fuze parts, and 35 pounds of cultural/construction debris (Pika International, Inc., 2013). Munitions debris (MD) were recovered at 39 of the investigations and consisted of 3.5-inch rocket fuzes or pieces thereof. The 2012 DGM survey identified a high anomaly density area that generally correlates with the known location of the South Fuze Destruction Area. However, there are anomalies where MD was identified that straddle the border of the investigated area to the southwest and southeast, and the lateral extent of MD was not fully determined (Figure 2.6).

2.3.4 Tract 21B

Historical sample locations for Tract 21B are shown on Figures 2.7 through 2.10.

Burning Pit Area

Investigations completed from 1990 through 1992 at Tract 21B – BPA included exploratory excavations to locate the former burn pit/trenches. The excavations targeted potential former trench locations based on a 1969 aerial photograph. Five trenches (PSRGST002 through PSRGST004, PRST005, and PRST006), shown on Figure 2.7, were excavated. Soil samples collected from the trenches contained VOCs, PAHs, explosives, and Freon 113 at concentrations less than industrial screening values. Lead was identified in test trench PSRGST004 at concentrations exceeding the industrial screening value. Groundwater contamination was not identified (ICF Kaiser, 1996).

RI field activities in 1995 included a geophysical survey (EM61 metal detection survey) to further delineate the former burn pits. Although the field team did not observe surficial evidence of past burial/burning pit activities, four test trenches (PRST07, PRST008, PRST009, and PRST10) were advanced to further evaluate anomalies that were identified in the geophysical survey. Three subsurface soil samples were collected from each trench and analyzed for explosives, VOCs, PAHs, Freon 113, TPH, and metals. RDX and lead were detected at concentrations exceeding industrial screening levels in locations PRST07 and PRST08.

These locations were removed as part of a soil excavation in 2000. Nineteen soil borings, PRSB04 to PRSB22, were completed around the test trenches to delineate the extent of contamination. Historical data representative of soil that was not removed during subsequent excavation activities (i.e., still reflects current site conditions) is summarized in Table 2.4. Historical soil sample locations are shown on Figure 2.7. Freon 113 contamination was identified in groundwater, although all concentrations were below the residential screening value current at the time of the investigation (ICF Kaiser, 1996).

In 2005, Tract 21B – BPA monitoring well network was sampled as part of the Burning Grounds Groundwater Sampling Event. Groundwater samples were analyzed for explosives, metals, Freon 113, and SVOCs. Freon 113 contamination (maximum concentration of 13,000 µg/L in monitoring well PRGW01) was identified within the UGIA. No other contaminants were identified (URS, 2006). However, during preparation of this RI, historical SVOC detections from the 2005 investigation were observed to exceed current EPA tap water RSLs. As described in Section 4.9, SVOCs were not included in the 2018 RI analytical suite for groundwater samples. In the absence of 2018 groundwater data, the 2005 SVOC groundwater data were included in the RI and are presented in Table 2.5. Historical groundwater sample locations are shown on Figure 2.8.

In 2007, a Freon Site Investigation was conducted at Tract 21B – BPA to identify a potential source of the underlying Freon 113 contamination in groundwater. Field activities included test pit excavation and groundwater sampling via DPT, temporary monitoring wells, and permanent monitoring wells. No soil samples were collected. All Freon 113 detections in groundwater were less than the industrial screening level of 59,000 µg/L. The investigation did not positively identify a source of the Freon 113 contamination but concluded that the source was likely nearby (URS, 2008).

The majority of historical explosives and lead screening value exceedances identified at Tract 21B – BPA were associated with sample locations PRSB07 and PRSB08. As stated above, these locations were removed as part of the 2000 soil excavation and no longer reflect current site conditions. As further described in Section 4.9, the 2018 RI field program included soil borings at PRSB07 and PRSB08 to recharacterize soil contamination and reflect current site conditions.

Backstop Berm and Static Ejection Test Site

In 1993, as part of a site characterization, two surface soil samples (PSRGSL009 and PSRGSL010) were collected at 0 to 1 ft bgs from Tract 21B – BB and analyzed for SVOCs, TPH, explosives, and TAL metals. Subsurface soil samples (collected at 2 to 3 ft bgs) were analyzed for Freon 113. Freon 113, SVOCs, and TPH were not detected in any of the samples, and metals were not detected above screening levels.

In 1995, as part of the site-wide RI, three surface soil samples were collected from the backstop berm and analyzed for lead. The associated results indicated lead contamination was present in soil within the earthen backstop berm at concentrations up to 150,000 mg/kg. Because the site was still used by local police authorities at the time of the 1996 RI Report, Tract 21B – BB was not included in the OU 3 ROD. Instead, Tract 21B – BB was re-designated as part of OU 5, which does not have a ROD.

As further described in Section 2.4.3, the backstop berm was removed as part of a lead removal action completed by the City of Grand Island in 2003 to remediate lead. Because soil was either removed or redistributed across the site, the historical soil data no longer represent current site conditions and are not included in this RI.

Two historical soil samples are available for the static ejection test site, PSRGSL009 and PSRGSL010. As further described in Section 4.10, the 2018 RI field program included a soil boring to re-sample location PSRGSL010 to investigate a historical lead result of 320 mg/kg from the 1996 RI Report. As detailed in Section 5, lead contamination was not indicated in the 2018 results with lead being detected at 16.8 mg/kg in surface soil and 12 mg/kg in subsurface soil. These results suggest that the re-grading activities that occurred as part of the 2003 remedial action, the extent of which is not provided in the available documentation, redistributed soil near the former static ejection test site. Based on this information and because the 2018 soil data better represent current site conditions, soil data from PSRGSL009 and PSRGSL010 is not used or presented in this RI. The historical sample locations are shown on Figure 2.9.

Decanting Station and Leaching Pit Area

Investigations completed at Tract 21B – DS from 1991 through 1995 identified metals and explosives contamination in soil at concentrations less than industrial screening levels. Historical data is summarized in Table 2.6 and sample locations are shown on Figure 2.10. No groundwater contamination was identified (ICF Kaiser, 1996).

In 2005, Tract 21B – DS monitoring well G0063 was included in the Burning Grounds Area groundwater sampling event. RDX was detected at a concentration of 8.5 µg/L, which exceeded the EPA tap water RSL current at the time (0.7 µg/L) (URS, 2006). The current EPA tap water RSL for RDX is 0.97 µg/L. As detailed in Section 2.4.2, a subsurface injection pilot study was completed in 2007 near the RDX contamination. Additional injection events were completed in 2010, 2012, and 2014 (Bay West and URS, 2015a).

2.3.5 Tract 21C

Historical sample locations for Tract 21C are shown on Figure 2.11.

In 1993, as part of a Site Characterization, and in 1995, as part of the site-wide RI, surface and subsurface soil, sediment, and groundwater samples were collected near the treatment plant. During the 1995 sampling effort, arsenic concentrations in surface soil exceeded the industrial screening level. However, detections were consistent with concentrations reported for soil across CHAAP, indicating that the results could represent background concentrations. No other analytes

were detected at concentrations greater than the risk-based industrial cleanup levels. No analytes were detected in groundwater samples at concentrations greater than the MCLs.

The 1998 OU 2 No Further Action ROD, which included Tract 21C and selected a remedy to protect human health under non-residential land uses, recommended No Further Action. If land use were to change to residential purposes, this portion of the site would require reevaluation to assess potential risks to residential receptors (ICF Kaiser, 1998).

From 2005 through 2007, during investigation of Tract 21B, it was determined that groundwater contamination (Freon 113 and/or RDX) may be migrating to Tract 21C from source areas, such as Tract 21B – BPA or Tract 21B – DS. Monitoring well G0063, which is upgradient of Tract 21C, was included in the 2005 Burning Grounds Groundwater Sampling event and contained a detection of Freon 113 (610 µg/L, less than the EPA tap water RSL current at the time, 55,000 µg/L) and RDX (8.5 µg/L, exceeding the EPA tap water RSL current at the time, 0.7 µg/L) (Bay West and URS, 2015a).

2.4 PREVIOUS INTERIM REMEDIAL ACTIONS

Remedial actions completed at CHAAP to remove MEC include an incineration project conducted by the Army between August 1987 and July 1988. Soil beneath the unlined leach pits and cesspools of the load lines was excavated and treated. Approximately 45,000 tons of contaminated soil was treated by incineration. In 1994, over 5,000 tons of contaminated soil from 25 sites on the facility was excavated and disposed of off-site at the Highway 36 Land Development Company in Deer Trail, Colorado.
No interim remedial actions were performed at Tract 19B or Tract 21C. Site-specific interim remedial actions for Tracts 19C, 20B, and 21B are summarized in the following subsections.

2.4.1 Tract 19C

In 1967, detonations of canisters and drums filled with micro-gravel mines and explosives waste in the demolition area on the burning pads at Tract 19C resulted in the scattering of explosives debris throughout the area. In 1968, the demolition area was ignited and burned using corncobs saturated with fuel oil, and then compacted. Between 1988 and 1990, construction materials from the contaminated surface impoundments at OU 4 and materials used in the incineration process were thermally treated at the burning pads, and 5,549 cy of explosives-contaminated soil were excavated from the earthen surfaces of the burning pads following thermal treatment operations (USACE, 2011b).

In 1994, an interim remedial action included removal of 1 ft of soil from an approximately 200 ft by 90 ft area located at the southwest corner of the site (IRA Site 1, Figure 2.3) where surface soil with RDX and/or TNT at concentrations greater than 5 mg/kg was identified. After removal and offsite disposal of excavated soil, remaining soil was screened using colorimetric and immunoassay to confirm attainment of the action level of 5 mg/kg.

A removal action conducted between 1999 and 2002 divided Tract 19C into 106, 100 ft by 100 ft grids, and excavated up to 4 ft bgs in portions of 47 grids in the central portion of the site before activities were stopped. Soil was excavated using remote-controlled equipment and sifted in

portions of 30 of the 47 grids located in the northern and central portion of Tract 19C. Explosive and non-explosive materials were segregated, and explosive materials were detonated in the northwest corner of the site. In total, 1,377 pounds of bulk high explosives and 1,359 micro-gravel mines were recovered. In addition, 594 pounds of MD and 534 pounds of other debris were recovered. Additional clearance consisted of identifying areas with elevated explosives concentrations and excavating soil within the anomalous area of portions of 22 grids located along the northern perimeter and southeast corner of Tract 19C. Processed soil was re-deposited within the Tract 19C excavation area and no soil was disposed of off-site (USACE, 2011b).

From 2012 to 2013, in response to an Action Memorandum completed in 2011, a surface clearance across Tract 19C was performed, and approximately 60,000 loose cy of soil were excavated from the southeastern side of the site (shown as the Previously Excavated Area on Figure 2.4). The soil was screened and stockpiled at Tract 19B. One gravel mine and 137 pounds of bulk explosives were recovered and destroyed on site. During this work, ACM was encountered, and 20,216 tons of ACM-impacted soil was screened for MEC and then transported and disposed of off site. Soil sampling results identified lead above background levels in small areas within the soil but at concentrations below the EPA RSL for industrial use current at the time of sampling.

In 2015, 70,600 bank cy of soil were excavated from the northwestern side of the site (shown as Excavated During NTCRA on Figure 2.4) and screened for MEC, MD, other debris, and ACM. MEC, including 87 items consisting of various types of gravel mines, was destroyed and 4,738 tons of ACM-impacted soil and 2.2 tons of bulk ACM (transite siding and pipe insulation) were transported off site for disposal at a landfill permitted to receive the waste. In addition, 143 pounds of MD and 26,290 pounds of other debris were removed, inspected, certified, verified as material documented as safe, and transported off site for recycling. Incremental soil samples collected from the excavation floor indicated that arsenic and thallium were the only constituents potentially remaining in soil at concentrations exceeding the residential soil RSLs. Arsenic was the only constituent potentially present at concentrations exceeding the industrial soil RSL (USACE, 2015).

2.4.2 Tract 20B

The South Fuze Destruction Area was included in the 1999 OU 3 ROD, with the selected remedy being excavation and off-site disposal of RDX-contaminated soil with deed restriction to prevent future residential use. No remedial action was required for groundwater. The remedy was completed in accordance with the 1999 ROD in 2000, and approximately 40 cy of RDX-contaminated soil were removed from the northwest corner of the Fuze Destruction Area and disposed of off site. Soil was removed to approximately 2 to 3 ft bgs. Following excavation, five soil samples were collected to confirm attainment of the cleanup levels (HGL, 2004). The sample locations for the confirmation samples within the excavation footprint are not known.

2.4.3 Tract 21B

Burning Pit Area

Tract 21B – BPA was included in the 1999 OU 3 ROD, which selected a remedy of excavation and off-site disposal of lead- and RDX-contaminated soil with deed restrictions to prevent future residential use. No remedial action was required for groundwater. The remedy was completed in

2000 and 280 cy of lead- and RDX-contaminated soil were removed from locations PRST07 and PRST08 and disposed of off site (HGL, 2004). Coordinates for the excavation footprints were not found in historical documents available for review.

Backstop Berm and Static Ejection Test Site

The Backstop Berm was removed as part of a lead removal action completed by the city of Grand Island in 2003 to remediate lead to less than the residential cleanup goal of 400 mg/kg. The backstop berm was sampled for lead, gridded areas within the berm containing lead at concentrations exceeding 400 mg/kg were removed, and confirmation samples were collected. All confirmation samples contained lead at concentrations less than 400 mg/kg. Following the receipt of confirmation sample data, remnants of the berm were removed and the soil was re-graded across the site (Jacobson Helgoth Consultants, 2003).

Decanting Station and Leaching Pit Area

The Decanting Station and Leaching Pit Area was included in the 1999 OU 3 ROD, which specified a remedy of excavation and off-site disposal of lead- and RDX-contaminated soil and deed restrictions to prevent future residential use. Because soil concentrations in the Decanting Station and Leaching Pit Area complied with the ROD cleanup levels, no remedial action other than land use controls was implemented for soil in this area. No remedial action was required for groundwater.

As noted in Section 2.2.4.3, monitoring well G0063 was included in the 2005 Burning Grounds Area groundwater sampling event and identified RDX in groundwater at concentrations exceeding the EPA tap water RSL (URS, 2006). A subsurface injection pilot study, which used two food-grade carbon sources, was completed in 2007 in the area of the RDX contamination. Additional injection events were completed in 2010, 2012, and 2014. Groundwater sampling completed following the 2014 injection event included all non-detect results for RDX and detections of Freon 113 less than the EPA tap water RSL current at the time (55,000 µg/L).

This page was intentionally left blank.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 REGIONAL CLIMATE

CHAAP has a sub-humid, continental climate with relatively low precipitation, low humidity, hot summers, and cold to severe winters. The mean annual temperature is 51 degrees Fahrenheit. Average annual rainfall is 27 inches and average annual snowfall is 29 inches. Droughts are not uncommon (U.S. Climate Data, 2020).

3.2 PHYSIOGRAPHY AND TOPOGRAPHY

CHAAP is located in the north-central portion of Hall County, Nebraska, near the eastern margin of the Great Plains. It lies approximately 7 miles north of the Platte River, within the flood plain. The terrain is nearly level, sloping gently from southwest to northeast. Elevations near the CHAAP Site range from 1,950 ft above mean sea level (amsl) in the southwest to 1,850 ft amsl in the northeast (ATI/HGL, 2019).

3.3 GEOLOGY

3.3.1 Regional

CHAAP is underlain by generally flat-lying Quaternary fluvial sands and gravels and eolian and fluvial silts and clays. A basal deposit of coarse sand or mixed sand and gravel composed primarily of quartz and feldspars underlies nearly all of Hall County. There are no exposed bedrock formations in the county (U.S. Department of Agriculture, 2004). The unconsolidated deposits rest unconformably on the semi-consolidated Tertiary Ogallala Formation. The Ogallala consists of lenticular, shoestring deposits of sand, silt, clay and poorly cemented sandstone, siltstone, and claystone. The Ogallala rests on relatively impermeable bedrock of Late Cretaceous age. Accumulations of Quaternary sediments are thicker and tend to contain a greater percentage of sand and gravel where valleys were carved into the Ogallala and Cretaceous layers (Keech and Dreeszen, 1964).

In the Grand Island area, four principal stratigraphic units are recognized: Paleovalley Fill unit, Blue Clay unit, Alluvial sand and gravel, and Peorian loess (from oldest to youngest). The post-Ogallala erosional surface is overlain by a lower Quaternary unit of paleovalley fill sands and gravels correlative with the Holdrege Formation (Lugn and Wenzel, 1938). This Paleovalley Fill unit ranges from 30 ft in thickness under CHAAP to greater than 220 ft further along the paleovalley axis north of CHAAP. The Paleovalley Fill unit is overlain by the Blue Clay unit. The Blue Clay correlates with the Fullerton Formation (Lugn and Wenzel, 1938). The Blue Clay unit is a distinctive bluish-grey layer consisting of silty clay, clayey silt, silt, and very fine to fine sand. Lithology logs, pump test data, and water quality data indicate that the Blue Clay unit is laterally persistent throughout and beyond the site. The Blue Clay confining unit varies in thickness from 4 ft to greater than 35 ft and is present at CHAAP at depths ranging from 45 to 70 ft bgs. The Blue Clay unit is overlain by laterally persistent sand and gravel deposits, averaging 40 to 60 ft in thickness. This sand and gravel unit, referred to here as the Alluvial sand and gravel unit, is correlative with the Grand Island Formation (Lugn and Wenzel, 1938). The uppermost geologic unit at CHAAP is the Peorian loess. This silt and clay unit is about 15 ft thick in the northwestern

portion of CHAAP, beneath Tracts 19B, 19C, and 20B and thins to less than 1 ft at the southern and eastern boundaries of the facility.

3.3.2 Site-Specific

Based on review of boring logs completed for soil borings and well installation, soil beneath the ground surface of the study area consists of alluvial silty clays to a depth of approximately 10 ft. The topsoil and alluvial silty clays consist of medium-stiff to stiff, moist, gray to dark gray, low to medium plastic, silty clays and clayey silts with traces of fine sand. The alluvial silty clay is underlain by the alluvial sands and gravels of the Grand Island Formation, which extends from the bottom of the alluvial silty clay to 50 to 65 ft bgs (40 to 55 ft thick). The alluvial sands consist of loose to medium dense, moist to wet, gray and brown, fine- to medium-grained sand and silty sand with traces of coarse-grained sand.

The low-permeability, alluvial silty clay unit of the Fullerton Formation was encountered beneath the alluvial sands and gravels. Although maximum drilling depth for this RI was the top of the Fullerton Formation, this clay unit, also referred to as Blue Clay, is approximately 5 to 15 ft in thickness and consists of stiff to hard, moist to dry, gray and brown, and low to medium plastic silty clays (URS, 2009). The alluvial clays have been observed to have increasing clay content with depth. The maximum depth reached in the alluvial clays during past drilling investigations was 80 ft bgs (URS, 2009). The Blue Clay unit is underlain by the alluvial sands and gravels of the Holdrege Formation, which is reported to be up to 200 ft in thickness. Figure 3.1 is an overview map, and Figures 3.2 through 3.5 provide cross-sections of the investigated areas within CHAAP. Background areas sampled for this RI are included in the cross-sections. Additional discussion regarding the background areas and sampling activities is provided in Section 4.

3.4 HYDROLOGY

3.4.1 Regional

The supply of groundwater in Hall County is contained primarily in Pleistocene sands and gravels (alluvial aquifer). The water-bearing sand and gravel formation throughout much of the county is 50 ft or more in thickness, and the coarse underground sediments yield large quantities of water for industrial, household, and agricultural uses. Locally, there are several irrigation wells in use east of CHAAP. Directly downgradient of the facility, all private domestic water is supplied by the city of Grand Island. The city's municipal well field is located southeast of the city near the Platte River, about 10 miles southeast of CHAAP (URS, 2006).

Recharge of groundwater from streams takes place primarily in spring and fall since the streams are dry during the summer months. The major source of surface water for Hall County is the Platte River, which flows northeast across the southeastern portion of the county approximately 7 miles south of CHAAP. The underground water moves less than 10 ft per day. Groundwater flow in the Platte Valley is to the northeast, parallel to the Platte River. Depth to groundwater varies from less than 10 ft along bottom land to 150 ft in loess uplands (U.S. Department of Agriculture, 2004).

3.4.2 Site-Specific

Shallow groundwater underlying CHAAP occurs as an unconfined water table aquifer within the alluvial sands and gravels of the Grand Island Formation. This shallow aquifer will be hereafter referred to as the Grand Island Aquifer. The underlying Fullerton formation is a low-permeability unit that appears to act as a barrier to groundwater flow (i.e., aquitard), based on head differences measured between the Grand Island Aquifer and the underlying Holdrege Formation Aquifer and the absence of contamination below the Fullerton formation at locations where contamination has historically been present at the base of the Grand Island Aquifer (ICF Kaiser, 1996).

During historical investigations, well clusters were designed to provide groundwater samples from the upper, middle, and lower portions of the Grand Island Aquifer. The upper portion is defined as the top 20 ft of the aquifer and the lower is defined as the bottom 20 ft, with the middle representing the portion in between the two. The upper portion is referred to as the UGIA and is generally considered representative of the middle portion due to consistently similar groundwater sample findings. The lower portion is referred to as the Lower Grand Island Aquifer (LGIA) (ICF Kaiser, 1996).

Based on May 2018 groundwater level measurements (Table 3.1), groundwater is generally encountered between 7.25 and 21.76 ft bgs and flows to the east-northeast (Figure 3.6), similar to regional groundwater flow and consistent with historical reports. The groundwater level measurements collected in May 2018 were recorded on Static Water Level Forms, provided in Appendix B.

The total thickness of the Grand Island Aquifer ranges from approximately 50 to 60 ft. Hydraulic conductivity values calculated from slug and pump tests range from 24 to 670 ft per day, and gradients range from 0.0007 to 0.0017 ft per ft. Models developed in 1984 by Battelle Northwest Laboratories estimated groundwater velocity to be 1.6 ft per day (Battelle, 1984). Findings from multiple investigations at CHAAP, conducted from 1980 to the present, indicate that the configuration of the groundwater table has remained fairly constant over time (ICF Kaiser, 1996).

Silver Creek is the largest surface water feature at CHAAP, crossing the northwest corner of the facility and flowing eastward along the northern boundary (Figure 1.2). The creek continues east and passes north of Grand Island and the Capital Heights subdivision.

All surface water at CHAAP drains either directly to Silver Creek or to man-made ditches that eventually drain to Silver Creek. Silver Creek is an ephemeral water body. During winter, discharge is low and water is commonly partially or completely frozen. During the summer, the creek is typically dry and flows only during large storm events (Watkins-Johnson Environmental Inc., 1993). Surface water is not present within most of the area encompassed by Tracts 19B, 20B, 21B, and 21C. Silver Creek runs along the west side (topographically upgradient) of Tract 19C (Figure 1.2).

Although ephemeral, substantial surface water can accumulate in flood control structures completed in 2018 as part of a project conducted by the Central Platte Natural Resources District and the city of Grand Island to reduce future flood damages in the area. The berms and water detention cells, installed throughout approximately 500 acres in the western portion of CHAAP,

reinforce channel banks and provide accumulation basins that control the extent of the floodplain and resist migration of floodwaters onto crops, properties, and valuable infrastructure.

3.5 SITE BIOLOGY

The majority of the land at CHAAP and surrounding area is used for farming of corn, alfalfa, and soybeans, or hay and pasture. Row crops such as corn and alfalfa have replaced most of the original prairie grass and other vegetation of the area. Site features include asphalt and gravel access roads, and soil berms that surrounded former and current buildings and formerly used railroad tracks. The load lines support a grass-dominated vegetation community with minimal trees and shrubs (Bay West and URS, 2015a). No threatened or endangered species are present at CHAAP based on previous surveys conducted for the US. Fish and Wildlife Service (RKG Associates, Inc. [RKG], 1997).

3.6 DEMOGRAPHY, LAND USE, AND WATER USE

The population of Hall County was 61,353 in 2019. The majority of the population (51,390) reside in the city of Grand Island (U.S. Census Bureau, 2020). The economy of the area is primarily agricultural with lesser amounts of commerce related to manufacturing, retail and wholesale trade, services, and government. The city serves as a trade center for agriculture and livestock produced on ranches and farms in the area. The land around Grand Island is intensively cultivated and most of the original prairie grass and other vegetation has been replaced by row crops such as corn and alfalfa. Most of the land between CHAAP and Grand Island is used for farming, predominantly for hay and/or pasture, dryland crops, and irrigated corn, alfalfa, and soybeans (ICF Kaiser, 1996).

Although the CHAAP Site is inactive, 10,774 acres is leased out for general agricultural use as follows: 82% cropland; 15% wildlife habitat and protection areas; and 3% grazing. Most of the cropland acreage is irrigated. Eighty-eight magazines and 25 other buildings are leased out as general storage space.

In December 1997, a Comprehensive Reuse Plan was adopted by the Hall County Reuse Committee to transition the former CHAAP property from military to private use. In accordance with Public Law 103-337, Section 2836, after completion of environmental restoration of areas on CHAAP, the Army may convey the real estate parcels to the Hall County Board of Supervisors or their designees, and the transferees may only use the property consistent with the uses allowed in the CHAAP Reuse Committee Comprehensive Reuse Plan (RKG, 1997). According to the reuse plan, land comprising the CHAAP Site was zoned for agriculture, recreation, conservation, warehousing, industry, and special events. This zoning also includes restriction of sites against residential use. Although this plan has been subject to change, the major land use assumptions presented were realistic and likely of future scenarios (RKG, 1997). The land that has not been excessed at CHAAP is currently used for wildlife conservation and for GWTP operations.

Four general land use categories are identified in the reuse plan; however, it should be noted that the proposed reuse plan may not be fully realized as originally described. The areas of these general land use categories are described below.

1) Agriculture/Recreation/Conservation – The majority of the northern third of CHAAP as well as the southeast corner of the installation is planned to be developed as a shooting club by the city of Grand Island. The northernmost area of the installation is intended for agricultural use combined with walking and riding trails.
2) Agriculture/Warehouse – The north and south storage magazine areas are designated for a combination of agricultural activities and storage-type uses.
3) Industrial/Agriculture – This use designation intended to capitalize on CHAAP's largest private sector employer, Detroit Edison Rail Services, and on the availability of support facilities, including existing rail lines. The majority of the buildings, excluding storage magazines, are included in this area, together with a substantial amount of land that could be developed for rail/industrial utilization or could revert back to agricultural activities. Given the potential demand for industrial tracts, specifically near existing rail lines, an overlay district has been included. The industrial/agricultural overlay is designed to allow for expansion of rail-related industrial activities, if certain conditions are met, onto portions of adjacent sites.
4) Husker Harvest Days/Agriculture/Special Events – This land use designation intended to allow for the continued support and retention of the Husker Harvest Days program and provide an opportunity for additional support activities on adjacent sites. The Agriculture/Special Events sites could be used to expand Husker Harvest Days, to provide for other activities relating to the shooting club or similar activities requiring a large land area, or could revert to agricultural purposes.

In 1999, new zoning was proposed for CHAAP by the Reuse Committee, which was formed in 1993. In accordance with this zoning, only the southeast corner of the plant would be restricted from animal feedlots. The area, 378 acres, is to be zoned for special recreation/conservation (The Independent, 2020). The remaining 11,622 acres at the plant would be available for agricultural uses, including feedlots.

Current land use is primarily agricultural and wildlife management and the buildings are used for storage. Current activities include minor maintenance of the grounds, roads, and leased facilities. As of September 2009, 97% of the property at CHAAP had been excessed. Potential buyers have been identified for the remaining tracts of land, except for the GWTP property.

This page was intentionally left blank.

4.0 REMEDIAL INVESTIGATION ACTIVITIES

This details the overall project scope and chronology of investigation events, site preparation, investigation activities, and deviations from the UFP-QAPP (ATI/HGL, 2019).

4.1 PROJECT SCOPE

The general scope for the field investigation included the activities listed below.

Background

- Establishment of a dataset to characterize background levels of PAHs and metals in surface soil, subsurface soil, and groundwater (UGIA and LGIA) to support subsequent evaluation of the site data.

Tract 19B

- Characterization of chemical contamination (explosives and metals) within each 800-cy section of stockpiled soil.
- Identification and delineation of potential migration of chemical contamination (explosives and metals) from the stockpiled soil to native soil.
- Identification and delineation of chemical contamination (VOCs, explosives, metals) in groundwater (UGIA and LGIA).

Tract 19C

- Identification and delineation of chemical contamination (PAHs, explosives, metals) in surface soil following historical remedial actions.
- Identification and delineation of potential migration of chemical contamination (explosives, PAHs, metals) from surface soil to subsurface soil.
- Identification and delineation of chemical contamination (PAHs, explosives, metals) in groundwater (UGIA and LGIA).

Tract 20B

- Identification and delineation of chemical contamination (PAHs, explosives, metals) in soil at Tract 20B, specifically within the South Fuze Destruction Area.
- Identification and delineation of potential migration of contamination (PAHs, explosives, metals) in the vadose zone soil near SFSB03 and the 2000 excavation footprint (Figure 2.5).
- Identification and delineation of chemical contamination (VOCs, PAHs, explosives, metals) in groundwater (UGIA and LGIA) across the South Fuze Destruction Area.
- Identification and investigation of subsurface geophysical anomalies using DGM at the Abandoned Burning Area and South Fuze Destruction Area at Tract 20B.

Tract 21B

Burning Pit Area

- Identification and delineation of chemical contamination (explosives and metals) in soil within former test trenches PSRGST004, PRST007, and PRST008 (Figure 2.7).
- Identification and delineation of potential migration of chemical contamination (explosives and metals) in subsurface soil.
- Identification and delineation of chemical contamination (VOCs, explosives, metals) in groundwater (UGIA and LGIA).

Backstop Berm and Static Ejection Test Site

- Identification and delineation of chemical contamination (explosives and metals) in surface soil remaining after historical remedial actions.
- Identification and delineation of potential migration of chemical contamination (explosives and metals) in subsurface soil.
- Identification and delineation of chemical contamination (VOCs, explosives, metals) in groundwater (UGIA and LGIA).

Decanting Station and Leaching Pit Area

- Identification and delineation of chemical contamination (VOCs, explosives, metals) in the vadose zone above previously remediated, RDX-contaminated groundwater.
- Identification and delineation of chemical contamination (VOCs, explosives, metals) in groundwater (UGIA and LGIA).

Tract 21C

- Identification and delineation of chemical contamination (VOCs and explosives) in groundwater.

4.2 CHRONOLOGY OF EVENTS

Field activities performed for this RI included the following:

- Topographic survey to identify approximate dimensions of stockpiled soil (Tract 19B only).
- Collection of composite soil samples from stockpiled soil (Tract 19B only).
- Collection of surface soil samples from depths of 0 to 0.5 foot using a stainless-steel hand auger (Tract 19B (native soil), Tract 19C, Tract 20B, Tract 21B – BPA, Tract 21B – BB, and Tract 21B – DS).

- Collection of subsurface soil samples from the vadose zone (Tract 19B, Tract 19C, Tract 20B, Tract 21B – BPA, Tract 21B – BB, and Tract 21B – DS).
- Collection of groundwater samples via DPT (Tract 19B, Tract 19C, and Tract 21C)
- Installation of monitoring wells, collection of water level measurements, and sampling of new and historical monitoring wells (all sites).
- DGM and investigation of subsurface geophysical anomalies (Tract 20B).

The field activities associated with soil and groundwater sampling were conducted intermittently from March 12, 2018, through November 27, 2018, as detailed in Table 4.1. The DGM and investigation of subsurface geophysical anomalies at Tract 20B were conducted from May 27, 2020, through June 3, 2020. Photographs are provided in Appendix A and logbook notes for the field work are provided in Appendix B. The DGM investigation was completed for the South Fuze Destruction Area and Abandoned Burning Area MRSs at Tract 20B from May 27, 2020, through June 3, 2020. Documentation for the DGM investigation is provided in Appendix G.

All sampling activities were conducted in accordance with the UFP-QAPP (ATI/HGL, 2019) and in a manner consistent with appropriate regulatory requirements including Comprehensive Environmental Response, Compensation, and Liability Act, the National Oil and Hazardous Substance Contingency Plan, USACE policies and guidelines, and applicable state of Nebraska environmental statutes, regulation, and guidance. QA/QC samples were collected in accordance with the UFP-QAPP (ATI/HGL, 2019) and as described in the Data Quality Evaluation (Appendix I).

4.3 SITE PREPARATION

Before beginning investigation activities within the various site locations, the following site preparation activities were completed:

- Identification and protection of utilities;
- Establishment of the support area; and
- Establishment of initial site controls and work zones.

An independent utility search company confirmed underground utility locations in the areas of intrusive sampling. Utilities were marked in the work areas using a combination of paint, flagging, and stakes.

4.4 MEC ANOMALY AVOIDANCE

MEC anomaly avoidance was conducted during sampling activities at Tract 20B in accordance with standard operation procedure No. 501.01.1 MEC Anomaly Avoidance Support, located in Appendix C of the FSP. All non-unexploded ordnance (UXO) trained personnel were accompanied by a qualified UXO escort (UXO Technician II or higher) when conducting activities in areas with potential for MEC hazards. Prior to any intrusive activities performed by non-UXO trained personnel (e.g., placing survey stakes) or during any other operations where non-UXO trained personnel might be exposed to MEC hazards (e.g., surface soil sampling, monitoring well installation), the UXO escort conducted anomaly avoidance. This avoidance included performing

visual surveys and a surface sweep survey using a Schonstedt magnetometer or a White's metal detector of all potential field areas and sample locations.

During boring advancement, downhole UXO anomaly avoidance was conducted until undisturbed soil, as identified by the field geologist, was encountered. An initial scan of the site for UXO or UXO-related anomalies was conducted prior to rig placement to not cause interference with the initial sweep. Boreholes were hand-dug using a hand auger for the first 4 ft. During initial hand auguring, a UXO escort "cleared" the hole at each 2-ft increment. The UXO escort then used a downhole gradiometer to assess the presence of anomalies for every 2 ft of borehole until undisturbed soil was encountered.

No exclusion zones for MEC were required during the field effort, as neither MEC nor anomalies of concern were identified during anomaly avoidance activities.

4.5 BACKGROUND SAMPLING

Three areas were identified for the collection of background samples (Figure 4.1). As detailed in the Background Study Plan (Appendix E of ATI/HGL, 2019), each area was selected based on a low likelihood of impacts from historical CHAAP activities. The three areas are further described below.

- Background Area 1 was established on the southwest side of Tract 21B. The area is hydraulically and topographically upgradient of the three Tract 21B sites, as well as the four other Tracts (19B, 19C, 20B, and 21C) investigated for this RI. Historical soil data indicate that contamination does not extend from potential source areas to Background Area 1. Similarly, groundwater sampled from monitoring well PRGW04, located in the northern portion of Background Area 1, and monitoring well G0011, located west and upgradient of Background Sample Area 1, has not historically contained chemical contaminants.
- Background Area 2 was established on the southeast side of Tract 21C. No known CHAAP operations occurred within this area, which is located approximately 1,000 ft east of the former northwest sewage treatment plant area. In addition, soil in this area was recommended for No Further Action (ICF Kaiser, 1998). Because the area is hydraulically cross-gradient of the Freon 113 groundwater contamination in Tract 21B and Tract 21C, groundwater underlying this area may have been impacted by CHAAP operational history. Therefore, no background groundwater samples were collected from Background Area 2.
- Background Area 3 was established on the southwest side of Tract 20B. The area is hydraulically and topographically upgradient of the potential contaminant source in Tract 20B (South Fuze Destruction Area). Historical soil data indicate that contamination does not extend from potential source areas to Background Area 3. Similarly, groundwater sampled from monitoring well G0008 and G0041, located on either side of the Background Area, has not historically contained chemical contaminants.

4.5.1 Soil Sampling

In March and May 2018, 20 soil borings were advanced at randomly selected locations throughout the three background areas, as shown on Figure 4.2. Six soil borings (BKRD-SS/SB08 through BKRD-SS/SB13) were advanced in Background Area 2 and seven soil borings (BKRD-SS/SB14 through BKRD-SS/SB20) were advanced in Background Area 3 in March 2018. In May 2018, seven soil borings (BKRD-SS/SB01 through BKRD-SS/SB07) were advanced in Background Area 1.

Soil borings were initially advanced using a hand auger to confirm the absence of subsurface utilities and for the collection of surface soil samples. Surface soil samples were collected from 0 to 0.5 ft bgs and subsurface soil samples were collected at 4 to 5 ft bgs. At Background Areas 1 and 3, borings were advanced to depth using hollow stem augers as part of well installation activities and samples were collected from split-spoon samplers; at Background Area 2, where no monitoring wells were installed, borings were advanced using a DPT rig and samples were collected from core sleeves. Soil boring logs are provided in Appendix C and field sampling records are provided in Appendix D. Table 4.2 lists the soil samples collected in Background Areas 1 through 3.

Soil sample collection involved the following:

- Immediately upon soil recovery, a Terra-core sampler was used to collect samples directly from the soil core for VOC analysis;
- The remaining soil was distributed between a plastic bag (for field headspace screening using a photoionization detector [PID]) and a stainless-steel bowl (for homogenization using a stainless-steel spoon);
- Following sufficient homogenization, soil was transferred from the stainless-steel bowl to the appropriate non-VOC sample containers.

Collected samples were placed in an iced cooler and shipped to Katahdin Analytical Services, Inc. (Katahdin) in Scarborough, Maine, for analysis of the following:

- VOCs using EPA Method 8260B;
- PAHs using EPA Method 8270D-SIM;
- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7196A/7471B.

4.5.2 Monitoring Well Installation

A total of 20 monitoring wells were installed in Background Areas 1 and 3 (Figure 4.2), with ten screened in the UGIA and ten screened in the UGIA. All site monitoring wells were installed using 4.5-inch diameter inner diameter hollow stem augers. Monitoring wells were not installed in Background Area 2. The majority of monitoring wells were installed in the same borings from which soil samples (discussed in Section 4.5.1) were collected. Three of the wells at Background Area 1 (BKRD-UGIA-MW01, BKRD-LGIA-MW12, and BKRD-LGIA-MW14) and three of the wells at Background Area 3 (BKRD-UGIA-MW08, BKRD-UGIA-MW09, and BKRD-LGIA-MW19) were not co-located with soil samples.

Monitoring wells were screened in the UGIA (specifically, the top 10 ft of the Grand Island Formation) or LGIA (specifically, the bottom 10 ft of the Grand Island Formation). Well construction details are provided in Table 4.3. All monitoring wells were constructed with 10 ft of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) 0.010-inch machine slotted screen and sufficient 2-inch diameter Schedule 40 PVC riser to extend from the top of screen to the opening of the stick-up protective casing approximately 2.5 ft above the ground surface.

A filter pack of 16/30 washed silica sand was placed from the base of each borehole to at least 2 ft above the top of the screen. A hydrated bentonite seal approximately 5 ft thick was placed above the filter pack. The remainder of the annular space was tremie-grouted with a cement grout consisting of 95% Portland cement and 5% bentonite to surface. Monitoring wells were completed with stick-up protective casings installed in 32-inch square by 8-inch-thick concrete pads. Three bright yellow painted bollards were positioned around each stick-up surface completion. Well construction diagrams are provided in Appendix E.

In accordance with the UFP-QAPP (ATI/HGL, 2019), development consisted of alternating cycles of surging with a surge block and pumping which continued until water quality parameters had stabilized and the water was clear and free of fines (i.e., turbidity less than 25 nephelometric turbidity units [NTUs]) and a minimum of three well volumes was removed from each well. Wells were generally developed between two and seven days following installation; exceptions include 11 wells (20B-UGIA/LGIA-MW01 through 20B-UGIA/LGIA-MW06, 21B-BPA-UGIA-MW11, 21B-DS-LGIA-MW05, 21B-DS-LGIA-MW13, BKRD-UGIA-MW06, and BKRD-LGIA-MW16) that were developed from eight to 19 days following installation. All development water was contained in poly tanks and managed in accordance with the Waste Management Plan included as Attachment C of the UFP-QAPP (ATI/HGL, 2019). Well development logs are provided in Appendix E and photos of the final well development water from each well are provided in Appendix A.

The new monitoring wells at Background Area 1 were gauged on May 30, 2018, and monitoring wells at Background Area 3 were gauged on May 22, 2018. Water levels were measured using an electronic sensor with tape graduated in 0.01-ft intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.3.

4.5.3 Groundwater Sampling

The 10 new UGIA and 10 new LGIA monitoring wells were sampled between May 30 and June 6, 2018. Wells were purged and sampled in accordance with low-flow sampling procedures provided in the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, dissolved oxygen [DO], and oxidation-reduction potential [ORP]) were recorded during well purging every 3 to 5 minutes to assess stabilization. In accordance with the UFP-QAPP (ATI/HGL 2019), purging was considered complete when parameters stabilized for at least three consecutive readings within the following limits:

- pH was within ± 0.1 standard unit;
- Specific conductivity was within ± 0.01 milli-Siemens per centimeter (mS/cm) or within 3% (whichever is less);

- Temperature was ± 1 degree Celsius (ºC);
- DO was ± 0.3 milligrams per liter (mg/L) or within 10% (whichever is less);
- ORP was ± 10 millivolts (mV) or 10% (whichever is less); and
- Turbidity ± 10% or less than or equal to 10 NTU, if feasible.

Groundwater samples were collected from each well after field parameter stabilization was attained. Field parameters collected immediately prior to sampling are summarized in Table 4.4. Purge sheets for the groundwater samples are provided in Appendix D.

Following stabilization, groundwater samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for analysis of the following:

- VOCs using EPA Method 8260B;
- PAHs using EPA Method 8270D-SIM;
- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7196A/7470A.

4.5.4 Survey

On September 19, 2018, the 20 new monitoring wells were surveyed by a Nebraska licensed land surveyor. Each point was surveyed for vertical and horizontal location. Horizontal accuracy was within ±0.1 ft and vertical accuracy was within ±0.01 ft. Survey data are provided in Appendix F.

4.6 TRACT 19B INVESTIGATION

ATI/HGL implemented a phased investigation approach at Tract 19B, as outlined in the Final UFP-QAPP (ATI/HGL, 2019), to obtain representative samples of the contaminant concentrations and distribution throughout the soil stockpiles and evaluate the potential impacts to underlying native soil and groundwater from leaching. The activities completed by ATI/HGL for Phases 1 through 5 are summarized below.

4.6.1 Phase 1 – Topographic Survey

A topographic survey was performed by JEO Consulting Group, Inc. from January 19, 2018, through February 1, 2018, to generate the elevations used to determine the height of the stockpiled soil with respect to the native ground surface. The topographic survey is provided in Appendix F. Based on the information provided by the survey, a network of grids was developed for Phase 2 sampling, each comprising approximately 800-cy of stockpiled soil (Figure 4.3). For most 800-cy sections, default grid dimensions were appropriate. However, at some locations such as the edges of the stockpiles or areas of low elevation, the default grid dimensions comprised significantly less than 800-cy of soil. Therefore, two or more grids were combined such that the total soil volume of the combined grid section was approximately equal to 800-cy. The northern-most row and western-most column was applied to the nomenclature of these grids and the associated composite samples.

Based on field observations during a site visit in 2016, four stockpiles were present at the site. However, during the topographic survey, no clear distinction could be made between the edges of stockpiles 2 and 3. Therefore, these two stockpiles were evaluated collectively and are hereafter referred to as Stockpile 2/3. The stockpiles are described below and presented on Figure 4.3:

- Stockpile 1 extends east/west along the western half of the northern border of Tract 19B and slopes to between 17 and 20 feet above grade along its midline ridge.
- Stockpile 2/3 is located east of Stockpile 1 and is comprised of multiple north/south oriented sub-stockpiles. Ridges along the sub-stockpiles range from 12 to 23 feet above grade.
- Stockpile 4 is located to the south of Stockpile 2/3 and comprises three east/west oriented sub-stockpiles similar in dimensions to the sub-stockpiles of Stockpile 3, with a height approximately 7 feet above grade.

4.6.2 Phase 2 – Stockpile Soil Sampling

To evaluate contaminant concentrations throughout the soil stockpiles, in April 2018, 3-point composite samples consisting of soil from the top, middle, and base of the stockpile were collected from each of the gridded sections established in Phase 1. By maintaining a frequency of 1 composite sample per 800 cy (the sampling frequency required by regional disposal facilities), a total of 164 composite soil samples were collected as follows: 57 composite soil samples from Stockpile 1; 102 composite soil samples from Stockpile 2/3; and 5 composite soil samples from Stockpile 4. All samples were shipped to Katahdin and analyzed for metals using EPA Method 6020A/7471B and explosives using EPA Method 8330B. The soil samples were collected using hand augers and DPT in accordance with the procedures detailed in the Final UFP-QAPP (ATI/HGL, 2019). Table 4.5 summarizes the stockpile soil samples collected at Tract 19B. Field sampling records are provided in Appendix D.

4.6.3 Phase 3 – Synthetic Precipitation Leaching Procedure Sampling

Explosives and metals concentrations greater than the soil-to-groundwater soil screening levels (SSL) were reported for the majority of soil samples collected from the stockpiled soil at Tract 19B (discussed in Section 5) during Phase 2, suggesting that the soil-to-groundwater migration pathway is potentially complete. In June 2018, to further evaluate the soil-to-groundwater migration pathway, composite soil samples were analyzed using the synthetic precipitation leaching procedure (SPLP). The goal of the SPLP sampling was to develop a site-specific correlation between soil and SPLP concentrations to further evaluate the potential leaching potential of soil contamination and support future discussions regarding potential re-use of the stockpiled soil.

Twenty 3-point composite soil samples, consisting of soil from the top, middle, and base of Stockpiles 1 and 2/3, were collected (Figure 4.4). The sample grids were selected to capture the entire range of detected RDX concentrations in an attempt to produce a strong correlation. Specifically, the 155 detections/exceedances of RDX were ordered and five grids were picked at random from each of the percentiles (i.e., five between the minimum and the 25th percentile, five between the 25th and 50th percentile, etc.). An attempt was made to overlap selected grids with

metals with limited soil-to-groundwater exceedances. Although grids in Stockpile 4 were not identified for SPLP analysis, the RDX range detected in Stockpile 4 soils was represented by the select soil sample locations within Stockpiles 1 and 2/3.

Soil samples were collected using hand augers or DPT in accordance with the procedures detailed in the Final UFP-QAPP (ATI/HGL, 2019). Samples were shipped to Katahdin and analyzed for SPLP explosives using EPA Method 8330B/1312 and SPLP metals using EPA Method 6020A/1312/7470A. Field sampling records are provided in Appendix D.

4.6.4 Phase 4 – Soil and Groundwater Sampling

Because SPLP leachate concentrations of explosives and metals exceeded EPA tap water RSLs and/or MCLs (discussed in Section 5), in July 2018, native soil and groundwater samples were collected below the stockpiled soil at Tract 19B to assess whether the stockpiled material had contaminated the native soil and/or underlying groundwater. These soil and groundwater samples were collected from 10 borings positioned near locations of composite samples that had elevated explosive and/or metals concentrations in the SPLP leachate.

4.6.4.1 Soil Sampling

From July 23 to 25, 2018, 10 soil borings were advanced using DPT. The soil boring locations were positioned in accordance with the Final UFP-QAPP (ATI/HGL, 2019) and were evenly distributed relative to the stockpiled soil footprints to characterize potential contamination in native, underlying soil. One soil sample from the top 2 ft of native soil and one soil sample from the 2 ft interval above the water table (encountered between 6 and 12 ft bgs) were collected from each of the 10 borings. Soil samples are summarized in Table 4.5 and sample locations are shown on Figure 4.5. Boring logs are provided in Appendix C.

Soil samples were collected from the appropriate sample interval of the core sleeve. A portion of the soil was placed into a plastic bag for field screening using a PID, and the remaining soil was homogenized in a stainless-steel bowl with a stainless-steel spoon prior to placing into designated sample containers. Samples were placed in an iced cooler and shipped to Katahdin, for analysis of explosives using EPA Method 8330B and metals using EPA Method 6020A/7196A/7471B. Field sampling records are provided in Appendix D.

4.6.4.2 DPT Groundwater Sampling

Using DPT sampling methods, UGIA and LGIA groundwater samples were collected from eight locations near soil borings advanced to sample the native soil beneath the stockpiles (19B-SS/SB01 through 19B-SS/SB03, 19B-SS/SB05 through 19B-SS/SB08, and 19B-SS/SB10), one upgradient location in the southwest corner of Tract 19B, and one downgradient location in the northeast corner of Tract 19B. Screen points were advanced to the base of the sample interval and DPT rods were retracted to expose the screen. Groundwater samples were collected using new tubing equipped with a check valve in accordance with the procedures detailed in the Final UFP-QAPP (ATI/HGL, 2019). Field sampling records are provided in Appendix D. Table 4.6 summarizes the DPT samples. Sample locations are shown on Figure 4.5.

Groundwater samples were shipped to Katahdin and analyzed for VOCs using EPA Method 8260B, explosives using EPA Method 8330B, and metals using EPA Method 6020A/7470A.

4.6.5 Phase 5 – Monitoring Well Installation

To confirm the findings from the DPT groundwater data, three monitoring well pairs screened in the UGIA and LGIA were installed in September 2018 on the cross- and downgradient-side of the soil stockpiles, as shown on Figure 4.5. These six wells were positioned downgradient of the stockpiles to facilitate continued monitoring for indications of stockpiled soil contaminant migration. No analytes were detected in DPT groundwater samples at concentrations exceeding their respective screening values (discussed in Section 5), and consequently, no wells were installed in Tract 19B for delineation purposes. Screen intervals are provided in Table 4.7.

Wells were constructed and developed as described in Section 4.5.2. Well construction diagrams and development logs are provided in Appendix E.

Water level measurements were collected from the six new monitoring wells at Tract 19B upon their completion between September 25 and September 28, 2018. Water levels were measured using an electronic sensor with tape graduated in 0.01-ft intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are presented in Table 4.7.

4.6.5.1 Groundwater Sampling

The six monitoring wells installed in September 2018 were sampled on November 8, 2018, and historical monitoring well (19B-G0027) was sampled on August 14, 2018. Please note that monitoring well cluster G0057/58/69 was included in the UFP-QAPP (ATI/HGL, 2019) to evaluate whether off-site contamination may have migrated northeast of Tract 19B, but could not be performed because these wells were abandoned in 2008.

Sampled monitoring wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. In accordance with the UFP-QAPP (ATI/HGL, 2019), stabilization was attained when pH was within 0.1 standard unit; specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC; DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible.

Field parameters collected immediately prior to sampling are summarized in Table 4.8. Purge sheets for the groundwater samples are provided in Appendix D. During sampling of the last well, 19B-LGIA-MW06, the pH meter appeared to malfunction, and data for this parameter (pH of 11 and increasing) are not considered to be representative of the groundwater. The average groundwater pH from all other Tract 19B monitoring wells was approximately 7.4, and during development at well 19B-LGIA-MW06, the pH was 7.02.

Groundwater samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for the following analyses:

- VOCs using EPA Method 8260B;
- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7196A/7470A.

4.6.6 Survey

On March 30, 2020, the six new monitoring wells were surveyed by a surveyor licensed in the state of Nebraska. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.7 TRACT 19C INVESTIGATION

ATI/HGL completed soil and groundwater sampling at Tract 19C to characterize and delineate the contamination, support assessment of the risks posed by contamination remaining at the OB/OD site following previous removal actions and evaluate groundwater contamination that may have resulted from past activities at the site.

4.7.1 Soil Sampling

4.7.1.1 Grid Soil Sampling

Seventy-seven five-point composite surface soil samples were collected from the area of Tract 19C from which soil was removed during 2012 to 2015, to evaluate potential contamination in soil undisturbed by the removal activities. Each surface soil sample, collected from 0-0.5 ft bgs, represented an approximately 10,000 square foot grid. These samples were collected from April 30 to May 3, 2018, except for one (19C-D01), which was collected on July 25, 2018. Grid sample locations are shown on Figure 4.6.

Soil was collected with a hand auger or stainless-steel spoon, homogenized in a stainless-steel bowl, then placed into designated sample containers. Samples were shipped to Katahdin for PAH analysis using EPA Method 8270D-SIM, explosives analysis using EPA Method 8330B, and metals analysis using EPA Method 6020A/7196A/7471B. Five of the soil samples (19C-SS05E, -SS07E, -SS06F, -SS05G, and -SS08G) also were analyzed for hexavalent chromium (Cr VI). A summary of soil samples and analyses is provided in Table 4.9.

4.7.1.2 Subsurface Soil Sampling

Based on a review of the surface soil results, grids for subsurface soil sampling were selected to vertically characterize explosives (RDX and nitrobenzene) and metals (arsenic, cobalt, iron, and manganese) (analytical results are discussed in Section 5).

On June 12 and 13, 2018, 25 subsurface soil samples were collected from 25 soil borings. Soil sample locations are shown on Figure 4.6. Boring logs are provided in Appendix C.

Twenty-five DPT borings were advanced at the center of the selected grids. Subsurface soil samples were collected from depths immediately above the water table, which varied between 8 and 14.5 ft bgs, to evaluate the soil-to-groundwater migration pathway. Subsurface soil samples

were collected from core sleeves. Soil was placed into designated sample containers and shipped to Katahdin for select analyses as summarized in Table 4.9.

4.7.2 DPT Groundwater Sampling

Thirty DPT borings were advanced to collect groundwater samples across Tract 19C from May 2 through May 6, 2018 (Figure 4.7). Two DPT borings, 19C-UGIA-DPT01 and 19C-UGIA-DPT02, were advanced adjacent to historical monitoring wells screened in the Middle Grand Island Aquifer (G0065 and G0008, respectively), and eight DPT borings, 19C-LGIA-DPT03 through -DPT10, were advanced adjacent to historical monitoring wells screened in the UGIA to fill data gaps in the screened intervals. Ten pairs of DPT borings (19C-UGIA-DPT11/19C-LGIA-DPT12 through 19C-UGIA-DPT29/19C-LGIA-30) were advanced in areas where historical and current soil data indicated the potential for contaminant leaching or where historical activities may have resulted in contaminants leaching to groundwater.

Screen points were advanced to the base of the sample interval, and DPT rods were then retracted to expose the screen. Groundwater samples were collected from the UGIA and the LGIA using new tubing equipped with a check valve in accordance with the procedures detailed in the Final UFP-QAPP (ATI/HGL, 2019). Field sampling records are provided in Appendix D and sample locations are shown on Figure 4.7.

Groundwater samples were shipped to Katahdin and analyzed for VOCs using EPA Method 8260B, PAHs using EPA Method 8270D-SIM explosives using EPA Method 8330B, and metals using EPA Method 6020A/7470A. Because turbidity was difficult to reduce to below 10 NTU for DPT samples, both a field filtered and an unfiltered sample was collected from each of the DPT points for metals analysis.

4.7.3 Monitoring Well Installation

To confirm the DPT groundwater data, three monitoring well pairs screened in the UGIA and LGIA were installed between June 12 and 18, 2018, and one LGIA monitoring well was installed on July 18, 2018. The first monitoring well pair was installed on the upgradient side of the site, the second was installed in the central portion of the site, and the third was installed downgradient of the site. The seventh well, screened in the LGIA, was installed on the downgradient side of Tract 19C. No wells were installed for groundwater contaminant delineation purposes because the DPT results for explosives and VOCs did not exceed EPA MCLs and/or tap water RSLs (discussed in Section 5). Monitoring well locations are shown on Figure 4.7. Screen depths are provided in Table 4.10.

Wells were constructed and developed as described for the background wells in Section 4.5.2. Well construction diagrams and development logs are provided in Appendix E.

Water levels were measured using an electronic sensor with tape graduated in 0.01-ft intervals on August 7 and 8, 2018, prior to sampling the wells. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.10.

4.7.4 Groundwater Sampling

Nine existing monitoring wells (G0005, G0006, G0007, G0008, BGMW1, BGMW2, BGG01, BGG02, and G0036) were sampled on June 2 and 3, 2018. The seven monitoring wells installed in June and July 2018, during the fieldwork for this RI were sampled on August 7 and 8, 2018. Additionally, monitoring well G0036 was resampled on August 8, 2018 because of the anomalous results observed in the June 2018 sample that was attributed to high turbidity. The June 2018 result is presented in analytical Table 5.09 for informational purposes but is otherwise omitted from the data discussions. Additional details are provided in Section 5.2.2.

Wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. In accordance with the UFP-QAPP (ATI/HGL, 2019), stabilization was attained when pH was within 0.1 standard unit, specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC, DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible. Field parameters collected immediately prior to sampling are summarized in Table 4.11. Purge sheets for the groundwater samples are provided in Appendix D.

Groundwater samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for the following analyses:

- VOCs using EPA Method 8260B;
- PAHs using EPA Method 8270D-SIM;
- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7196A/7470A.

4.7.5 Survey

A surveyor licensed in the state of Nebraska surveyed new monitoring wells 19C-UGIA/LGIA-MW01 through -MW06 on September 19, 2018, and well 19C-LGIA-MW07 on March 3, 2020. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.8 TRACT 20B INVESTIGATION

ATI/HGL completed soil and groundwater sampling at Tract 20B to characterize and delineate contamination, support evaluation of the risks posed by contamination remaining at the South Fuze Destruction Area following excavation and off-site disposal of RDX-contaminated soil and evaluate groundwater contamination that may have resulted from past use of the tract. In addition to soil and groundwater sampling, the RI included the collection of data to sufficiently characterize the nature and extent of MEC present at Tract 20B.

4.8.1 Soil Sampling

On March 15, 2018, six DPT borings, 20B-SS/SB01 through 20B-SS/SB06, were advanced to between 8 and 11 ft bgs near historical boring SFSB03 and the 2000 excavation footprint of the

South Fuze Destruction Area. Six surface soil and 12 subsurface soil samples were collected from the six borings (as specified by the "SS/SB" identifier in the soil boring nomenclature) and are summarized in Table 4.12.

Review of analytical data (discussed in Section 5) indicated additional sampling was required for vertical delineation at boring 20B-SB02 and horizontal delineation north of this location. On June 15, July 25, and August 13, 2018, boring 20B-SB02 (an additional sample collected approximately at the same location as the original sample) was advanced to 12 ft bgs and horizontal stepout borings 20B-SS/SB07 through 20B-SS/SB12 were advanced for collection of surface and subsurface soil samples. Boring logs are provided in Appendix C. Boring locations are shown on Figure 4.8. Sample collection depths at each of the borings are summarized in Table 4.12.

Surface soil and subsurface soil samples were placed in a stainless-steel bowl. A portion of the soil was placed into a plastic bag for field screening using a PID, and the remaining soil was homogenized in the stainless-steel bowl using a stainless-steel spoon prior to placing into designated sample containers. Field sampling records are provided in Appendix D. Samples were placed in an iced cooler and shipped to Katahdin for analysis of PAHs using EPA Method 8270D-SIM, explosives using EPA Method 8330B, and metals using EPA Method 6020A/7196A/7471B. Step out samples were analyzed only for constituents that warranted additional delineation (Table 4.12).

4.8.2 Monitoring Well Installation

To assess impact to groundwater from soil, monitoring well pairs were installed near historical soil boring SFSB03 (20B-UGIA-MW01 and 20B-LGIA-MW02); near the 2000 excavation footprint (20B-UGIA-MW03 and 20B-LGIA-MW04); and in the center of the South Fuze Destruction Area (20B-UGIA-MW05 and 20B-LGIA-MW06). An additional well pair (20B-UGIA-MW07 and 20B-LGIA-MW08) was installed up/cross-gradient of the South Fuze Destruction Area. These well pairs were installed in March 2018. Based on review of analytical data (discussed in section 5) from these eight new wells, three UGIA wells (20B-UGIA-MW09 through -MW11) were installed in July 2018. Monitoring well locations are shown on Figure 4.8. Screen intervals are provided in Table 4.13.

Wells were constructed and developed as described for the background wells in Section 4.5.2. The monitoring wells were completed as stick-ups placed in 24-inch by 24-inch (wells 20B-UGIA/LGIA-MW01 through -MW08) or 32-inch by 32-inch (wells 20B-UGIA-MW09 through -MW11) by 8-inch thick concrete pads. Wells were constructed and developed as described for the background wells in Section 4.5.2. Well construction diagrams and development logs are provided in Appendix E.

Water levels for wells 20B-UGIA-MW09 through MW11 were measured on August 8, 2018, and all other wells were gauged on May 22, 2018, using an electronic sensor with tape graduated in 0.01-foot intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.13.

4.8.3 Groundwater Sampling

The eight monitoring wells installed in March 2018 were sampled between May 31 and June 4, 2018. Wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. Stabilization was attained when pH was within 0.1 standard unit; specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC, DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible. Field parameters collected immediately prior to sampling are summarized in Table 4.14. Purge sheets for the groundwater samples are provided in Appendix D.

Groundwater samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for the following analyses:

- VOCs using EPA Method 8260B;
- PAHs using EPA Method 8270D-SIM;
- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7196A/7470A.

Wells installed in July 2018 and historical well 20B-G0064 were sampled between August 8 and 12, 2018. Groundwater samples were shipped to Katahdin for analysis of RDX using EPA Method 8330B. Analytical results are discussed in Section 5.

4.8.4 Survey

On September 19, 2018, the new monitoring wells were surveyed by a surveyor licensed in the state of Nebraska. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.8.5 MEC Characterization

A MEC investigation was completed for the South Fuze Destruction Area and Abandoned Burning Area MRSs at Tract 20B from May 27, 2020, through June 3, 2020. The South Fuze Destruction Area MRS encompasses 4.36 acres and the Abandoned Burning Area MRS encompasses 0.36 acres. The objective of the MEC investigation was to collect data to characterize the nature and extent of MEC potentially present at both MRSs, and the data collected extended beyond the established MRS boundaries. The RI field activities were conducted in accordance with the Final UFP-QAPP (ATI/HGL, 2019). The investigation areas are shown on Figure 4.9.

Table 4.15 summarizes the completed field activities broken down by site area.

4.8.5.1 Vegetation Reduction and Surface Clearance

Before the collection of any data, UXO-qualified personnel performed an instrument-aided surface clearance to remove sources of metallic interference and to identify and remove MEC-related hazards. No munitions-related items were found during the surface clearance. Following the

surface clearance, technicians used a skid steer with a brush cutting attachment to cut vegetation to approximately 6 inches from the ground surface.

4.8.5.2 Geophysical Investigation

DGM data were collected with an EM61-MK2A (EM61) metal detector at the Abandoned Burning Area and South Fuze Destruction Area between May 27 and June 3, 2020. The single EM61 was mounted on a wheeled platform that positioned the sensor 42 centimeters (cm) (16.5 inches) above the ground surface and was pushed or pulled by an operator. Data were collected at 18 hertz (Hz) and positioned using Real-Time Kinematic (RTK) global positioning system (GPS) at 1 Hz. The accuracy of the RTK GPS positions was verified with the existing control points established at the site, with average offsets less than 1 cm (0.4 inches).

The DGM data were collected by a two-person team consisting of the field geophysicist and a UXO technician. DGM data were processed and targets were selected as described in the Instrument Verification Strip (IVS) Memorandum (Appendix G.1).

For the South Fuze Destruction Area, 1.25 miles of transects were collected within a 6.84-acre area surrounding the previous investigation area and MRS boundary. Anomaly density maps were created from the DGM transect targets using Visual Sample Plan (VSP) software. Results from the analysis in VSP were used to augment the initial characterization data from earlier investigations by extending the delineated high-density area boundary; additional detail is provided in Section 5.3.3.1. A subset of detected targets was investigated to determine the extent of MD.

Full coverage DGM data was collected at 2.5-ft spacing within the 1.84-acre Abandoned Burn Area survey site, which mostly encompasses the 0.36 acre-MRS. The field geophysicist processed the DGM data from the full-coverage survey of the Abandoned Burn Area to produce color-coded maps showing the distribution and magnitude of identified anomalies. A subset of detected targets was selected using a statistical tool in VSP to characterize the site. Selected targets were intrusively investigated by qualified UXO technicians.

The DGM QC program consisted of the geophysical system verification (GSV) approach, which included an IVS and blind seeding of the DGM areas. Additional elements of the QC program included a battery of instrument functional tests performed before production DGM and at the end of each day, as well as the implementation of the geophysical feedback process and acceptance sampling (hole checks) after the intrusive investigation. Appendix G provides the IVS Memorandum (Appendix G.1), Microsoft Access database (Appendix G.2), and raw and processed digital versions of the geophysical data (Oasis montaj™, geophysical database [GDB], MAP, and .XYZ files) (Appendix G.3). Specific tables within the Microsoft Access database document the results of the DGM program performed during production activities and the anomaly reacquisition and intrusive investigation phases of the project.

GSV

The IVS was used at the start of the project to ensure the functionality of the DGM systems and is the basis for the IVS Memorandum (Appendix G.1). The IVS was located in between the two sites

on the northern edge of Tract 20B (Figure 4.9). IVS items used to verify the operation of the EM61 consisted of three small industry-standard objects (ISO) buried in a horizontal orientation at multiple depths. Throughout the project, the DGM teams used the IVS area to perform the daily QC tests, including passes along the IVS centerline and noise lines. The data collected at the IVS throughout the duration of the project are summarized in the appropriate tables in the Microsoft Access database (Appendix G.2).

As part of the GSV process, the UXO Quality Control Specialist (UXOQCS) buried seven blind seeds to verify the performance of the DGM equipment and provide verifiable target detection and positioning capabilities over the course of the DGM survey. Seeds were emplaced at a rate to ensure the DGM team encountered at least one per survey day. All blind seeds achieved the UFP-QAPP Worksheet #22A.1 measurement quality objectives (MQO) for positioning and dynamic signal repeatability. The blind seeds also were used as a tool for evaluating specific data collection, data processing, anomaly selection, and intrusive investigation performance criteria. Blind seed items consisted of small ISOs placed within the upper 15 cm (6 inches) of soil. The position of each blind seed item was measured using RTK GPS. The DGM survey team, data processor/analyst, and intrusive teams did not have prior knowledge of placement locations of the blind seeds in accordance with the Blind Seed Firewall Plan (Attachment M of the Final UFP-QAPP [ATI/HGL, 2019]).

Data Collection

To accurately delineate the boundaries of the South Fuze Destruction MRS, DGM data were initially collected along three parallel transect segments (rings) totaling approximately 3,000 ft in length that surround the southern portion of the previously identified high density (HD) area. The innermost transect was collected close to the previous investigation's extent to allow a comparison of anomaly densities, with each additional ring of transects spaced 50 ft apart. Two additional step-out transects totaling approximately 3,600 ft in length were added after the initial analysis of anomaly density indicated that background conditions had not yet been reached to the south and southeast of the previously defined HD area. The outermost transect nearly reached the Explosives Site Plan (ESP) boundary for this investigation (Figure 4.9).

To delineate the boundaries of the Abandoned Burning Area MRS, a full coverage DGM survey conducted at 2.5 ft line-spacing was performed with the EM61. The survey area encompassed the formerly identified conductivity anomaly and surrounding area that totaled 1.84 acres in size (Figure 4.9). An additional 633 ft delineation transect was surveyed approximately 56 ft outside the southeast and southwest corners due to elevated anomaly densities and the presence of MD at the edges of the 1.84-acre area.

Data Processing and Target Selection

The UXO-Land module of Oasis montaj (version 9.7.1) was used to perform data processing. The general processing sequence consisted of corrections for latency and instrument drift. As part of the final data processing, in-line measurement spacing and coverage were calculated using UXO-Land tools to assess the MQOs. The results were documented in appropriate tables in the Microsoft Access database (Appendix G.2). Individual Oasis montaj GDBs for the DGM data collection files

were merged into a master GDB for each site to facilitate the evaluation of the survey progress and assessment of the data.

According to the UFP-QAPP Worksheet #12A measurement performance criteria (MPC), the target selection threshold was to be based on five times the site noise as determined at the IVS. Noise is defined as one standard deviation of the response channel and was determined to be 0.53 mV on Channel 2 (Ch2). Ch2 was selected as the target selection channel because it provides a high signal-to-noise ratio, is reliably stable, and is not prone to produce false positives. Five times the site noise resulted in a target selection threshold of 2.7 mV. Targets were picked from peaks along the profiles for the transect data. For the full coverage surveys, the data were gridded to produce a map of Ch2 responses, and targets were selected using the Blakely Method in the UXO-Land module. Targets were removed from the final target list if they exhibited improper decay (e.g., data spike) or were associated with a known source (e.g., monitoring well). Further documentation of site noise and the target selection process is provided in the IVS Memorandum (Appendix G.1).

Dig List Generation

Based on historical information, and as provided in the UFP-QAPP (ATI/HGL, 2019), it was anticipated that 50 targets would be investigated at the South Fuze Destruction Area MRS and 25 would be investigated at the Abandoned Burning Area MRS. Anomaly densities were much higher than anticipated at both sites. Although the UFP-QAPP (ATI/HGL, 2019) provides alternate investigation strategies for this scenario, a field work variance (CHAAP-01) was completed to fully document the investigation strategy at each MRS, which is described below. The field work variance is provided in Appendix G.

For the South Fuze Destruction Area MRS, the MEC investigation focused on identifying the extent of MD, not the nature, as this was previously accomplished in the 2013 investigation of the site (Arcadis, 2013). The lateral extent of MD generally correlates with the observed drop off of anomaly density at larger distances from the previously defined HD area.

Targets were selected for investigation iteratively, using the rings of transects to determine the extent of MD density. If MD was not identified in the outermost transect, targets in the next innermost transect were investigated. If MD was found on the outermost transect, an additional outer transect was collected. If MD was identified on a middle transect, the digging of adjacent targets along that transect segment became less important to achieve the goals of the investigation. Sixty out of 274 potential targets were selected for intrusive investigation at the South Fuze Destruction Area (22%). Most targets for investigation were selected by the Project Geophysicist for MD delineation, but additional biased picks were added by the USACE Northwestern Division Omaha District (CENWO) Ordnance and Explosives Safety Specialist (OESS) to obtain a fuller picture of the anomaly sources across the site.

The survey at the Abandoned Burning Area surrounded a previously detected conductivity anomaly identified from an EM38 geophysical survey in the 1990s (ICF Kaiser, 1996). A very low target density was expected based on the historical data. Limited or no intrusive investigations had been previously completed and, therefore, the site remained largely uncharacterized.

Four-hundred and seventy-five targets were identified in the 1.84-acre full-coverage survey of the Abandoned Burning Area, for an average anomaly density of 258 anomalies per acre (APA), when only 25 APA was anticipated. Because digging all targets was outside the scope of the project, ATI/HGL followed the UFP-QAPP and adopted the characterization strategy previously applied at the South Fuze Destruction Area in 2013 (Arcadis, 2013). ATI/HGL utilized the anomaly verification sampling module in VSP software to determine the number of targets that would need to be randomly investigated to achieve 95% confidence that 95% of the locations do not contain munitions-related items. Based on the VSP analysis of 475 targets, 55 would need to be randomly selected and investigated to achieve the sampling goal. ATI/HGL selected 56 targets using a random number generator and the CENWO OESS added 5 biased picks for intrusive investigation, for a total of 61 intrusively investigated targets. Additionally, 8 targets were identified on the delineation transect added beyond the full-coverage survey of the 1.84-acre area (Figure 4.9). All 8 of these delineation transect targets were investigated.

Intrusive Investigation

The intrusive investigations were conducted by qualified UXO technicians in accordance with the approved UFP-QAPP and ESP (ATI/HGL, 2019). In total, 129 targets were investigated across both sites and the results are summarized in Section 5.3.3. Records, such as logbooks and QC documentation, and the findings from the intrusive investigations are presented in Appendix G.4.

Achievement of MPCs and MQOs

Overall, all MPCs and MQOs were achieved for each phase of the DGM survey and intrusive investigations. No Root Cause Analyses or Non-Conformance Reports were required. All seven of the blind seeds emplaced for the DGM survey were detected to achieve the dynamic signal and positioning MQO.

4.8.5.3 Anomaly Reacquisition and Resolution

Before beginning intrusive activities, the field team performed a sensor function test with the EM61 and recorded a measurement over a control point with the RTK GPS. The field team then navigated to the location of each target with an RTK GPS and used an EM61 to locate the anomaly peak and record the Ch2 response. The reacquired peak's location was then measured using the RTK GPS rover, and a flag was used to mark the location for the dig team. The dig team intrusively investigated each target by starting at the location of the highest response and extending the search to within a 1-meter radius for excavation. Excavation teams dug at the locations of the highest responses within the search radius until the target was resolved.

Acceptance sampling was performed by the UXOQCS at a rate that met or exceeded the required amount to achieve 90% confidence that less than 5% of the anomaly locations remained unresolved. In total, the UXOQCS checked 79 of the 129 investigated targets with an EM61 and confirmed the results recorded by the dig team. In addition to acceptance sampling, the QC geophysicist reviewed the intrusive results and compared the results with the geophysical data. No mismatches (e.g., a small item recovered where a large response was measured) were identified. Acceptance sampling results are presented in the project Microsoft Access database in Appendix G.2.

Munitions with the Greatest Fragmentation Distance

The munition with greatest fragmentation distance (MGFD) for the area is the item that has the greatest fragmentation distance of any or all MEC items that are reasonably expected to be found within that area, based on research or site characterization. As presented in the approved ESP (ATI/HGL, 2019), the MGFD applicable to the South Fuze Destruction Area and Abandoned Burning Area sites were based on historical documents and previous investigations. The field team maintained the applicable MGFD during the investigations. Because no MEC was located during the RI field activities, the MGFD was not changed.

Minimum Separation Distance

The minimum separation distance (MSD) is a protective distance based on the characteristics of the selected MGFD. An MSD for both intentional and unintentional detonations was established for nonessential personnel based on the hazardous fragment distance of the MGFD. The field teams maintained the MSD for unintentional detonations during all RI field activities. MSDs for intentional detonations would have been established for disposal operations based on the appropriate MGFD, but intentional detonations were not required because no MEC was recovered.

Exclusion Zones

Exclusion zones (EZ) were established during the RI to protect the public and non-essential personnel from both intentional and unintentional detonations. The boundary of the EZ was established as the distance of the applicable MSD for the Abandoned Burning Area and the South Fuze Destruction Area MRSs for unintentional detonations. This EZ distance was enforced throughout the intrusive operations at each MRS.

MEC Identification and Removal

Intrusive investigations were conducted by a four-person team consisting of one UXO Technician III (team leader) and three qualified UXO Technician IIs. The team intrusively investigated all reacquired and marked anomalies. Excavation procedures at each anomaly location were conducted in accordance with the UFP-QAPP (ATI/HGL, 2019).

Explosives Delivery and Physical Security of MEC

Because no MEC was recovered during RI field activities, the storage and transportation of donor explosives was not required. In addition, the guarding of MEC by field teams until the items were destroyed was not required.

MEC Documentation and Demolition

Documentation of recovered munitions-related items was maintained during the RI. Each piece of recovered MPPEH was tracked from its identification through its final disposition. No MEC items were encountered. The Senior UXO Supervisor (SUXOS) was responsible for the tracking and maintenance of all MPPEH recovered during the project.

Inspection of MPPEH

MPPEH items identified during intrusive operations were evaluated by the SUXOS and the UXO Safety Officer (UXOSO)/UXOQCS. After inspection, no MEC items were recovered. After all MPPEH were determined to be free of explosive hazards, the SUXOS and UXOSO/UXOQCS both verified and signed Form 1348-1A to certify the MDAS. After inspection and certification, recovered MDAS items were containerized and stored in the secure storage area until appropriate disposition was arranged. The records of MDAS inspection and certification, transportation, and smelting of the 4.9 pounds of MDAS are provided in Appendix G.4.

4.8.5.4 Munitions Constituents Characterization

In accordance with decision rules in the approved UFP-QAPP (ATI/HGL, 2019), no investigation for munitions constituents (MC) contamination was necessary for the Abandoned Burning Area and South Fuze Destruction Area sites. The previous Site Investigation Report for the South Fuze Destruction Area MRS (Pika International, 2013) concluded that no release of MC has occurred. MC sampling was planned in the event blow-in-place and/or consolidated demolitions occurred, but because no MEC was identified, post-detonation MC sampling activities were not required.

4.9 TRACT 21B – BURNING PIT AREA INVESTIGATION

Three test trenches (PSRGST004, PRST007, and PRST008) were identified as requiring additional contaminant characterization or delineation in soil based on evaluation of historical data for Tract 21B-BPA. The trench locations are shown on Figure 4.10. Groundwater was identified as requiring evaluation to assess whether soil contaminants have migrated to groundwater and to establish current groundwater contaminant concentrations in the UGIA and LGIA in the site area.

4.9.1 Soil Sampling

On May 15 and 16, 2018, 22 surface soil samples were collected near the historical burning pits/trenches, as shown on Figure 4.10. At 11 of the surface soil locations, subsurface soil samples were also collected. Boring logs are provided in Appendix C. A summary of soil samples collected is provided in Table 4.16.

Four DPT borings, 21B-BPA-SS/SB01 through 21B-BPA-SS/SB04, were advanced within former test trench PRST008 and four DPT borings, 21B-BPA-SS/SB05 through 21B-BPA-SS/SB08, were advanced within former test trench PRST007 to characterize and vertically delineate potential RDX contamination remaining in soil within the former trench footprints. Surface soil samples were collected at all the DPT locations. Subsurface soil samples were collected from the DPT borings at 3 to 4 ft bgs and 7 to 8 ft bgs. Surface soil samples 21B-BPA-SS11 through -SS14 and 21B-BPA-SS15 through -SS18 were collected beyond the trenches PRST008 and PRST007, respectively, to evaluate the lateral distribution of potentially RDX-impacted soil.

Two additional DPT borings, 21B-BPA-SS/SB09 and 21B-BPA-SS/SB10, were advanced within former test trench PSRGST004 to characterize potential lead contamination in soil. In addition, three surface soil samples (21B-BPA-SS19, -SS20, and -SS22) were collected and DPT 21B-BPA-SS21 was advanced outside of the trench to complete lateral delineation of potentially lead-

contaminated soil. One surface soil sample and one subsurface soil sample from 4 to 5 ft bgs were collected from the DPT boring.

Surface soil was placed in a stainless-steel bowl. A portion of the soil was placed into a plastic bag for field screening using a PID, and the remaining soil was homogenized in the stainless-steel bowl using a stainless-steel spoon prior to placing into designated sample containers. Field sampling records are provided in Appendix D. Samples were placed in an iced cooler and shipped to Katahdin for analysis of explosives using EPA Method 8330B and metals using EPA Method 6020A/7196A/7471B.

Subsurface soil samples were collected from core sleeves. Soil was placed into designated sample containers and shipped for analyses as described for surface soil samples.

4.9.2 Monitoring Well Installation

In April and May 2018, three 21B-BPA-UGIA/LGIA well pairs (MW01/MW02, MW03/MW04, and MW07/MW08), one LGIA well (21B-BPA-LGIA-MW05), and one UGIA well (21B-BPA-UGIA-MW06) were installed. Based on review of analytical data (discussed in Section 5) from these five wells, one additional LGIA well (21B-BPA-LGIA-MW10) and three additional UGIA wells (21B-BPA-UGIA-MW09, 21B-BPA-UGIA-MW11, and 21B-BPA-UGIA-MW12) were installed in July 2018. Well locations are shown on Figure 4.11. Screen intervals are provided in Table 4.17.

Wells were constructed and developed as described for the background wells in Section 4.5.2. The monitoring wells were completed as stick-ups installed in 32-inch by 32-inch by 8-inch-thick concrete pads. Well construction diagrams and development logs are provided in Appendix E.

Water level measurements were collected from 21B-BPA-UGIA/LGIA-MW01 through -MW08 on May 22, 2018. Water level measurements from the four wells installed in July were collected in August 2018 prior to sampling. Water levels were measured using an electronic sensor with tape graduated in 0.01-foot intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.17.

4.9.3 Groundwater Sampling

The eight monitoring wells installed in April/May 2018 were sampled along with historical wells PRGW01, PRGW02, PRGW05, and G0071 between June 1 and June 18, 2018. The four monitoring wells installed in July 2018 were sampled in August 2018. Wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 201). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. Stabilization was attained when pH was within 0.1 standard unit; specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC, DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible. Field parameters collected immediately prior to sampling are summarized in Table 4.18. Purge sheets for the groundwater samples are provided in Appendix D.

For the June 2018 sampling event, groundwater samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for the following analyses:

- VOCs using EPA Method 8260B;
- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7196A/7470A.

Groundwater samples from wells 21B-BPA-UGIA-MW09 and 21B-BPA-UGIA-MW12 in August 2018 were only analyzed for Freon 113. Groundwater samples collected from 21B-BPA-LGIA-MW10 in August 2018 were only analyzed for naphthalene, and groundwater samples collected from 21B-BPA-UGIA-MW11 in August 2018 were only analyzed for naphthalene and RDX.

An additional sampling round was conducted in November 2018 to evaluate the presence/absence of PAHs in groundwater based on detection of 2-methylnaphthalene at PRGW01 and PRGW05 in 2005 (URS, 2006). Groundwater samples were collected from wells PRGW01, PRGW02, PRGW05, 21B-BPA-UGIA-MW03, and 21B-BPA-LGIA-MW05 and shipped to Katahdin for analysis of PAHs using EPA Method 8270D-SIM. Field sampling records are provided in Appendix D.

4.9.4 Survey

On September 19, 2018, the 12 new monitoring wells were surveyed by a surveyor licensed in the state of Nebraska. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.10 TRACT 21B – BACKSTOP BERM AND STATIC EJECTION TEST SITE AREA INVESTIGATION

Evaluation of soil and groundwater at the Tract 21B – BB area was required to assess potential explosives and metals contamination remaining after removal of lead-contaminated soil and resulting from past use of the site.

4.10.1 Soil Sampling

On May 15, 2018, five DPT borings (21B-BB-SS/SB01 through -SS/SB05) were advanced at the location of the former backstop berm. A sixth DPT boring, 21B-BB-SS/SB06, was advanced near the Static Ejection Test Site and historical sample location PSRGSL010 to evaluate a historical soil-to-groundwater screening value exceedance for lead in soil. All the soil borings were advanced to a total depth of 4 ft bgs. Surface soil samples were collected at 0 to 0.5 ft bgs and subsurface soil samples were collected at 3 to 4 ft bgs from each of the DPT borings. Table 4.19 provides a soil sample summary and sample locations are shown on Figure 4.12. Boring logs are provided in Appendix C.

Surface soil was placed in a stainless-steel bowl. A portion of the soil was placed into a plastic bag for field screening using a PID, and the remaining soil was homogenized in the stainless-steel bowl using a stainless-steel spoon prior to placing into designated sample containers. Field sampling

records are provided in Appendix D. Samples were placed in an iced cooler and shipped to Katahdin for analysis of explosives using EPA Method 8330B and metals using EPA Method 6020A/7196A/7471B. At location 21B-BB-SS/SB06, where evaluation of historical soil data indicated that lead contamination could have leached to groundwater, soil samples also were analyzed for SPLP metals.

Subsurface soil samples were collected from core sleeves. Soil was placed into designated sample containers and shipped for analyses as described for the surface soil samples. Analytical results are discussed in Section 5.

4.10.2 Monitoring Well Installation

To assess the presence of contamination in groundwater, monitoring well pair 21B-BB-UGIA-MW01 and 21B-BB-LGIA-MW02 were installed near the center of the backstop berm, and monitoring well pair 21B-BB-UGIA-MW03 and 21B-BB-LGIA-MW04 were installed near 21B-BB-SS/SB06 and historical sample location PSRGSL010 (Figure 4.12). Screen depths are provided in Table 4.20.

Wells were constructed and developed as described for the background wells in Section 4.5.2. Well construction diagrams and development logs are provided in Appendix E.

Two of the new monitoring wells at Tract 21B – BB were gauged on May 30, 2018. The two wells that were installed in July, 2018 were gauged on August 9, 2018. Water levels were measured using an electronic sensor with tape graduated in 0.01-foot intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.20.

4.10.3 Groundwater Sampling

Monitoring wells 21B-BB-UGIA-MW01 and 21B-BB-LGIA-MW02 were sampled on June 19, 2018, and monitoring wells 21B-BB-UGIA-MW03 and 21B-BB-LGIA-MW04 were sampled on August 9, 2018. Wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. Stabilization was attained when pH was within 0.1 standard unit; specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC, DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible. Field parameters collected immediately prior to sampling are summarized in Table 4.21. Purge sheets for the groundwater samples are provided in Appendix D.

Groundwater samples from monitoring wells 21B-BB-UGIA-MW01 and 21B-BB-LGIA-MW02 were collected in designated sample containers, placed on ice, and shipped to Katahdin for the following analyses:

- Explosives using EPA Method 8330B; and
- Metals using EPA Method 6020A/7470A.

Groundwater samples from monitoring wells 21B-BB-UGIA-MW03 and 21B-BB-LGIA-MW04 were analyzed only for metals. Field sampling records are provided in Appendix D.

4.10.4 Survey

On September 19, 2018, the four new monitoring wells were surveyed by a surveyor licensed in the state of Nebraska. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.11 TRACT 21B – DECANTING STATION AND LEACHING PIT AREA INVESTIGATION

Evaluation of soil and groundwater at the Tract 21B – DS was required to investigate potential contamination sources for a previously identified RDX groundwater plume and to assess current groundwater conditions.

4.11.1 Soil Sampling

On April 10 and May 14 and 15, 2018, 12 borings, 21B-DS-SS/SB01 through -SS/SB12, were advanced near the previously identified RDX groundwater plume. Borings 21B-DS-SS/SB01 and 21B-DS-SS/SB08 through -DS-SS/SB12 were advanced to 10 ft bgs to evaluate the vadose zone directly above the water table. The remaining borings were advanced to 5 ft bgs. Boring logs are provided in Appendix C. Surface soil samples were collected at 0 to 0.5 ft bgs and subsurface soil samples were collected at 4 to 5 ft bgs from each of the DPT borings. At the deeper boreholes, a second subsurface soil sample was collected at 9 to 10 ft bgs. Sample locations are shown on Figure 4.13. A soil sample summary is provided in Table 4.22.

Immediately upon soil recovery, a Terra-core sampler was used to collect samples directly from the soil core for VOC analysis. The remaining soil from the select interval was placed in a stainless-steel bowl. A portion of the soil was placed into a plastic bag for field screening using a PID, and the remaining soil was homogenized in the stainless-steel bowl using a stainless-steel spoon prior to placing into designated sample containers. Field sampling records are provided in Appendix D. Samples were placed in an iced cooler and shipped to Katahdin, for analysis of VOCs using EPA Method 8260B, explosives using EPA Method 8330B, and metals using EPA Method 6020A/7196A/7471B.

Subsurface soil samples were collected from core sleeves. Soil was placed into designated sample containers and shipped for analyses as described for surface soil samples.

4.11.2 Monitoring Well Installation

To assess current conditions in LGIA groundwater at Tract 21B – DS (UGIA has historically been assessed by historical wells G0102 through G0107 and G0063), wells 21B-DS-LGIA-MW01 through 21B-DS-LGIA-MW07 were installed adjacent to historical wells. Upon review of the data from these new LGIA wells (discussed in Section 5), wells 21B-DS-UGIA-MW08/21B-DS-LGIA-MW09 and 21B-DS-UGIA-MW10 were added on the upgradient side of the former decanting station, and wells 21B-DS-UGIA/LGIA-MW11 through -MW13 were installed to

bound the southern side of the groundwater Freon 113 plume (Figure 4.13). Screen intervals are provided in Table 4.23.

Wells were constructed and developed as described for the background wells in Section 4.5.2. Well construction diagrams and development logs are provided in Appendix E.

Water level measurements were collected from 21B-DS-UGIA/LGIA-MW01 through -MW07 on May 30, 2018. Water level measurements were collected from the wells installed in July 2018 on August 10 and August 21, 2018. Water levels were measured using an electronic sensor with tape graduated in 0.01-foot intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.23.

4.11.3 Groundwater Sampling

New monitoring wells 21B-DS-LGIA-MW01, 21B-DS-LGIA-MW02, 21B-DS-LGIA-MW04 through -MW07, and 21B-DS-UGIA-MW08 along with historical wells G0063, G0102, G0103, and G0105 through G0107 were sampled between June 1 and 19, 2018. The remaining wells (new wells 21B-DS-LGIA-MW03 and 21B-DS-LGIA-MW09 through 21B-DS-LGIA-MW13, and historical wells 21B-DS-G0104 and 21B-DS-G0106) were sampled between August 10 and 21, 2018.

Wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. Stabilization was attained when pH was within 0.1 standard unit; specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC, DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible. Field parameters collected immediately prior to sampling are summarized in Table 4.24. Purge sheets for the groundwater samples are provided in Appendix D.

Samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for analysis. Groundwater samples from monitoring wells 21B-DS-LGIA-MW01 through 21B-DS-LGIA-MW07, G0063, G0102, G0103, and G0105 through G0107 were analyzed for VOCs using EPA Method 8260B, explosives using EPA Method 8330B, and metals using EPA Method 6020A/7196A/7470A. Samples from wells 21B-DS-UGIA-MW08, -MW10, and -MW11, 21B-DS-LGIA-MW09, -MW-12, and -MW13 were analyzed only for Freon 113 using EPA Method 8260B. The sample from well G0104 was analyzed for explosives and metals. Field sampling records are provided in Appendix D. Analytical results are discussed in Section 5.

4.11.4 Survey

On September 19, 2018, the 13 new monitoring wells were surveyed by a surveyor licensed in the state of Nebraska. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.12 TRACT 21C INVESTIGATION

Evaluation of groundwater at Tract 21C was required to characterize contamination in the UGIA and LGIA and assess whether this contamination has migrated from Tract 21B – DS or Tract 21B – BPA.

4.12.1 DPT Groundwater Sampling

Twenty DPT borings were advanced to collect groundwater samples across Tract 21C on March 17 and 18, 2018. Borings 21C-UGIA/LGIA-DPT01 through -DPT20 were advanced in areas estimated to bound the Freon 113 plume based on data from the 2005 Burning Grounds Groundwater Sampling Event (URS, 2006). DPT sample locations are shown on Figure 4.14.

Screen points were advanced and DPT rods were then retracted to expose the screen at the selected depth. Groundwater samples were collected from the UGIA and the LGIA using new tubing equipped with a check valve in accordance with the procedures detailed in the Final UFP-QAPP (ATI/HGL, 2019). Field sampling records are provided in Appendix D.

Groundwater samples were shipped to Katahdin and analyzed for VOCs using EPA Method 8260B and explosives using EPA Method 8330B.

4.12.2 Monitoring Well Installation

To confirm current groundwater conditions beneath Tract 21C and the DPT data (discussed in Section 5), five paired UGIA/LGIA wells (21C-UGIA/LGIA-MW01 through -MW10) were installed at the locations shown on Figure 4.14. Table 4.25 summarizes the screened intervals.

Wells were constructed and developed as described for the background wells in Section 4.5.2. Well construction diagrams and development logs are provided in Appendix E.

Water level measurements were collected from the new monitoring wells on May 20, 2018. Water levels were measured using an electronic sensor with a measuring tape graduated in 0.01-foot intervals. Groundwater elevation data are presented in Table 3.1 and well construction details are provided in Table 4.25.

4.12.3 Groundwater Sampling

The new monitoring wells were sampled on May 21, 22, and 23, 2018. Wells were purged using low-flow sampling procedures in accordance with the UFP-QAPP (ATI/HGL, 2019). Field parameters (pH, specific conductivity, temperature, turbidity, DO, and ORP) were measured continuously until stabilization occurred. Stabilization was attained when pH was within 0.1 standard unit; specific conductance was within ± 0.01 mS/cm or 3% (whichever is less); temperature was ± 1 ºC, DO was ± 0.3 mg/L or within 10% (whichever is less); and turbidity ± 10% or ≤ 10 NTU, if feasible. Field parameters collected immediately prior to sampling are summarized in Table 4.26. Purge sheets for the groundwater samples are provided in Appendix D.

Groundwater samples were collected in designated sample containers, placed on ice, and shipped to Katahdin for the following analyses:

- VOCs using EPA Method 8260B; and
- Explosives using EPA Method 8330B.

Analytical results are discussed in Section 5.

4.12.4 Survey

On September 19, 2018, the 10 new monitoring wells were surveyed by a surveyor licensed in the state of Nebraska. Each point was surveyed for vertical and horizontal location. Survey data are provided in Appendix F.

4.13 IDW MANAGEMENT

Soil cuttings and other solid waste generated during field activities were staged in roll-off bins pending characterization and disposal. Roll-off bins were positioned in two locations: (1) outside of the gate at the intersection of West Capital Ave and Danneborg Road (North Roll-off), and (2) west of Tract 21B-DS (South Roll-off). Five roll-off bins were transported to the disposal facility (Loup Central Landfill) during the RI field activities. Prior to leaving the site, 5-point composite soil samples (CHAAP-IDW-SOIL-040218, CHAAP-IDW-SOIL-040918, CHAAP-IDW-SOIL-060418, CHAAP-IDW-SOIL-08618-S, and CHAAP-IDW-SOIL-080618-N) were collected from each roll-off and shipped to Katahdin for the following IDW characterization analyses:

- Toxicity characteristic leaching procedure (TCLP) (EPA Method 1312) VOCs using EPA Method 8260B/5030 (the sample for this analysis was a grab aliquot, samples for all other analyses were composite).
- TCLP SVOCs using EPA Method 8270C/3510C.
- TCLP metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury) using EPA Method 6010C/7470A/3010A.
- TCLP herbicides using EPA Method 8151A/3510C.
- TCLP pesticides using EPA Method 8081B/3510C.
- Paint filter test (free liquids) using EPA Method 9095B.
- Reactivity: cyanide using EPA Method SW7.3.3.
- Reactivity: sulfide using EPA Method 7.3.4.
- Ignitability using EPA Method 1010A.
- pH using EPA Method 9045D.
- Total Solids using EPA Method 3540C.

Based on the analytical results of waste characterization samples collected on April 2 (North Roll-off), April 9 (South Roll-off), June 4 (North Roll-off), and August 6 (samples collected from each roll-off), solid waste was characterized as nonhazardous. The roll-off bins were transported for

disposal on April 24, April 30, July 20, and September 27, 2018 by Mid-Nebraska Disposal to Loup Central Landfill, a RCRA Subtitle D Landfill in Elba, Nebraska.

Liquid IDW, primarily development and purge water, was contained in poly tanks and disposed of at the CHAAP water treatment plant.

Waste documentation (Waste tracking logs, waste characterization sampling chains-of-custody, analytical summary tables, laboratory data packages, and weight tickets) is provided in Appendix H.

4.14 DEVIATIONS FROM UFP-QAPP

This section presents deviations in the field program relative to the UFP-QAPP. All deviations in the field were reported by field personnel to the project PM, who in turn communicated these modifications to USACE.

DPT is the drilling method specified in the UFP-QAPP for collecting groundwater samples from the UGIA and LGIA at Tract 21C. However, due to heaving sands at some locations, it was not possible to evaluate lithology for proper placement of the well screen using DPT, so an HSA drill rig with split spoon sampling was used to assess the lithology (bottom of upper clay, depth to water, and top of lower clay). This change is listed as "#1a" in the Field Change Documentation form provided in Appendix B.

The UFP-QAPP specified that lithologic descriptions will be recorded for each individual location where drilling is completed. However, for locations where co-located UGIA and LGIA monitoring wells were installed, only the lithology from the LGIA borehole was recorded and used to generate both soil boring logs. The proximity of co-located UGIA/LGIA wells allowed the lithology reported during advancement of LGIA wells to be applied to corresponding UGIA wells so that extraneous soil sample collection and logging activities could be eliminated. This change is listed as "#1b" in the Field Change Documentation form provided in Appendix B.

The UFP-QAPP specified that monitoring wells completed in the UGIA will be installed with the top of each well screen set approximately 2 feet above the water table. However, groundwater was encountered at approximately 8.75 ft bgs in the first borehole (monitoring well 20B-MW05), which prevented the well screen from being set approximately 2 ft above the water table because a minimum of seven feet is required for installation of sufficient sand pack (2 ft) and bentonite seal (5 ft). Consequently, the top of well screens of UGIA wells were installed 2 ft above the top of the Grand Island Formation, rather than 2 ft above the water table, to ensure design specifications for filter sand and bentonite seal were met. This change is listed as "#1c" in the Field Change Documentation form provided in Appendix B.

The UFP-QAPP specified a 24-inch square by 4-inch thick concrete pad for each monitoring well; however, most monitoring wells were completed in 32-inch square by 8-inch thick concrete pads in accordance with the Water Well Standards established in Title 178 – Section 12-003.08D of Nebraska Administrative Code (Nebraska DHHS, 2014). Note that the first eight monitoring wells installed in support of the RI (20B-UGIA/LGIA-MW01 through -MW08) were reshaped from circular, 32-inch diameter concrete pads to square, 24-inch by 24-inch pads, based on the USACE

Geology Supplement to the Scope of Services (USACE, 2013). The adjusted concrete pad dimensions met or exceeded the specifications in the Geology Scope of Services, and therefore generation of a Field Change Documentation form was not necessary.

The UFP-QAPP specified that 20/40 silica sand be used as filter pack for all monitoring wells; however, a coarser filter pack, 16/30 silica sand, was used to minimize the passage of formation materials into the well. The grain size distribution of 16/30 silica sand meet the appropriate specifications of an effective filter pack.

Due to elevated turbidity, field filtered samples were collected for metals analysis from each of the Tract 19C DPT groundwater sampling locations and monitoring well G0037. The field filtered metals analysis of these groundwater samples from Tract 19C was conducted in addition to analysis specified in the UFP-QAPP (VOCs, Explosives, PAHs, and Metals [unfiltered]).

4.15 DATA USABILITY

Usability of the analytical data collected during the RI field activities is detailed in Appendix I (Data Quality Evaluation). Laboratory data packages and data validation reports for data collected during the RI field activities are included in Appendices J and K, respectively. As described in Appendix I, all of the RI data was determined to be usable for their intended purpose.

5.0 NATURE AND EXTENT OF CONTAMINATION

This section describes the nature and extent of contamination at each of the seven sites investigated at CHAAP. Defining the nature and extent of contamination requires obtaining sufficient quantitative data to characterize contamination in affected media. This section summarizes the soil and groundwater data generated from the RI field program and presents the data used to evaluate the nature and extent of contamination. The historical soil and groundwater data used to develop the sampling approach are provided in the UFP-QAPP (ATI/HGL, 2019). Usable historical data, presented in Tables 2.1 through 2.6, were combined with the 2018 RI data to define the nature and extent of soil and groundwater contamination.

As described in the Background Study provided in Appendix L, the RI data and select historical data (i.e., data of sufficient quality to be usable and representative of current site conditions) for PAHs and metals were compared to background datasets established for CHAAP. For each detected metal or PAH, the tract-specific background evaluation (Appendix L) characterized the chemical based on the categories listed below.

- Contaminant (i.e., site dataset exceeds background).
- Hot spot contaminant (i.e., truncated dataset consistent with background, outlier[s] exceeds background threshold values [BTVs]).
- Background constituent (i.e., entire site dataset, including any outlier[s], is consistent with background conditions).

Based on historical site operations and data, it was assumed that all VOC and explosive detections represent contamination because neither explosives nor VOCs are considered natural background or anthropogenic background constituents. To define the nature and extent of contamination, detections of PAHs and metals identified as contaminants or hot spot contaminants in Appendix L and all detections of VOCs and explosives were compared to risk-based screening values. The risk-based screening values consist of the EPA residential soil RSLs and tap water RSLs (May 2021, target cancer risks of 1E-06, and target non-cancer hazard [HQ] quotient of 1.0). Where a phased approach was used to guide the investigation to additional sampling based on potential leaching (stockpiled soil at Tract 19B and surface soil at Tract 19C), soil data were compared to EPA SSLs to evaluate the soil-to-groundwater migration pathway, which is further detailed in Section 6. Groundwater results for contaminants were also compared to the MCLs. For information purposes, BTVs calculated in the Background Study (Appendix L) are included in the data tables presented in this section and are intended to represent the upper range of ambient background concentrations. To optimize presentation of critical features, figures included in this section only include the BTVs of presented compounds; additionally, the lesser of corresponding parent and duplicate sample results are omitted from the figures to further limit content to essential information.

5.1 TRACT 19B

As described in Section 4.6, a phased investigation approach was implemented at Tract 19B to initially evaluate metals and explosives contamination in stockpiled soil (Phases 1 through 3) followed by evaluation of potential impacts to underlying native soil (Phase 4) and groundwater

from leaching (Phase 5). Analytical results for surface soil were compared to RSLs to evaluate potential risk through direct contact and to SSLs to evaluate potential vertical migration to the subsurface through leaching. Subsurface soil samples were analyzed based on exceedances of RSLs and/or SSLs.

5.1.1 Stockpiled Soil Sampling Analytical Results

To evaluate contaminant concentrations throughout the stockpiled soil, 164 samples composited from soil at the top, middle, and base of the stockpile were collected from gridded sections established across the four surveyed stockpiles, as shown on Figure 5.1. Soil samples were analyzed for explosives and metals. As noted in Section 4.6.1, Stockpiles 2 and 3 are evaluated collectively (as "Stockpile 2/3") due to their vicinity. Tables 5.1a through 5.1c compare the analytical results of the RI samples to the screening values for Stockpiles 1, 2/3 and 4, respectively. Figure 5.1 presents the stockpiled soil sample results that exceeded residential soil RSLs and/or BTVs.

The stockpiled soil was sampled in 2014 for analysis of PAHs, TPH-DRO, metals, and explosives. Although the stockpiled soil was moved following the collection of these 2014 samples, no PAH concentrations exceeded the risk-based screening values; therefore, the historical PAH results (presented in Table 2.1) were sufficient to evaluate the nature and extent of PAH contamination, and samples collected from the stockpiles for this RI were not submitted for PAH analysis. The RI explosive and metals results supersede the 2014 data. Because TPH-DRO represents a mixture of chemicals, the historical TPH-DRO results were not included in the nature and extent evaluation presented below.

The background study (Appendix L) identified the contaminants and hot spot contaminants listed below for stockpiled soil at Tract 19B.

- Stockpile soil contaminants: aluminum, cadmium, lead, manganese, and zinc.
- Stockpile soil hot spot contaminants: antimony, arsenic, barium, chromium, cobalt, copper, iron, nickel, mercury, silver, thallium, vanadium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.

5.1.1.1 Stockpile 1 Analytical Results

Fifty-seven three-point composite soil samples were collected from Stockpile 1 within Tract 19B. Analytical results are provided in Table 5.1a and laboratory analytical reports are provided in Appendix J. Results are summarized by analytical group below.

Explosives:

Only soil sample 19B-SP17B, collected along the northern border of Stockpile 1, did not contain detectable concentrations of any explosives. HMX, RDX, TNB, TNT, 2-amino-4,6-dinitrotoluene (2-Am-DNT), and/or 4-amino-2,6-dinitrotoluene (4-Am-DNT) were detected in the remaining 56 soil samples collected from Stockpile 1, as follows:

- HMX was detected in all but five (19B-SP17B, 19B-SP14C, 19B-SP-19C, 19B-SP16D, and 19B-SP17D) of the 57 soil samples. None of the detections exceeded the RSL or the SSL.
- RDX was detected in all but three (19B-SP17B, 19B-16D, and 19B-17D) of the 57 soil samples collected. All detections exceeded the SSL. Concentrations in four samples (19B-SP08C, 19B-SP10C, 19B-SP20C, and 19B-SP07D) also exceeded the RSL of 8,300 micrograms per kilogram (µg/kg), with concentrations ranging from 11,000 µg/kg (19B-SP08C) to 22,000 µg/kg (19B-SP10C).
- TNB was detected in 11 of 57 soil samples. None of the results exceeded the RSL or the SSL.
- TNT was detected in 48 of 57 samples. Twenty-two of the detections exceeded the SSL. The concentration in two samples, 19B-SP06C (25,000 µg/kg) and 19B-SP15C (94,000 µg/kg) also exceeded the RSL of 21,000 µg/kg.
- 2-Am-DNT was detected in 46 of the 57 soil samples. All reported concentrations exceeded the SSL. None of the results exceeded the RSL.
- 4-Am-DNT was detected in 43 of the 57 soil samples. All the detections exceeded the SSL. None of the results exceeded the RSL.

Metals:

Detections of aluminum, cobalt, iron, and manganese were greater than the RSLs or SSLs in at least one of the 57 soil samples collected from Stockpile 1, as described below.

- The maximum aluminum detection of 137,000 mg/kg in sample 19B-SP11C exceeded the RSL of 77,000 mg/kg. All other aluminum concentrations are less than the RSL. All aluminum results are less than the SSL.
- Cobalt contamination in Stockpile 1 appears to be localized to location 19B-SP09C. The cobalt detection for this sample is greater than the SSL and less than the residential soil RSL.
- The detections of iron reported for samples 19B-SP10C and 19B-18C exceeded the BTV and SSL. No other concentrations exceeded the BTV. All results are less than the residential soil RSL.
- The maximum manganese detection of 593 mg/kg in the parent sample from 19B-SP09C exceeded the BTV and SSL. The result for the associated field duplicate is less than the BTV. All other manganese detections are less than the BTV, and all manganese results are less than the residential soil RSL.

Summary:

Stockpile 1, comprised of soil removed from Tract 19C and placed in Tract 19B, is contaminated with HMX, RDX, TNB, TNT, 2-Am-DNT, and 4-Am-DNT. The highest explosives concentrations were reported for samples collected along the midline of the stockpile, wherein

RDX or TNT concentrations exceeded the residential soil RSL at six locations. There is a potential for RDX, TNT, 2-Am-DNT, and 4-Am-DNT to leach to groundwater based on SSL exceedances.

Of the metal contaminants identified for the stockpiled soil, there are few instances in which detections are greater than the risk-based screening values. Only one detection of aluminum exceeded the BTV and RSL, and only isolated detections of cobalt, iron, and manganese exceeded the BTVs and SSLs, suggesting if these metals leached from the stockpiled soil, they would not be a significant contaminant source to underlying native soil and groundwater.

5.1.1.2 Stockpile 2/3 Analytical Results

A total of 102 composite soil samples were collected from Stockpile 2/3 within Tract 19B. Analytical results are provided in Table 5.1b. Analytical reports are provided in Appendix J. Results are summarized by analytical group below.

Explosives:

Explosives were detected in all but 11 soil samples (19B-SP27A, 19B-SP36A to 19B-SP39A, 19B-SP43A, 19B-SP28C, 19B-SP45C, 19B-SP43E, 19B-SP41F, and 19B-SP42F). HMX, RDX, TNB, TNT, 2-Am-DNT, 4-Am-DNT, and/or 2,4-DNT were detected in one or more of the remaining 91 soil samples collected from Stockpile 2/3, as follows:

- HMX was detected in 82 of the 102 samples. None of the detections exceeded the RSL or the SSL.
- RDX was detected in 82 of the 102 samples. All detections exceeded the SSL. Only the maximum concentration of 16,000 µg/kg in sample 19B-SP43C exceeded the RSL (8,300 µg/kg).
- TNB was detected in 11 of the 102 soil samples. None of the results exceeded the RSL or the SSL.
- TNT was detected in 74 of the 102 samples. 18 detections exceeded the SSL. The concentration in sample 19B-SP34C (120,000 µg/kg) also exceeded the RSL (21,000 µg/kg).
- 2-Am-DNT was detected in 74 of the 102 soil samples. All detections exceeded the SSL of 30 µg/kg. None of the results exceeded the RSL of 7,700 µg/kg.
- 4-Am-DNT was detected in 74 of the 102 soil samples. All detections exceeded the SSL of 30 µg/kg. None of the detections exceeded the RSL of 7,700 µg/kg.
- 2,4-DNT was detected in only one soil sample (19B-SP34C [110 µg/kg]). This detection exceeded the SSL of 6.4 µg/kg but did not exceed the RSL of 1,700 µg/kg.

Metals:

Antimony, arsenic, cobalt, iron, lead, and manganese were detected at concentrations exceeding BTVs and either RSLs or SSLs in at least 1 of the 102 soil samples collected from Stockpile 2/3, as follows:

- Antimony was detected in four samples (19B-SP35E, 19B-SP36E, 19B-SP38E, and 19B-SP-38F) at concentrations exceeding the BTV and SSL. The concentration (76.8 J mg/kg) detected in sample 19B-SP35F also exceeded the BTV (0.333 mg/kg) and RSL (31 mg/kg).
- Arsenic was detected in three samples, 19B-SP35C, 19B-SP28D, and 19B-SP37F, at concentrations of 16.8 mg/kg, 46.7 mg/kg, and 13.9 mg/kg, respectively. All three concentrations exceeded the BTV, RSL, and SSL. All other arsenic results were less than the BTV of 13.6 mg/kg. Arsenic concentrations in all of the soil samples exceeded the RSL (0.68 mg/kg); arsenic concentrations in 64 of the soil samples also exceeded the SSL (5.8 mg/kg).
- Cobalt was detected in four samples (19B-SP35C, 19B-SP28F, 19B-SP44F, and the field duplicate from 19B-43G) at concentrations exceeding the BTV and SSL. All other cobalt results were less than the BTV and none exceeded the RSL.
- Iron was detected in seven samples (19B-SP28D, 19B-SP39D, 19B-35E [parent sample only], 19B-SP39E, 19B-32F, 19B-38F, and 19B-40F) at concentrations exceeding the BTV and SSL. All other iron results were less than the BTV and none exceeded the RSL.
- Manganese was detected in two samples (19B-SP41B and 19B-SP35C) at concentrations exceeding the BTV and SSL. All other manganese results were less than the SSL and none exceeded the RSL.

Summary:

Pile 2/3, comprised of soil removed from Tract 19C, is contaminated with HMX, RDX, TNB, TNT, 2-Am-DNT, and 4-Am-DNT. There is limited presence of 2,4-DNT. Explosives were detected throughout the majority of Stockpile 2/3, and RDX and TNT was detected at concentrations that exceed their respective residential RSLs at two locations along the ravine that extends east/west through the center of the stockpile. Based on comparison of the results to the SSLs, RDX, TNT, 2-Am-DNT, and 4-Am-DNT could leach to groundwater. Although the 2,4-DNT detection was greater than the SSL, the low detection frequency of this explosive suggests limited potential for this explosive to contaminate the underlying groundwater.

Soil in Stockpile 2/3 appears to be more contaminated with metals than Stockpile 1. Detections of antimony, arsenic, cobalt, iron, lead, and manganese exceeded the BTV and risk-based screening values. Comparison of the data to the SSLs indicates the potential for these metals to leach to groundwater.

5.1.1.3 Pile 4 Analytical Results

Five composite soil samples were collected from Stockpile 4 within Tract 19B. Analytical results are provided in Table 5.1c. Analytical reports are provided in Appendix J. Results are summarized by analytical group below.

Explosives:

One or more of the explosives HMX, RDX, TNB, TNT, 2-Am-DNT, 4-Am-DNT, and 2,4-DNT were detected in the five soil samples collected from Stockpile 4, as follows:

- HMX was detected in all five samples. All concentrations were less than the RSL and the SSL.
- RDX was detected in all samples except one (19B-SP31). All four detections exceeded the SSL but did not exceed the RSL.
- TNB was detected in one (19B-SP32J) of the five samples. The result was less than the RSL and the SSL.
- TNT was detected in all five samples. Only the maximum detection of 85,000 µg/kg in sample 19B-SP32J was greater than the RSL of 21,000 µg/kg and SSL of 300 µg/kg.
- 2-Am-DNT was detected in all five samples. All detections exceeded the SSL and were less than the RSL.
- 4-Am-DNT was detected in all five samples. The results were greater than the SSL and less than the RSL.
- 2,4-DNT was detected in one (19B-SP32J) of the five samples collected. The detected concentration exceeded the SSL but not the RSL.

Metals:

The detection of arsenic in sample 19B-SP31J (14.8 mg/kg) exceeded the BTV, RSL, and SSL. All other metal results were less than the BTVs or RSLs and SSLs.

Summary:

Similar to the other stockpiles, Stockpile 4 is contaminated with HMX, RDX, TNB, TNT, 2-Am-DNT, and 4-Am-DNT. 2,4-DNT also was detected in this stockpile's soil. In combination with the results from the other stockpiles, comparison of the data to the SSLs indicates the potential for RDX, TNT, 2-Am-DNT, and 4-Am-DNT to leach through the stockpile.

There is limited evidence of metal contamination in Stockpile 4. The maximum arsenic detection was greater than the screening values, but the detection was only slightly exceeded than the BTV.

5.1.2 SPLP Sample Analytical Results

Because many of the explosive and some of the metal results for the stockpiled soil samples were greater than the soil-to-groundwater SSLs, select locations were sampled for SPLP analysis to further evaluate this potential migration pathway. The SSL is a literature-based value that does not account for site-specific factors, such as soil organic carbon content and pH, which can affect contaminant migration. By mimicking the effects of precipitation in the laboratory, the SPLP analysis provides site-specific data on the potential for contaminants to leach.

Twenty 3-point composite samples, consisting of soil from the top, middle, and base of Stockpiles 1 and 2/3, were collected SPLP analysis from locations representative of the entire range of detected RDX concentrations (Figure 5.2). The full range of RDX concentrations was targeted (instead of only elevated concentrations) to enable a corollary evaluation of paired RDX and SPLP RDX results with the objective of developing a site-specific leaching screening value.

Leaching potential was evaluated by comparing analytical data to MCLs and tap water RSLs. Because metals can occur naturally in soil leachate, results for metals were compared first to groundwater BTVs (if available), and then to MCLs (if available) and RSLs. Tract 19B SPLP analytical results are summarized in Table 5.2. Laboratory analytical reports are provided in Appendix J.

Explosives:

Consistent with the soil data for the three stockpiles, HMX, RDX, TNB, TNT, 2-Am-DNT, 4-Am-DNT, and 2,4-DNT were detected in the SPLP leachate samples. The bullets below summarize the results for these explosives.

- HMX was detected in all SPLP leachate samples at concentrations less than the tap water RSL.
- RDX was detected in all SPLP samples. With the exception of 19B-18C and 19B-41C, collected beneath the midline of Stockpile 1, the RDX leachate concentrations exceeded the tap water RSL.
- TNB was detected in two SPLP leachate samples. Both detections were less than the tap water RSL.
- TNT was detected in 11 of the 20 SPLP leachate samples. Detections reported for eight of the SPLP leachate samples exceeded the tap water RSL.
- 2,4-DNT was detected in the parent leachate sample for 19B-44G at a concentration exceeding the tap water RSL. 2,4-DNT was not detected in any of the other SPLP samples.
- 2-Am-DNT was detected in 16 of the 20 SPLP samples. Concentrations in five of the SPLP samples exceeded the tap water RSL.
- 4-Am-DNT was detected in 18 of the 20 SPLP samples. Detections in nine of the SPLP samples exceeded the tap water RSL.

Figure 5.2 presents the results for explosives detected in the leachate samples at concentrations greater than the tap water RSLs.

Metals:

Metals were detected in all of the leachate samples. As described below, detections of aluminum, antimony, arsenic, beryllium, chromium, cobalt, iron, lead, manganese, mercury, thallium, and vanadium exceeded groundwater BTVs and either tap water RSLs or MCLs.

- Aluminum was detected at concentrations exceeding the BTV and tap water RSL in all 20 SPLP samples. There is no MCL for aluminum.
- There is no BTV for antimony in groundwater. Antimony was detected in all the leachate samples. Two detections, reported for 19B-35E and 19B-38F, exceeded the MCL and tap water RSL.

- Arsenic was detected at concentrations exceeding the BTV, MCL, and tap water RSL in 18 of the 20 SPLP samples.
- Arsenic was detected at concentrations exceeding the BTV, MCL, and tap water RSL in all but two leachate samples (19B-09C and 19B-10C).
- Beryllium was detected at concentrations greater than the BTV and MCL in all but five (19B-03B, 19B-20B, 19B-09C, 19B-10C, and 19B-18C) of the 20 SPLP samples. None of the detections exceeded the tap water RSL.
- Chromium was detected at concentrations exceeding the MCL in 14 of the 20 SPLP samples. None of the detections exceeded the tap water RSL (for trivalent chromium). There is no BTV for this metal.
- Cobalt was detected at concentrations exceeding the BTV and tap water RSL in all but one (19B-10C) of the 20 SPLP Samples. There is no MCL for cobalt.
- Iron was detected at concentrations exceeding the BTV and tap water RSL in all of the 20 SPLP samples. There is no MCL for iron.
- Lead was detected at concentrations exceeding the BTV, tap water RSL, and MCL in all of the 20 SPLP samples.
- Mercury was detected at a concentration exceeding the tap water RSL only in SPLP sample 19B-35E. Concentrations did not exceed the MCL. There is no BTV for mercury.
- Thallium was detected at concentrations exceeding the tap water RSL in all but one (19B-10C) of the 20 SPLP samples and at a concentration also exceeding the MCL in SPLP sample 19B-44F and the field duplicate for 19B-44G. There is no BTV for thallium.
- Vanadium was detected at concentrations exceeding the BTV and tap water RSL in all but two (19B-09C and 19B-10C) of the 20 SPLP samples. There is no MCL for vanadium.

Because nearly all the results for several metals were greater than the screening values, the metal leachate concentrations are not shown on Figure 5.2. However, SPLP analytical results are provided in Table 5.2.

Summary:

SPLP explosives results were consistent with stockpiled soil data. The majority of the composite stockpiled soil samples contained RDX at concentrations exceeding the SSL, and the majority of SPLP leachate samples also contained RDX at concentrations exceeding the tap water RSL. Similarly, TNT was detected in stockpiled soil samples at concentrations exceeding the SSL at almost half of the sample locations and a similar number of SPLP samples also contained TNT at concentrations exceeding the tap water RSL. Two composite stockpile soil samples (collected from Stockpile 2/3) contained 2,4-DNT at concentrations exceeding the SSL, with one also exceeding the tap water RSL. 2-Am-DNT and 4-Am-DNT were detected in the majority of composite soil samples at concentrations exceeding SSLs and were detected in 20 to 25% of the SPLP leachate samples at concentrations exceeding tap water RSLs. The data suggest these explosives could leach through soil to contaminate groundwater beneath the site. Because nearly all 20 SPLP samples contained RDX tap water RSL exceedances, a site-specific leaching screening value was not calculated.

SPLP leachate results indicated a greater potential for metals to leach to groundwater than did comparison of the soil data to the SSLs. The SSL comparison identified the potential for arsenic, cobalt, iron, lead, and manganese to leach to groundwater at concentrations greater than risk-based screening values at a limited number of sample locations. The SPLP leachate results, however, indicated widespread potential for aluminum, arsenic, beryllium, chromium, cobalt, iron, lead, thallium, and vanadium to leach to groundwater at concentrations greater than tap water RSLs and/or MCLs. The SPLP results indicate limited potential for the stockpiled soil to contaminate groundwater with manganese.

5.1.3 Soil Sample Analytical Results

Ten soil borings were advanced for collection of native soil samples from beneath the stockpiled soil in Tract 19B. At each soil boring location surface soil and subsurface soil samples were collected. Three borings were placed within the footprint of Stockpile 1 (19B-SS/SB01 through 19B-SS/SB03), six borings were placed within the footprint of Stockpile 2/3 (19B-SS/SB04 through 19B-SS/SB09), and one boring was placed within the footprint of Stockpile 4 (19B-SS/SB10) to provide representative samples of native soil beneath the stockpiles. Native surface soil samples were collected from 0 to 2 ft below the surface of native soil to evaluate potential impact to the upper portion of native soil from contaminants within the stockpiles. Native subsurface soil samples were collected in the vadose zone at depths ranging from 5 ft (19B-SB05) to 12 ft (19B-SB01 and 19B-SB08) below the native ground surface elevation. Sample locations are shown on Figure 5.3.

Soil samples were analyzed for explosives and metals. Analytical results for explosives were compared to residential RSLs. The background study (Appendix L) identified arsenic, barium, nickel, vanadium, aluminum, antimony, chromium, copper, and iron as site-wide contaminants in native surface soil but noted that the aluminum, antimony, chromium, copper, and iron results could represent heterogeneity in background conditions. Cobalt, iron, and manganese were identified as hot spot contaminants in native subsurface soil.

The analytical results are summarized in Table 5.3 and laboratory analytical reports are provided in Appendix J. Data validation reports are provided in Appendix K. Because there were limited detections of constituents in soil samples, the analytical results for surface soil and subsurface soil samples are discussed together below.

<u>Explosives:</u>

Explosives were detected in 1 of the 20 native soil samples. HMX and RDX were detected in the native surface soil sample, 19B-SS03, collected on the east side of Stockpile 1at concentrations less than the RSLs.

<u>Metals:</u>

Arsenic was detected in six surface soil samples (19B-SS01, 19B-SS05, 19B-SS07, 19B-SS08, 19B-SS09, and 19B-SS10) at concentrations exceeding the BTV and residential RSL. Concentrations ranged from 5.97 mg/kg (19B-SS08) to 11.6 mg/kg (19B-SS07). The surface soil BTV is 5.1 mg/kg and the residential RSL is 0.68 mg/kg. The majority of elevated detections were

on the western side of the site and on the borders rather than beneath the central portion of the stockpiled soil. No other metals were detected in soil samples at concentrations exceeding the BTV and RSL. RSL exceedances are shown on Figure 5.3.

Summary:

Despite the leaching potential indicated by comparison of overlying stockpile soil data to SSLs and SPLP analysis, the native, underlying soil data indicate there has been limited leaching of explosives from the stockpiled soil. The background comparison identified several metal contaminants in the native soil, but only arsenic is present at concentrations greater than the risk-based screening values.

5.1.4 Groundwater Sample Analytical Results

Groundwater at Tract 19B had not been previously characterized prior to the 2018 RI field program. As described in Section 4.6 and in accordance with the UFP-QAPP (ATI/HGL, 2019), the groundwater investigation at Tract 19B included DPT sampling followed by monitoring well installation and sampling. The DPT and monitoring well sampling results are discussed separately below.

5.1.4.1 DPT Groundwater Samples

To evaluate the soil-to-groundwater migration pathway and determine locations for monitoring wells, DPT groundwater samples were collected from the UGIA and the LGIA at 10 locations across Tract 19B, as shown on Figure 5.4. Groundwater samples were analyzed for VOCs, explosives, and metals.

The DPT results were screened against the tap water MCLs, RSLs, and BTVs. Because the DPT data are considered screening level data, these comparisons are provided for informational purposes only. Definitive groundwater data obtained from permanent monitoring wells were used to define the nature and extent of groundwater contamination as described in Section 5.1.4.2. The DPT sample results are summarized in Table 5.4. Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

VOCs were not identified as contaminants in the stockpiled soil at Tract 19B. However, DPT groundwater samples were analyzed for VOCs to evaluate potential migration from off-site sources to beneath Tract 19B. Acetone, chloromethane, cis-1,2-dichloroethene, Freon 113, dichlorodifluoromethane (also known as R-12 and Freon 12), and toluene were detected. All concentrations were orders-of-magnitude less than the RSLs and/or MCLs.

Explosives:

No explosives were detected in the DPT groundwater samples.

Metals:

Turbidity was not reduced during collection of the DPT samples, and samples were described as brown with moderate to high turbidity (see field sampling records in Appendix D). Multiple metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, thallium and vanadium) were detected at concentrations exceeding their respective MCLs and/or tap water RSLs in DPT samples. Both aluminum and iron, which can be used as indicators of suspended solids due to their ubiquitous presence in soil particles, were present at high concentrations. Consequently, the high metal concentrations reported for the DPT samples are attributed to the suspended solids entrained in the samples.

Summary:

Explosives were not detected in UGIA or LGIA DPT groundwater samples collected across Tract 19B, and VOCs were not detected at concentrations exceeding tap water RSLs. Although multiple metals were detected at elevated concentrations in the DPT samples, the samples were observed to be turbid. The DPT metal results are therefore likely due to metals associated with the suspended solids entrained within the groundwater samples.

5.1.4.2 Monitoring Well Groundwater Samples

Three newly installed monitoring well pairs, each consisting of one well screened in the UGIA and one well screened in the LGIA, are located on the cross-gradient and downgradient sides of the stockpiled soil, and one historical monitoring well is located in the southern portion of Tract 19C (G0037). Monitoring well locations are shown on Figure 5.4. Groundwater analytical results are summarized in Table 5.5, and laboratory reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

Low-level (trace) amounts of VOCs were detected in groundwater sampled from three of the seven Tract 19B monitoring wells (including historical well G0037). A trace amount (0.39 J µg/L) of chloromethane was detected in groundwater sampled from well 19B-LGIA-MW04. Freon 113 was detected at 9.6 J µg/L, in groundwater sampled from well 19B-UGIA-MW01 and at 0.37 J µg/L in groundwater sampled from well 19B-G0037. Dichlorodifluoromethane was detected at 1.2 J µg/L in groundwater sampled from well 19B-LGIA-MW01. No other VOCs were detected in Tract 19B groundwater samples. The Freon 113 and dichlorodifluoromethane detections were orders-of-magnitude less than the tap water RSLs.

Explosives:

No explosives were detected in Tract 19B groundwater samples.

Metals:

Metals were detected in all groundwater samples. The background study (Appendix L) identified manganese as a sitewide groundwater contaminant and copper as a hot spot contaminant. Because

manganese is a sitewide contaminant, the BTV was not used to screen individual manganese results. All manganese detections are greater than the tap water RSL of 430 µg/L with concentrations ranging from 1,000 µg/L to 1,920 µg/L. All copper results are less than the MCL and tap water RSL.

Summary:

The VOC and explosive results do not indicate leaching of contaminants from stockpiled soil to groundwater or migration of contamination in groundwater from up- or cross-gradient sources to Tract 19B. Manganese is the only groundwater contaminant present at concentrations greater than risk-based screening values. Manganese is a contaminant in stockpiled soil but is present in the native soil at natural background levels.

5.2 TRACT 19C

As described in Section 4.7, the objective of soil and groundwater sampling at Tract 19C was to evaluate contamination remaining after completion of the historical removal actions at Tract 19C. Historical soil data not affected by removal actions are presented in Table 2.2 and were included in the nature and extent of contamination evaluation.

5.2.1 Soil Sample Analytical Results

5.2.1.1 Surface Soil

Seventy-six five-point composite surface soil samples were collected from 0 to 0.5 ft bgs for PAHs, explosives, and metals analysis to evaluate contamination in undisturbed soil following previous removals and the potential for contaminants in surface soil to leach to groundwater. Subsurface soil samples were collected and held while concentrations in surface soil were compared to the EPA residential soil RSLs and SSLs; the held subsurface soil samples were analyzed when necessary to vertical delineate surface soil concentrations. Soil sample exceedances are shown on Figure 5.5.

The PAH and metal results were compared to the background dataset (see Appendix L). The results of PAHs and metals identified as contaminants were then compared to the risk-based screening values. An additional surface soil sample (19C-D01) was subsequently collected to evaluate arsenic on the west side of the site. Table 5.6 summarizes the analytical results. Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K.

PAHs:

The background study concluded that all PAH results represent background conditions. No PAH contamination was identified in Tract 19C soil.

Explosives:

The majority of the historical soil samples and RI soil samples did not contain any explosives. No explosives were detected at concentrations exceeding the residential RSLs. RDX, nitrobenzene, 2-

Am-DNT and 4-Am-DNT were the only explosives detected in at least one soil sample at a concentration exceeding SSLs, as follows:

- RDX was detected in 10 soil samples. With concentrations ranging from 36 J µg/kg (field duplicate from 19C-SS02D) to 2,800 µg/kg (19C-SS04E), all the detections exceeded the SSL (7.4 µg/kg) but were less than the residential RSL of 8,300 µg/kg.
- Nitrobenzene was detected in the field duplicate from 19C-SS4H at 27 µg/kg and in sample 19C-SS4I at 92 J µg/kg; both concentrations exceed the SSL (1.84 µg/kg).
- 2-Am-DNT was detected in surface soil samples 19C-SS02F (83 J µg/kg), 19C-SS08I (43 J µg/kg), and 19C-SS11I (39 J µg/kg) at concentrations exceeding the SSL (30 µg/kg).
- 4-Am DNT was detected in three surface soil samples 19C-SS02F (130 µg/kg), 19C-SS08I (56 J µg/kg), and 19C-SS11I (77 J µg/kg) at concentrations exceeding the SSL (30 µg/kg).

Other than 2-Am-DNT and 4-Am-DNT, the explosive detections were not co-located, and the SSL exceedances were relatively randomly distributed across the sampled grids (see Figure 5.5).

The historical soil data include two TNT detections, two 2-Am-DNT detections, one RDX detection, and two 4-Am-DNT detections greater than the SSLs and less than the residential soil RSLs.

Metals:

The background study pooled the surface soil and subsurface soil data for comparison to the background concentrations because of the soil mixing that likely resulted from the historical removal actions. The background study (Appendix L) identified barium and manganese as site-wide soil contaminants and arsenic, cobalt, iron, lead, nickel, and vanadium as hot spot contaminants. As described below, detections of arsenic, cobalt, iron, and manganese exceeding screening values.

- Arsenic was detected at concentrations exceeding the BTV, RSL, and SSL in 4 of 77 surface soil samples (19C-SS09B, 19C-SS09C, 19C-SS02D [field duplicate only], 19C-SS10D). Concentrations ranged from 14.8 mg/kg to 35.2 J mg/kg.
- Cobalt was detected at concentrations exceeding the BTV and SSL in 4 of the 76 surface soil samples (19C-SS03C, 19C-SS02D [field duplicate only], 19C-SS10F, and 19C-SS10G [field duplicate only]), with none exceeding the RSL. Concentrations ranged from 13.4 mg/kg to 15.5 mg/kg.
- Iron was detected at concentrations exceeding the BTV and SSL in 9 of the 76 surface soil samples, with none exceeding the RSL. These results ranged from 19,500 mg/kg (19C-SS03C) to 27,800 mg/kg (19C-SS04D).
- Manganese was detected at concentrations exceeding the BTV and SSL in 13 of the 76 surface soil samples. The maximum concentration, reported for sample 19C-SS06D (1,850 J mg/kg), also exceeded the RSL of 1,800 mg/kg.

Figure 5.5 presents the arsenic concentrations that exceeded the BTV and RSL in addition to illustrating grids in which BTV and SSL exceedances were detected.

Summary:

No PAH contamination was identified in surface soil at Tract 19C. Current and historical data indicate that RDX, nitrobenzene, TNT, 2-Am-DNT, and 4-Am-DNT are present at concentrations that could result in groundwater contamination. The isolated detections of these explosives, however, suggest that their presence may not be sufficiently widespread to affect groundwater quality.

The background evaluation identified widespread barium and manganese contamination, and localized areas of arsenic, cobalt, iron, lead, nickel, and vanadium contamination. Only arsenic and manganese were detected at concentrations greater than both the BTV and RSL. Arsenic, cobalt, iron, and manganese are present at several locations at concentrations exceeding the BTV and SSL, indicating they could potentially leach from soil and affect groundwater quality.

5.2.1.2 Subsurface Soil

Of the 77 surface soil samples, 25 were identified as having contaminants at concentrations that exceeded residential soil RSLs and/or could potentially leach to groundwater. On June 12 and 13, 2018, 25 soil borings were advanced and subsurface soil samples were collected at grid locations selected to evaluate vertical migration of constituents identified in the surface soil samples. Soil sample locations are shown on Figure 5.5. Subsurface soils were analyzed for RDX, nitrobenzene, arsenic, cobalt, iron, and/or manganese based on RSL and/or SSL exceedances in the overlying surface soil sample. The analytical results are provided in Table 5.7. For comparison purposes, Table 5.7 also includes the co-located surface soil results. Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K.

RDX and nitrobenzene were not detected in the subsurface soil samples. Except for iron at locations 19C-SB02D and 19C-SB04D, the subsurface metal detections were less than the co-located surface soil results, suggesting that contaminants are not migrating from the surface.

Summary:

Soil data for locations of historical removal actions indicated localized areas of RDX, nitrobenzene, 2-Am-DNT, and 4-Am-DNT contamination at concentrations that could leach to groundwater. The subsurface soil results, however, indicate that explosives are not leaching through the vadose zone at detectable levels. No PAH contamination was identified in the soil samples for this tract. The background study identified widespread barium and manganese contamination, and localized areas of arsenic, cobalt, iron, lead, nickel, and vanadium contamination. The subsurface soil data indicate limited migration of metals from surface soil to subsurface soil.

5.2.2 Groundwater Sample Analytical Results

5.2.2.1 DPT Groundwater Samples

Based on the soil data, 30 locations (Figure 5.6) were selected for collection of groundwater samples using DPT. Several of the DPT borings were positioned near historical monitoring wells where complete coverage of the Grand Island aquifer was incomplete. For example, 19C-LGIA-DPT04 was collected from the LGIA adjacent to historical UGIA monitoring well 19C-G0005. The DPT groundwater samples were analyzed for VOCs, PAHs, explosives, total (unfiltered) metals, and dissolved (field filtered) metals.

Table 5.8 presents the DPT analytical results. The DPT results were screened against the tap water MCLs, RSLs, and BTVs. Because the DPT data are of screening level quality and, for the metals, the collection method does not match that used for the background dataset, these comparisons are provided for informational purposes only. Groundwater data obtained from permanent monitoring wells were used to define the nature and extent of groundwater contamination (see Section 5.2.2.2). Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

Freon 113, dichlorodifluoromethane, and carbon disulfide were each detected in at least one of the DPT groundwater samples. However, these three VOCs were not detected at concentrations that exceeded the tap water RSLs. Naphthalene was detected at concentrations of 1.2 µg/L at 19C-UGIA-DPT02 and 2.3 J µg/L in the duplicate sample collected at 19C-LGIA-DPT14 (field duplicate sample only). Both naphthalene detections exceeded the tap water RSL of 0.12 µg/L.

PAHs:

2-Methylnaphthalene was detected at 19C-DPT01 and fluoranthene was detected at 19C-DPT20 and 19C-DPT21. Concentrations were orders-of-magnitude less than tap water RSLs.

Explosives:

No explosives were detected in any of the DPT groundwater samples.

Metals:

Metals were detected in all the DPT groundwater samples. Because turbidity could not be reduced during sample collection, field filtered samples also were collected. Comparison of the filtered and unfiltered results for aluminum show the influence of sample turbidity on the metal concentrations; the filtered aluminum detections are generally two to three orders of magnitude lower than the associated unfiltered results. Because the unfiltered results were substantially influenced by turbidity, only the filtered results are discussed.

All filtered detections for aluminum, barium, beryllium, cobalt, iron, lead, manganese, and vanadium were less than the BTVs. Two filtered nickel detections, four filtered zinc detections,

and five filtered arsenic detections were greater than the BTVs. Of the metals that lack BTVs, silver was not detected in any of the filtered samples, and antimony, cadmium, chromium, Cr VI, copper, mercury, selenium and thallium were detected in one or more filtered samples.

Summary:

The DPT groundwater data provide no evidence of explosives contamination in groundwater and show limited presence of VOC and PAH contamination. Because PAHs can adsorb to suspended solids, it is possible that the PAH detections represent turbidity instead of aqueous conditions. The filtered metals results suggest that aluminum, barium, beryllium, cobalt, iron, lead, manganese, silver, and vanadium are not groundwater contaminants. Whether metals are background constituents is based on the evaluation of monitoring well data and is discussed in Section 5.2.2.2.

5.2.2.2 Monitoring Well Groundwater Samples

The RI included sampling of both existing and new monitoring wells. Samples were collected from nine existing monitoring wells and seven newly installed monitoring wells. Monitoring well locations are shown on Figure 5.6. The data obtained from the monitoring wells are presented in Table 5.9, and laboratory reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

Freon 113, dichlorodifluoromethane, chloromethane, and carbon disulfide were each detected in at least one groundwater sample collected from the Tract 19C monitoring wells. None of the detections exceeded the tap water RSLs.

PAHs:

Phenanthrene, benzo(a)anthracene, benzo(a)pyrene, 2-methylnaphthalene, indeno(1,2,3-c,d)pyrene, and/or benzo(g,h,i)perylene were detected in samples from monitoring wells 19C-G0007, 19C-G0036, 19C-UGIA-MW05, and 19C-LGIA-MW06. Concentrations of benzo(a)anthracene (0.1 J µg/L) and benzo(a)pyrene (0.11 J µg/L) in 19C-LGIA-MW06 exceeded the tap water RSLs (0.03 µg/L for benzo(a)anthracene and 0.025 µg/L for benzo(a)pyrene).

Explosives:

No explosives were detected in Tract 19C groundwater samples.

Metals:

The background study (Appendix L) identified hot spots of arsenic contamination but no widespread contamination among the metals detected in the monitoring well samples. Four arsenic detections were greater than both the MCL and BTV. The background study identified only the highest of these detections, 28.4 µg/L at 19C-G0036, as a statistical outlier and hot spot of contamination. As shown on Figure 5.6, the filtered arsenic result from this monitoring well was 13 µg/L. This result is consistent with the filtered arsenic results from the 20 background

monitoring wells, ranging from 5.2 µg/L to 14 µg/L. These results suggest that the statistically elevated total arsenic concentration detected in 19C-G0036 is likely influenced by sample turbidity (measured at 23.2 NTU at the time of sample collection).

Summary:

Groundwater at Tract 19C has historically been monitored for VOCs, explosives, and lead. Freon was used at the site as a gravel mine stabilizer and had been detected in groundwater since 2003. Current data indicate widespread presence of Freon 113 at concentrations less than the tap water RSL, and limited presence of dichlorodifluoromethane, chloromethane, and carbon disulfide. No explosives were detected in the groundwater samples. Several PAHs were detected but only benzo(a)anthracene and benzo(a)pyrene were present at concentrations greater than the tap water RSLs. Arsenic is the only metal identified as a groundwater contaminant in Tract 19C. Arsenic contamination appears to be confined to isolated portions of the UGIA. The single hot spot of total arsenic contamination in groundwater (19C-G0036) was likely influenced by sample turbidity.

5.3 TRACT 20B

As described in Section 4.8, the objective of soil and groundwater sampling at Tract 20B was to evaluate contamination remaining at the South Fuze Destruction Area following excavation and off-site disposal of RDX-contaminated soil.

5.3.1 Soil Sample Analytical Results

Six soil borings (20B-SS/SB01 through 20B-SS/SB06) were initially advanced to between 8 and 11 ft bgs near the 2000 excavation footprint (see Figure 5.7). Six surface soil and 12 subsurface soil samples were collected from the six borings and analyzed for PAHs, explosives, and metals. Explosive concentrations were compared to the EPA residential soil RSLs. Results for PAHs and metals were evaluated with respect to background concentrations in Appendix L. The analytical results of PAHs and metals identified as contaminants were then compared to risk-based screening values. Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K. Results are summarized in Table 5.10. Boring locations are shown on Figure 5.7.

Based on evaluation of analytical results for the initial six borings at Tract 20B, additional subsurface soil samples were collected at 9 to 10 ft bgs and at 11 to 12 ft bgs at the location of soil boring 20B-SB02, and an additional six soil borings (20B-SS/SB07 through 20B-SS/SB12) were completed at the site (Figure 5.7). At each location surface soil (0 to 0.5 ft bgs) and subsurface soil (3 to 4 ft bgs, 7 to 8 ft bgs, and 9 to 10 ft bgs) samples were collected. All of the stepout soil samples were analyzed for RDX. Select samples also were analyzed for arsenic and Cr VI.

PAHs:

Phenanthrene, fluoranthene, pyrene, indeno(1,2,3-c,d)pyrene, and benzo(g,h,i)perylene were detected in at least one of the 19 soil samples submitted for PAH analysis. The background comparison concluded that these PAHs are background constituents.

Explosives:

No explosives were detected in the subsurface soil sample collected from 3 to 4 ft at 20B-SB05. One or more of the explosives HMX, RDX, TNT, 2-Am-DNT, and 4-Am-DNT were detected in the remaining soil samples as follows:

- HMX was detected in all but one (3-4 ft bgs sample from 20B-SB05) of the surface and subsurface soil samples collected from borings 20B-SS/SB01 through 20B-SS/SB06. All concentrations were orders of magnitude less than the residential soil RSL.
- RDX was detected in most of the soil samples. RDX concentrations in subsurface soil sample collected from 9 to 10 ft bgs at 20B-SB02 (8,600 J µg/kg) on the north side of the excavation and from 3 to 4 ft bgs at 20B-SB09 (11,000 J µg/kg) on the northeast side of the excavation, 20B-SB09) exceeded the residential soil RSL of 8,300 µg/kg. In July 2018, no additional RDX RSL exceedances were identified in the two stepout borings north of 20B-SB02; however, concentrations exceeding the RDX RSL were detected throughout the vadose zone at 20B-SS/SB10 (located northeast of 20B-SB09). RDX detections in samples collected from 20B-SS/SB10 include 25,000 µg/kg in surface soil, 18,000 µg/kg at 3 to 4 ft bgs, and 12,000 µg/kg from 7 to 8 ft bgs. RDX was not detected in soil samples collected from 20B-SS/SB11 (a stepout boring to the north of 20B-SS/SB10), and was detected at concentrations less than the RSL in soil samples collected from 20B-SS/SB07 (a stepout boring to the northeast of 20B-SS/SB10).
- TNT was detected in four of the six surface soil samples (20B-SS02, 20B-SS03, 20B-SS04, and 20B-SS06) at concentrations less than the residential soil RSL.
- 2-Am-DNT and 4-Am-DNT were detected in surface soil samples 20B-SS02, 20B-SS03, and 20B-SS06 at concentrations less than the residential soil RSL.

The residential soil RSL exceedances reported for the explosives are shown on Figure 5.7. In historical soil samples, TNT, 2-Am-DNT, 4-Am-DNT, tetryl, and HMX were detected at concentrations less than the residential soil RSL, and RDX was detected in samples from locations SFSB03 and 3LF210600 at concentrations greater than the residential soil RSL. Sample 3LF210600 is a confirmation sample from the 2000 remedial action for RDX. The depth of confirmation samples is not provided in the available documentation. This sample is assumed to be from the top 3 feet of soil, as the total depth of the excavation was 2 to 3 feet bgs.

Metals:

Because of the historical excavation activities at the site, the surface soil and subsurface soil results were pooled for comparison to the background data. The background comparison in Appendix L identified barium, cadmium, copper, mercury, and silver as site-wide contaminants and aluminum, arsenic, chromium, iron, lead, manganese, selenium, vanadium, and zinc as hot spot contaminants in the Tract 20B soil.

Of those metals identified as contaminants, only arsenic was detected at concentrations greater than the residential soil RSL. Arsenic concentrations exceeding the BTV of 13.6 mg/kg and residential soil RSL of 0.68 mg/kg were reported for the samples collected from 7 to 8 ft bgs at

20B-SB02; 3 to 4 ft bgs at 20B-SB07 and 20B-SB08; and 7 to 8 ft bgs at 20B-SB09. Of these exceedances, only the maximum detection (47.4 mg/kg from 7 to 8 ft bgs at 20B-SB02) was identified in the background study as a statistical outlier and hot spot of contamination. The single arsenic hot spot of contamination is presented on Figure 5.7.

Summary:

HMX, RDX, TNT, 2-Am-DNT, 4-Am-DNT, and multiple metals are contaminants in the Tract 20B soil. Of the explosives, only RDX was detected at concentrations greater than the residential soil RSL. Soil concentrations greater than the RDX residential soil RSL appear to be limited to an approximately 3,000 square feet area surrounding, and encompassing, the 2000 excavation footprint (Figure 5.7). RDX contamination exceeding the RSL extends to approximately 10 feet bgs in this area. Select samples (e.g., 20B-SS/SB06) within this footprint contained RDX at concentrations less than the residential soil RSL, suggesting RDX concentrations are variable.

Arsenic was the only metal contaminant to be detected at concentrations greater than the residential soil RSL and a single hot spot of contamination was statistically identified in the background study. This hot spot of contamination, at sample location 20B-SS/SB02, is also located in the footprint of RDX exceedances.

5.3.2 Groundwater Sample Analytical Results

Groundwater at the South Fuze Destruction Area sub-site of Tract 20B had not been previously investigated. Monitoring well pairs installed across the tract were sampled for analysis of VOCs, PAHs, explosives, and metals. Monitoring well pairs 20B-UGIA/LGIA-MW01/02 and -MW03/04 were installed up and downgradient of the 2000 excavation footprint, respectively. Well pairs 20B-UGIA/LGIA-MW05/06 and -MW07/08 were installed on the south downgradient and north upgradient sides of the 2000 excavation footprint, respectively. Upon evaluation of groundwater analytical results, well 20B-UGIA-MW09 was installed to be farther upgradient of the 2000 excavation footprint, and wells 20B-UGIA-MW10 and -MW11 were installed to be farther cross- and downgradient, respectively, of the 2000 excavation footprint. Groundwater samples collected from these three UGIA wells were analyzed for only RDX. Historical UGIA well G0064, located downgradient of the South Fuze Destruction Area, also was sampled for RDX. Monitoring well locations are shown on Figure 5.8.

The VOC, PAH, and explosive results were evaluated by comparing analytical data to MCLs and tap water RSLs. The metal results were compared to background concentrations (see Appendix L) and then to MCLs and tap water RSLs. Table 5.11 presents the analytical results. Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

No VOCs were detected in Tract 20B groundwater samples.

PAHs:

Pyrene (at wells 20B-LGIA-MW02 and 20B-LGIA-MW07) and benzo(a)anthracene (at well 20B-LGIA-MW02) were the only PAHs detected in groundwater sampled from all of the Tract 20B wells for which PAHs were analyzed. The benzo(a)anthracene concentration (0.051 J µg/L, field duplicate) exceeded the tap water RSL (0.03 µg/L).

Explosives:

HMX and RDX were the only explosives detected in groundwater sampled at Tract 20B. These explosives were detected only in groundwater from wells 20B-UGIA-MW01 (immediately upgradient of the 2000 excavation) and 20B-UGIA-MW03 (directly downgradient of the 2000 excavation). HMX was detected at 1.4 µg/L and 130 µg/L in wells 20B-UGIA-MW01 and 20B-UGIA-MW03, respectively; neither detection exceeded the tap water RSL of 1,000 µg/L. RDX was detected at concentrations of 2.2 µg/L and 200 µg/L in wells 20B-UGIA-MW01 and 20B-UGIA-MW03, respectively; both detections exceeded the RDX tap water RSL of 0.97 µg/L. RDX tap water RSL exceedances are shown on Figure 5.8.

Metals:

The background study (Appendix L) concluded that the only metal contamination in Tract 20B groundwater were hot spots of copper and nickel. Copper and nickel were not detected at concentrations that exceeded tap water RSLs. Additionally, copper concentrations were less than the MCL. There is no MCL for nickel.

Although lacking a BTV and detected at concentrations greater than the tap water RSL, Cr VI is a background constituent in groundwater based on comparison of the site detections to concentrations reported for the background samples.

Summary:

UGIA groundwater at Tract 20B has been impacted by explosives as indicated by the presence of HMX and RDX. Only RDX was detected at concentrations greater than the tap water RSL of 0.97 µg/L. These RSL exceedances were reported for one monitoring well (20B-UGIA-MW01) located immediately upgradient of the 2000 excavation footprint and one monitoring well (20B-UGIA-MW03) downgradient of the 2000 excavation footprint. RDX was not detected in any of the other groundwater samples, indicating the contamination is limited to the UGIA groundwater near these two wells and underlying the area of RDX soil contamination.

There is limited presence of PAH contamination in site groundwater. Two metals, copper and nickel, were identified as hot spot contaminants but are present at concentrations less than RSLs.

5.3.3 MEC Investigation

This subsection provides a summary of the MEC characterization developed for the Abandoned Burning Area and South Fuze Destruction Area MRSs during the RI field activities.

5.3.3.1 Anomaly Distribution Characteristics

South Fuze Destruction Area

Following the collection of DGM data along the three planned transects at the South Fuze Destruction Area, the extent of the previously defined South Fuze Destruction Area HD area had not been identified in accordance with data quality objectives (DQOs) along the southern boundary based on the elevated anomaly densities on the outermost (third) transect. Two transects were added before the intrusive investigation (Figure 5.9). The two additional transects clearly defined the extent of the HD area, which extends to the south and southeast of the previously defined HD area (Figure 5.10). To the east, anomaly density decreases before saturated-signal conditions were encountered on the 4th and 5th transects. The saturated anomaly area correlates with the approximate location of the Flammable Liquids Disposal Area, which was within the Sanitary Waste Disposal Area (ICF Kaiser, 1996). Only a few anomalies were selected within this feature for intrusive investigation. All were non-munitions related debris (NMRD).

To the south, anomaly density gradually attenuates to background conditions on the outermost transect, with the majority of the investigated anomalies determined to be no contacts, where no metallic source was identified. Anomaly density decreases to background conditions to the west and southwest of the previously defined HD area.

Density analysis in VSP yielded a critical density of 200 APA, which is the same density cutoff for the boundary between low density and the intermediate density areas determined in the previous investigation (Pika International, Inc., 2013). Digital data from the previous investigation was not available and therefore could not be integrated with the data collected during this investigation. These boundaries align well in the SW portion of the high-density area and required a more subjective joining in the east to complete the South Fuze Destruction Area HD boundary. The increase in anomaly density attributed to the Flammable Liquids Disposal Area also creates some uncertainty in the South Fuze Destruction Area HD area boundary and the boundary was hand drawn based on the actual anomalies encountered along the transects rather than the critical density contour. The resulting 2.08-acre HD area has an average anomaly density of 799 APA and maximum density of 1,519 APA. The HD area in the previous investigation encompasses 1.66 acres and has an approximate average density of 779 APA. The combined HD areas total 3.74 acres. The low-density (LD) area of South Fuze Destruction Area has an average anomaly density of 36 APA and encompasses approximately 3.80 acres of the investigation area. The remaining 0.96 acre of the investigation area is related to the Flammable Liquids Disposal Area and was not evaluated further.

Abandoned Burning Area

Anomaly density was much higher than expected at the Abandoned Burning Area, with the highest densities occurring in the eastern and southern parts of the site (Figures 5.11 and 5.12**)**. Data near and outside of the northeast edge of the site shows a high concentration of anomalies up to 15 ft outside the boundary. DGM data collected along the delineation transect located 56 ft outside the northeastern and southeastern boundary display near background anomaly density. Density analysis in VSP yielded a critical density of 300 APA as the boundary between low and high density at the site. The HD boundary was subjectively drawn using the density of the delineation

transect as a guide and extends beyond the delineation transect in the southern part of the site where a few anomalies were encountered. The HD area encompasses 1.17 acres (0.68 acres within the survey boundary) and has an average anomaly density of 567 APA and a maximum density of 1,312 APA. The LD area encompasses 1.59 acres (1.16 acres within the full coverage survey area) of the investigation area and has an average anomaly density of 75 APA.

5.3.3.2 Intrusive Results

Results from intrusive anomaly investigations are used to indicate with high confidence whether HD and LD Areas resulted from munitions-related activities or not. When grids are strategically placed and geophysical anomalies are intrusively investigated or advanced geophysical classification (AGC) is used, the locations where MEC and MD were recovered can be used to delineate the MRS into high use areas (HUAs), low use areas (LUAs), and no-evidence-of-use areas (NEUs), as follows (IDQTF, 2020):

- ***HUAs:*** Include HD areas where munitions use has been confirmed within an MRS and where the anomaly density has been determined to be greater than or equal to the critical density, which is a project-specific value for anomaly density that is inclusive of background. HD areas are presumed to result from munitions use unless and until it can be demonstrated otherwise. Unexploded ordnance and/or discarded military munitions are anticipated to be present in HUAs.
- ***LUAs:*** Include LD areas where the potential presence of munitions cannot be ruled out and where the anomaly density has been determined to be less than the critical density. Examples of LD areas buffer zones and maneuver areas.
- ***NEUs:*** Include (1) LD areas for which the CSM contains no evidence munitions were used in the area, or (2) HD areas determined to be not related to munitions use. All available and relevant lines of evidence supporting this delineation (e.g., historical records review, historical photographic interpretation, visual observations, and interviews) must be considered. No NEUs were identified at either MRS due to the scattered nature of MD recovered historically and during the RI.

DQOs are qualitative and quantitative statements that specify the data needs including type, amount, and quality required to support the decision-making processes for a project. The DQOs developed during the systematic project planning (SPP) process are presented in Worksheet #11A of the UFP-QAPP, Revision 1 (ATI/HGL, 2020). The DQOs for MEC characterization included conducting DGM surveys and intrusive investigations to delineate the boundaries between the HUAs, LUAs, and NEUs. As shown in the table below, the data collected extended beyond the established MRS boundaries and MEC DQOs for this RI are determined to have been achieved. However, no MEC was recovered during intrusive investigations and only limited quantities of MD were identified. Consequently, data gaps prevent the delineation of HUAs, LUAs, and NEUs due to the limited number of anomalies that were intrusively investigated (129 anomalies) from the total number identified during the field effort (798 anomalies).

MRS	Activity	Anticipated Maximum	Completed
South Fuze Destruction Area	DGM	3,000 ft	6,037 ft
	Intrusive Investigation	Up to 50 anomalies	60 of 314 anomalies
Abandoned Burning Area	DGM	1.6 acres	1.84 acres
	Intrusive Investigation	Up to 25 anomalies	69 of 484 anomalies

South Fuze Destruction Area

Intrusive investigations at the South Fuze Destruction Area used an iterative approach, by starting the investigations at the likely edge of MD distribution based on the anomaly density analysis. MD was not found past the 4th transect (Figure 5.13). Several MD items were found to the west and southwest of the HD area where anomaly density is consistent with background. Because the field where the South Fuze Destruction Area is located has been farmed intermittently, these items may have been relocated by farming activities.

Intrusive results at the South Fuze Destruction Area are summarized in Table 5.12. No MEC was recovered during intrusive investigations. MD was identified at 11 of the 60 investigated targets (18%) and includes M404 fuze pieces, 2.36-inch rocket pieces, and unidentifiable fuze pieces. MD was recovered between 1 and 6 inches bgs. Four targets were no contact, which appear to have been caused by the EM61 striking deadfall. Three targets could not be investigated due to standing water and two intrusive investigations had to be abandoned after encountering groundwater at 18 inches bgs. To check the dig team's reacquisition and resolution procedures, one seed was investigated. The remainder of the targets (39) were NMRD, consisting of individual small trash items related to trash pits with multiple large items (e.g., car parts, pipes, etc.) in the center of the main HD area and near the saturated area correlating to the Sanitary Waste Disposal Area. In addition to the unresolved targets due to the water mentioned above, 13 targets exceeding the target threshold were trash pits that did not need to be fully resolved. These unresolved targets are not along the outermost transect, which bounds the extent of MD.

Based on the anomaly densities derived using VSP and limited intrusive results (69 of 484 anomalies investigated), the HD boundary encompasses 3.74 acres of the 10.19 acres investigated at the South Fuze Destruction Area. The investigation area includes the area covered by transects, MRS boundary, and the 2012 investigation area. The HD area associated with the Flammable Liquids Disposal Area encompasses 0.96 acres and is not considered further. The remaining 5.49 acres, which contains isolated MD, constitutes the LD Area.
The table below lists the details of the MD found during this investigation and the 2012 investigation. Depths of MD and mark/model were not recorded by the previous contractor. Between the two investigations (2012 and 2020), MD was recovered at 50 out of the 160 targets investigated (31%).

Munitions Item	Year(s) Recovered	Quantity	Depth Minimum (inches bgs)	Depth Maximum (inches bgs)
3.5-inch Rocket Fuze (M404)	2020	6	1	5
3.5-inch Rocket Fuze	2012	32	N/A	N/A
Fuze pieces	2012 and 2020	11	3	6
2.36-inch Rocket pieces	2020	2	4	5

N/A = not available, depth was not provided in the 2012 documentation.

Although the RI field activities included the collection of more data than originally planned, and all DQOs were achieved, the following data gaps remain:

- The MD recovered during the 2020 investigation confirms munitions disposal activities were conducted at the South Fuze Destruction Area. However, DoD guidance for characterizing and remediating MRSs has changed since the start of the project and it now requires a more robust approach for delineating the boundary between HUAs and LUAs. The Munitions Response-QAPP Toolkit, Module 1 (IDQTF, 2020) specifies the excavation of every anomaly in full-survey grids (i.e., 100% DGM survey coverage) situated near suspected boundaries between HUAs and LUAs. In accordance with the approved UFP-QAPP, which predates recent DoD guidance, no such grids were surveyed or intrusively investigated.
- A 2016 memorandum issued by the Office of the Assistant Secretary of Defense, Energy, Installations, and Environment (DoD, 2016) required USACE to begin using AGC in 2017. A related Department of the Army memorandum issued in 2017 (USACE, 2017) established AGC sensors as the standard and the preferred method for digital geophysical data collection in all phases of the munitions response process, including the investigative phase (i.e., RI/FS phase). In addition, the 2017 memorandum states, "Based on the geophysical data collection in the RI, AGC shall be evaluated as a potential remedial technology during the FS for munitions response." AGC sensors were not used during RI field activities since these changes occurred after the start of the project.

An FS is recommended for the South Fuze Destruction Area MRS to evaluate remedial action alternatives that include the potential clearance of MEC. A Remedial Design is also recommended to collect additional data needed to support accurate anomaly density estimates for accurate costs and levels of effort for a potential Remedial Action. DQOs should be developed through the SPP process and documented in an UFP-QAPP addendum that includes a VSP-supported characterization approach. As described above, data gaps remain regarding the lateral characterization of the nature and extent of MEC at the MRS. The UFP-QAPP addendum should include site-specific Decision Rules to delineate the HUA, LUA, and NEU at the South Fuze Destruction Area.

Abandoned Burning Area

Based on the identification of a conductivity anomaly in the previous geophysical investigation (ICF Kaiser, 1996), the DQOs in the UFP-QAPP (ATI/HGL, 2020) for this investigation included a DGM survey covering approximately 1.6 acres and the intrusive investigation of up to 25

anomalies. The approach included a full-coverage DGM survey at 2.5-ft transect spacing to investigate the conductivity anomaly, including step-out transects until no MEC or MD identified, and excavating targets that exceeded project threshold. These DQOs were achieved. The field investigation actually included 1.84 acres of DGM data collection and the excavation of 61 anomalies.

Intrusive results at the Abandoned Burning Area are summarized in Table 5.13. No MEC was recovered during intrusive investigations. Of the 61 targets investigated from the full coverage survey at the Abandoned Burning Area, 12 were associated with MD representative of MEC, including M404 fuze pieces, a heat slug, and unidentifiable fuze pieces. MD items were recovered between 2 and 5 inches bgs. The MD was found in the eastern portion of the site, except for one MD item found near the middle of the site (Figure 5.14). The rest of the targets were associated with small pieces of NMRD. Four of the targets where NMRD was recovered remained unresolved due to the presence of small trash pieces or rust flakes. Of the eight delineation transect targets investigated, six were NMRD, one was associated with a utility, and the other was a no contact (Table 5.13).

Although MD had not been observed at the Abandoned Burning Area (only bulk explosives fragments) historically, the recovery of MD during this investigation was anticipated based on historical site use. The table below lists the details of the MD found during this investigation.

Munitions Item	Quantity	Depth Minimum (inches bgs)	Depth Maximum (inches bgs)
3.5-inch Rocket Fuze (M404)	3	2	4
Fuze pieces	8	2	5
Heat slug	1	4	4

Although the RI field activities collected more data than originally planned, and all DQOs were achieved, the following data gaps remain:

- Evidence from previous investigations suggested that MEC may be present at the site from small-scale disposal and burning operations, though past activities are not well documented. However, the type and density of MD recovered during intrusive investigations conducted in 2020 are not indicative of the reported historical use of this area as a former burning ground. Consequently, the source of the MD is not known and extensive changes to the MRS as it relates to historical use, location, and MRS footprint are likely needed. The original focus of the 2020 investigation, the region of higher ground conductivity identified in the 1991 geophysical survey (ICF Kaiser, 1996), does not cover the area with highest anomaly density and where MD was recovered. The HD area likely needs to be shifted or expanded to the north, east, and south. Similarly, the LD area likely needs to be expanded so it was consistent with the use of the MRS as an open burning/open detonation site and also expanded to the north, east, and south in accordance with higher anomaly density and MD recoveries demonstrated in 2020 data. The MD may have originated from a different MRS and minimal amounts of MD may have been transported after nearby deposition by farming activities. If the MD originated elsewhere, an additional investigation may be needed determine the extent of potential contamination.

- As was the case with the South Fuze Destruction Area MRS, a more robust approach for delineating the boundary between HUAs and LUAs was not conducted at the Abandoned Burning Area MRS as required by the Munitions Response-QAPP Toolkit, Module 1 (IDQTF, 2020). In accordance with the approved UFP-QAPP, which predates guidance in the Toolkit, no such grids were surveyed or intrusively investigated.

An FS is recommended for the Abandoned Burning Area MRS to evaluate remedial action alternatives that include the potential clearance of MEC. A Remedial Design is also recommended to collect additional data needed to conduct additional historical research concerning the potential origins/source of the MD recovered from the MRS, complete a data gap analysis, and field investigation to support accurate anomaly density estimates for accurate costs and levels of effort for a potential Remedial Action. DQOs should be developed through the SPP process and documented in a UFP-QAPP addendum that includes a VSP-supported characterization approach. The UFP-QAPP should include site-specific Decision Rules to delineate the HUA, LUA, and NEU at the Abandoned Burning Area MRS.

5.4 TRACT 21B – BURNING PIT AREA

As described in Section 4.9 and based on an evaluation of historical soil data presented in the UFP-QAPP (ATI/HGL, 2019), the objective of the soil sampling at Tract 21B-BPA was to define the nature and extent of contamination in soil within and surrounding trenches PSRGST004, PRST007, and PRST008. Trench PRST004 was investigated between 1991 and 1993. Lead- and RDX-contaminated soil was removed from the vicinity of PRST007 and PRST008 and disposed of off-site in 2000.

5.4.1 Soil Sample Analytical Results

On May 15 and 16, 2018, surface soil samples were collected from four locations within and outside of historical trenches PRST007 and PRST008. Surface soil samples were collected from two locations within and four locations outside of PSRGST004. Subsurface soil samples were collected at four locations within both PRST007 and PRST008, and from two locations within and one location outside PSRGST004. Surface and subsurface soil samples were analyzed for explosives and metals. Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K. The 2018 RI results are summarized in Table 5.14. Boring locations are shown on Figure 5.15.

Historical soil data are also available for Tract 21B – BPA, as presented in Table 2.4. Although some of the historical sample locations were removed during trench excavation, others were collected from locations not affected by the historical removal action. The analytical results of the latter samples were considered in the evaluation of the nature and extent of contamination.

As described for the other tracts, PAH and metal soil results were compared to background data (see Appendix L). This comparison identified barium, benzo(g,h,i)perylene, benzo(k)fluoranthene, and phenanthrene as site-wide soil contaminants and arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, silver, zinc, 2-methylnaphthalene, indeno(1,2,3-c,d)pyrene, and naphthalene as hot spot contaminants at Tract 21B – BPA. Contaminant results and explosives data were compared to the residential soil RSLs.

Explosives:

The explosives HMX and RDX were detected in surface and subsurface soil samples at concentrations less than the residential soil RSLs. The 2018 RI data indicate that this explosive contamination is localized to Trench PRST008. 2-Nitrotoluene was detected in a single historical sample at a concentration less than the residential soil RSL.

PAHs, VOCs, and TPH:

Although PAH contamination is present in Tract 21B-BPA soil, all detections are less than the residential soil RSLs. TPH and the VOCs Freon 113, toluene, and xylenes were detected in the historical soil samples. All results are less than the risk-based screening values.

Metals:

As noted above, barium is a site-wide soil contaminant at Tract 21B – BPA and several other metals are hot spot contaminants. Of these contaminants, only arsenic and cobalt were detected at concentrations greater than the residential soil RSLs. Arsenic detections exceeded the BTV (13.6 mg/kg) and residential RSL (0.68 mg/kg) in two subsurface soil samples, 21B-BPA-SB01 (3 to 4 ft bgs) and 21B-BPA-SB04 (7 to 8 ft bgs) collected within Trench PRST008. The arsenic concentration in both samples was 17.8 J mg/kg. Arsenic concentrations reported for four historical samples also were greater than both the BTV and residential soil RSL. These historical results ranged from 17 mg/kg to 27 mg/kg. Cobalt was detected in one historical soil sample, PSRGST003 (1 ft bgs), at a concentration of 25.7 mg/kg, which is greater than both the BTV (11.2 mg/kg) and residential soil RSL (23 mg/kg). Hot spots of arsenic and cobalt contamination that exceeded RSLs are shown on Figure 5.15.

Summary:

Explosives, PAHs, and VOCs are contaminants in site soil, but historical and current soil data show these compounds to be present at concentrations less than the risk-based screening values. The background comparison identified barium as a site-wide contaminant and arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, silver, and zinc as hot spot contaminants. Of these metals, only arsenic and cobalt were detected at concentrations greater than both the BTV and residential soil RSL.

5.4.2 Groundwater Sample Analytical Results

Historical groundwater investigations identified a Freon 113 plume emanating from Tract 21B - BPA and extending northeast in the direction of groundwater flow. Groundwater samples for this RI were collected from 12 new and four historical monitoring wells screened in the UGIA and LGIA at Tract 21B-BPA. Tract 21B – BPA monitoring well samples were generally collected for VOCs, explosives, and metals analysis; samples from four of the newly installed monitoring wells were only analyzed for Freon 113 (21B-BPA-UGIA-MW09 and 21B-BPA-UGIA-MW12), naphthalene (21B-BPA-LGIA-MW10 and 21B-BPA-UGIA-MW11), and RDX (21B-BPA-UGIA-MW11 and 21B-BPA-UGIA-MW09). Monitoring well locations are shown on Figure 5.16.

Historical groundwater samples were analyzed for SVOCs in addition to VOCs, explosives, and metals. Due to groundwater's transient nature, only the 2018 VOC, explosive, and metal results were used to evaluate the nature and extent of contamination associated with these analytical suites. Because the 2018 groundwater samples were not analyzed for SVOCs, the historical SVOC data, presented in Table 2.5, were used to evaluate the nature and extent of contamination with respect to these compounds.

Groundwater was evaluated by comparing analytical data to MCLs and tap water RSLs. Results for metals were compared first to the background groundwater data, and then to MCLs (if available) and RSLs (Table 5.15). Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

The following VOCs were detected in groundwater samples:

- Freon 113 was detected in 9 of the 14 samples submitted for the analysis. The detection in only one groundwater sample (25,000 J µg/L at BPA-UGIA-MW01, located on the north side of former trench PRST007) exceeded the tap water RSL (10,000 µg/L). Freon 113 was detected at 13 µg/L in the adjacent well screened in the LGIA (21B-LGIA-MW02).
- Dichlorodifluoromethane was detected in groundwater samples from four monitoring wells (BPA-UGIA-MW03, BPA-LGIA-MW04, BPA-LGIA-MW05, and 21B-BPA-PRGW05) at concentrations less than the tap water RSL.
- 1,2,4-trimethylbenzene was detected in groundwater sampled from wells BPA-UGIA-MW01 and 21B-BPA-PRGW01. The detections did not exceed the tap water RSL.
- Naphthalene was detected in 2 of 14 groundwater samples. The detections, 0.36 J µg/L at BPA-LGIA-MW04 and 0.69 J µg/L at 21B-BPA-PRGW05, exceed the tap water RSL (0.17 µg/L).

Although UGIA wells PRGW01 (6,200 µg/L) and PRGW05 (4,300 µg/L) contained substantially higher concentrations of Freon 113 than their respective LGIA counterparts (PRGW01 [1.1 µg/L] and LGIA-MW05 [30 µg/L]), further downgradient well pair LGIA-MW04 (3,000 µg/L) and UGIA-MW03 (230 µg/L) indicate that the contaminant plume is sinking through the aquifer as it migrates laterally to the northeast. The UGIA well immediately downgradient of UGIA-MW01, PRGW01, contained Freon 113 at a concentration of 6,200 µg/L, indicating that Freon 113 concentrations exceeding the tap water RSL do not extend this far downgradient. Freon 113 concentrations are shown on Figure 5.16.

Explosives:

RDX was detected in 2 of 14 monitoring wells at concentrations of 2.8 µg/L at 21B-BPA-UGIA-MW12 and 1.7 µg/L at 21B-BPA-UGIA-MW06, both of which are greater than the tap water RSL of 0.97 µg/L (Figure 5.16). No other explosives were detected in Tract 21B – BPA groundwater samples.

SVOCs:

Analytical results of historical groundwater samples indicate limited presence of SVOCs in the Tract 21B-BPA groundwater (Table 2.5). SVOCs were not included in the 2018 RI groundwater analytical suite. Acenaphthene, biphenyl, dibenzofuran, fluorene, and phenanthrene were detected in the historical groundwater samples, with the single detection of biphenyl (4 J µg/L at PRGW01) exceeding the current tap water RSL of 0.83 µg/L (Figure 5.16).

Metals:

The background study in Appendix L concluded that selenium is a groundwater contaminant, and cadmium and nickel appear to have localized hot spots of contamination. The results for these three metals are less than the MCLs and tap water RSLs.

Summary:

UGIA groundwater at 21B-BPA has been impacted by VOCs and explosives, as evidenced by the presence of one to two exceedances of Freon 113, RDX, and naphthalene tap water RSLs. The isolated detections indicate only limited RDX contamination in groundwater, potentially from past use of several small trenches (PSRGST003, PRST006, PSRGST004, and PRST09), which are located upgradient of the affected well. Although Freon 113 has more widespread presence, only the maximum detection of Freon 113, located at former trench PRST07, is greater than the tap water RSL and concentrations decrease in the downgradient direction.

Because the 2018 groundwater samples were not analyzed for SVOCs, the historical SVOC data were used to evaluate the nature and extent of contamination with respect to these compounds and include a single exceedance of the tap water RSL for biphenyl.

Selenium, copper, and nickel are present at concentrations greater than background conditions but less than the MCLs and tap water RSLs.

5.5 TRACT 21B – BACKSTOP BERM AND STATIC EJECTION TEST SITE

As described in Section 4.10, the objective of the soil and groundwater sampling at Tract 21B – BB was to define the nature and extent of contamination in soil associated with use of the tract as a firing range and remaining after a removal action completed in 2003.

5.5.1 Soil Sample Analytical Results

Surface (0 to 0.5 ft bgs) and subsurface (3 to 4 ft bgs) soil samples were collected at five locations near the former backstop berm and one location in the area of the Static Ejection Test Site as shown on Figure 5.17. Soil samples were analyzed for explosives and metals.

Explosive concentrations were compared to residential soil RSLs. The metal results were compared first to the background data (see Appendix L), and then to residential soil RSLs.

Analytical reports are provided in Appendix J and data validation reports are provided in Appendix K. Results are summarized in Table 5.16.

Explosives:

Nitroglycerin was detected in the subsurface soil sample (collected from 3 to 4 ft bgs) at 21B-BB-SB03) at 290 J µg/kg, a concentration less than the residential RSL (6,300 µg/kg). No other explosives were detected in Tract 21B – BB subsurface soil samples.

Metals:

The background study identified aluminum, antimony, barium, lead, and zinc as sitewide contaminants in soil. The results for these metals were less than the residential soil RSLs.

SPLP Metals

The 2018 RI field program included a soil boring (21B-BB-SS/SB06) to re-sample 1996 RI sample location PSRGSL010, at which lead was detected in soil at a concentration of 320 mg/kg (see Figure 5.17). This concentration exceeds the EPA SSL of 280 mg/kg. To evaluate the potential soil-to-groundwater migration pathway, primarily for lead, soil samples from 21B-BB-SS/SB06 were analyzed for SPLP metals.

Lead, as well as aluminum, arsenic, beryllium, cobalt, iron, manganese, thallium, and vanadium were detected in the surface soil leachate at concentrations greater than the tap water RSLs and/or MCLs. For the subsurface soil leachate, only arsenic and vanadium were present at concentrations greater than the screening values. Analytical results are summarized in Table 5.17. These metals were all detected at concentrations less than RSLs in the co-located soil samples, including lead at concentrations of 16.8 mg/kg in surface soil and 12 mg/kg in subsurface soil. To further evaluate the potential for metals to migrate from soil to groundwater, a monitoring well pair (21B-BB-UGIA/LGIA-MW03) was installed at this location. Groundwater data is detailed in Section 5.5.2. The soil-to-groundwater pathway is further discussed in Section 6.3.5.

Summary:

There is limited presence of explosives in the Tract 21B-Backstop Berm and Static Ejection Test Site soil. Although several metals were identified as soil contaminants, their concentrations are less than the residential soil RSLs.

SPLP results from 21B-BB-SS/SB06 indicate a potentially complete soil-to-groundwater migration pathway for several metals, including lead, at the location of the former Static Ejection Test Site. Comparison of subsurface soil SPLP data to the co-located surface soil SPLP results suggest that the potential for metals to leach to groundwater decreases with soil depth. This potential migration pathway is further discussed in Section 6.3.5. Groundwater data is detailed below.

5.5.2 Groundwater Sample Analytical Results

To assess whether soil contamination at the backstop berm had migrated to groundwater, groundwater samples were collected from two monitoring well pairs, including 21B-BB-UGIA/LGIA-MW01 and -MW02 installed near the center of the former backstop berm, and 21B-BB-UGIA/LGIA-MW03 and -MW04 installed in the southeast corner of the former Static Ejection Test Site (Figure 5.17). Groundwater samples from 21B-BB-UGIA/LGIA-MW01 and -MW02 were analyzed for VOCs, explosives, and metals, and 21B-BB-UGIA/LGIA-MW03 and -MW04 were analyzed for metals only. The analytical results are summarized in Table 5.18. No VOCs or explosives were detected in 21B-BB-UGIA/LGIA-MW01 and -MW02. Metals were detected in all four groundwater samples, but only selenium was identified as a contaminant. The selenium detections are less than the MCL and tap water RSL.

Lead, which was detected in two SPLP samples at concentrations exceeding the tap water RSL, was detected in 21B-BB-UGIA-MW03 and 21B-BB-LGIA-MW04 at concentrations of 0.58 J µg/L and 1.32 µg/L, respectively. These results are less than the tap water RSL and MCL (both 15 µg/L).

In summary, groundwater analytical results indicate that selenium is the only constituent present at concentrations greater than background levels. Metals groundwater contamination is not indicated. VOCs and explosives were not detected.

5.6 TRACT 21B – DECANTING STATION AND LEACHING PIT AREA

As described in Section 4.11, the objective of the soil and groundwater sampling in Tract 21B – DS was to evaluate the presence of contaminants in soil from previous processing of Freon-containing RDX particulates and potential sources of an RDX groundwater plume.

5.6.1 Soil Sample Analytical Results

Surface (0 to 0.5 ft bgs) and subsurface (3 to 4 ft bgs) soil samples were collected at 12 locations near the former RDX and current Freon 113 groundwater plume. Additional subsurface soil samples were collected from 9 to 10 ft bgs at borings 21B-DS-SB02 through 21B-DS-SB07. Soil samples from 21B-DS-SS/SB02 through 21B-DS-SS/SB12 were analyzed for VOCs, explosives, and metals. Soil samples from 21B-DS-SS/SB01 were analyzed for explosives and metals only (VOCs were inadvertently not captured by the laboratory for this sample).

Historical investigations included the collection of surface soil and subsurface soil samples from Tract 21B – DS. These samples were analyzed for metals, explosives, VOCs, SVOCs, and/or TPH. Because there were no earth-moving activities that could have affected the historical sample locations and the analytical results were validated, the historical data were determined to be usable for defining the nature and extent of contamination. Historical soil data is presented in Table 2.7.

The analytical results were compared to EPA residential soil RSLs. The metal results were compared first to the background data and then to the residential soil RSLs. Analytical reports for the RI samples are provided in Appendix J and data validation reports are provided in Appendix K. Results are summarized in Table 5.19. Because no contaminants were detected at

concentrations exceeding residential soil RSLs, a figure presenting soil exceedances at Tract 21B – DS is not provided.

VOCs, SVOCs, and TPH:

The VOCs Freon 113, acetone, and carbon disulfide were detected in at least one surface and/or subsurface soil sample collected at Tract 21B – DS during RI sampling. The VOC toluene has historically been detected in soil samples. The detections were orders-of-magnitude less than the residential soil RSLs.

TPH was not detected in the historical soil samples. The PAH bis(2-ethylhexyl)phthalate was detected at one location at a concentration less than the residential soil RSL.

Explosives:

HMX was detected at 70 J µg/kg in surface soil sample 19B-DS-SS01, 61 J µg/kg in surface soil sample 19B-DS-SS04, and 190 µg/kg in surface soil sample 19B-DS-SS06. The concentrations were orders-of-magnitude less than the residential RSL soil (3,900,000 µg/kg). No other explosives were detected in the Tract 21B – DS soil samples.

Metals:

The background study (Appendix L) compared surface soil and subsurface soil data to the background data. The surface soil data indicate localized areas of barium, cadmium, and lead contamination but no widespread contamination. Cadmium, chromium, manganese, nickel, and zinc were identified as widespread contaminants in subsurface soil; barium, beryllium, cobalt, copper, silver, and vanadium were identified as hot spot contaminants. All detections of these contaminants are less than the residential soil RSLs.

As shown in Table 5.19, two detections of arsenic exceed the residential soil RSL and the surface soil BTV. However, sitewide arsenic was concluded to be statistically equal to the background arsenic dataset using two-sample hypothesis testing. Arsenic is a background constituent.

Summary:

In summary, the analytical results show no presence of TPH and limited presence of VOCs, SVOCs, and explosives. All organic compounds were detected at concentrations less than the residential soil RSLs. Although several metals were identified as widespread or hot spot contaminants in surface and subsurface soil, all detected contaminant concentrations are less than residential soil RSLs.

As noted above, one objective for the investigation was to assess whether there is a source of RDX groundwater contamination in site soil. RDX was not detected in historical and current soil samples overlying the remediated RDX groundwater plume. An overlying source of the historical groundwater contamination is not indicated.

5.6.2 Groundwater Sample Analytical Results

Analytical results from both historical wells and newly installed monitoring wells were used to assess current groundwater conditions near the former RDX plume and current Freon 113 groundwater plume on the southeast side of Tract 21B – DS. These monitoring wells were sampled in June and August 2018, and are shown on Figure 5.17. Because the Freon 113 contamination extends beneath adjacent Tract 21C, Tract 21C groundwater results from monitoring wells are also shown on Figure 5.18. Groundwater samples collected from the monitoring wells in June 2018 were analyzed for VOCs, explosives, and metals; samples collected in August 2018 were also analyzed for explosives and metals, but VOC analysis was limited to Freon 113 based on review of the June analytical results.

Groundwater analytical results are summarized in Table 5.20, laboratory reports are provided in Appendix J, and data validation reports are provided in Appendix K.

VOCs:

Freon 113, the only VOC detected at concentrations exceeding the RSL, was detected in all of the initial samples collected during this investigation. Stepout samples were collected as needed to define the extent of Freon 113 in UGIA and LGIA groundwater (Figure 5.18).

Dichlorodifluoromethane was detected in nine groundwater samples, but none of the concentrations exceeded the tap water RSL. Although Freon 113 was also detected in these nine samples, the maximum concentrations did not correlate with those of dichlorodifluoromethane.

Ethylbenzene, 2-Butanone, and 4-isopropyltoluene were detected in groundwater samples from monitoring well 21B-DS-G0103, but all concentrations were orders of magnitude less than the RSLs. No other VOCs were detected in Tract 21B – DS groundwater.

Explosives:

Explosives were not detected in any of the 14 groundwater samples for which they were analyzed.

Metals:

The background study (Appendix L) identified barium in groundwater as a potential hot spot contaminant but noted that the elevated detections could have been due to turbidity. All barium results were less than the tap water RSLs.

Summary:

Groundwater analytical results indicate that groundwater beneath Tract 21B – DS site has been impacted by Freon 113, and this contamination has migrated with groundwater flow to the east northeast and into Tract 21C. The highest Freon 113 concentrations in UGIA groundwater were detected west (upgradient) of the highest LGIA concentrations. Data suggest that the Freon 113 contaminant plume is approximately 350 feet wide and 700 feet long, and extends vertically and

laterally with attenuation downgradient to the east northeast (in the direction of groundwater flow). Freon 113 results are shown on Figure 5.18.

5.7 TRACT 21C

As described in Section 4.12, the objective of groundwater sampling in Tract 21C was to characterize the UGIA and LGIA and evaluate contaminant plumes that may be migrating to the tract from upgradient Tract 21B – BPA or Tract 21B – DS.

5.7.1 DPT Groundwater Samples

Twenty DPT points were advanced to collect groundwater samples across Tract 21C on March 17 and 18, 2018. DPT pairs 21C-UGIA/LGIA-DPT01 through -DPT20 were advanced in areas estimated to bound the Freon 113 plume inferred during the 2005 Burning Grounds Groundwater Sampling Event (URS, 2006). DPT sample locations are shown on Figure 5.19.

Groundwater samples were analyzed for VOCs and explosives. Analytical results are compared to the MCLs and tap water RSLs in Table 5.21.

VOCs:

Freon 113 was detected in all but four (21C-UGIA-DPT05, 21C-LGIA-DPT06, 21C-LGIA-DPT16, and 21C-LGIA-DPT18) of the 20 DPT groundwater samples. No other VOCs were detected in groundwater samples.

The Freon 113 concentration at 21C-LGIA-DPT04 (13,000 µg/L) exceeded the tap water RSL (10,000 µg/L). All other concentrations, ranging between 0.0.5 J µg/L (21C-UGIA-DPT15) and 4,800 J µg/L (21C-LGIA-DPT12), were less than the tap water RSL. Freon 113 concentrations are shown on Figure 5.19.

Explosives:

Explosives were not detected in any of the DPT groundwater samples.

Summary:

Explosives were not detected in UGIA or LGIA groundwater samples collected across Tract 21C, indicating that there is not an explosives contaminant plume currently beneath Tract 21C. Freon 113 is present in groundwater across Tract 21C, but concentrations exceeded the tap water RSL at only one location in LGIA groundwater, indicating contamination migration to Tract 21C is limited.

5.7.2 Monitoring Well Groundwater Samples

Based on the DPT results discussed above, five monitoring well pairs (21C-UGIA/LGIA-MW01/02 through 21C-UGIA/LGIA-MW09/10) were installed and sampled to confirm DPT

results and delineate the Freon 113 groundwater plume. Monitoring well locations are shown on Figure 5.18 along with the adjacent Tract 21B – DS monitoring well network.

Groundwater samples were analyzed for VOCs and explosives. Groundwater analytical results compared to tap water RSLs and MCLs (where available), as presented in Table 5.22. Laboratory reports are provided in Appendix J and data validation reports are provided in Appendix K.

VOCs:

Freon 113 was detected in all of the groundwater samples collected from the 10 monitoring wells installed in Tract 21C. Freon 113 concentrations ranged from 1.2 µg/L (19C-UGIA-MW09) to 740 µg/L (19C-UGIA-MW07) in the UGIA samples and from 58 J µg/L (19C-LGIA-MW02) to 8,500 µg/L (19C-LGIA-MW04) in the LGIA samples. Dichlorodifluoromethane was detected in all but one sample (21C-UGIA-MW09) collected from the 10 monitoring wells. Dichlorodifluoromethane concentrations ranged from non-detect (19C-UGIA-MW09) to 11 J µg/L (19C-UGIA-MW03) in UGIA samples and from 2.7 µg/L (19C-LGIA-MW02) to 88 µg/L (19C-LGIA-MW04) in LGIA samples. Generally, the dichlorodifluoromethane concentrations correlated with Freon 113 concentrations.

2-Butanone and methylene chloride were detected in at least one groundwater sample; all the concentrations were less than the tap water RSLs.

Explosives:

Explosives were not detected in any of the groundwater samples.

Summary:

Groundwater analytical results indicate that the Freon 113 groundwater plume identified beneath Tract 21B – DS extends beneath Tract 21C, migrating with groundwater flow to the east/northeast. Concentrations in UGIA groundwater beneath Tract 21C are generally an order of magnitude less than concentrations in LGIA groundwater, supporting the finding for Tract 21B – DS, that Freon 113 migrates vertically in the direction of groundwater flow. Concentrations of Freon 113 decrease to below the tap water RSL within the Tract 21C boundary. Freon 113 results are shown on Figure 5.18.

This page was intentionally left blank.

6.0 CONTAMINANT FATE AND TRANSPORT

This section defines the environmental and contaminant characteristics that influence the nature and extent of contamination at CHAAP and explains the pathways that dictate the distribution of contamination as it is represented by the quantitative data. To effectively present the processes involved, this section first describes the chemical attributes of the contaminants that influence their behavior upon interaction with the environment, then it explains the circumstances under which contaminants were released into the environment and characteristics of the exposed media, and finally, it establishes the mechanisms driving the migration and distribution of the contaminants and their correlation with investigation findings.

6.1 GENERAL FACTORS INFLUENCING FATE AND TRANSPORT

Inherent characteristics of chemical contaminants dictate how they behave when exposed to the environmental factors of a given site. Knowledge of the chemical and physical properties of both the contaminants and associated media described in the previous sections can be applied to models that utilize anticipated interactions to generate predictions regarding fate and transport. Key chemical and physical properties are discussed below and summarized in Table 6.1.

Water Solubility:

Water solubility describes the mass of a compound that will dissolve in a measured amount of water at a given temperature and pressure. Water solubility is important in assessing the fate and transport of chemicals in groundwater and surface water because it indicates the affinity of the analyte for water. High water solubility means that greater amounts of the analyte will enter the aqueous phase, whereas a low water solubility indicates that a chemical is more likely to adsorb to a solid surface or associate with naturally occurring organic matter. The water solubility of an analyte can be used to assess chemical mobility/sorption and bioaccumulation. An analyte with a low water solubility (<10 mg/L) will tend to adsorb to soil, be persistent, bioaccumulate, and have negligible mobility in the environment. Conversely, an analyte with a high-water solubility (>1,000 mg/L) will adsorb to soil only negligibly and be highly mobile in the environment, but will readily biodegrade and should not bioaccumulate (Ney, 1998).

Vapor Pressure:

Vapor pressure indicates whether an analyte will significantly volatilize into the air. Generally, the higher the vapor pressure of a contaminant, the greater its tendency to volatilize. An analyte with a low vapor pressure ($< 10^{-6}$ millimeters of mercury) will not volatilize significantly into the air, but will instead be persistent in the environment and have the potential to bioaccumulate. An analyte with a high vapor pressure ($>10^{-2}$ millimeters of mercury) is likely to significantly volatilize into the air (Ney, 1998).

Henry's Law Constant:

The Henry's Law constant of a constituent is the equilibrium ratio of a compound in air and water at a constant temperature. The Henry's Law constant indicates the relative ease with which the constituent may be removed from aqueous solution by volatilization (i.e., whether it is more likely

to partition to water or the air). A low Henry's Law constant ($<10^{-7}$ atmospheres cubic meters per mole) indicates that the analyte is less volatile than water and, therefore, as the water evaporates the concentration of the analyte will increase. For analytes with a high Henry's Law constant ($>10^{-3}$ atmospheres cubic meters per mole), volatilization from water will be rapid (Howard, 1990).

Density/Specific Gravity:

The density of a substance is its mass per unit volume. The density of a chemical will determine whether it sinks or floats when it encounters groundwater. The specific gravity of a chemical is its density normalized to the density of water. A substance with a specific gravity less than one will float in water, while a substance with a specific gravity greater than one will sink. In addition, relatively dense compounds will tend to migrate through soil layers more rapidly than less dense compounds (EPA, 1979).

Octanol-Water Partition Coefficient:

The octanol-water partition coefficient (K_{ow}) is the ratio of the concentration of a chemical in octanol and in water at equilibrium and at a specified temperature. This coefficient serves as an indicator of the bioaccumulation potential of a chemical in the fatty tissue of living organisms and the chemical's ability to adsorb to soil. A low K_{ow} (<500) indicates that the analyte will not significantly adsorb to the soil, making it highly mobile in the environment, as well as having little to no bioaccumulation potential and a tendency to biodegrade. A high K_{ow} (>1,000) indicates that the analyte will be adsorbed to the soil and have little mobility in the environment, that the analyte will not biodegrade significantly, and it will likely bioaccumulate (Ney, 1998).

Organic Carbon Partition Coefficient:

The organic carbon-water partition coefficient (Koc) is the ratio of the mass of a chemical that is adsorbed in the soil per unit mass of organic carbon in the soil per the equilibrium chemical concentration in solution. The adsorption coefficient is indicative of the extent to which an analyte will be adsorbed to organic matter in soil. Analytes with a high Koc (>10,000 L/kg) will readily adsorb to the organic matter and become relatively immobile but are also persistent and bioaccumulative. Analytes with a low Koc (<1,000 L/kg) will not adsorb substantially to soil organic matter and will, therefore, be mobile in the environment (Ney, 1998).

Distribution Coefficient:

The distribution coefficient (K_d) is the ratio of the contaminant concentration associated with the solid to the contaminant concentration in the surrounding aqueous solution when the system is at equilibrium. For organic compounds, the K_d is equal to the K_{oc} multiplied by the fraction of organic carbon in the soil or saturated matrix. The K_d for most metals depends on the solution pH. The distribution of metals between the solid and aqueous phases also depends on oxidation-reduction potential and mineralogy.

6.2 TRANSPORT PATHWAYS

Once released, site-related constituents may be transported from a source area to an exposure point via a number of potential transport pathways. Mobility within the given medium is dependent on both the characteristics of the media and the contaminants.

Potential mechanisms for transport of constituents away from the potential source areas at the CHAAP Site include:

- Migration of volatile chemicals in groundwater and soil through volatilization into soil gas and upward and lateral movement within that phase. There were few VOC detections reported for current and historical soil samples. Freon 113 is the primary VOC detected in site groundwater. Because there are no structures at the tracts in which vapors could accumulate, this migration pathway is not complete.
- Entrainment of soil contaminants into dust and migration with wind (wind erosion). In general, the vegetated nature of the sites limits this transport pathway.
- Overland migration through erosion of soil onto which the contaminants are adsorbed or dissolution into storm water or snowmelt. The relatively flat topography and site vegetation limits the potential for substantial contaminant migration via overland flow.
- Migration from surface soil through the vadose zone to groundwater through dissolution/desorption of contaminants into soil water followed by leaching of the soil water.
- Migration horizontally and vertically in groundwater via diffusion and advection.

The primary transport pathways within the investigation area are leaching from soil to groundwater and migration within groundwater. The subsections below evaluate these two transport pathways in greater detail.

6.2.1 Characteristics of Site Media

Contamination at CHAAP was generally introduced to the ground surface during historical processing, detonation, or disposal activities. Wastewater discharged onto the ground surface and contaminated leachate from solid phase debris could migrate through the soil column, contaminating underlying soil and groundwater. Explosives and Freon 113 are known to have been associated with historical CHAAP operations. RDX and TNT were identified as soil contaminants, and RDX and Freon 113 were identified as groundwater contaminants. The mobility and persistence of these contaminants are significantly influenced by soil and groundwater conditions. The pertinent characteristics of these site media are summarized below.

6.2.1.1 Soil

As described in Section 3.3, topsoil then alluvial silty clays with traces of fine sand overlay the alluvial sands and gravels of the Grand Island Formation, which extends approximately 35 to 55 ft below grade. Beneath the Grand Island Formation is the Fullerton Formation, a stiff to hard alluvial silty clay unit from five to 15 ft thick. This sequence of lithology is encountered throughout

the site, with the depths at which the units were encountered varying generally by no more than 5 ft. The alluvial silty clays should provide greater adsorption potential than the alluvial sands and gravels. The primary organic contaminants, RDX and Freon 113, however, have low K_{oc} values indicating low tendencies to adsorb.

6.2.1.2 Groundwater

As described in Section 3.4, the Grand Island Aquifer is encountered between 5 and 20 ft bgs and groundwater flows to the northeast. The hydraulic conductivity values in the alluvial sands and gravels of this aquifer have been reported at up to 670 ft per day (URS, 2006). The Grand Island Aquifer is generally unconfined, with occasional instances where the potentiometric surface is observed several ft above the interface with the overlying silty clay unit.

Field parameter measurements were similar across UGIA and LGIA wells (see well parameter summary tables in Section 4) and indicated groundwater in the investigation area has a neutral pH (averaging 6.92 for combined UGIA and LGIA wells across the 19B, 19C, 20B, and 21C tracts and 6.97 for combined UGIA and LGIA background wells). Site area groundwater exhibits anaerobic conditions with redox potentials averaging -43.06 mV for combined UGIA and LGIA wells across the investigation area and -81.71 mV for combined UGIA and LGIA background wells. Variations in pH and ORP likely result in heterogeneity in background levels of metals, in particular arsenic, iron, and manganese, which can be substantially influenced by groundwater geochemistry.

6.2.2 Contaminant Characteristics

6.2.2.1 VOCs

Freon 113 is the primary VOC detected in site groundwater. Dichlorodifluoromethane also is present but at lower concentrations than Freon 113. As shown in Table 6.1, both compounds have similar physico-chemical properties. Both Freons have moderate solubilities in water; densities greater than that of water; high Henry's law constants and vapor pressures; and low K_{oc} values. Both compounds will tend to volatilize into soil gas, dissolve into soil gas, and migrate with groundwater flow.

Freon 113 was identified as a contaminant in groundwater during the 1996 RI for CHAAP (ICF Kaiser, 1996). The RI noted that the method of disposal of Freon 113 allowed the compound to migrate from source areas. Explosives, which were not found in groundwater and did not appear to be migrating, were principally disposed of on the ground surface. Freon 113 was poured into burning pits or buried. This disposal method likely facilitated the leaching of Freon 113 to groundwater.

The 1996 RI (ICF Kaiser, 1996) identified a Freon 113 plume emanating from source areas in Tract 19C, Tract 20B, and Tract 21B, and extending 10,000 feet (ft) in an east-northeast direction downgradient of Tract 21B, with its distal edge terminating approximately 4,800 ft upgradient of the facility boundary. The RI provided a calculated retardation factor of 1.72 for Freon 113, indicating that the compound migrated at 58% of the velocity of groundwater, or 1.01 ft/day, and that when the freon plume would reach the facility boundary, its concentration would be several

orders of magnitude below the tap water RSL. The current maximum Freon 113 concentration in groundwater on the downgradient side of Tract 19B (19B-UGIA-MW01) (the downgradient facility boundary) is 7.3 µg/L, which is several orders of magnitude below the tap water RSL (10,000 µg/L).

Current data identified Freon 113 in groundwater at Tract 19B (maximum concentration 25 µg/L), Tract 19C (maximum concentration 7,000 µg/L), Tract 21B-BB (none); Tract 21B-BPA (maximum concentration 3,000 µg/L); Tract 21B-DS (maximum concentration 58,000 µg/L), and extending from Tract 21B – DS into Tract 21C (maximum concentration 13,000 µg/L). Concentrations exceeding the tap water RSL are detected only in the groundwater plume extending from Tract 21B – DS into Tract 21C.

Freon 113 is slightly denser than water, but at the time of the 1996 RI, there was no indication that the plume was sinking. Current sampling shows that UGIA monitoring wells have higher Freon 113 concentrations than LGIA monitoring wells near potential source areas (where the highest concentrations are within Tracts 21B and 19C), and that downgradient LGIA monitoring wells have higher Freon 113 concentrations than UGIA monitoring wells. This distribution indicates that Freon 113 migrates vertically downward as it moves in the direction of groundwater flow. Vertical flow below the UGIA is prevented by the Blue Clay of the Fullerton Formation.

Freon 113 concentrations in groundwater are decreasing over time. The Freon 113 concentration at BGMW01 in Tract 19C decreased from 8,400 µg/L in 2005 (URS, 2006) to 1,100 µg/L in 2018 (Table 5.8). The Freon 113 concentration at G0063 at the Tract 21B – DS decreased from 610 µg/L in 2005 (URS, 2006) to 7.8 µg/L in 2018 (Table 5.20). The Freon 113 concentrations at PRGW01 and PRGW05 at Tract 21B-BPA decreased from 13,000 µg/L and 12,000 µg/L, respectively, in 2005 (URS, 2006) to 6,200 µg/L and 4,300 µg/L, respectively, in 2018 (Table 5.15). The attenuation mechanisms likely include advection, dispersion, and diffusion. Under anaerobic conditions, Freon 113 can be dehalogenated. The extent to which natural degradation is contributing to the Freon 113 attenuation is not known.

6.2.2.2 Explosives

The explosives RDX, HMX, TNT, and DNT compounds have been detected in soil samples historically at CHAAP. As indicated by their low K_{oc} values, and correspondingly low SSLs, explosives tend not to adsorb to soil and leach readily with the soil water. These compounds are not volatile. RDX, HMX, TNT, and DNT compounds degrade under anaerobic conditions. The extent to which anaerobic degradation is occurring in site groundwater is not known.

6.2.2.3 PAHs

Physiochemical characteristics provided in Table 6.1 demonstrate that PAHs are not volatile, have low aqueous solubility, and relatively high potential to associate with organic matter. These characteristics result in low mobility and persistence in the environment. The background study identified limited presence of PAHs in soil throughout the investigation area. Some PAHs were detected in the groundwater samples, but at low concentrations and detection frequencies.

6.2.2.4 Metals

The mobility of metals is influenced by their physical and chemical properties in combination with the physical and chemical characteristics of the soil matrix and groundwater geochemistry. Factors that affect mobility of inorganic species are soil/pore water pH, soil/pore water Eh, and cation exchange capacity. The mobility of metals generally increases with decreasing soil pH and cation exchange capacity. Once dissolved in the groundwater, metals will migrate via advection, dispersion, and diffusion or, if geochemical conditions change, they can precipitate or adsorb to mineral surfaces. Sulfides, oxide, and hydroxides are precipitates that can be substantially influenced by ORP and pH. Metals can chelate with organic matter, but organic content of aquifers is typically low.

6.3 FATE AND TRANSPORT OF SITE CONTAMINANTS

The subsections below evaluate the potential fate and transport of the contaminants identified in each of the investigation areas. A screening comparison for the soil-to-groundwater migration pathway was conducted by comparing contaminant concentrations in soil to the SSLs. The default dilution attenuation factor of 20 was applied to the SSLs.

Tables 6.2 through 6.7 present screening comparisons for soil-to-groundwater migration in surface soil and subsurface soil at the sites and identify SSL exceedances.

6.3.1 Tract 19B

6.3.1.1 Stockpiled Soil

As described previously, soil excavated from Tract 19C was stockpiled on Tract 19B between 2012 and 2015. Several explosives were detected in the stockpile soil samples, with detections of RDX, TNT, 2-Am-DNT, and 4-Am-DNT exceeding the SSLs. In addition, the following metals were identified as widespread contaminants: aluminum, cadmium, lead, manganese, and zinc. The following constituents were determined to be hot spot contaminants: antimony, arsenic, barium, chromium, cobalt, copper, iron, nickel, mercury, silver, thallium, vanadium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.

All PAH results are less than the SSLs, indicating limited potential for these compounds to leach to the underlying native soil and groundwater (Table 6.2). Detections of antimony, arsenic, cobalt, iron, lead, and manganese, however, exceeded the SSLs.

Although there was widespread presence of explosives in the stockpiled soil, there were few detections reported for the native soil. Both HMX and RDX were detected in one native surface soil sample. No explosives were detected in the native subsurface soil samples. Similarly, metals concentrations in the native soil are lower than those reported for the stockpiled soil. These results indicate that, as of sample collection in 2018, there has been limited leaching of contaminants from the stockpiled soil to the native material.

Because the stockpiled soil had been at the site for only a few years before the RI sampling, there likely was not enough time for substantial leaching of stockpile soil contaminants to the native soil. For this reason, the native soil results are not good indicators of the potential for contaminants in the stockpiled soil to migrate through the subsurface. To provide site-specific information on the potential for this transport pathway to contaminate native soil and groundwater in the future, select stockpiled soil samples were extracted with the SPLP and the leachates were analyzed for explosives and metals (Table 5.2).

HMX, RDX, TNB, TNT, 2,4-DNT, 2-Am-DNT, and 4-Am-DNT were detected in the SPLP leachate samples. All detections of HMX and TNB were less than the tap water RSLs. 2,4-DNT was detected in only one leachate sample, and the single detection was greater than the tap water RSL. Multiple detections of RDX, TNT, 2-Am-DNT, and 4-Am-DNT exceeded the tap water RSLs. These results indicate long-term potential for RDX, TNT, 2-Am-DNT, and 4-Am-DNT contamination to leach from the stockpiled soil to the underlying groundwater at concentrations that could pose a risk to human health. The limited presence of 2,4-DNT in the SPLP leachate samples suggests that this explosive is unlikely to migrate to groundwater at concentrations that could pose a health risk.

The metal leachate results indicate the potential for metal contamination in the stockpiled soil to leach to groundwater at levels greater than MCLs or tap water RSLs. Arsenic, beryllium, chromium, and lead were detected in multiple leachate samples at concentrations greater than both BTVs and MCLs. Aluminum, cobalt, iron, and vanadium results exceeded both BTVs and tap water RSLs. No groundwater BTVs are available for antimony, mercury, and thallium. Antimony concentrations in two leachate samples exceeded both the MCL and tap water RSL. Thallium detections for all leachate samples exceeded the tap water RSL; only one result is greater than the MCL. The mercury concentrations were less than the MCL; one detection exceeded the tap water RSL.

In summary, the SPLP data indicate that explosives and metals in the stockpiled soil could leach to groundwater at concentrations posing a risk to human health.

6.3.1.2 Native Soil

As noted above, there is limited presence of explosives in the native soil underlying the stockpiles. The RDX detection for one surface soil sample was greater than the SSL. It is likely that this detection reflects contaminant migration from the overlying stockpiled soil.

The background study concluded that arsenic, barium, nickel, and vanadium are contaminants in native surface soil. The background study also identified aluminum, antimony, chromium, copper, and iron as contaminants in native surface soil but noted that current concentrations could represent heterogeneity in background levels. All of these metals are widespread or hot spot contaminants in the stockpiled soil.

There was limited presence of metal contamination in the native subsurface soil. Although the stockpiled soil may have already affected the native surface soil, it appears to have had limited effect on the native subsurface soil to date.

6.3.1.3 Groundwater

Analytical data for groundwater support the finding that contaminants in stockpiled soil at Tract 19B have not yet migrated to groundwater, a conclusion that is consistent with the native subsurface soil data. Explosives were not detected in the groundwater samples. The background study identified manganese as a sitewide groundwater contaminant and copper as a hot spot contaminant. Manganese, however, is not a contaminant in the native soil.

The source of the elevated (relative to background) manganese concentrations in site groundwater is not known. It is unlikely that manganese contamination has leached from soil to groundwater. Manganese can dissolve from naturally-occurring metals if degradation of organic contaminants causes groundwater to change from aerobic to anaerobic conditions. The ORP measurements for the Tract 19B groundwater samples, however, are consistent with those reported for the background samples and there are no organic contaminants in groundwater or soil that could have altered the site's groundwater geochemistry. It is possible that the manganese results represent heterogeneity in background conditions.

6.3.2 Tract 19C

Soil contaminants at Tract 19C consist of isolated detections of explosives, specifically RDX, nitrobenzene, TNT, 2-Am-DNT, and 4-Am-DNT; barium and manganese throughout site soil; and arsenic, cobalt, iron, lead, nickel, and vanadium in isolated areas. PAHs were present at concentrations consistent with background levels.

Multiple explosive detections in surface soil samples exceeded SSLs. In addition, arsenic, cobalt, iron, and manganese were detected at concentrations greater than both BTVs and SSLs. To assess whether vertical contaminant migration had occurred, subsurface soil samples were collected from locations with the highest RDX, nitrobenzene, arsenic, cobalt, iron, or manganese concentrations. Table 6.3 presents the results for the co-located surface soil and subsurface soil samples. No explosives were detected in the subsurface soil samples, indicating that contamination has not migrated downwards. Except for two detections of iron, the subsurface results were less than the co-located surface soil results. These results indicate that, other than possibly iron, surface soil contaminants are not leaching through the vadose zone.

No explosives were detected in the groundwater samples collected with DPT and from monitoring wells. These results confirm that explosives are not leaching through the soil column. The background study identified hot spots of arsenic contamination in groundwater. The limited presence of metal contamination indicates that vertical migration is not a significant transport pathway.

The primary VOC contaminant in Tract 19C groundwater is Freon 113. All detections are less than the tap water RSL. The mildly anaerobic conditions indicated in some of the wells by the ORP readings might support dehalogenation. The primary attenuation mechanisms for this VOC are likely advection and dispersion.

Several PAHs were detected in one or two samples from the monitoring wells at concentrations approximately equal to or less than 0.2 µg/L. Given the absence of PAH contamination in soil, the

source of this groundwater contamination is not known. Due to their hydrophobicity, PAHs adsorb readily to solid surfaces and typically do not migrate far with groundwater flow. These compounds can biodegrade but degradation rates are slow.

6.3.3 Tract 20B

Soil contaminants identified for Tract 20B consist of several explosives, specifically HMX, RDX, TNT, 2-Am-DNT, 4-Am-DNT and tetryl; barium, cadmium, copper, mercury, and silver throughout the investigation area; and aluminum, arsenic, chromium, iron, lead, manganese, selenium, vanadium, and zinc in isolated areas. Table 6.4 compares for these contaminants to the SSLs. As shown in this table, maximum detections of HMX, RDX, TNT, 2-Am-DNT, 4-Am-DNT, arsenic, cadmium, iron, manganese, and mercury were greater than the SSLs, indicating the potential for these constituents to migrate through the vadose zone to the underlying groundwater at concentrations that could pose a risk to human health.

HMX and RDX were the only explosives detected in site groundwater, demonstrating that the leaching migration pathway is complete for these compounds. TNT 2-Am-DNT, and 4-Am-DNT were not detected in the groundwater samples, indicating that this migration pathway is not complete for these compounds.

The HMX and RDX groundwater contamination is localized to the vicinity of the excavation footprint for the 2000 removal action. RDX concentrations increase from 2.2 µg/L upgradient of the former excavation footprint to 200 µg/L at well 20B-UGIA-MW03, located downgradient of the former footprint, and then decrease to below the detection limit at well 20B-UGIA-MW11, located approximately 300 ft downgradient of well 20B-UGIA-MW03. The approximate groundwater plume is shown on Figure 5.8. Analytical results indicate that RDX migrates in the direction of groundwater flow but does not migrate significantly vertically or cross-gradient from the source area. With a measured ORP of 28.1 mV at 20B-UGIA-MW03, groundwater near the highest RDX concentrations is unlikely to support natural biodegradation processes, which, for RDX, are primarily anaerobic.

The only metal contamination identified by the groundwater data was hot spots of copper and nickel. The copper groundwater detections were less than the tap water RSL, indicating that, although copper contamination may be leaching from soil to groundwater, it is not doing so at levels that could pose a risk to human health. The source of the hot spot of nickel contamination is not known.

Although PAHs were not identified as soil contaminants, benzo(a)anthracene was detected in one groundwater sample and pyrene was detected in two groundwater samples. The reported concentrations were less than 0.1 µg/L. Given that all PAH detections reported for the soil samples were less than the SSLs, the origin of this groundwater contamination is not known. Due to the low concentrations and PAHs' tendency to adsorb to soil, it is unlikely that this contamination in groundwater will migrate.

6.3.4 Tract 21B – Burning Pit Area

The contaminants identified in the Tract 21B-BPA soil consist of:

- Explosives: HMX, RDX, and 2-nitrotoluene.
- VOCs: Freon 113, toluene, and xylenes.
- SVOCs: benzoic acid, di-n-butylphthalate, hexachlorobenzene, and p-benzoquinone.
- PAHs:
  - Sitewide: benzo(g,h,i)perylene, benzo(k)fluoranthene, phenanthrene.
  - Hot spots: 2-methylnaphthalene, indeno(12,3-c,d)pyrene, and naphthalene.
- Metals:
  - Sitewide: barium.
  - Hot spots: arsenic, beryllium, cadmium, cobalt, chromium, copper, iron, lead, manganese, mercury, silver, and zinc.

Table 6.5 compares the maximum detections reported for the above contaminants to the SSLs. Maximum detections of arsenic, cobalt, iron, manganese, naphthalene, hexachlorobenzene, 2-nitrotoluene, and RDX were greater than the SSLs. Of the contaminants detected at concentrations greater than the SSLs, only naphthalene and RDX are groundwater contaminants. Both compounds were detected in only two groundwater samples and at low concentrations, with maximum detections of less than 1 µg/L for naphthalene and 2.8 µg/L for RDX. These results indicate minimal leaching of soil contaminants with concentrations greater than the SSLs.

The groundwater contaminants are selenium, cadmium (hot spot), nickel (hot spot), Freon 113, 1,2,4-trimethylbenzene, dichlorodifluoromethane, 2-methylnaphthalene, acenaphthene, biphenyl, dibenzofuran, fluorene, and phenanthrene. For the most part, the groundwater contaminants were detected in only one or a few samples, indicating limited presence at the site. Freon 113 is the most widespread of the groundwater contaminants.

Freon 113 has historically been detected in groundwater at Tract 21B-BPA, and was attributed to past burning practices and material that was removed from former trenches PRST07 and PRST08 in 2000. In 2005, Freon 113 was detected at 13,000 µg/L at PRGW01 and at 12,000 µg/L at PRGW05. Concentrations at these two wells have decreased to 6,200 µg/L (PRGW01) and 4,300 µg/L (PRGW05) (Table 5.15), indicating that the Freon 113 plume is attenuating. The highest detection of Freon 113 (25,000 µg/L) in the 2018 samples was reported for 21B-BPA-UGIA-MW01, located on the north side of former trench PRST07, indicating that the source area continues to have the highest Freon 113 concentrations. Similar to past data, highest Freon 113 concentrations are detected in UGIA wells, and the contaminant does not migrate significantly vertically in the source area. Farther downgradient, concentrations in UGIA wells decrease, while concentrations in LGIA wells increase, indicating the contaminant sinks as it migrates in the direction of groundwater flow. Freon 113 is detected at 25,000 µg/L at 21B-BPA-UGIA-MW01 and 13 µg/L at co-located well 21B-BPA-LGIA-MW02. Approximately 1,000 ft downgradient of this location, UGIA well 21B-BPA-UGIA-MW03 contains 230 µg/L Freon 113 and co-located well 21B-BPA-LGIA-MW04 contains 3,000 µg/L.

6.3.5 Tract 21B – Backstop Berm and Static Ejection Test Site

Contaminants at Tract 21B – BB are explosives and metals. Nitroglycerin was the only explosive detected in the Tract 21B Backstop Berm and Static Ejection Test Site soil samples. The single detection was greater than the SSL. Explosives, however, were not detected in the groundwater samples, indicating that nitroglycerin is not migrating to groundwater.

The background study identified aluminum, antimony, barium, lead, and zinc as sitewide soil contaminants. As shown in Table 6.6, maximum detections of these metals were less than the SSLs. Site-specific information on leaching potential was obtained by extracting a surface soil sample and subsurface soil sample with the SPLP and analyzing the leachates for metals. The surface soil leachate contained aluminum, arsenic, beryllium, cobalt, iron, lead, thallium, and vanadium at concentrations greater than BTVs and RSLs/MCLs. In the leachate from the co-located subsurface soil sample, however, only arsenic and vanadium were detected at concentrations greater than BTVs and RSLs/MCL. These results indicate that the potential for soil constituents to leach decreases with depth.

Although the SPLP results indicate the potential for arsenic and vanadium to leach throughout the vadose zone at concentrations greater than BTVs and risk-based screening values, neither of these metals is a groundwater contaminant. Selenium is the only groundwater contaminant. Although detected at concentrations greater than background levels, selenium is present at relatively low concentrations, less than 5 μg/L, that are less than the tap water RSL. The groundwater data indicate that metal contaminants in site soil are not leaching to groundwater.

The soil and groundwater data suggest limited potential for contaminant migration at Tract 21B – BB.

6.3.6 Tract 21B – Decanting Station and Leaching Pit

Soil contaminants at Tract 21B – DS consist of Freon 113, acetone, carbon disulfide, toluene, bis(2-ethylhexyl)phthalate, and HMX, along with the metals listed below.

- Surface soil: isolated areas of barium, cadmium, and lead contamination.
- Subsurface soil: widespread cadmium, chromium, manganese, nickel, and zinc contamination; and isolated areas of barium, beryllium, cobalt, copper, silver, and vanadium contamination.

Table 6.7 lists the maximum detection reported for each contaminant along with the corresponding SSL. Maximum detections of the organic compounds were less than the SSLs. The metal contaminants in surface soil also were present at concentrations less than the SSLs. In subsurface soil, only manganese and cobalt were detected at concentrations greater than the SSLs. Comparison to the SSLs indicates limited potential for residual soil contamination to migrate to groundwater.

Contaminants in Tract 21B – DS groundwater are Freon 113, dichlorodifluoromethane, 4-isopropyltoluene, 2-butanone, ethylbenzene, and barium. The background study noted, however,

that the elevated barium detections could have been due to sample turbidity. These data indicate that, other than possibly barium, metals are not leaching from soil to groundwater.

Ethylbenzene, 4-isopropyltoluene, and 2-butanone were each detected in only one monitoring well, and at low concentrations of less than 1 µg/L for 4-isopropyltoluene and ethylbenzene and 3.8 µg/L for 2-butanone. These isolated, trace detections are not indicative of any significant contaminant transport from soil to groundwater or within groundwater.

Freon 113 and dichlorodifluoromethane were detected in multiple wells at Tract 21B – DS and are present as plumes. Comparison of the soil data to SSLs indicates that soil is no longer a source of this groundwater contamination. The dichlorodifluoromethane contamination is contained within the Freon 113 plume. Freon 113 contamination has migrated downgradient with groundwater flow onto the adjacent Tract 21C. The groundwater plume is shown on Figure 5.18.

Freon 113 tap water RSL exceedances in the UGIA range from 58,000 µg/L in the source area (east of former trench PSRGST001 and on the southwest side of the former RDX plume) to 30,000 µg/L in the direction of groundwater at the Tract 21B boundary. Freon 113 concentrations extending into Tract 21C in the UGIA decrease to below the tap water RSL. In contrast, Freon 113 RSL exceedance concentrations in the LGIA increase across the Tract 21B/Tract 21C boundary, ranging 11,000 µg/L to 54,000 µg/L at the downgradient side of the former RDX plume before decreasing to below the tap water RSL in the downgradient direction. Freon 113 migrates vertically as it travels in the direction of groundwater flow as evidenced by higher concentrations in LGIA wells and decreasing concentrations in UGIA wells in that direction.

Freon 113 can dehalogenate under anaerobic conditions. ORP measurements for Tract 21B – DS wells indicate mildly to moderately anaerobic groundwater.

6.3.7 Tract 21C

As indicated above, groundwater contamination at Tract 21C is due to the downgradient migration of Freon 113 and dichlorodifluoromethane from Tract 21B – DS. As previously discussed, Freon 113 is present at concentrations exceeding the tap water RSL in UGIA and LGIA monitoring wells just east of former trench PSRGST001 and extending in the direction of groundwater flow into Tract 21C. Groundwater data indicate that Freon 113 decreases to below the tap water RSL in both the UGIA and LGIA in the direction of groundwater flow within Tract 21C (Figure 5.18). Groundwater in Tract 21C appears to be more toxic than the upgradient groundwater in Tract 21B – DS and may not be able to support natural dehalogenation.

7.0 BASELINE RISK ASSESSMENT

This section summarizes the baseline risk assessment, which consists of a human health risk assessment (HHRA) and screening level ecological risk assessment (SLERA). Appendix M contains the detailed HHRA and SLERA and all supporting calculations.

The HHRA and SLERA were conducted in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act, National Oil and Hazardous Substances Contingency Plan, their associated guidance documents (Risk Assessment Guidance for Superfund [RAGS]; Office of Solid Waste and Emergency Response [OSWER] Directives; Ecological Risk Assessment Guidance for Superfund; etc.), applicable elements of Nebraska Department of Environment and Energy and Nebraska Department of Health and Human Services regulations and their associated guidance documents, and the Risk Assessment Plan (Appendix D of ATI/HGL, 2019).

In accordance with the Risk Assessment Plan (Appendix D of ATI/HGL, 2019), separate HHRAs and SLERAs were completed for each tract and sub-tract. The tracts and associated exposure media are listed below.

- Tract 19B
  - HHRA (native soil, stockpiled soil, groundwater)
  - SLERA (native soil, stockpiled soil)
- Tract 19C
  - HHRA (soil and groundwater)
  - SLERA (soil)
- Tract 20B
  - HHRA (soil and groundwater)
  - SLERA (soil)
- Tract 21B – BB
  - HHRA (soil and groundwater)
  - SLERA (soil)
- Tract 21B – BPA
  - HHRA (soil and groundwater)
  - SLERA (soil)
- Tract 21B – DS
  - HHRA (soil and groundwater)
  - SLERA (soil)
- Tract 21C
  - HHRA (groundwater)

Soil at Tract 21C is encompassed by an existing ROD and thus was not considered in this baseline risk assessment. General site description information for each of the tracts and sub-areas is

presented in Section 2.0 of the RI Report. A detailed discussion of the exposure setting for each of the tracts and sub-areas is presented in Section 2.0 of Appendix M.

7.1 DATA USED IN THE RISK ASSESSMENT

Sampled media for the tracts include surface soil, subsurface soil, and groundwater. Additionally, sampled media for Tract 19B include stockpiled soil. For all tracts and sub-areas, historical, usable soil data from sample locations unaffected by prior removal actions were included in the HHRA and SLERA datasets along with the soil data collected as part of the RI field program. The historical soil data were included because the potential contaminants, primarily metals and explosives, are unlikely to have degraded since the samples were collected.

The HHRA evaluated soil from the ground surface to 10 ft bgs. The analytical results of soil samples collected deeper than 10 ft bgs were excluded from the HHRA soil dataset because excavations associated with typical construction projects are not anticipated to extend beyond this depth. In other words, there will be no complete exposure pathway for subsurface soil deeper than 10 ft bgs.

For all tracts and sub-areas, all historical soil samples collected from 0 to 1 ft bgs were considered surface soil samples. All surface soil samples collected as part of the 2018 RI field program were collected from 0 to 0.5 ft bgs. These historical and recent soil samples were pooled to represent the surface soil interval to which current receptors could be exposed.

The SLERA soil datasets include samples collected from 0 to 2 ft bgs as this interval is generally considered to be the ecologically active zone (EPA, 2015). It is unlikely that ecological receptors would be routinely exposed to soil deeper than 2 ft bgs.

Site groundwater is not known to discharge to the ground surface within any of the tracts or sub-areas. Accordingly, there is no complete pathway by which ecological receptors could be exposed to groundwater and the SLERAs do not evaluate groundwater data.

The HHRA evaluated groundwater data obtained from permanent monitoring wells. Groundwater samples from DPT borings provide screening level data and were not included in the HHRAs. Because groundwater is a transient medium and historical data may not represent current site conditions, the most recent set of sampling data for a given analytical suite was used for the HHRA.

As described in Section 3.4, the Grand Island aquifer is approximately 50 to 60 ft thick at CHAAP. Historically, monitoring wells screened in the UGIA and LGIA portions of the aquifer were evaluated separately with respect to contaminant distribution. Under a future land use scenario, a drinking water well could be installed in either zone or screened across both zones. Accordingly, UGIA and LGIA data were pooled in the HHRA datasets to best reflect potential future exposure.

7.1.1 Data Usability Evaluation

Only usable, definitive data were evaluated in the HHRAs and SLERAs. As described in the Data Quality Evaluation (Appendix I), all data collected during the 2018 RI field program are usable.

The data usability assessment for each of the historical investigations is summarized below and detailed in Section 3.1 of Appendix M.

- 1991 Excessing Assessment: All soil and groundwater data are not usable because the data were not validated and are not fully available.
- 1993 Site Characterization Report: Thallium soil results are not usable because the inductively coupled plasma-atomic emission spectroscopy method is prone to interferences that result in artificially high detections and false positive detections. The remaining soil data from the 1993 Site Characterization Report were included in the risk assessment.
- 1995 RI Report: All data from the 1995 RI Report are usable for risk assessment.
- 2001 Closeout Report: All soil data are not usable because the data were not validated and depths from which samples were collected is not specified in the historical documentation.

Datasets for each tract and sub-area are further detailed in Section 3.2 of Appendix M.

7.2 CONCEPTUAL SITE MODEL

The contaminant sources associated with the tracts and their sub-areas include stockpiled, contaminated soil or migration of contaminated groundwater from other areas of CHAAP (Tract 19B and Tract 21C); munitions and explosives disposal activities (Tract 19C, Tract 20B, Tract 21B – BPA, and Tract 21B – DS); and firing ranges (Tract 21B – BB). Currently, land use at the CHAAP is industrial and agricultural (USACE, 2015).

Excluding Tract 21C, contamination may be present in soil and/or the underlying groundwater. Contamination at Tract 21C is limited to groundwater based on an existing ROD that encompasses the Tract 21C soil. Based on CHAAP's historical use and historical investigations, the primary known and likely contaminants consist of explosives, PAHs, Freon 113, and dichlorodifluoromethane. However, it is possible for metals to have been released from MD (e.g., spent fuzes) remaining in site soil. According to the Munitions Items Disposition Action System database, fuzes can contain a wide variety of metals, including aluminum, antimony, barium, copper, iron, lead, and zinc. Additionally, historical OB/OD of explosives-contaminated materials and ordnance at Tract 19C included aluminum powder and lead azide, and lead from small arms ammunition is a contaminant source at Tract 21B – BB.

The Grand Island Formation aquifer is a shallow water table aquifer beneath CHAAP within the alluvial sands and gravels of the Grand Island Formation. Groundwater in this aquifer generally occurs at approximately 10 to 20 ft bgs and extends to 60 to 80 ft bgs. The UGIA is considered the top 20 ft of the aquifer and the LGIA is considered to be the bottom 20 ft, with the middle representing the portion in between the two. The Grand Island Formation aquifer is used regionally as a source of irrigation and potable water. There are several active irrigation wells near and on CHAAP (USACE, 2015). Groundwater is not known to discharge to the ground surface in any of the tracts and sub-areas evaluated as part of the RI.

No regularly occupied structures exist at any of the tracts or sub-areas. Although the majority of contaminants (e.g., metals, PAHs, explosives, etc.) identified in site soil and groundwater are not considered to be sufficiently volatile to pose a risk via the vapor intrusion pathway, volatile contaminants (e.g., Freon 113 and other VOCs) were detected in site media, primarily groundwater. The vapor intrusion exposure pathway is considered to be potentially complete under future site conditions if regularly occupied structures are built.

7.3 HUMAN HEALTH RISK ASSESSMENT

Based on current site conditions and an unrestricted future land use, the receptors listed below were evaluated in the HHRA. Each tract and sub-area were evaluated separately. A detailed discussion of the potential receptors and exposure routes is presented in Section 5.1 of Appendix M. Receptors can be exposed to contamination through ingestion, dermal contact, and inhalation.

Current Receptors

- Trespassers (adult and adolescent)
- Site visitors (adult and adolescent)
- Farmers (adult) (Tract 21C only)

As noted above, the current farmer is present only at Tract 21C, where soy and corn were both observed to be growing during separate stages of the 2018 RI field program. No other tracts or sub-areas are currently being used for agricultural purposes. The current farmer lives elsewhere and only farms on the site. This receptor does not raise produce for personal consumption. Instead, the farmer raises commercial crops, primarily feed corn or soy. Currently, site groundwater is not used for drinking. Groundwater at Tract 21C appears to be used for irrigation. Therefore, the current farmer is exposed to groundwater only at Tract 21C.

Future Receptors

- Indoor workers (adult)
- Outdoor maintenance workers (adult)
- Recreational users (adult and adolescent)
- Trespassers (adult and adolescent)
- Site visitors (adult and adolescent)
- Farmers (adult)
- Construction workers (adult)
- Residents (childhood through adulthood)

The site visitor is a potential receptor under both current and future land use scenarios. The recreational user is a potential site receptor under a future land use scenario. Both these receptors are expected to visit the site only a few times per year. The site visitor and recreational user are expected to experience levels of exposure to site contaminants, and thus risks, similar to those for the trespasser. For this reason, risks to the site visitor and recreational user were not quantified. Instead, the trespasser is used to represent potential risks to the site visitor and recreational user.

In the future, any of the tracts or sub-areas could be used for agricultural purposes and a farmer could use the groundwater for irrigation. The future farmer could live on site and also use groundwater as

a drinking water source. This exposure scenario was not quantified, but rather was evaluated using the conclusions of the resident receptor. Because CHAAP is used for large-scale commercial crops, such as corn or soy, it is unlikely that the farmer would grow produce for personal consumption. In summary, the future farmer is the same as the current farmer, who is an off-site farmer potentially exposed to soil during tilling, planting, etc., and groundwater contaminants during irrigation.

Under current site conditions, there is no complete exposure route for subsurface soil. Thus, the HHRA quantified exposure of current receptors to site surface soil. For future, non-farming scenarios, it was assumed that construction or other intrusive activities (e.g, building a house or office building) have occurred, causing subsurface soil to be brought to the ground surface and mixing the subsurface soil with the surface soil. For this reason, it is assumed that future outdoor workers, indoor workers, trespassers, and residents are exposed to future surface soil that is represented by the pooled surface soil and subsurface soil (0 to 10 ft bgs) analytical results. Because farming is unlikely to occur once structures are built, it is assumed that the future farmer is exposed to surface soil that has not been affected by soil turnover.

At Tract 19B, the native soil underlying the stockpiles represents a future exposure scenario as the stockpiles prevent exposure under current site conditions. However, some receptors are more likely to be exposed to native surface soil than native subsurface soil. The future resident, construction worker, and indoor worker could be exposed to combined native surface and subsurface soil because intrusive activities associated with redevelopment (i.e., building structures) would need to occur for these receptors to be present at the site. Therefore, risks for these receptors were calculated using the combined native surface and subsurface soil dataset. The future outdoor maintenance worker, farmer, and trespasser could be exposed to surface soil in the absence of intrusive activities. Therefore, risks for the outdoor maintenance worker, farmer, and trespasser were calculated using the native surface soil dataset.

7.3.1 Identification of Chemicals of Potential Concern

This step compares the data for each tract and sub-area to risk-based screening values to focus the HHRA on chemicals with the highest potential to pose a health risk. Chemicals of potential concern (COPC) were identified by comparing the maximum detections or maximum estimated concentrations to the most current versions of the screening values listed below.

- Surface and subsurface soil: residential soil RSLs (cancer risk = 1E-06; non-cancer target HQ = 0.1, May 2021).
- Construction worker exposure via soil-to-ambient air exposure route: industrial soil RSLs (cancer risk = 1E-06; non-cancer target HQ = 0.1, May 2021).
- Groundwater:
    - Direct contact: tap water RSLs (cancer risk = 1E-06; non-cancer target HQ = 0.1, May 2021) or, if a tapwater RSL is not available, the MCL (if available).
    - Vapor intrusion: EPA vapor intrusion screening levels (VISLs) for residential land use (cancer risk = 1E-06; non-cancer HQ = 0.1) and VURAM Voluntary Remediation Program Screening Levels for indirect exposure of construction workers to groundwater contamination (< 15 ft bgs).

- Chemicals with maximum detections greater than the screening values were identified as COPCs and included in the quantitative HHRA. A detailed discussion of the COPC screening process is provided in Section 5.2 of Appendix M. Exposure Assessment.

The exposure assessment identifies pathways and routes by which an individual may be exposed to the COPCs, and estimates the magnitude, frequency, and duration of potential exposure. The components of exposure assessment are summarized below.

7.3.1.1 Calculation of Exposure Point Concentrations

Exposure point concentrations (EPC) are the estimated COPC concentrations that a receptor may contact. The analytical results of soil and groundwater were used to calculate the EPCs for these media. If the dataset was large enough (seven or more detections), the EPC was the 95% upper confidence limit (UCL) of the mean calculated with the EPA statistical software ProUCL (Version 5.1.002). If there were fewer than seven detections, the maximum detection was selected as the EPC. EPCs for fugitive dust and volatile emissions (i.e., inhalation exposure) were calculated in accordance with EPA (2002).

Groundwater EPCs were calculated in accordance with OSWER Directive 9283.1-42, *Determining Groundwater Exposure Point Concentrations, Supplemental Guidance* (EPA, 2014). Under this approach, for COPCs for which a contaminant plume is identified, the EPC was calculated to reflect only the plume's core.

7.3.1.2 Estimation of Chemical Intakes

Chemical intake is the amount of the chemical constituent entering the receptor's body. Chemical intakes were calculated in accordance with EPA's RAGS. The equations used to estimate chemical intake are detailed in Attachment M.1 of Appendix M.

7.3.2 Toxicity Assessment

Toxicity assessment defines the relationship between the magnitude of exposure and possible severity of adverse effects and weighs the quality of available toxicological evidence. Cancer slope factors and inhalation unit risks are used to estimate cancer risks, and reference doses and reference concentrations are used to calculate non-cancer HQ. These toxicity values are provided in Tables 5.1, 5.2, 6.1, and 6.2, Attachment M.1, Appendix M. These values were obtained in accordance with the hierarchy outlined in OSWER Directive 9285.7-53.

Lead toxicity is evaluated through blood lead modeling. Two EPA models were used: Integrated Exposure Uptake Biokinetic (IEUBK) model and the Adult Lead Model (ALM). The IEUBK model predicts the probability of elevated blood-lead levels (BLL) for children ages 0 to 7 years exposed to lead in multiple media (soil, water, diet, air). The ALM model is a variation of the IEUBK model and focuses on estimating fetal BLLs in women exposed to lead in soil. The lead risks are expressed as the predicted geometric mean BLLs and the percent of the population potentially experiencing concentrations greater than a target value. Consistent with how the residential soil RSL is calculated, the HHRA used 10 µg/dL as the target BLL.

7.3.3 Risk Characterization

Potential human health risks from exposure to chemicals were evaluated independently for carcinogenic and noncarcinogenic effects because of the different toxicological endpoints, relevant exposure duration, and methods used to characterize risk. Some chemicals can exert both carcinogenic and noncarcinogenic effects. For these chemicals, the HHRA quantified both types of effects. The approach used to estimate noncarcinogenic hazards and carcinogenic risks is summarized below and detailed in Appendix M.

7.3.3.1 Cancer Risk and Non-Cancer Hazard Estimation

For a given receptor, cancer risks were calculated for each COPC within each exposure medium, summed across each exposure medium, and summed across all exposure media. The cancer risk calculations incorporated age-dependent adjustment factors for mutagenic chemicals. Inhalation cancer risks were calculated in accordance with RAGS Part F, *Supplemental Guidance for Inhalation Risk Assessment* (EPA, 2009).

Non-cancer risks are evaluated using HQs. The HQ estimated for each COPC was summed across each exposure medium and all exposure media to provide a total HI for each receptor. For any HI exceeding the target level of 1 (rounded to one significant figure), a target organ analysis was performed to account for differences in toxic mechanisms among the COPCs. Inhalation hazards were calculated in accordance with RAGS Part F (EPA, 2009).

The equations for calculating cancer risks and non-cancer HQs are presented in Section 5.4.1.1 of Appendix M.

7.3.3.2 Risk Assessment Results

Potential cancer risks and non-cancer hazards were calculated for exposure to soil and/or groundwater at each of the tracts and sub-areas. Risks were quantified separately for each tract and sub-area. RAGS tables presenting the risk quantification are provided in Attachment M.1 of Appendix M. The results of the risk assessment are summarized in Table M.1 of Appendix M.

For all tracts and sub-areas, cumulative cancer risks were compared to the EPA target risk range of 1E-06 to 1E-04 and cumulative HIs were compared to the EPA target level of 1. If the cumulative HI exceeded 1, a target organ analysis was performed and the HIs for each target organ were compared to a target value of 1.

Because the COPC selection does not account for chemical attribution, for those receptors with cumulative cancer risks or target organ HIs greater than the target levels, the risks and HIs were re-calculated to remove background contributions and focus the assessment on COPCs that are also contaminants. The background study is presented in Appendix L. The risk drivers were then identified from the contaminant cumulative cancer risks and target organ HIs. Risk drivers are those COPCs that contribute more than an HQ of 0.1 to a contaminant target organ HI that exceeds 1 or more than a cancer risk of 1E-06 to a contaminant cumulative carcinogenic risk that exceeds 1E-04. The risk drivers are summarized below and detailed in Table M.1 of Appendix M.

- Tract 19B:
  - Native soil and groundwater
    - Soil: aluminum and manganese
    - Groundwater: manganese
  - Stockpile 1 and groundwater
    - Soil: manganese
    - Groundwater: manganese
  - Stockpile 2/3 and groundwater
    - Soil: aluminum and manganese
    - Groundwater: manganese
  - Stockpile 4 and groundwater
    - Soil: aluminum, manganese, and 2,4,6-trinitrotoluene
    - Groundwater: manganese
- Tract 19C:
  - Soil: arsenic
  - Groundwater: arsenic, Freon 113, dichlorodifluoromethane, benzo(a)anthracene, and benzo(a)pyrene
- Tract 20B:
  - Soil: aluminum and arsenic
  - Groundwater: RDX and benzo(a)anthracene
- Tract 21B – BPA:
  - Soil: none
  - Groundwater: Freon 113, dichlorodifluoromethane, biphenyl, and dibenzofuran
- Tract 21B – BB: none
- Tract 21B – DS:
  - Soil: none
  - Groundwater: Freon 113 and dichlorodifluoromethane
- Tract 21C:
  - Soil: not applicable based on existing ROD
  - Groundwater: Freon 113 and dichlorodifluoromethane

As described in the uncertainty analysis in Section 5.5.2 of Appendix M, the HHRA likely overestimated the risks posed by biphenyl and dibenzofuran in the Tract 21B-BPA groundwater, benzo(a)anthracene in Tract 20B groundwater, and benzo(a)anthracene and benzo(a)pyrene in Tract 19C groundwater. Each of these chemicals was detected in only one groundwater sample from the affected tracts, and the sole detection was the exposure point concentration. The soil data indicate limited presence of PAH contamination throughout the investigation area. In addition, PAHs are hydrophobic compounds that have little tendency to migrate via infiltrative leaching. There are no known sources of biphenyl and dibenzofuran in the investigation areas. In summary, there is little evidence demonstrating that biphenyl, dibenzofuran, benzo(a)anthracene, and benzo(a)pyrene are groundwater contaminants related to historical site operations.

Freon 113 and dichlorodifluoromethane are risk drivers in groundwater at Tract 19C, Tract 21 – BPA, Tract 21B – DS, and Tract 21C partly due to the vapor intrusion pathway. Because there are no occupied structures at the sites, exposure via vapor intrusion was estimated using EPA's VISL calculator. These calculations are uncertain and, depending on how future structures are built, could overestimate or underestimate potential exposure via vapor intrusion.

7.3.3.3 Lead Risks

Lead was identified as a COPC in soil at Tract 19B (soil stockpile 2/3). Blood lead modeling was used to evaluate potential risks associated with exposure to lead in soil and as described in Section 7.3.3. As detailed in Section 5.4.2.2.2 of Appendix M, estimated BLLs using both the IEUBK and ALM were below the target level. Lead in soil from the combined Stockpile 2/3 does not pose a risk to child residents, adult outdoor maintenance workers, or adult construction workers.

7.3.3.4 Vapor Intrusion from Soil

As discussed above in Section 7.3.4.2, the groundwater risk calculations included vapor intrusion associated with groundwater contaminants. Because there are no reliable equations for estimating vapor intrusion from soil, the HHRA qualitatively evaluated this potential future exposure pathway. For all tracts, the HHRA concluded that vapor intrusion from soil contaminants was unlikely to pose a risk if occupied structures are built at the site in the future.

7.3.4 Uncertainty Analysis

Conducting a risk assessment requires making a number of assumptions that introduce uncertainty in the risk and hazard estimates. The uncertainty associated with the following aspects of the HHRA were evaluated:

- Analytical suite, sensitivity, and reliability;
- Assumptions used to estimate exposure; and
- Toxicity values.

The uncertainty discussion is presented in Section 5.5 of Appendix M.

7.3.5 Human Health Risk Assessment Summary

In summary, the potential risks to human health posed by soil and groundwater constituents throughout the investigation areas were quantified and compared to the EPA target values. The HHRA evaluated receptors that span a range of land uses from farming to commercial/industrial and residential. The risk drivers are listed by investigation area below.

- Tract 19B:
  - Native soil and groundwater
    - Soil: aluminum and manganese
    - Groundwater: manganese
  - Stockpile 1 and groundwater
    - Soil: manganese
    - Groundwater: manganese
  - Stockpile 2/3 and groundwater
    - Soil: aluminum and manganese
    - Groundwater: manganese
  - Stockpile 4 and groundwater
    - Soil: aluminum, manganese, and 2,4,6-trinitrotoluene
    - Groundwater: manganese

- Tract 19C:
  - Soil: arsenic
  - Groundwater: arsenic, Freon 113, dichlorodifluoromethane, benzo(a)anthracene, and benzo(a)pyrene
- Tract 20B:
  - Soil: aluminum and arsenic
  - Groundwater: RDX and benzo(a)anthracene
- Tract 21B – BPA:
  - Soil: none
  - Groundwater: Freon 113, dichlorodifluoromethane, biphenyl, and dibenzofuran
- Tract 21B – BB: none
- Tract 21B – DS:
  - Soil: none
  - Groundwater: Freon 113 and dichlorodifluoromethane
- Tract 21C:
  - Soil: not applicable based on existing ROD
  - Groundwater: Freon 113 and dichlorodifluoromethane

The HHRA likely overestimated the risks posed by biphenyl and dibenzofuran in the Tract 21B – BPA groundwater, benzo(a)anthracene in Tract 20B groundwater, and benzo(a)anthracene and benzo(a)pyrene in Tract 19C groundwater. In addition, there is little evidence demonstrating that these chemicals are groundwater contaminants related to historical site operations. Finally, there is a high degree of uncertainty associated with the Freon 113 and dichlorodifluoromethane risks associated with the future vapor intrusion pathway.

7.4 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

Separate SLERAs were completed for Tracts 19B, 19C, 20B, 21B, and 21C and are summarized in this section. The SLERAs are detailed in Appendix M and were completed in accordance with the *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final* (EPA, 1997), current EPA guidance documents, and the Final Risk Assessment Plan (Appendix D of ATI/HGL, 2019).

7.4.1 Summary of Approach

The SLERA constitutes the first two steps of the ERA process: (1) initial problem formulation; and (2) initial screening (EPA, 1997). The initial problem formulation identified the following ecological receptors as having complete exposure pathways to Site contaminants:

- Soil invertebrates;
- Terrestrial plants;
- Terrestrial birds (herbivores, insectivores, carnivores); and
- Terrestrial mammals (herbivores, insectivores, carnivores).

For the initial screening, maximum detections of all analytes were compared to benchmark values protective of the above communities. In addition, maximum detections of bioaccumulative chemicals that lacked food web screening values were used to estimate daily doses for birds and

mammals exposed to contamination via the food web. These maximum doses were compared to no observed adverse effects levels (NOAELs).

Based on the initial screening and initial food web evaluation, chemicals either were identified as not posing a risk or were retained for additional evaluation in the refined assessment (also referred to as Step 3A in accordance with EPA [1997]). The refined assessment evaluates each chemical of potential ecological concern (COPEC) to assess the spatial extent to which concentrations exceed the benchmark and the potential magnitude of impacts to the overall community. For mammals and birds, the refined assessment provided a more realistic evaluation of exposure via the food web. The daily dose was calculated using the 95% UCL for COPECs with seven or more detections (the maximum detection was still used for COPECs with six or fewer detections), central tendency food ingestion rates, and area use factor for animals whose foraging areas are larger than the site. For each COPEC, the daily dose was compared to the NOAEL and lowest observed adverse effects level (LOAEL).

Results of the background study (Appendix L) were incorporated into the refined assessment, where applicable. Background constituents were eliminated as COPECs, as potential risks associated with exposure are consistent with natural conditions.

7.4.2 Results

Several COPECs were identified for each tract or sub-area based on the initial screening and included, primarily, metals, PAHs, and explosives. Following the approach summarized above and detailed in Section 6.5 of Appendix M, the refined assessment further evaluated the COPECs. Contaminants in soil were determined to pose minimal to no risk for plants and terrestrial invertebrates at all the tracts and sub-areas.

Refined food web modeling completed for upper trophic level receptors (birds and mammals) identified several COPECs with NOAEL-based HQs exceeding one and LOAEL-based HQs less than one. These COPECs varied among the tracts and sub-areas but included only metals and both avian (American woodcock) and mammalian (short-tailed shrew) insectivores. These results indicate that the estimated average daily dose is greater than the dose associated with no effects but less than the dose associated with observed effects. In other words, these results indicate minimal risk to the applicable ecological community. Based on the results of the refined food web modeling, no COPECs were retained for upper trophic level receptors at any of the tracts and sub-areas.

7.4.3 Uncertainty Analysis

The primary sources of uncertainty for the SLERA are the assumptions used in the food web modeling. Information was obtained from EPA guidance documents and reliable literature sources to the extent possible. Conservative values were used to minimize the potential of underestimating risks. The various assumptions, however, could underestimate or overestimate potential risks via the food web. The sensitivity associated with the reporting limits for nondetected analytes and the lack of screening values for detected and nondetected analytes could also underestimate ecological risks. The uncertainty discussion is presented in Section 6.6 of Appendix M.

7.4.4 Screening Level Ecological Risk Assessment Summary

The SLERA evaluated potential risks to terrestrial receptors that could contact soil throughout the different tracts and sub-areas. Both direct exposure and indirect exposure via the food web were considered. Although several COPECs were identified in the initial screening for each investigation area, further evaluation concluded that contaminants in soil at Tract 19B (stockpile and native), 19C, 20B, 21B – BPA, 21B – BB, and 21B – DS pose no to minimal risk to the ecological communities that could live or forage at the site.

7.5 MEC RISK ASSESSMENT

MEC risk assessment matrices were developed for the South Fuze Destruction Area and Abandoned Burning Area MRSs using methods from the *Final Study Paper: Decision Logic to Assess Risks Associated with Explosive Hazards, and to Develop Remedial Action Objectives for Munitions Response Sites* (USACE, 2016) in accordance with the memorandum titled "Trial Period Extension for Risk Management Methodology (RMM) at Formerly Used Defense Sites Military Munitions Response Projects" (USACE, 2020). This RMM interim guidance was developed as a replacement for EPA's MEC hazard assessment methodology. The method involves the use of four matrices to define acceptable and unacceptable risk from MEC explosives safety hazards based on an evaluation of site conditions related to the likelihood of: (1) an encounter, (2) the severity of incident, (3) the likelihood of detonation based on sensitivity of MEC, and (4) the likelihood to impart energy on a MEC item from expected land use activities. The existing (i.e., baseline) conditions at CHAAP using the risk matrices are discussed below and presented in Appendix N.

The four matrices used by this RMM incorporate data from the CSM to relate accessibility, munitions sensitivity, and severity of an explosive event, if it were to occur, to determine the baseline risks from MEC. The four matrices include:

- **Matrix 1:** Likelihood of Encounter. This matrix relates the investigation area characterization data for amount of MEC potentially present (data from RI and previous investigations) to frequency of site use (based on the CSM), to determine the likelihood of encountering MEC (i.e., frequent, likely, occasional, seldom, and unlikely).
- **Matrix 2:** Severity of an Incident. This matrix assesses the likelihood of encounter from Matrix 1 as related to the severity of an unintentional detonation (i.e., catastrophic/critical, modest, minor, and improbable).
- **Matrix 3:** Likelihood of Detonation. This matrix relates the sensitivity of the MEC to the likelihood for energy to be imparted on a MEC item during an encounter by specific land users, as defined by the CSM.
- **Matrix 4:** Acceptable and Unacceptable Site Conditions. Matrix 4 combines the results from matrices 2 and 3 to differentiate between "acceptable" and "unacceptable" site conditions.

7.5.1 High Use Areas, Low Use Areas, and No Evidence of Use Areas

The South Fuze Destruction Area and Abandoned Burning Area MRSs were divided into HD and LD areas based on results from previous investigations and from the field investigation for this RI.

These HD and LD areas delineated in the South Fuze Destruction Area and Abandoned Burning Area MRSs were used to establish boundaries for preliminary HUAs and preliminary LUAs as listed below, but none of the areas within either MRS are considered NEUs:

- **HUAs:** Include HD areas where munitions use has been confirmed within a MRS and where the anomaly density has been determined to be greater than or equal to the critical density, which is a project-specific value for anomaly density that is inclusive of background. HD areas are presumed to result from munitions use unless and until it can be demonstrated otherwise. UXO and/or discarded military munitions are anticipated to be present in HUAs.
- **LUAs:** Include LD areas where the potential presence of munitions cannot be ruled out and where the anomaly density has been determined to be less than the critical density. Examples of LD areas buffer zones and maneuver areas.
- **NEUs:** Include 1) LD areas for which the CSM contains no evidence munitions were used in the area, or 2) HD areas determined to be not related to munitions use. All available and relevant lines of evidence supporting this delineation (e.g., historical records review, historical photographic interpretation, visual observations, and interviews) must be considered.

The following preliminary subdivisions of the MRSs are based on consideration of anomaly types and densities and locations of MD discoveries as illustrated on Figures 5.13 and 5.14.

7.5.2 South Fuze Destruction Area

The South Fuze Destruction Area MRS was historically used only to flash defective or obsolete fuzes from 1957 until 1973. A remedy selected for the South Fuze Destruction Area from a 1999 Operable Unit 3 Record of Decision (IT Corporation, 1999) was completed in 2000. It included the removal and off-site disposal of approximately 40 cubic yards of RDX-contaminated soil (HGL, 2004). The presence of fuze components at the surface of the South Fuze Destruction Area was not addressed in the Operable Unit 3 Record of Decision. In 2012, a DGM survey and intrusive investigation of 100 anomalies was completed at the site to characterize the nature of potential MEC within the South Fuze Destruction Area. An intrusive investigation of the approximately 375-foot by 375-foot area recovered approximately 65 pounds of MD, including empty/inert fuzes and fuze parts, and approximately 35 pounds of cultural/construction debris (Pika International, Inc., 2013). The 2012 DGM effort identified a HD Area that generally correlates with the known location of the South Fuze Destruction Area. However, there were anomalies where MD was identified that straddled the border of the investigated area to the southwest and southeast, and the lateral extent of MD was not fully determined. As noted, the South Fuze Destruction Area MRS was approximately 375 feet by 375 feet (~2.3 acres), but after a 100-foot buffer area was added for further delineation of the MRS boundary, the total area for investigation increased to 7.6 acres.

Additional DGM data were collected for the RI along five transects to characterize the extent of the South Fuze Destruction Area HD area in accordance with DQOs. The transects were aligned along the southern boundary and extended north along the eastern and western boundaries as shown on Figure 5.13. Density analysis in VSP yielded a critical density of 200 APA. A boundary

was hand drawn based on the actual anomalies encountered along the transects rather than the critical density contour.

- The resulting 2.08-acre HD area has an average anomaly density of 799 APA and maximum density of 1,519 APA. The HD area from previous investigation encompasses 1.66 acres and has an approximate average density of 779 APA. The combined HD areas total 3.74 acres.
- The LD area has an average anomaly density of 36 APA and encompasses approximately 3.80 acres.
- The remaining 0.96 acres is related to the Flammable Liquids Disposal Area and was not evaluated further.
- MD indicative of MEC was identified at 11 of the 60 investigated targets (18%) and includes M404 fuze pieces, 2.36-inch rocket pieces, and unidentifiable fuze pieces. MD was recovered between 1 and 6 inches bgs.
- Based on anomaly densities and intrusive results, the preliminary HUA boundary is recommended to be coincident with the HD boundary (3.74 acres of 10.19 acres investigated) and the preliminary LUA boundary extends to the existing MRS boundary. However, a FS is recommended for the South Fuze Destruction Area MRS to evaluate remedial action alternatives that include the potential clearance of MEC and a Remedial Design is recommended to collect additional data needed to support accurate anomaly density estimates for accurate costs and levels of effort for a potential Remedial Action.
- The HD area for the Flammable Liquids Disposal Area encompasses 0.96 acres and is not considered further.
- The remaining 5.49 acres, which contains isolated MD, constitutes the LUA.
- No NEUs were identified due to the scattered nature of MD recovered historically and during the RI.

7.5.3 Abandoned Burning Area

Past activities at the Abandoned Burning Area MRS are not well documented, but available information suggests that this area was only used for small-scale disposal or burning operations of ammonium nitrate. No munitions were identified during previous investigations, but small quantities of explosives fragments were identified on the ground surface. A geophysical survey was completed at the Abandoned Burning Area in 1991 and observed an approximately 100-foot by 150-foot (~0.34 acres) region of higher ground conductivity requiring further evaluation. After adding a 100-foot buffer area for further delineation of the MRS boundary, the total area for investigation is 5.34 acres.

Additional DGM data were collected over the entire area of the Abandoned Burning Area. Data was also collected along an additional delineation transect located 56 ft outside the northeastern and southeastern boundaries, which displayed near background anomaly density. Density analysis in VSP yielded a critical density of 300 APA as the boundary between HD and LD areas. The HD boundary was subjectively drawn using the density of the delineation transect as a guide and

extending beyond the delineation transect in the southern part of the site where a few anomalies were encountered.

- The HD area encompasses 1.17 acres (0.68 acres within the survey boundary). It has an average anomaly density of 567 APA and a maximum density of 1,312 APA.
- The LD area encompasses 1.59 acres (1.16 acres within the full-coverage survey area) and has an average anomaly density of 75 APA.
- Of the 61 targets intrusively investigated, 12 were associated with MD indicative of MEC including M404 fuze pieces, a heat slug, and unidentifiable fuze pieces. MD items were recovered between 2 and 5 inches bgs.
- Since none of the delineation transect targets were related to MD, the preliminary HUA is slightly smaller than the HD area, encompassing 1.04 acres, and the preliminary LUA boundary extends to the existing MRS boundary covering approximately 1.72 acres. However, a FS is recommended for the Abandoned Burning Area MRS to evaluate remedial action alternatives and a Remedial Design is recommended to collect additional data needed to investigate the source of MD, confirm the HUA and LUA boundaries, and support accurate anomaly density estimates for accurate costs and levels of effort for a potential Remedial Action.
- No NEUs were identified due to the scattered nature of MD recovered historically and during the RI.

7.5.4 Summary

The RMM was applied to the preliminary HUAs and LUAs within the MRSs. The land surrounding the CHAAP facility is intensely cultivated, and row crops such as corn and alfalfa have replaced most of the original prairie grass and other vegetation. Most of the land between CHAAP and Grand Island is used for farming, predominately for hay or pasture, dry land crops, irrigated corn, alfalfa, and soybeans. If farming activities are conducted at Tract 20B, the magnitude of the energy imparted to munition items could be high and could extend into the subsurface. Moldboard plowing inverts soil to depths of 8 to 12 inches, disk rippers till soil to depths of 12 to 16 inches, and in-line subsoiling, ripping, or paraplowing, which are generally referred to as deep-zone tillage, till soil to depths of 15 to 20 inches. Since MD was recovered from 1 to 6 inches bgs from the South Fuze Destruction Area MRS and from 2 to 5 inches bgs from the Abandoned Burning Area MRS, the potential exists for farmers to conduct tillage that could impact MD in the surface and subsurface. Since some tillage methods are intended to overturn soil, the potential exists for MD in the subsurface to be brought to ground surface and for MD to be distributed horizontally throughout the area.

The baseline explosives safety risks for the CHAAP MRSs are unacceptable in the preliminary HUAs and LUAs in both MRSs. There were no NEUs, but risks are considered acceptable outside of the MRS boundaries. Tables presenting the RMM results are provided in Appendix N. The results of the risk assessment are summarized in Table N.1 of Appendix N.

This page was intentionally left blank.

8.0 CONCLUSIONS

This section presents the conclusions of the RI for each of the tracts along with a summary of the historical source, 2018 RI field program, analytical results, and, as applicable, risk drivers.

A few of the HHRA risk drivers listed below are not discussed in detail in the evaluation of the nature and extent of contamination presented in Section 5. Some risk drivers, such as dichlorodifluoromethane in groundwater, are not discussed in Section 5 because the risks are due to vapor intrusion and this exposure route is not considered in the screening values used to evaluate the nature and extent of contamination. Other risk drivers are not discussed in Section 5 because their maximum detections are less than the screening values used to define the natural and extent of contamination, which are based on a target cancer risk of 1E-06 and a target non-cancer HQ of 1. To account for the additivity of non-cancer effects, the HHRA used screening values based on a target HQ of 0.1 and identified non-cancer risk drivers as those contaminants that contribute more than an HQ of 0.1 to a cumulative target organ HQ greater than 1. In other words, it is possible for a contaminant to be present at concentrations less than the screening values used in Section 5 and be a non-cancer risk driver because it contributes an HQ of 0.6 to a target organ HI greater than 1.

The FS will further evaluate all risk drivers as part of the calculation of preliminary remediation goals. For risk drivers contributing relatively little to the cumulative risk estimates, it is possible that the preliminary remediation goals calculated in the FS will exceed the maximum site detection, requiring no further action for these risk drivers.

8.1 TRACT 19B

The potential contaminant source at Tract 19B is stockpiled soil, which was removed from Tract 19C and staged at Tract 19B. There are four stockpiles of soil, however stockpiles 2 and 3 were evaluated as a combined pile based on their physical location. The objective of the 2018 RI field program was to characterize potential contamination in stockpiled soil, native soil, and groundwater at Tract 19B.

Composite soil samples were collected from each stockpile. HMX, RDX, TNB, TNT, 2-Am-DNT, and 4-Am-DNT were the primary explosives detected in the stockpiled soil. There also were a limited number of 2,4-DNT detections. RDX was detected at five locations at concentrations exceeding the residential RSL (four within Stockpile 1 and one within Stockpile 2/3) and TNT was detected at three locations at concentrations exceeding the residential RSL (two within Stockpile 1 and one within Stockpile 2/3). Despite the relatively widespread nature of explosives detections in stockpiles, they were not identified as risk drivers in the HHRA. However, comparison of the analytical results to the SSLs suggests the potential for RDX, TNT, 2-Am-DNT, and 4-Am-DNT to leach to groundwater.

The metal and PAH results for the stockpile samples were compared to background data in Appendix L. This comparison identified the contaminants and hot spot contaminants listed below.

- Stockpile soil contaminants: aluminum, cadmium, lead, manganese, and zinc.

- Stockpile 1 soil hot spot contaminants: antimony, chromium, cobalt, copper, iron, mercury, nickel, silver, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.
- Stockpile 2/3 soil hot spot contaminants: antimony, arsenic, barium, chromium, cobalt, copper, iron, mercury, nickel, silver, thallium, vanadium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.
- Stockpile 4 soil hot spot contaminants: arsenic, barium, vanadium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.

All PAH detections are less than the residential soil RSLs and SSLs. As noted below, of the metal contaminants identified for the stockpiled soil, several were detected at concentrations greater than the risk-based screening values.

- Stockpile 1: Only one detection of aluminum exceeded the BTV and RSL, and only isolated detections of cobalt, iron, and manganese exceeded the BTVs and SSLs.
- Stockpile 2/3: Detections of antimony, arsenic, cobalt, iron, lead, and manganese exceeded the BTV and risk-based screening values.
- Stockpile 4: The maximum arsenic detection was greater than the screening values, but the detection was slightly greater than the BTV.

To further evaluate the potential soil-to-groundwater migration pathway, select samples of stockpiled soil were analyzed with the SPLP. The SPLP explosives results confirmed the potential for explosives in the soil stockpiles to leach to groundwater; RDX, TNT, 2-Am-DNT, and 4-Am-DNT were detected in multiple leachate samples at concentrations greater than tap water RSLs. The SPLP leachate results also indicated widespread potential for aluminum, arsenic, beryllium, chromium, cobalt, iron, lead, thallium, and vanadium to leach to groundwater at concentrations greater than tap water RSLs and/or MCLs. With the exception of beryllium and chromium, almost all of the seven samples analyzed using the SPLP at Stockpile 1, and all of the 13 samples analyzed using the SPLP at Stockpile 2/3 contained these metals at concentrations exceeding the MCL. Beryllium was detected in only two of seven samples from Stockpile 1 at concentrations greater than the MCL; beryllium detections in all 13 of the samples collected from Stockpile 2/3 exceeded the MCL. Chromium was detected at a concentration greater than the tap water RSL in only one of the seven samples collected from Stockpile 1; chromium detections in all 13 of the samples collected from Stockpile 2/3 exceeded the MCL.

Samples also were collected from the native surface soil and subsurface soil beneath the stockpiled soil. Wherein, arsenic was the only contaminant detected at concentrations exceeding EPA residential soil RSLs. HMX and RDX were detected in only one native surface soil sample and at concentrations less than RSLs, indicating limited presence of explosives contamination in the native soil.

VOCs were not identified as contaminants in the stockpiled soil at Tract 19B. However, groundwater samples were analyzed for VOCs to evaluate potential migration from offsite sources

to beneath Tract 19B. Groundwater samples collected from permanent monitoring wells showed limited presence of VOCs (low-levels of chloromethane at one LGIA well, Freon 113 at two UGIA wells, and dichlorodifluoromethane at one LGIA well) and no explosives. The background comparison in Appendix L identified manganese as a sitewide groundwater contaminant and all detected manganese concentrations exceed the tap water RSL.

The HHRA identified the risk drivers listed below for Tract 19B.

- Native soil and groundwater
  - Soil: aluminum and manganese
  - Groundwater: manganese
- Stockpile 1 and groundwater
  - Soil: manganese
  - Groundwater: manganese
- Stockpile 2/3 and groundwater
  - Soil: aluminum and manganese
  - Groundwater: manganese
- Stockpile 4 and groundwater
  - Soil: aluminum, manganese, and TNT
  - Groundwater: manganese

Aluminum and TNT are associated with historical operations at Tract 19C, which is the source of the stockpiled soil. The potential source of the elevated manganese concentrations observed in the stockpiled soil, native soil, and groundwater is not known. Because the stockpiled soil had only been in place for approximately six years at the time of the RI fieldwork, it is unlikely that leachate from the stockpiled soil is the source of manganese contamination in groundwater. Additional sampling of manganese in groundwater will be included in potential remedial action alternatives developed during the FS to confirm this risk driver is a contaminant. While detected manganese concentrations are statistically distinct from background concentrations, they could represent natural heterogeneity and/or be influenced by sample turbidity.

The SLERA concluded that contaminants in the Tract 19B stockpiled soil and native soil pose no to minimal risk to the ecological communities that could live or forage at the site.

Preparation of an FS for Tract 19B is recommended. Contaminants of concern (COCs) to be included in the FS are aluminum, manganese, and explosives in stockpiled soil, aluminum and manganese in native soil, and manganese in groundwater. For explosives in stockpiled soil, only TNT is a COC based on the conclusions of the HHRA. The remaining explosives (RDX, 2-Am-DNT, and 4-Am-DNT) are COCs in stockpiled soil based on the potential to migrate and impact underlying groundwater.

8.2 TRACT 19C

Past use of the site for OB/OD impacted soil (contaminants include TNT, RDX, tritonal, aluminum powder, ammonium nitrate, Freon 113, micro-gravel mines, and lead azide) prompted previous removal actions. The objectives of 2018 RI field program at Tract 19C were to evaluate

contamination remaining after completion of the historical removal actions and to characterize potential groundwater contamination.

Current and historical data indicate that RDX, nitrobenzene, TNT, 2-Am-DNT, and 4-Am-DNT are present at concentrations that could result in groundwater contamination. The isolated detections of these explosives, however, suggest that their presence may not be sufficiently widespread to affect groundwater quality. In addition, the subsurface soil results indicate that explosives are not leaching through the vadose zone at detectable levels. Explosives detected in both surface and subsurface soil are present at concentrations significantly less than RSLs.

Contaminants detected in Tract 19C surface soil samples at concentrations exceeding residential soil RSLs include arsenic and manganese. The exceedances are from samples in the central portion of the historical Tract 19C excavation grid and are delineated to concentrations less than RSLs (or to being consistent with background concentrations). All subsurface soil detections of metals contaminants are less than RSLs. Additionally, because metals detected at elevated concentrations in surface soil generally decreased in concentration with increasing depth, the subsurface soil data indicate limited migration of metals from surface soil to subsurface soil.

Groundwater at Tract 19C has historically been monitored for VOCs, explosives, and lead. Freon was used at the site as a gravel mine stabilizer and had been detected in groundwater since 2003. Current data indicate widespread presence of Freon 113 (detected at seven of twelve UGIA and three of four LGIA monitoring wells) and limited presence of dichlorodifluoromethane (detected at four of twelve UGIA and one of four LGIA monitoring wells), chloromethane (detected at one UGIA monitoring well), and carbon disulfide (detected at one LGIA monitoring well). All VOC detections are less than tap water RSLs. No explosives were detected in the groundwater samples. Several PAHs were detected but only benzo(a)anthracene and benzo(a)pyrene were present at concentrations greater than the tap water RSLs. Arsenic is the only metal identified as a groundwater contaminant and is confined to isolated portions of the UGIA.

The HHRA identified arsenic in soil and arsenic, Freon 113, dichlorodifluoromethane, benzo(a)anthracene, and benzo(a)pyrene in groundwater as risk drivers under unrestricted land use scenarios. The two PAHs were detected in only one groundwater sample. Because the background study identified no PAH contamination in the Tract 19C soil, the source of these isolated PAH detections is not known. The isolated detections appear to be anomalous. The two PAHs contribute relatively little, 3E-06 for benzo(a)anthracene and 4E-06 for benzo(a)pyrene, to the cancer risk in comparison to the other carcinogenic risk drivers, which are arsenic in soil (1E-05) and arsenic in groundwater (5E-04). For these reasons, it is recommended that benzo(a)anthracene and benzo(a)pyrene not be identified as contaminants of concern for the FS.

For arsenic in groundwater, a single hot spot of contamination was identified. Although four arsenic detections were greater than both the MCL and BTV (Table 5.9), the background study identified only the highest of these detections, 28.4 µg/L at 19C-G0036, as a statistical outlier and hot spot of contamination. As shown on Figure 5.6, the filtered arsenic result from this monitoring well was 13 µg/L. The measured turbidity (23.2 NTU) was somewhat, but not significantly, elevated and the associated field-filtered arsenic result is consistent with arsenic concentrations in field-filtered samples from background monitoring wells. This information suggests that the total

arsenic result was influenced by sample turbidity. Arsenic concentrations were consistent with background in the remaining 15 monitoring wells. For these reasons, it is recommended that arsenic in groundwater not be identified as a contaminant of concern for the FS.

The SLERA concluded that contaminants in the Tract 19C soil pose no to minimal risk to the ecological communities that could live or forage at the site.

Preparation of an FS for Tract 19C is recommended. COCs to be included in the FS are arsenic in soil and Freon 113 and dichlorodifluoromethane in groundwater.

8.3 TRACT 20B

The South Fuze Destruction Area was used to flash defective or obsolete fuzes from 1957 until 1978, based on review of aerial photographs. Historical investigations identified RDX-contaminated soil and a remedy was completed in 2000 to remediate soil to industrial cleanup levels (HGL, 2004). The objectives of the 2018 RI field program at Tract 20B were to evaluate contamination remaining at the South Fuze Destruction Area and characterize potential groundwater contamination.

HMX, RDX, TNT, 2-Am-DNT, 4-Am-DNT, and multiple metals are contaminants in Tract 20B soil and are potentially associated with the site's historical use as a fuze destruction area. Of the explosives, only RDX was detected at concentrations greater than the residential soil RSL. Soil concentrations greater than the RDX residential soil RSL appear to be limited to an approximately 3,000 square feet in size, extend from the surface to approximately 10 feet bgs, and overlay the 2000 excavation footprint, which is located at the northwest corner of the South Fuze Destruction area. Arsenic was the only metal contaminant to be detected at concentrations greater than the residential soil RSL and at a single hot spot location within the RDX contamination footprint. The remaining metals detected in Tract 20B soil were either determined to be naturally occurring (refer to Appendix L for chemical-specific rationale) or did not exceed the residential soil RSLs. The background study concluded that the PAH detections reported for the Tract 20B soil samples represent anthropogenic background conditions.

UGIA groundwater at Tract 20B has been impacted by explosives as indicated by the presence of HMX and RDX. Only RDX was detected at concentrations greater than the tap water RSL. These RSL exceedances were reported for monitoring wells located immediately upgradient of the 2000 excavation footprint and downgradient of the 2000 excavation footprint (an approximately 300 ft by 150 ft area). RDX was not detected in any of the other groundwater samples, indicating the contamination is limited to the UGIA groundwater near these two wells. There is limited presence of PAH contamination in site groundwater. PAHs were detected at low concentrations at one of eight UGIA monitoring wells and at one of four LGIA monitoring wells, but only benzo(a)anthracene was present at concentrations greater than the tap water RSLs (at one LGIA well location). Two metals, copper and nickel, were identified as hot spot contaminants.

The MEC investigation defined the extent of the HD anomaly area within the South Fuze Destruction Area. In the Abandoned Burning Area, anomaly density was higher than expected, with the highest densities occurring in the eastern and southern parts of the site. Data near and outside the northeast edge of the site show a high concentration of anomalies up to 15 ft outside

the boundary. DGM data collected along the delineation transect located 56 ft outside the northeastern and southeastern boundary display near background anomaly density.

Intrusive investigations at the South Fuze Destruction Area identified several MD items to the west and southwest of the HD area where anomaly density is consistent with background. Because the field where the South Fuze Destruction Area is located has been farmed intermittently, these items may have been relocated by farming activities. MD was identified at 11 of the 60 investigated targets (18%) and includes M404 fuze pieces, 2.36-inch rocket pieces, and unidentifiable fuze pieces. MD was recovered between 1 and 6 inches bgs. No MEC was found.

Sixty-one targets were intrusively investigated at the Abandoned Burning Area. Of these targets, 12 were associated with MD including M404 fuze pieces, a heat slug, and unidentifiable fuze pieces. MD items were recovered between 2 and 5 inches bgs. The MD was found in the eastern portion of the site, except for one MD item found near the middle of the site. The rest of the targets were associated with small pieces of NMRD. No MEC was found.

Although RI field activities achieved MEC DQOs and collected more data than originally planned for the South Fuze Destruction Area and the Abandoned Burning Area, the following MRS data gaps remain:

- For both MRSs, a more robust approach for delineating the boundary between HUAs and LUAs was not conducted as required by current guidance, the Munitions Response-QAPP Toolkit, Module 1 (IDQTF, 2020), because this guidance was issued after contract award and UFP-QAPP approval.
- For both MRSs, DGM sensors (not AGC sensors) were used during RI field activities in accordance with the approved UFP-QAPP, which predates recent DoD guidance that establishes AGC sensors as the standard and the preferred method for digital geophysical data collection. The 2016 and 2017 DoD guidance memoranda that requires USACE to evaluate AGC-related remedial technologies during the FS was issued after the contract was awarded.
- For the Abandoned Burning Area MRS, the type and density of MD recovered during intrusive investigations conducted in 2020 are not indicative of the reported historical use of this area as a former burning ground. Consequently, the source of the MD is not known and extensive changes to the MRS as it relates to historical use, location, and MRS footprint are likely needed.

The HHRA identified risk drivers to be aluminum and arsenic in Tract 20B soil, and RDX and benzo(a)anthracene in Tract 20B groundwater. Benzo(a)anthracene was detected in only one groundwater sample and the soil data show no indication of a PAH contamination source at the site. In addition, benzo(a)anthracene contributes a minor fraction, 2E-06, to the cumulative cancer risk of 2E-04. For these reasons, it is recommended that benzo(a)anthracene in groundwater not be identified as a contaminant of concern.

The SLERA concluded that contaminants in the Tract 20B soil pose no to minimal risk to ecological receptors.

The baseline explosives safety risks that were assessed using the RMM are unacceptable in the preliminary HUAs and LUAs in both MRSs. This conclusion is based on a combination of factors. The suspected presence of MEC in the subsurface is based on historical evidence of munitions use and recovery of MD indicative of MEC (Matrix 1). The lack of regular use combined with the potential for agricultural use is consistent with intermittent use at Tract 20B (Matrix 1). A score of "B" for the severity of an incident (Matrix 2) results from the catastrophic/critical severity associated with specific munitions items (fuzes). Although no fuzes were recovered during the RI field investigation, pieces from fuzes, some of which originated from 2.36-inch rockets, were recovered. Since fuzes may result in total permanent or partial disability and/or hospitalization, a score of catastrophic/critical (Matrix 2) is appropriate. The likelihood for detonation (score of "1" in Matrix 3) is highest due to the high sensitivity of fuzes and the high likelihood to impart energy that could extend into the subsurface if farming activities are conducted. When scores from Matrices 1 through 3 are combined, the overall scores for the HUA and LUA are B1 (unacceptable) for both areas.

Preparation of an FS for Tract 20B is recommended. COCs to be included in the FS are aluminum and arsenic in soil, and RDX in groundwater. The FS will also include the evaluation of MEC response actions for preliminary HUAs and LUAs in both MRSs to address the elevated explosives safety risk from fuzes recovered during the RI field investigation.

8.4 TRACT 21B-BPA

Tract 21B - BPA was historically used for dumping materials into burning pits and dousing and igniting the material with fuel oil. Soil contamination, primarily lead and RDX, has been previously identified and an excavation was completed in 2000 to remediate soil from historical test trenches PRST007 and PRST008. The objectives of the 2018 RI field program for Tract 21B-BPA were to define the nature and extent of contamination in soil within and surrounding trenches PRST004, PRST007, and PRST008, as well as to characterize potential groundwater contamination.

Explosives, PAHs, and VOCs are contaminants in site soil, but historical and current soil data show these compounds to be present at concentrations less than the risk-based screening values. Arsenic (at six hot spot locations) and cobalt (at one hot spot location) were the only metals identified as contaminants in soil and detected at concentrations greater than the residential soil RSL.

The 2018 RI field program included the installation of several monitoring wells and sampling the full monitoring well network for VOCs, explosives, and metals. The 2018 groundwater data indicate that UGIA groundwater at Tract 21B - BPA has been impacted by VOCs and explosives, as evidenced by the presence of Freon 113, RDX, and naphthalene detections that exceed the associated tap water RSL. All exceedances are delineated to concentrations less than the tap water RSLs. Selenium, copper, and nickel are groundwater contaminants but are present at concentrations less than the MCLs and tap water RSLs.

Additionally, limited historical SVOC groundwater data is available for Tract 21B-BPA. Because the 2018 RI field program did not analyze groundwater samples for SVOCs, the historical SVOC

data was included in the RI dataset and includes a single tap water RSL exceedance of biphenyl, as well as detections of acenaphthene, dibenzofuran, fluorene, and phenanthrene.

The HHRA identified no risk drivers for Tract 21B - BPA soil. In addition, soil contaminants pose no to minimal risk to ecological receptors. No Further Action for soil is recommended.

Freon 113, dichlorodifluoromethane, biphenyl, and dibenzofuran in groundwater are human health risk drivers. Dibenzofuran was detected in one (of four) historical groundwater sample and there is no known source of contamination for this SVOC. Dibenzofuran was identified as a risk driver because it contributes an HQ of 0.3 to a body and organ weight HI of 2. Dichlorodifluoromethane, with an HQ of 2, is the primary contributor to this target organ HI. Based on dibenzofuran's limited presence, lack of known source, and minor contribution to the target organ HI, it is recommended that dibenzofuran not be identified as a contaminant of concern.

Biphenyl also was detected in one (of four) historical sample. This SVOC results in an HQ of 5 for the liver and kidneys through use of site groundwater as a potable water source. There is no known source of biphenyl at the site. Additional groundwater sampling should be considered to confirm that biphenyl is a groundwater contaminant before identifying this compound as a contaminant of concern.

Preparation of an FS to address the groundwater contamination is recommended for Tract 21B-BPA. COCs to be included in the FS are Freon 113, dichlorodifluoromethane, and biphenyl in groundwater.

8.5 TRACT 21B-BACKSTOP BERM AND STATIC EJECTION TEST SITE

The Backstop Berm site was used during the plant operational history as a small arms training area for CHAAP guards. Following the closure of CHAAP, the range was used for small arms training by local law enforcement personnel. The Backstop Berm was removed as part of a lead removal action completed by the city of Grand Island in 2003, after which remnants of the berm were removed and the soil was re-graded across the site (Jacobson Helgoth Consultants, 2003).

The Static Ejection Test Site portion of the site is a 50-foot by 50-foot area on the southeast side of the Backstop Berm that was used to test the ejection mechanism by firing mine delivery canisters into a hooded 15-gallon container of Freon. After each use, the site was cleared of stray mines and the location was used as a parking lot by security personnel training on the pistol range. After shutdown of static ejection testing, the site continued to be used as a parking lot for security personnel and law enforcement conducting firearms training at the range (USACE, 2011a).

The objectives of the 2018 RI field program at Tract 21B – BB were to define the nature and extent of contamination in soil associated with use of the tract as a firing range and remaining after a removal action completed in 2003, as well as characterize potential groundwater contamination.

Based on evaluation of the 2018 soil and groundwater data, there is limited presence of explosives in the Tract 21B-Backstop Berm and Static Ejection Test Site soil (nitroglycerin was detected in one subsurface soil sample collected from 3 to 4 feet bgs at a concentration less than the residential RSL). Several metals identified as sitewide contaminants in soil in the background study

(aluminum, antimony, barium, lead, and zinc), were detected in soil at concentrations less than the residential soil RSLs. Comparison of subsurface soil SPLP data to the co-located surface soil SPLP results indicate the potential for metals to leach to groundwater, however, this potential appears to decrease with soil depth. Furthermore, the groundwater analytical results do not indicate significant leaching of metals contaminants has occurred, as selenium, the only detected metal contaminant was present at a concentration less than tap water RSL.

The HHRA concluded that contaminants in soil and groundwater at Tract 21B-BB do not pose an unacceptable risk to human health. Similarly, the SLERA concluded that site contaminants pose no to minimal risk to ecological receptors. For these reasons, No Further Action is recommended for this subsite of Tract 21B.

8.6 TRACT 21B-DECANTING STATION AND LEACHING PIT AREA

The Decanting Station and Leaching Pit Area was used to capture Freon contaminated with explosives. The contaminated Freon was reportedly poured through a filter of cotton gabardine into clean receiving drums. The filters and filtered material were then placed in 5-gallon containers and transported to the BPA. Tract 21B – DS is now part of a dry-crop field. The objectives of the 2018 RI field program at Tract 21B – DS were to evaluate the presence of contaminants in soil from previous processing of Freon-containing RDX particulates, a potential soil source of the remediated RDX groundwater plume, as well as characterize potential groundwater contamination.

The combined 2018 and historical soil analytical results show limited presence of VOCs, SVOCs, and explosives. The VOCs Freon 113, acetone, carbon disulfide, and toluene, the SVOC bis(2-ethylhexyl)phthalate, and the explosive HMX were detected in at least one surface and/or subsurface soil sample at concentrations that were orders-of-magnitude less than the residential soil RSLs. RDX was not detected in historical or 2018 soil samples, indicating that there is no residual source of this explosive in site soil. All contaminants, both metals (barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, vanadium, and zinc) and the organic compounds listed above, that were detected in the soil samples had reported concentrations less than the residential soil RSLs.

Groundwater analytical results indicate that groundwater beneath the Tract 21B – DS has been impacted by Freon 113, and to a lesser extent dichlorodifluoromethane. Freon 113 detections exceed the tap water RSL in multiple wells and in both the UGIA and LGIA. The contamination migrates with groundwater flow to the east northeast and into Tract 21C. The highest concentrations in UGIA groundwater were detected west of the highest LGIA concentrations, and the UGIA Freon 113 groundwater plume is narrower than the LGIA groundwater plume. Data suggest that contamination extends vertically and laterally with attenuation downgradient to the east northeast.

The HHRA identified no risk drivers in the Tract 21B-DS soil. In addition, soil contaminants pose no to minimal risk to ecological receptors. No Further Action for soil is recommended.

The HHRA, which evaluated the groundwater contamination beneath Tract 21B-DS and Tract 21C as a single exposure area, concluded that Freon 113 and dichlorodifluoromethane pose an

unacceptable risk to potential future receptors. Preparation of an FS is recommended. COCs to be included in the FS are Freon 113 and dichlorodifluoromethane in groundwater.

8.7 TRACT 21C

Tract 21C encompasses 166.1 acres north and east of Tract 21B. The property includes the remnants of two buildings and multiple concrete structures that supported a former sewage treatment plant at the southern edge of the property when CHAAP was operational. The treatment plant, identified as the Northwest Sewage Treatment Plant, was built in 1944 to serve lines 4 and 5 during periods of construction. Use of the treatment plant ended in 1973, when production was discontinued. No CHAAP LAP, storage, or disposal activities occurred on this tract, and the Northwest Sewage Treatment Plant was included in the 1998 OU 2 No Further Action ROD. The Northwest Sewage Treatment Plant is currently abandoned and covered with native vegetation but retains the man-made depressions and structures that were used while the plant was in operation.

The objectives of the 2018 RI field program at Tract 21C were to characterize groundwater contamination and evaluate contaminant plumes that may be migrating to the tract from upgradient Tract 21B – BPA or Tract 21B – DS.

Because soil at Tract 21C is encompassed by an existing ROD, the 2018 investigation sampled only groundwater at this tract. Explosives were not detected in UGIA or LGIA groundwater samples collected across Tract 21C. Freon 113 and dichlorodifluoromethane contamination from Tract 21B-DS has migrated onto Tract 21C and Freon 113 detections exceed tap water RSLs.

The HHRA, which evaluated the groundwater contamination beneath Tract 21B-DS and Tract 21C as a single exposure area, concluded that Freon 113 and dichlorodifluoromethane pose an unacceptable risk to potential future receptors. It is recommended that an FS be prepared to address this groundwater plume. To facilitate development and evaluation of remedial alternatives and future remedy implementation, it is recommended that the FS for groundwater contamination at Tract 21C be merged with the FS for its upgradient source at Tract 21B-DS.

This page was intentionally left blank.

9.0 REFERENCES

Arcadis US, Inc., 2013. Draft Anomaly Evaluation Letter Report for the Site Investigation Activities at the South Fuze Destruction Area Munitions Response Site, Cornhusker Army Ammunition Plant (CHAAP), Grand Island, Nebraska. April.

Army National Guard Directorate, 1980. Installation Assessment of Cornhusker Army Ammunition Plant. March.

ATI, Inc./HydroGeoLogic, Inc. (ATI/HGL), 2019. Final Uniform Federal Policy-Quality Assurance Project Plan, Remedial Investigation/Feasibility Study (RI/FS), Burning Grounds, Sanitary Landfill, and Pistol Range Areas (Remaining Property of the U.S. Government), Cornhusker Army Ammunition Plant, Grand Island, Nebraska. August.

ATI/HGL, 2020. Revision 1. Final Uniform Federal Policy-Quality Assurance Project Plan, Remedial Investigation/Feasibility Study (RI/FS), Burning Grounds, Sanitary Landfill, and Pistol Range Areas (Remaining Property of the U.S. Government), Cornhusker Army Ammunition Plant, Grand Island, Nebraska. January.

Battelle, 1984. Ammunition Plant Contaminant Survey: Phase II-Simulation Study, Report DRXTH-AS-CR-84285. June.

Bay West and URS, 2015a. 2014 Annual Groundwater Monitoring and Subsurface Injection Report, Remedial Action Operation Groundwater Treatment Facility at OU 1 and Groundwater Monitoring at OU 1/OU 3, Cornhusker Army Ammunition Plant, Grand Island, Nebraska. July.

Bay West and URS, 2015b. Draft Final Site Specific Final Report, Non-Time Critical Interim Removal Action, Demolition and Burning Grounds, Cornhusker Army Ammunition Plant, Grand Island, Nebraska. October.

Cornhusker Army Ammunition Plant, 1990. Federal Facility Agreement. March.

Howard, P.H., 1990. Handbook of Environmental Fate and Exposure Data for Organic Chemicals. Vol. II: Solvents. Lewis Publishers, Inc., Chelsea, Michigan.

HGL, 2000. Final First Annual Groundwater Sampling Report for Operational Periodic Monitoring for the Burning Grounds and the Shop Area at Cornhusker Army Ammunition Plant, Grand Island, Nebraska. December.

HGL, 2004. First Five-Year Review Report for Cornhusker Army Ammunition Plant, Grand Island, Nebraska. March.

ICF Kaiser Engineers, 1991. Excessing Assessment, Cornhusker Army Ammunition Plant. June.

ICF Kaiser Engineers, 1996. Remedial Investigation Report, Cornhusker Army Ammunition Plant Remedial Investigation/Feasibility Study. November.

ICF Kaiser Engineers, 1998. Record of Decision, Operable Unit Two, Cornhusker Army Ammunition Plant. September.

Intergovernmental Data Quality Task Force (IDQTF), 2020. Uniform Federal Policy for Quality Assurance Project Plans, Munitions Response QAPP Toolkit, Module 1: Remedial Investigation / Feasibility Study. Update 1. April.

IT Corporation (IT), 1999. Record of Decision for Remedial Action, Operable Unit Three, Cornhusker Army Ammunition Plant. October.

IT, 2000. Draft Feasibility Study for Operable Unit Five. Cornhusker Army Ammunition Plant. May.

Jacobson Helgoth Consultants, 2003. Quality Assurance Project Summary for Remediation of Lead-impacted Soil at the Cornhusker Army Ammunition Plant Pistol Range Static Ejection Site/Backstop Berm for City of Grand Island, Nebraska. December.

Keech, C.F. and Dreeszen, V.H., 1964. Availability of Ground Water in Hall County, Nebraska. U.S. Geological Survey, Washington, D.C.

Lugn, A.L., and Wenzel, L.K., 1938. Geology and Groundwater Resources of South-Central Nebraska. U.S. Geological Survey Water Supply Paper 779, 242 pp.

Nebraska Department of Health and Human Services (DHHS), 2014. Nebraska Administrative Code (NAC). August.

Ney, R.E. Jr., 1998. Fate and Transport of Organic Chemicals in the Environment, 3rd ed., Government Institutes, Rockville, Maryland.

Pika International, 2013. Site Specific Final Report (SSFR), Non-Time Critical Removal Action, Former Burning Grounds Munitions Response Area. October.

RKG Associates, Inc., 1997 (RKG). Comprehensive Reuse Plan for the Cornhusker Army Ammunition Plant. December.

Spalding, R.F., 1988. Effects of Land Use and River Seepage on Groundwater Quality in Hall County, Nebraska. Nebraska Water Survey Paper, No. 38, Conservation and Survey Division, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln. January.

The Independent: available at URL: https://www.theindependent.com/news/caap-zoning-proposed/article_e2cff6d1-ce25-5255-b3f9-897cf0042291.html. Accessed 2020.

URS, 2006. November/December 2005 Burning Grounds Areas Groundwater Sampling Event, Cornhusker Army Ammunition Plant, Grand Island, Nebraska. January.

URS, 2008. Tract 21 Open Burn/Open Detonation Burning Area Freon Site Investigation, Cornhusker Army Ammunition Plant Grand Island, Nebraska. January.

URS, 2009. Decant Station Groundwater Pilot Study, Cornhusker Army Ammunition Plant Grand Island, Nebraska. March.

U.S. Department of Agriculture, 2004. Soil Survey of Hall County, Nebraska.

U.S. Department of Defense (DoD), 2016. "Department of Defense Advanced Geophysical Classification Accreditation Program." Memorandum from Peter Potochney, Deputy Assistant Secretary of Defense (Basing), Performing the Duties of the Assistant Secretary of Defense (Energy, Installations, and Environment). Memorandum for Assistant Secretary of the Army (Installations, Energy and Environment), Assistant Secretary of the Navy (Energy, Installations and Environment), Assistant Secretary of the Air Force (Installations, Energy and Environment), and Director, Defense Logistics Agency (DSS-E). April 11.

U.S. Army Corps of Engineers (USACE), 2010. Second Five-Year Review Report for Cornhusker Army Ammunition Plant, Grand Island, Nebraska. September.

USACE, 2011a. Explosives Safety Submission, No DoD Action Indicated, Category II, Tract 21B - Pistol Range/Burning Area, Burning Pit, Static Ejection and Test, Decanting and Leaching Pit and Surrounding Area, Site Investigation Program, Cornhusker Army Ammunition Plant (CHAAP), Grand Island, BE. June.

USACE, 2011b. CHAAP-005 Demolition Burning Grounds Engineering Evaluation/Cost Analysis. Army National Guard Directorate, Environmental Programs Division, Arlington, Virginia. August.

USACE, 2013. Geology Supplement to the Scope of Services, July 2013 revision.

USACE, 2015. Third Five-Year Review for Cornhusker Army Ammunition Plant, Grand Island, Nebraska. June.

USACE, 2016. Final Study Paper: Decision Logic to Assess Risks Associated with Explosive Hazards, and to Develop Remedial Action Objectives (RAOs) for Munitions Response Sites. U.S. Army Corps of Engineers, Environmental and Munitions Center of Expertise. December.

USACE, 2017. "Advanced Geophysical Classification (AGC) Implementation at Formerly Used Defense Sites (FUDS) Military Munitions Response Program (MMRP) Projects." Memorandum from Karen Baker, Chief, Environmental Division, Directorate of Military Programs. Department of the Army, U.S. Army Corps of Engineers, Washington, DC. 20314-1000. April 24.

USACE, 2020. "Trial Period Extension for Risk Management Methodology (RMM) at Formerly Used Defense Sites (FUDS) Military Munitions Response Projects." Memorandum from

Lara E. Beasley, Chief, Environmental Division, Directorate of Military Programs. Department of the Army, U.S. Army Corps of Engineers, Washington, DC. 20314-1000. March 18, 2020.

U.S. Census Bureau: available at URL: https://www.census.gov/quickfacts/fact/table/hallcountynebraska/AGE295217#AGE295. Accessed 2020.

U.S. Climate Data: available at URL: https://www.usclimatedata.com/climate/grand-island/nebraska/united-states/usne0207. Accessed 2020.

U.S. Environmental Protection Agency (EPA), 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. EPA 540-R-97-006. OSWER Directive 9285.7-25. June.

EPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER Directive 9355.4-24. Washington, D.C.: United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. December.

EPA, 2009. Supplemental Guidance for Inhalation Risk Assessment. OSWER Directive 9285.7-82. January.

EPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42. February.

EPA, 2015. Determination of the Biologically Relevant Sampling Depth for Terrestrial and Aquatic Ecological Risk Assessments. EPA/600/R-15/176. October.

Watkins-Johnson Environmental, Inc., 1993. Site Characterization Document, Cornhusker Army Ammunition Plant Remedial Investigation and Feasibility Study. June.

TABLES

This page was intentionally left blank.

Table 2.1
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX001-PS	DBG-015-S-EX201-FS	DBG-015-S-EX002-PS	DBG-015-S-EX003-PS	DBG-015-S-EX004-PS	DBG-015-S-EX005-PS	DBG-015-S-EX006-PS	DBG-015-S-EX007-PS
	Sample Date	5/27/2014	5/27/2014	6/3/2014	6/8/2014	6/17/2014	6/18/2014	6/24/2014	6/29/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)									
Naphthalene	2,000	<3.9	<3.8	< 3 9	<3.9	<3.9	< 3.9	<3.9	< 4.8
2-Methylnaphthalene	240,000	< 3.9	< 3.8	< 3. 9	< 3.9	< 3.9	< 3.9	< 3.9	< 4.8
Acenaphthylene[1]	3,600,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4 .8
Acenaphthene	3,600,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4 .8
Fluorene	2,400,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4 .8
Phenanthrene[2]	1,800,000	<3.9	<3.8	< 3.9	17 J	< 3 9	<39	<39	<4 8
Anthracene	18,000,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4 .8
Fluoranthene	2,400,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4 .8
Pyrene	1,800,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4.8
Benzo[a]anthracene	1,100	<5.8	<5.8	<5.9	<5.8	<5.9	<5.8	<5.9	<7.2
Chrysene	110,000	< 3.9	< 3.8	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9	< 4.8
Benzo[b]fluoranthene	1,100	< 5.8	<5.8	< 5.9	< 5.8	<5.9	<5.8	< 5.9	<7.2
Benzo[k]fluoranthene	11,000	< 5.8	< 5.8	< 5. 9	< 5 .8	< 5.9	< 5.8	< 5.9	<7.2
Benzo[a]pyrene	110	<5.8	<5.8	<5.9	<5.8	<59	< 5.8	< 5.9	<7.2
Indeno[1,2,3-cd]pyrene	1,100	< 8.8	< 8.7	< 8.8	<8.7	< 8 8	< 8.8	< 8.8	< 10 8
Dibenz(a,h)anthracene	110	< 8.8	< 8.7	< 8.8	< 8.7	< 8.8	< 8.8	< 8.8	< 10.8
Benzo (g,h,i)perylene	1,800,000	< 8.8	< 8.7	< 8.8	< 8.7	< 8.8	< 8.8	< 8.8	< 10.8

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX008-PS	DBG-015-S-EX009-PS	DBG-015-S-EX010-PS	DBG-015-S-EX011-PS	DBG-015-S-EX012-PS	DBG-015-S-EX212-PS	DBG-015-S-EX013-PS	DBG-015-S-EX014-PS	DBG-015-S-EX015-PS
	Sample Date	7/7/2014	7/7/2014	7/16/2014	7/17/2014	7/17/2014	7/18/2014	7/18/2014	7/22/2014	7/23/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.7	<3.8	<4.2	< 4	< 4	< 4	< 4.1	< 4	< 3.8
2-Methylnaphthalene	240,000	<3.7	< 3.8	<4.2	< 4	<4	< 4	< 4.1	< 4	< 3.8
Acenaphthylene[1]	3,600,000	< 3.7	< 3.8	<4.2	< 4	< 4	< 4	< 4.1	<4	< 3.8
Acenaphthene	3,600,000	< 3.7	< 3.8	<4.2	<4	< 4	< 4	< 4.1	< 4	< 3.8
Fluorene	2,400,000	< 3.7	< 3.8	<4.2	< 4	< 4	< 4	< 4.1	< 4	< 3.8
Phenanthrene[2]	1,800,000	<3.7	<3.8	<4.2	< 4	< 4	2.6 J	< 4.1	2.6 J	< 3.8
Anthracene	18,000,000	< 3.7	< 3.8	<4.2	<4	< 4	< 4	<4.1	1.8 J	< 3.8
Fluoranthene	2,400,000	< 3.7	< 3.8	<4.2	< 4	<4	< 4	< 4.1	45.9	< 3.8
Pyrene	1,800,000	< 3.7	< 3.8	<4.2	< 4	< 4	< 4	< 4.1	34.6	< 3.8
Benzo[a]anthracene	1,100	<5.6	<5.6	< 6.3	2.5 J	< 6	<6	< 6.1	13.5	< 5.7
Chrysene	110,000	< 3.7	< 3.8	< 4.2	3.8 J	< 4	< 4	< 4.1	13.9	< 3.8
Benzo[b]fluoranthene	1,100	<5.6	< 5.6	< 6.3	4.2 J	< 6	< 6	< 6.1	10.2	< 5.7
Benzo[k]fluoranthene	11,000	< 5.6	< 5.6	< 6.3	4.1 J	<6	<6	< 6.1	3.9 J	< 5.7
Benzo[a]pyrene	110	< 5.6	< 5.6	< 6.3	< 6	< 6	< 6	<6.1	5.5 J	< 5.7
Indeno[1,2,3-cd]pyrene	1,100	<8.4	< 8.5	< 9.4	4 J	< 9	< 9	< 9.2	< 8.9	< 8.6
Dibenz(a,h)anthracene	110	< 8.4	< 8.5	< 9.4	4.2 J	< 9	< 9	< 9.2	< 8.9	< 8.6
Benzo (g,h,i)perylene	1,800,000	< 8.4	< 8.5	< 9.4	4 J	< 9	< 9	< 9.2	< 8.9	< 8.6

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX017-PS	DBG-015-S-EX016-PS	DBG-015-S-EX217-FS	DBG-015-S-EX018-PS	DBG-015-S-EX019-PS	DBG-015-S-EX020-PS	DBG-015-S-EX021-PS	DBG-015-S-EX022-PS	DBG-015-S-EX023-PS
	Sample Date	7/29/2014	8/4/2014	8/4/2014	8/4/2014	8/6/2014	8/7/2014	8/8/2014	8/14/2014	8/16/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	< 3.6	< 3.5	< 3.6	< 3.7	< 3.8	< 3.9	< 3.9	<3.9	< 3.9
2-Methylnaphthalene	240,000	< 3.6	< 3.5	< 3.6	< 3.7	< 3.8	< 3.9	< 3.9	<3.9	< 3.9
Acenaphthylene[1]	3,600,000	< 3.6	< 3.5	< 3.6	< 3.7	< 3.8	< 3.9	< 3.9	<3.9	< 3.9
Acenaphthene	3,600,000	< 3.6	< 3.5	< 3.6	<3.7	< 3.8	<3.9	< 3.9	<3.9	< 3.9
Fluorene	2,400,000	< 3.6	< 3.5	< 3.6	< 3.7	< 3.8	< 3.9	< 3.9	<3.9	< 3.9
Phenanthrene[2]	1,800,000	2 J	2.6	< 3.6	< 3.7	2 J	2.3 J	4.6	<3.9	< 3.9
Anthracene	18,000,000	< 3.6	< 3.5	< 3.6	<3.7	< 3.8	<3.9	< 3.9	<3.9	<3.9
Fluoranthene	2,400,000	1.8 J	3.4 J	< 3.6	< 3.7	2.1 J	2.2 J	4.4	< 3.9	< 3.9
Pyrene	1,800,000	1.9 J	5.0	< 3.6	< 3.7	3.6 J	3.9	7.3	<3.9	< 3.9
Benzo[a]anthracene	1,100	< 5.3	2.6 J	< 5.4	< 5.6	1.9 J	2.1 J	2.8 J	< 5.9	< 5.8
Chrysene	110,000	1.7 J	3.6	< 3.6	< 3.7	2.3 J	2.9 J	3.6 J	< 3.9	< 3.9
Benzo[b]fluoranthene	1,100	2.2 J	5.8	2.1 J	< 5.6	2.3 J	3 J	2.5 J	<5.9	< 5.8
Benzo[k]fluoranthene	11,000	< 5.3	< 5.3	< 5.4	< 5.6	< 5.7	< 5.8	< 5.8	<5.9	< 5.8
Benzo[a]pyrene	110	< 5.3	3.3 J	< 5.4	< 5.6	2.5 J	2.9 J	2.6 J	<5.9	< 5.8
Indeno[1,2,3-cd]pyrene	1,100	<8	< 7.9	< 8.1	< 8.4	< 8.5	< 8.8	< 8.7	<8.9	< 8.7
Dibenz(a,h)anthracene	110	< 8	< 7.9	< 8.1	< 8.4	< 8.5	< 8.8	< 8.7	< 8.9	< 8.7
Benzo (g,h,i)perylene	1,800,000	<8	< 7.9	< 8.1	< 8.4	< 8.5	< 8.8	< 8.7	<8.9	< 8.7

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX024-PS	DBG-015-S-EX025-PS	DBG-015-S-EX026-PS	DBG-015-S-EX027-PS	DBG-015-S-EX028-PS	DBG-015-S-EX029-PS	DBG-015-S-EX030-PS	DBG-015-S-EX230-PS	DBG-015-S-EX031-PS
	Sample Date	8/19/2014	8/25/2014	8/26/2014	9/2/2014	9/3/2014	9/7/2014	9/16/2014	9/16/2014	9/18/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
2-Methylnaphthalene	240,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Acenaphthylene[1]	3,600,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Acenaphthene	3,600,000	<4	< 4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	< 4
Fluorene	2,400,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Phenanthrene[2]	1,800,000	<4	<4	1.6 J	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Anthracene	18,000,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Fluoranthene	2,400,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Pyrene	1,800,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Benzo[a]anthracene	1,100	<6	<6	< 5.7	< 5.8	< 5.8	< 5.8	< 6	< 5.9	< 6
Chrysene	110,000	<4	<4	< 3.8	< 3.9	< 3.9	< 3.9	< 4	< 3.9	<4
Benzo[b]fluoranthene	1,100	<6	<6	< 5.7	< 5.8	< 5.8	< 5.8	< 6	< 5.9	< 6
Benzo[k]fluoranthene	11,000	<6	<6	< 5.7	< 5.8	< 5.8	< 5.8	< 6	< 5.9	< 6
Benzo[a]pyrene	110	<6	<6	< 5.7	< 5.8	< 5.8	< 5.8	< 6	< 5.9	< 6
Indeno[1,2,3-cd]pyrene	1,100	<9	<9	< 8.6	< 8.8	< 8.8	< 8.7	< 8.9	< 8.9	< 9
Dibenz(a,h)anthracene	110	<9	<9	< 8.6	< 8.8	< 8.8	< 8.7	< 8.9	< 8.9	< 9
Benzo (g,h,i)perylene	1,800,000	<9	<9	< 8.6	< 8.8	< 8.8	< 8.7	< 8.9	< 8.9	< 9

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX032-PS	DBG-015-S-EX033-PS	DBG-015-S-EX034-PS	DBG-015-S-EX035-PS	DBG-015-S-EX046-PS	DBG-015-S-EX045-PS	DBG-015-S-EX047-PS	DBG-015-S-EX048-PS	DBG-015-S-EX049-PS
	Sample Date	9/20/2014	9/21/2014	9/30/2014	9/30/2014	11/17/2014	11/17/2014	11/18/2014	12/1/2014	12/1/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	< 4	< 3.9	< 4.4	< 4	<3.9	< 3.8	< 3.9	< 3.7	< 3.7
2-Methylnaphthalene	240,000	< 4	< 3.9	< 4.4	< 4	<3.9	< 3.8	< 3.9	< 3.7	< 3.7
Acenaphthylene[1]	3,600,000	< 4	< 3.9	< 4.4	< 4	<3.9	< 3.8	< 3.9	< 3.7	< 3.7
Acenaphthene	3,600,000	< 4	< 3.9	< 4.4	< 4	<3.9	< 3.8	< 3.9	< 3.7	< 3.7
Fluorene	2,400,000	< 4	< 3.9	< 4.4	< 4	<3.9	< 3.8	< 3.9	< 3.7	< 3.7
Phenanthrene[2]	1,800,000	< 4	< 3.9	< 4.4	< 4	3.9	2.2 J	< 3.9	1.8 J	< 3.7
Anthracene	18,000,000	< 4	< 3.9	< 4.4	< 4	<3.9	< 3.8	< 3.9	< 3.7	< 3.7
Fluoranthene	2,400,000	< 4	< 3.9	< 4.4	< 4	5.2	1.7 J	< 3.9	1.9 J	1.8 J
Pyrene	1,800,000	< 4	< 3.9	< 4.4	< 4	4.4	1.7 J	< 3.9	2.1 J	1.8 J
Benzo[a]anthracene	1,100	< 6	< 5.8	< 6.6	< 6	2.9 J	< 5.8	< 5.8	< 5.6	< 5.6
Chrysene	110,000	< 4	< 3.9	< 4.4	< 4	3.6 J	< 3.8	< 3.9	1.6 J	1.5 J
Benzo[b]fluoranthene	1,100	< 6	< 5.8	< 6.6	< 6	4.6 J	< 5.8	< 5.8	< 5.6	< 5.6
Benzo[k]fluoranthene	11,000	< 6	< 5.8	< 6.6	< 6	<5.8	< 5.8	< 5.8	< 5.6	< 5.6
Benzo[a]pyrene	110	< 6	< 5.8	< 6.6	< 6	3.2 J	< 5.8	< 5.8	< 5.6	< 5.6
Indeno[1,2,3-cd]pyrene	1,100	< 9	< 8.8	< 9.8	< 9.1	< 8.7	< 8.7	< 8.7	< 8.4	< 8.4
Dibenz(a,h)anthracene	110	< 9	< 8.8	< 9.8	< 9.1	< 8.7	< 8.7	< 8.7	< 8.4	< 8.4
Benzo (g,h,i)perylene	1,800,000	< 9	< 8.8	< 9.8	< 9.1	< 8.7	< 8.7	< 8.7	< 8.4	< 8.4

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX050-PS	DBG-015-S-EX051-PS	DBG-015-S-EX251-FS	DBG-015-S-EX052-PS	DBG-015-S-EX053-PS	DBG-015-S-EX054-PS	DBG-015-S-EX055-PS	DBG-015-S-EX255-FS	DBG-015-S-EX056-PS
	Sample Date	12/1/2014	12/1/2014	12/1/2014	12/3/2014	12/3/2014	12/4/2014	12/6/2014	12/6/2014	12/8/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	< 3.6	< 3.8	< 3.7	<4	< 4	< 3.9	< 3.8	2.4 J	< 4.5
2-Methylnaphthalene	240,000	< 3.6	< 3.8	< 3.7	<4	< 4	< 3.9	< 3.8	1.9 J	< 4.5
Acenaphthylene[1]	3,600,000	< 3.6	< 3.8	< 3.7	<4	< 4	< 3.9	< 3.8	< 4.1	< 4.5
Acenaphthene	3,600,000	< 3.6	< 3.8	< 3.7	<4	< 4	< 3.9	< 3.8	< 4.1	< 4.5
Fluorene	2,400,000	< 3.6	< 3.8	< 3.7	<4	< 4	< 3.9	< 3.8	< 4.1	< 4.5
Phenanthrene[2]	1,800,000	3.5 J	< 3.8	< 3.7	2.4 J	< 4	< 3.9	2.7 J	59.6	2 J
Anthracene	18,000,000	< 3.6	< 3.8	< 3.7	<4	< 4	< 3.9	< 3.8	4.2	< 4.5
Fluoranthene	2,400,000	5.8	< 3.8	< 3.7	4.8	< 4	< 3.9	2.7 J	55.8	< 4.5
Pyrene	1,800,000	5.3	< 3.8	1.5 J	4.0	< 4	< 3.9	3.4 J	89.9	2.1 J
Benzo[a]anthracene	1,100	4 J	< 5.6	< 5.6	2.8 J	< 6	< 5.9	2.1 J	24.4	< 6.8
Chrysene	110,000	4.0	< 3.8	< 3.7	2.8 J	< 4	< 3.9	3.6 J	24.2	1.8 J
Benzo[b]fluoranthene	1,100	5.9	< 5.6	< 5.6	3.2 J	< 6	< 5.9	5 J	21.8	< 6.8
Benzo[k]fluoranthene	11,000	< 5.5	< 5.6	< 5.6	<6	< 6	< 5.9	< 5.8	7.6	< 6.8
Benzo[a]pyrene	110	4.3 J	< 5.6	< 5.6	2.4 J	< 6	< 5.9	3.2 J	11.4	< 6.8
Indeno[1,2,3-cd]pyrene	1,100	< 8.2	< 8.4	< 8.3	<9	< 9	< 8.8	< 8.6	6.6 J	< 10.2
Dibenz(a,h)anthracene	110	< 8.2	< 8.4	< 8.3	<9	< 9	< 8.8	< 8.6	< 9.2	< 10.2
Benzo (g,h,i)perylene	1,800,000	3.4 J	< 8.4	< 8.3	< 9	< 9	< 8.8	4.4 J	10.3	< 10.2

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX057-PS	DBG-015-S-EX058-PS	DBG-015-S-EX059-PS	DBG-015-S-EX060-PS	DBG-015-S-EX061-PS	DBG-015-S-EX063-PS	DBG-015-S-EX064-PS	DBG-015-S-EX062-PS	DBG-015-S-EX065-PS
	Sample Date	12/11/2014	12/12/2014	12/18/2014	12/18/2014	1/9/2015	1/15/2015	1/15/2015	1/19/2015	1/19/2015
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	3.6 J	< 4.4	< 3.9	2.5 J	<3	< 3.9	< 3.8	< 3.7	< 3.8
2-Methylnaphthalene	240,000	2.4 J	< 4.4	< 3.9	< 3.9	1.6 J	< 3.9	< 3.8	< 3.7	< 3.8
Acenaphthylene[1]	3,600,000	< 3.8	< 4.4	< 3.9	< 3.9	<3	< 3.9	< 3.8	< 3.7	< 3.8
Acenaphthene	3,600,000	< 3.8	< 4.4	< 3.9	2 J	<3	< 3.9	< 3.8	< 3.7	<3.8
Fluorene	2,400,000	< 3.8	< 4.4	< 3.9	< 3.9	<3	< 3.9	< 3.8	< 3.7	< 3.8
Phenanthrene[2]	1,800,000	4.5	2.7 J	< 3.9	14.6	3.1	1.8 J	2.1 J	1.8 J	< 3.8
Anthracene	18,000,000	< 3.8	< 4.4	< 3.9	< 3.9	<3	< 3.9	< 3.8	< 3.7	< 3.8
Fluoranthene	2,400,000	4.6	5.8	< 3.9	19.4	3.8	1.8 J	< 3.8	2.3 J	1.7 J
Pyrene	1,800,000	4.4	5.5	< 3.9	14.5	3.3	1.8 J	< 3.8	2.5 J	1.8 J
Benzo[a]anthracene	1,100	3.1 J	6.6	< 5.9	6.7	1.6 J	< 5.8	< 5.8	< 5.6	< 5.7
Chrysene	110,000	6.2	9.1	< 3.9	9.6	2.8 J	< 3.9	< 3.8	1.8 J	1.6 J
Benzo[b]fluoranthene	1,100	5.4 J	15.6	< 5.9	11.7	2.7 J	< 5.8	< 5.8	2.2 J	2.7 J
Benzo[k]fluoranthene	11,000	< 5.7	5.5 J	< 5.9	4.9 J	< 4.5	< 5.8	< 5.8	< 5.6	< 5.7
Benzo[a]pyrene	110	3.3 J	9.8	< 5.9	7.3	< 4.5	< 5.8	< 5.8	< 5.6	< 5.7
Indeno[1,2,3-cd]pyrene	1,100	< 8.6	7 J	< 8.8	4.1 J	< 6.8	< 8.7	< 8.7	< 8.4	< 8.6
Dibenz(a,h)anthracene	110	< 8.6	< 9.9	< 8.8	< 8.8	< 6.8	< 8.7	< 8.7	< 8.4	< 8.6
Benzo (g,h,i)perylene	1,800,000	3.7 J	8.8 J	< 8.8	5.4 J	< 6.8	< 8.7	< 8.7	< 8.4	< 8.6

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX066-PS	DBG-015-S-EX067-PS	DBG-015-S-EX068-PS	DBG-015-S-EX069-PS	DBG-015-S-EX070-PS	DBG-015-S-EX270-PS	DBG-015-S-EX071-PS	DBG-015-S-EX072-PS	DBG-015-S-EX073-PS
	Sample Date	1/19/2015	1/20/2015	1/21/2015	1/21/2015	1/22/2015	1/22/2015	1/24/2015	1/24/2015	1/26/2015
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	< 3.9	< 3.9	< 3.9	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
2-Methylnaphthalene	240,000	< 3.9	< 3.9	< 3.9	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Acenaphthylene[1]	3,600,000	< 3.9	< 3.9	< 3.9	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Acenaphthene	3,600,000	< 3.9	< 3.9	< 3.9	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Fluorene	2,400,000	< 3.9	< 3.9	< 3.9	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Phenanthrene[2]	1,800,000	1.8 J	1.9 J	2.2 J	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Anthracene	18,000,000	< 3.9	< 3.9	< 3.9	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Fluoranthene	2,400,000	3 J	1.9 J	1.6 J	1.7 J	< 4	< 4	< 3.9	< 3.8	< 3.8
Pyrene	1,800,000	2.8 J	2.6 J	< 3.9	1.7 J	< 4	< 4	< 3.9	< 3.8	< 3.8
Benzo[a]anthracene	1,100	2.7 J	< 5.9	< 5.9	< 5.8	< 6	< 6	< 5.9	< 5.8	< 5.7
Chrysene	110,000	2.6 J	1.6 J	1.7 J	< 3.9	< 4	< 4	< 3.9	< 3.8	< 3.8
Benzo[b]fluoranthene	1,100	2.7 J	< 5.9	2.4 J	< 5.8	< 6	< 6	< 5.9	< 5.8	< 5.7
Benzo[k]fluoranthene	11,000	< 5.9	< 5.9	< 5.9	< 5.8	< 6	< 6	< 5.9	< 5.8	< 5.7
Benzo[a]pyrene	110	< 5.9	< 5.9	< 5.9	< 5.8	< 6	< 6	< 5.9	< 5.8	< 5.7
Indeno[1,2,3-cd]pyrene	1,100	< 8.9	< 8.8	< 8.8	< 8.7	< 9	< 9	< 8.8	< 8.6	< 8.6
Dibenz(a,h)anthracene	110	< 8.9	< 8.8	< 8.8	< 8.7	< 9	< 9	< 8.8	< 8.6	< 8.6
Benzo (g,h,i)perylene	1,800,000	< 8.9	< 8.8	< 8.8	< 8.7	< 9	5.7 J	< 8.8	< 8.6	< 8.6

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX074-PS	DBG-015-S-EX075-PS	DBG-015-S-EX076-PS	DBG-015-S-EX077-PS	DBG-015-S-EX078-PS	DBG-015-S-EX079-PS	DBG-015-S-EX080-PS	DBG-015-S-EX280-FS	DBG-015-S-EX081-PS
	Sample Date	1/26/2015	1/28/2015	1/28/2015	1/28/2015	1/29/2015	2/3/2015	2/3/2015	2/3/2015	2/3/2015
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	< 3.7	< 3.7	1.8 J	< 3.8	< 3.8	< 4	< 4	< 3.9	< 3.9
2-Methylnaphthalene	240,000	< 3.7	< 3.7	11.2	< 3.8	< 3.8	< 4	< 4	< 3.9	< 3.9
Acenaphthylene[1]	3,600,000	< 3.7	< 3.7	< 3.7	< 3.8	< 3.8	< 4	< 4	< 3.9	< 3.9
Acenaphthene	3,600,000	< 3.7	< 3.7	< 3.7	< 3.8	< 3.8	< 4	< 4 J	5.3 J	<3 9
Fluorene	2,400,000	< 3.7	< 3.7	< 3.7	< 3.8	< 3.8	< 4	< 4	3.5 J	< 3.9
Phenanthrene[2]	1,800,000	< 3.7	< 3.7	3.8	< 3.8	< 3.8	< 4	2.4 J	43.7 J	< 3.9
Anthracene	18,000,000	< 3.7	< 3.7	< 3.7	< 3.8	< 3.8	< 4	< 4 J	9.6 J	< 3.9
Fluoranthene	2,400,000	1.9 J	< 3.7	< 3.7	< 3.8	< 3.8	4.7	3.8 J	83.4 J	1.9 J
Pyrene	1,800,000	1.8 J	< 3.7	< 3.7	< 3.8	< 3.8	4.6	3 J	64.6 J	1.8 J
Benzo[a]anthracene	1,100	< 5.6	< 5.6	< 5.6	< 5.7	< 5.7	3 J	< 6 J	35.6 J	< 5.8
Chrysene	110,000	< 3.7	< 3.7	< 3.7	< 3.8	< 3.8	4	1.9 J	35.6 J	< 3.9
Benzo[b]fluoranthene	1,100	< 5.6	< 5.6	< 5.6	< 5.7	< 5.7	4.2 J	< 6 J	45	< 5.8
Benzo[k]fluoranthene	11,000	< 5.6	< 5.6	< 5.6	< 5.7	< 5.7	< 6	< 6 J	16.4 J	< 5.8
Benzo[a]pyrene	110	< 5.6	< 5.6	< 5.6	< 5.7	< 5.7	3.3 J	< 6 J	31.3 J	< 5.8
Indeno[1,2,3-cd]pyrene	1,100	< 8.4	<8.4	<8.4	< 8.6	< 8.6	< 9	< 6 J	16 J	< 8.7
Dibenz(a,h)anthracene	110	< 8.4	<8.4	< 8.4	< 8.6	< 8.6	< 9	< 9	5.3 J	< 8.7
Benzo (g,h,i)perylene	1,800,000	< 8.4	<8.4	< 8.4	< 8.6	< 8.6	< 9	< 9 J	19 J	< 8.7

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX082-PS	DBG-015-S-EX083-PS	DBG-015-S-EX084-PS	DBG-015-S-EX086-PS	DBG-015-S-EX-G12/13	DBG-015-S-EX086-PS	DBG-015-S-EX087-PS	DBG-015-S-EX088-PS	DBG-015-S-EX089-PS
	Sample Date	2/7/2015	2/7/2015	2/7/2015	2/8/2015	2/8/2015	2/9/2015	2/13/2015	2/13/2015	2/14/2015
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<4	< 3.8	< 3.9	< 3.8	<3 9	< 3.9	< 3.8	< 3 8	< 3.9
2-Methylnaphthalene	240,000	<4	< 3.8	< 3.9	< 3.8	< 3.9	< 3.9	< 3.8	< 3.8	< 3.9
Acenaphthylene[1]	3,600,000	< 4	< 3.8	< 3.9	< 3.8	< 3 9	< 3 9	< 3.8	< 3 8	< 3 9
Acenaphthene	3,600,000	<4	< 3 8	< 3 9	<3 8	< 3 9	< 3 9	< 3 8	< 3.8	<3 9
Fluorene	2,400,000	<4	< 3 .8	< 3.9	< 3 .8	< 3 .9	< 3.9	< 3.8	< 3 .8	< 3.9
Phenanthrene[2]	1,800,000	<4	< 3.8	2 J	2 J	< 3.9	2.5 J	3.1 J	< 3.8	5.4
Anthracene	18,000,000	<4	< 3.8	< 3.9	< 3.8	< 3.9	< 3.9	< 3.8	< 3.8	< 3.9
Fluoranthene	2,400,000	<4	< 3.8	< 3.9	3.4 J	< 3.9	3.9	3.4 J	< 3 .8	5.5
Pyrene	1,800,000	<4	< 3 .8	1.6 J	2 .7 J	< 3.9	3 .7 J	32 J	< 3 .8	6.4
Benzo[a]anthracene	1,100	< 6 .1	< 5.7	< 5.8	< 5.8	< 5.8	2 .0 J	1.7 J	< 5.7	2 .7 J
Chrysene	110,000	<4	< 3 .8	1.7 J	1.6 J	< 3.9	2.5 J	2.3 J	< 3.8	3.6 J
Benzo[b]fluoranthene	1,100	< 6.1	< 5.7	< 5.8	< 5.8	< 5.8	2.9 J	2.7 J	< 5.7	3 .9 J
Benzo[k]fluoranthene	11,000	< 6.1	< 5.7	< 5.8	< 5.8	< 5.8	< 5.8	< 5.7	< 5.7	< 5.8
Benzo[a]pyrene	110	< 6.1	< 5.7	< 5.8	< 5.8	< 5 .8	< 5.8	< 5.7	< 5.7	2.8 J
Indeno[1,2,3-cd]pyrene	1,100	< 9 1	< 8 5	< 8.7	< 8.7	< 8 8	< 8 7	< 8 5	< 8.6	<8 8
Dibenz(a,h)anthracene	110	< 9 .1	< 8.5	< 8.7	< 8.7	< 8 .8	< 8.7	< 8.5	< 8 .6	< 8.8
Benzo (g,h,i)perylene	1,800,000	< 9 .1	< 8.5	< 8.7	< 8.7	< 8 .8	< 8.7	< 8.5	< 8 .6	< 8.8

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-EX090-PS	DBG-015-S-EX290-FS	DBG-015-S-EXSIA	DBG-015-S-ISM-R1	DBG-015-S-ISM-R2	DBG-015-S-ISM-R3	DBG-015-S-SP001-PS	DBG-015-S-SP002-PS	DBG-015-S-SP003-PS
	Sample Date	2/15/2015	2/15/2015	2/15/2015	1/26/2015	1/27/2015	1/27/2015	6/29/2014	6/29/2014	6/30/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	< 3.9	2 J	< 3.9	< 4.2	<4.2	<4.3	<3.8	<3.8	<3.8
2-Methylnaphthalene	240,000	< 3.9	4.4	< 3.9	< 4.2	< 4.2	<4.3	<3.8	<3.8	<3.8
Acenaphthylene[1]	3,600,000	< 3.9	< 3.9	< 3.9	<4.2	< 4.2	<4.3	<3.8	<3.8	<3.8
Acenaphthene	3,600,000	< 3.9	2.5 J	< 3.9	<4.2	< 4.2	<4.3	<3.8	<3.8	<3.8
Fluorene	2,400,000	< 3.9	< 3.9	< 3.9	< 4.2	< 4.2	<4.3	<3.8	<3.8	<3.8
Phenanthrene[2]	1,800,000	4.9	6.1	5.9	< 4.2	1.8 J	<4.3	1.9 J	3.6 J	<3.8
Anthracene	18,000,000	< 3.9	< 3.9	< 3.9	<4.2	< 4.2	<4.3	<3.8	<3.8	<3.8
Fluoranthene	2,400,000	10.9 J	7 J	7.4	<4.2	2.1 J	<4.3	2.7 J	3.2 J	1.8 J
Pyrene	1,800,000	10.4	8.7	7.6	5.1	< 4.2	<4.3	4.0	5.3	2.4 J
Benzo[a]anthracene	1,100	6.2	4 J	2.8 J	8.4	< 6.3	< 6.5	2 J	2.4 J	17 J
Chrysene	110,000	7.4 J	4.9 J	3.9 J	8.5	< 4.2	<4.3	2.8 J	2.9 J	1.9 J
Benzo[b]fluoranthene	1,100	6.4	5 J	3.6 J	13.3	< 6.3	< 6.5	3.4 J	3.4 J	2.3 J
Benzo[k]fluoranthene	11,000	2.9 J	< 5.8	<5..9	9.2	< 6.3	< 6.5	<5.7	<5.7	<5.8
Benzo[a]pyrene	110	4.5 J	3.3 J	2.3 J	5.1 J	< 6.3	< 6.5	2.6	2.8 J	<5.8
Indeno[1,2,3-cd]pyrene	1,100	< 8.8	< 8.7	< 8.8	9.4	< 9.4	< 9.7	<8.6	<8.6	<8.7
Dibenz(a,h)anthracene	110	< 8.8	< 8.7	< 8.8	7.2 J	< 9.4	< 9.7	<8.6	<8.6	<8.7
Benzo (g,h,i)perylene	1,800,000	< 8.8	< 8.7	< 8.8	8.8 J	< 9.4	< 9.7	<8.6	<8.6	<8.7

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP004-PS	DBG-015-S-SP005-PS	DBG-015-S-SP006-PS	DBG-015-S-SP007-PS	DBG-015-S-SP008-PS	DBG-015-S-SP009-PS	DBG-015-S-SP010-PS	DBG-015-S-SP011-PS	DBG-015-S-SP012-PS
	Sample Date	6/2/2014	6/2/2014	6/2/2014	6/2/2014	6/2/2014	6/2/2014	6/6/2014	6/6/2014	6/6/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<4	<3.9	<3.9	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
2-Methylnaphthalene	240,000	<4	<3.9	<3.9	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
Acenaphthylene[1]	3,600,000	<4	<3.9	<3.9	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
Acenaphthene	3,600,000	<4	<3.9	<3.9	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
Fluorene	2,400,000	<4	<3.9	<3.9	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
Phenanthrene[2]	1,800,000	2.2	2.1 J	4.8	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
Anthracene	18,000,000	<4	<3.9	<3.9	<4.2	<3.8	<3.8	<3.8	<3.8	<3.8
Fluoranthene	2,400,000	2.8 J	3.2 J	10.5	2.3 J	2.1 J	<3.8	1.6 J	2.1 J	1.6 J
Pyrene	1,800,000	4.7	6	11.4	2.5 J	3.4 J	1.8	2.2 J	2.7 J	2.1 J
Benzo[a]anthracene	1,100	2.4 J	3.0 J	7.3	<6.3	2.1 J	<5.7	<5.7	<5.7	<5.7
Chrysene	110,000	2.8 J	3.5 J	9.1	2.5 J	2.4 J	<3.8	<3.8	2 J	<3.8
Benzo[b]fluoranthene	1,100	3.3 J	<3.9	11.2	3.7 J	3.3 J	<5.7	<5.7	<5.7	<5.7
Benzo[k]fluoranthene	11,000	<6	<5.8	3.9 J	<6.3	<5.6	<5.7	<5.7	<5.7	<5.7
Benzo[a]pyrene	110	3 J	3.5 J	9.1	<6.3	2.6 J	<5.7	<5.7	<5.7	<5.7
Indeno[1,2,3-cd]pyrene	1,100	<9	<8.8	4.8 J	<9.4	<8.5	<8.6	<8.6	<8.6	<8.6
Dibenz(a,h)anthracene	110	<9	<8.8	<8.7	<9.4	<8.5	<8.6	<8.6	<8.6	<8.6
Benzo (g,h,i)perylene	1,800,000	<9	<8.8	6.6 J	<9.4	<8.5	<8.6	<8.6	<8.6	<8.6

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP013-PS	DBG-015-S-SP014-PS	DBG-015-S-SP015-PS	DBG-015-S-SP016-PS	DBG-015-S-SP017-PS	DBG-015-S-SP018-PS	DBG-015-S-SP019-PS	DBG-015-S-SP020-PS	DBG-015-S-SP021-PS
	Sample Date	6/6/2014	6/6/2014	6/6/2014	6/8/2014	6/8/2014	6/8/2014	6/8/2014	6/11/2014	6/11/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	<3.7
2-Methylnaphthalene	240,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	<3.7
Acenaphthylene[1]	3,600,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	<3.7
Acenaphthene	3,600,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	<3.7
Fluorene	2,400,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	<3.7
Phenanthrene[2]	1,800,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	3.8
Anthracene	18,000,000	<3.8	<3.9	<3.9	<4	<4	<4	<4	<3.8	<3.7
Fluoranthene	2,400,000	<3.8	1.6 J	<3.9	2 J	<4	<4	<4	2.1 J	4.8
Pyrene	1,800,000	<3.8	2 .1 J	<3.9	2 J	<4	<4	2 J	2.7 J	7.9
Benzo[a]anthracene	1,100	<5.7	<5.8	<5.9	2 J	<6	<6	<6.1	<5.7	3.2 J
Chrysene	110,000	<3.8	<3.9	<3.9	2 J	<4	<4	<4	1.8 J	3.6 J
Benzo[b]fluoranthene	1,100	<5.7	<5.8	<5.9	<6	<6	<6	<6.1	<5.7	3.1 J
Benzo[k]fluoranthene	11,000	<5.7	<5.8	<5.9	<6	<6	<6	<6.1	<5.7	<5.6
Benzo[a]pyrene	110	<5.7	<5.8	<5.9	<6	<6	<6	<6.1	<5.7	2.8 J
Indeno[1,2,3-cd]pyrene	1,100	<8.5	<8.7	<8.8	<8.9	<9	<9	<6.1	<8.6	<8.3
Dibenz(a,h)anthracene	110	<8.5	<8.7	<8.8	<8.9	<9	<9	<6.1	<8.6	<8.3
Benzo (g,h,i)perylene	1,800,000	<8.5	<8.7	<8.8	<8.9	<4	<9	<6.1	<8.6	<8.3

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP022-PS	DBG-015-S-SP023-PS	DBG-015-S-SP024-PS	DBG-015-S-SP025-PS	DBG-015-S-SP026-PS	DBG-015-S-SP029-PS	DBG-015-S-SP030-PS	DBG-015-S-SP031-PS	DBG-015-S-SP032-PS
	Sample Date	6/11/2014	6/11/2014	6/16/2014	6/16/2014	6/16/2014	7/7/2014	7/17/2014	7/17/2014	7/17/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.8	<3.8	<3.9	<4	<4	<3.8	<4.1	<4	<3.9
2-Methylnaphthalene	240,000	<3.8	<3.8	<3.9	<4	<4	<3.8	<4.1	<4	<3.9
Acenaphthylene[1]	3,600,000	<3.8	<3.8	<3.9	<4	<4	<3.8	<4.1	<4	<3.9
Acenaphthene	3,600,000	<3.8	<3.8	<3.9	<4	<4	<3.8	<4.1	<4	<3.9
Fluorene	2,400,000	<3.8	<3.8	<3.9	<4	<4	<3.8	<4.1	<4	<3.9
Phenanthrene[2]	1,800,000	5.9	<3.8	3.9 J	25.8 J	7.8	<3.8	2.6 J	2 J	<3.9
Anthracene	18,000,000	<3.8	<3.8	<3.9	6.2 J	<4	<3.8	<4.1	<4	<3.9
Fluoranthene	2,400,000	6.9	<3.8	10	29.3	9.9	2.3 J	3.7 J	3.3 J	4.7
Pyrene	1,800,000	8.9	<3.8	13.3	53.4	11 .2	2 J	3.7 J	3.4 J	5 .2
Benzo[a]anthracene	1,100	3.8 J	<5.7	6.6	25.0	4.8 J	<5.8	2.1 J	2.7 J	3 .1 J
Chrysene	110,000	4.4	<3.8	6.2	25.2	5.1	1.7 J	2.4 J	3 J	3 .5 J
Benzo[b]fluoranthene	1,100	4.1	<5.7	4.3 J	14.2 J	4.1 J	<5.8	2.8 J	3.3 J	4 .1 J
Benzo[k]fluoranthene	11,000	2.5 J	<5.7	<5.9	7.4 J	<6	<5.8	<6.2	<6	<5.9
Benzo[a]pyrene	110	3.9 J	<5.7	5 J	20.5	4.4 J	<5.8	<6.2	2.5 J	3 .2 J
Indeno[1,2,3-cd]pyrene	1,100	<8.6	<8.6	<8.9	6.7	<9	<8.7	<9.3	<9	<8.9
Dibenz(a,h)anthracene	110	<8.6	<8.6	<8.9	<9	<9	<8.7	<9.3	<9	<8.9
Benzo (g,h,i)perylene	1,800,000	<8.6	<8.6	<8.9	<9.2	<9	<8.7	<9.3	<9	<8.9

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location		DBG-015-S-SP033-PS	DBG-015-S-SP034-PS	DBG-015-S-SP035-PS	DBG-015-S-SP036-PS	DBG-015-S-SP037-PS	DBG-015-S-SP038-PS	DBG-015-S-SP039-PS	DBG-015-S-SP040-PS	DBG-015-S-SP041-PS
Sample Date		7/17/2014	7/17/2014	7/18/2014	7/18/2014	7/21/2014	7/21/2014	7/21/2014	7/21/2014	7/21/2014
Sample Type		Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.9	<3.8	<3.8	<3.7	<3.6	<3.7	<3.6	<3.7	<4.4
2-Methylnaphthalene	240,000	<3.9	<3.8	<3.8	<3.7	<3.6	<3.7	<3.6	<3.7	<4.4
Acenaphthylene[1]	3,600,000	<3.9	<3.8	<3.8	<3.7	<3.6	<3.7	3.1 J	<3.7	<4.4
Acenaphthene	3,600,000	<3.9	<3.8	<3.8	<3.7	<3.6	<3.7	<3.6	<3.7	<4.4
Fluorene	2,400,000	<3.9	<3.8	<3.8	<3.7	<3.6	<3.7	<3.6	<3.7	<4.4
Phenanthrene[2]	1,800,000	<3.9	44	<3.8	3.5 J	2.9 J	2.1	44	<3.7	<4.4
Anthracene	18,000,000	<3.9	<3.8	<3.8	<3.7	<3.6	<3.7	5.5	<3.7	<4.4
Fluoranthene	2,400,000	<3.9	2.3 J	<3.8	4 2	3.9	3 J	136	5.1	<4.4
Pyrene	1,800,000	<3.9	1.6 J	<3.8	6.5	5.0	4.2	19.8	74	2.3 J
Benzo[a]anthracene	1,100	<5.8	<5.7	<5.7	2.5 J	2.3 J	2.4 J	9.8	4.2 J	<6.5
Chrysene	110,000	<3.9	<3.8	<3.8	<2.9	2.7 J	2.3 J	10.2	4.3	<4.4
Benzo[b]fluoranthene	1,100	<5.8	<5.7	<5.7	2.8 J	2.4 J	3 J	12.5	5.4 J	<6.5
Benzo[k]fluoranthene	11,000	<5.8	<5.7	<5.7	<5.6	<5.4	<5.6	4.2 J	2.4 J	<6.5
Benzo[a]pyrene	110	<5.8	<5.7	<5.7	2.6 J	2.3 J	2.5 J	11.1 J	53 J	<6.5
Indeno[1,2,3-cd]pyrene	1,100	<8.8	<8.6	<8.5	<8.4	<8.1	<8.4	<5.4	<8.2	<9.8
Dibenz(a,h)anthracene	110	<8.8	<8.6	<8.5	<8.4	<8.1	<8.4	<8	<8.2	<9.8
Benzo (g,h,i)perylene	1,800,000	<8.8	<8.6	<8.5	<8.4	<8.1	<8.4	6.9 J	<8.2	<9.8

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP042-PS	DBG-015-S-SP043-PS	DBG-015-S-SP044-PS	DBG-015-S-SP045-PS	DBG-015-S-SP046-PS	DBG-015-S-SP047-PS	DBG-015-S-SP048-PS	DBG-015-S-SP049-PS	DBG-015-S-SP050-PS
	Sample Date	7/22/2014	7/22/2014	7/22/2014	7/22/2014	7/23/2014	7/23/2014	7/23/2014	7/23/2014	7/24/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.6	<3.6	<3.4	<4	<3.6	<3.7	<3.5	<3.6	<3.6
2-Methylnaphthalene	240,000	<3.6	<3.6	<3.4	<4	<3.6	<3.7	<3.5	<3.6	<3.6
Acenaphthylene[1]	3,600,000	<3.6	<3.6	<3.4	<4	1.6 J	1.6	2.7 J	4.2	1.7 J
Acenaphthene	3,600,000	<3.6	<3.6	<3.4	<4	<3.6	<3.7	<3.5	<3.6	<3.6
Fluorene	2,400,000	<3.6	<3.6	<3.4	<4	<3.6	<3.7	<3.5	<3.6	<3.6
Phenanthrene[2]	1,800,000	<3.6	2.4 J	<3.4	<4	<3.6	2.0	3 J	3.6 J	3.2 J
Anthracene	18,000,000	<3.6	<3.6	<3.4	<4	<3.6	<3.7	2.1 J	2.2 J	3 .6
Fluoranthene	2,400,000	4.7	6.6	2.3 J	5.3	4 9	5.9	9.5	12.2	5.8
Pyrene	1,800,000	84	11.8	27 J	8.6	7.6 J	8.1	12.5	19.0	11.1
Benzo[a]anthracene	1,100	4.4 J	5.8	1.6 J	4.8 J	4.2 J	4.6 J	7.5	11.9	4.8 J
Chrysene	110,000	4.8	6.0	1.8 J	5.3	4.8 J	54	9.2	12.2	5.8
Benzo[b]fluoranthene	1,100	5.0	5.4	2 J	6.6	6.6 J	7.0	14.0	20.3	9.3
Benzo[k]fluoranthene	11,000	2.5 J	2.3	<5.1	2.6 J	<5.4	<5.5	45 J	6.6	2.8 J
Benzo[a]pyrene	110	59	57	19 J	6.5	5.5 J	5 J	9	15.1	6.3
Indeno[1,2,3-cd]pyrene	1,100	<8.2	<8	<7.7	<9.1	<8.1	<8.3	4.2 J	6.8 J	3.5 J
Dibenz(a,h)anthracene	110	<8.2	<8	<7.7	<9.1	<8.1	<8.3	<8	<8.1	<8.1
Benzo (g,h,i)perylene	1,800,000	<8.2	<8	<7.7	4.3	3.4 J	3.5 J	6.8 J	8.5	4.7 J

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP051-PS	DBG-015-S-SP052-PS	DBG-015-S-SP053-PS	DBG-015-S-SP054-PS	DBG-015-S-SP055-PS	DBG-015-S-SP056-PS	DBG-015-S-SP057-PS	DBG-015-S-SP058-PS	DBG-015-S-SP059-PS
	Sample Date	7/24/2014	7/24/2014	8/1/2014	8/4/2014	8/1/2014	8/1/2014	6/12/2014	6/12/2014	6/12/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.5	<3.6	<4	<3.5	<3.5	<3.5	<3.8	<3.8	<3.8
2-Methylnaphthalene	240,000	<3.5	<3.6	<4	<3.5	<3.5	<3.5	<3.8	<3.8	<3.8
Acenaphthylene[1]	3,600,000	1.5 J	2.0	<4	<3.5	<3.5	2. 1 J	<3.8	<3.8	<3.8
Acenaphthene	3,600,000	<3.5	<3.6	<4	<3.5	<3.5	<3.5	<3.8	<3.8	<3.8
Fluorene	2,400,000	<3.5	<3.6	<4	<3.5	<3.5	<3.5	<3.8	<3.8	<3.8
Phenanthrene[2]	1,800,000	5.0	5.2	11.2	1.5 J	1.6 J	<3.5	<3.8	2.4 J	2 J
Anthracene	18,000,000	1.5 J	2.3 J	3 J	<3.5	<3.5	<3.5	<3.8	<3.8	<3.8
Fluoranthene	2,400,000	11.6	10.1	10.5	2.8 J	3.2 J	4.4	3.3 J	4.0	3.9
Pyrene	1,800,000	18.9	19.2	18.7	4.3	5.3	7.9	4.7	6.2	6.0
Benzo[a]anthracene	1,100	8 .8	8.3	7.4	1.8 J	2.7 J	4.1 J	2.6 J	3.7 J	3.3 J
Chrysene	110,000	10.9	9.5	8.9	2.8 J	3.4 J	5.2 J	3 J	44	3.8
Benzo[b]fluoranthene	1,100	16.9	11.9	9 6	3.8 J	4.6 J	6.9	3.8 J	5.2 J	3.7 J
Benzo[k]fluoranthene	11,000	5.8	4 J	3.6 J	<5.3	<5.3	3.5 J	<5.8	2.5 J	<5.6
Benzo[a]pyrene	110	10.3	9	8.2	2.7 J	3.6 J	6.8	3.1 J	4.4 J	3.8 J
Indeno[1,2,3-cd]pyrene	1,100	5.7 J	4.6 J	<8.9	<7.9	<7.9	3.3 J	<8.7	<8.6	<8.5
Dibenz(a,h)anthracene	110	<7.9	<8.1	<8.9	<7.9	<7.9	<7.9	<8.7	<8.6	<8.5
Benzo (g,h,i)perylene	1,800,000	6.9 J	6.4 J	4 J	<7.9	<7.9	4 J	<8.7	4.2 J	<8.5

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP060-PS	DBG-015-S-SP061-PS	DBG-015-S-SP062-PS	DBG-015-S-SP063-PS	DBG-015-S-SP064-PS	DBG-015-S-SP065-PS	DBG-015-S-SP066-PS	DBG-015-S-SP068-PS	DBG-015-S-SP069-PS
	Sample Date	6/12/2014	6/12/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/2/2014	6/11/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs (µg/kg)										
Naphthalene	2,000	<3.7	<3.8	<3.8	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
2-Methylnaphthalene	240,000	<3.7	<3.8	<3.8	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
Acenaphthylene[1]	3,600,000	<3.7	<3.8	<3.8	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
Acenaphthene	3,600,000	<3.7	<3.8	<3.8	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
Fluorene	2,400,000	<3.7	<3.8	<3.8	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
Phenanthrene[2]	1,800,000	5.1	10.2	1.6 J	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
Anthracene	18,000,000	<3.7	3.2 J	<3.8	<3.9	<3.9	<3.8	<3.8	<3.8	<3.8
Fluoranthene	2,400,000	7.9	16.4	2.8 J	1.6 J	<3.9	1.8 J	3 J	<3.8	2 J
Pyrene	1,800,000	13.3	17.5	4.5	2.4 J	2.2 J	2.3 J	4.0	1.6 J	2.8 J
Benzo[a]anthracene	1,100	7.8	9.3	2.4 J	<5.9	<5.8	<5.8	2.2 J	<5.7	1.8 J
Chrysene	110,000	9.0	13.6	2.7 J	<3.9	<3.9	3.8	2.4 J	<3.8	22 J
Benzo[b]fluoranthene	1,100	6.4	12.3	2.4 J	<5.9	<5.8	<5.8	2.6 J	<5.7	2.5 J
Benzo[k]fluoranthene	11,000	3 J	5.3 J	<5.7	<5.9	<5.8	<5.8	<5.8	<5.7	<5.6
Benzo[a]pyrene	110	7 .3	11.4	2.5 J	<5.9	<5.8	<5.8	2.2 J	<5.7	<5.6
Indeno[1,2,3-cd]pyrene	1,100	<8.4	4.8 J	<8.6	<8.9	<8.7	<8.7	<8.6	<8.6	<8.5
Dibenz(a,h)anthracene	110	<8.4	<8.5	<8.6	<8.9	<8.7	<8.7	<8.6	<8.6	<8.5
Benzo (g,h,i)perylene	1,800,000	3.9 J	6.6 J	<8.6	<8.9	<8.7	<8.7	<8.6	<8.6	<8.5

Table 2.1 (Continued)
Tract 19B Historical Stockpile Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	DBG-015-S-SP070-PS	DBG-015-S-SP071-PS	DBG-015-S-SP072-PS	DBG-015-S-SP073-PS	DBG-015-S-SP074-PS
	Sample Date	6/16/2014	7/17/2014	7/22/2014	7/23/2014	8/1/2014
	Sample Type	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil	Excavated Soil
Analyte	Residential Soil RSL	Result	Result	Result	Result	Result
PAHs (µg/kg)						
Naphthalene	2,000	<4	<3.9	<3.6	<3.6	4.7
2-Methylnaphthalene	240,000	<4	<3.9	<3.6	<3.6	<1.9
Acenaphthylene[1]	3,600,000	<4	<3.9	<3.6	<3.6	1.8 J
Acenaphthene	3,600,000	4.0	<3.9	<3.6	<3.6	5.6
Fluorene	2,400,000	2.9 J	<3.9	<3.6	<3.6	2.7 J
Phenanthrene[2]	1,800,000	37.4 J	<3.9	2.8 J	8.7	26.8
Anthracene	18,000,000	9.2 J	<3.9	<3.6	2.5 J	5.3
Fluoranthene	2,400,000	36.8	<3.9	5.8	182	33.5
Pyrene	1,800,000	54.0	<3.9	9.10	17 J	33.5
Benzo[a]anthracene	1,100	224	<5.8	4.8 J	11.7 J	17.8 J
Chrysene	110,000	21.7	<3.9	4.6	11.5 J	21.5
Benzo[b]fluoranthene	1,100	138	<5.8	4.7 J	15.7 J	30.0
Benzo[k]fluoranthene	11,000	7.9 J	<5.8	2.4 J	5.1 J	9.5
Benzo[a]pyrene	110	17.6	<5.8	5.4 J	10.8 J	20.7
Indeno[1,2,3-cd]pyrene	1,100	6 J	<8.8	<8.2	4.5 J	9.5
Dibenz(a,h)anthracene	110	<8.9	<8.8	<8.2	<8.1	2.9 J
Benzo (g,h,i)perylene	1,800,000	8.4 J	<8.8	<8.2	5.7 J	110

Notes:
Regional Screening Level (RSL) and values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
[1] RSL for acenaphthene used as a surrogate
[2] RSL for pyrene used as a surrogate
< = analyte not detected, listed value is the reporting limit
DBG = Demolition and Burning Grounds Munitions Response Site
EX = Excavation Pile Sample
FS = Field Duplicate Sample
J = value listed was reported below the quantitation limit and is estimated
µg/kg = micrograms per kilogram
PAH = polynuclear aromatic hydrocarbon
PS = Primary Sample

Table 2.2
Tract 19C Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			BUGD-5			BUGD-034	BUGD-038	BUGD-049	BUGD-093	BGSL131	BGSL132	BGSL133	BGSL134
Sample Date			10/27/1990	10/27/1990	10/27/1990	4/17/1992	4/17/1992	4/15/1992	4/14/1992	7/12/1995	7/12/1995	7/12/1995	7/12/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (feet bgs)			0	0.5	1	0	0	0	0	0.167	0.167	0.167	0
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)													
Aluminum	77,000	600,000	--	--	--	--	7,500 B	--	8,600 B	--	--	--	--
Antimony	31	7	--	--	--	--	<41.3	--	<41.3	--	--	--	--
Arsenic	0.68	5.8	--	--	--	--	1.92	--	2.92	1.05	1.68	0.772	4.47
Barium	15,000	3,200	--	--	--	--	194 B	--	130 B	--	--	--	--
Beryllium	160	380	--	--	--	--	<0.5	--	<0.5	--	--	--	--
Cadmium	71	13.8	<3.05	<3.05	<3.05	--	<0.515	--	<0.515	<0.515	<0.515	<0.515	<0.515
Calcium	NSV	NSV	--	--	--	--	11,000	--	5,270	--	--	--	--
Chromium Total[1]	120,000	3,600,000	<12.7	<12.7	<12.7	--	11.6 B	--	11.2 B	6.82	6.92	6.3	9.39
Cobalt	23	5.4	--	--	--	--	10.2 B	--	11.4 B	--	--	--	--
Copper	3,100	920	--	--	--	--	12.5 B	--	14.2 B	--	--	--	--
Iron	55,000	7,000	--	--	--	--	7,400 B	--	8,200 B	--	--	--	--
Lead	400	280	11.7	14	9	--	26	--	13.9	9.5	8.14	11.1	9.72
Magnesium	NSV	NSV	--	--	--	--	3,120 B	--	5,010 B	--	--	--	--
Manganese	1,800	560	--	--	--	--	268 B	--	288 B	--	--	--	--
Mercury	11	2	--	--	--	--	0.0427	--	<0.0269	--	--	--	--
Nickel	1,500	520	--	--	--	--	10.8	--	13.4 B	--	--	--	--
Potassium	NSV	NSV	--	--	--	--	3,420 B	--	3,950 B	--	--	--	--
Selenium	390	10.4	--	--	--	--	<0.25	--	<0.25	--	--	--	--
Silver	390	16	--	--	--	--	<0.521	--	<0.521	<0.521	<0.521	<0.521	<0.521
Sodium	NSV	NSV	--	--	--	--	104	--	141	--	--	--	--
Thallium	0.78	2.8	--	--	--	--	30.3	--	42.8	--	--	--	--
Vanadium	390	1,720	--	--	--	--	18.4 B	--	20.8 B	--	--	--	--
Zinc	23,000	7,400	--	--	--	--	36.2 L	--	36.1 L	--	--	--	--
Explosives (mg/kg)													
1,3-Dinitrobenzene	6.3	0.036	<0.496	<0.496	<0.496	<0.268	--	<0.268	--	<0.1	<0.1	<0.1	<0.1
1,3,5-Trinitrobenzene	2,200	42	<0.488	<0.488	<0.488	<0.961	--	<0.961	--	<0.1	<0.1	<0.1	<0.1
2-Amino-4, 6-dinitrotoluene	7.7	0.03	--	--	--	<1	--	<1	--	0.755	<0.1	0.108	<0.1
2-Nitrotoluene	3.2	0.006	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2
2,4,6-Trinitrotoluene	21	0.3	<0.456	<0.456	<0.456	<1.2	--	2.46	--	0.51	<0.3	<0.3	<0.3
2,4-Dinitrotoluene	1.7	0.0064	<0.424	<0.424	<0.424	<1.09	--	<1.09	--	<0.1	<0.1	<0.1	<0.1
2,6-Dinitrotoluene	0.36	0.00134	<0.524	<0.524	<0.524	<1.17	--	<1.17	--	<0.1	<0.1	<0.1	<0.1
3-Nitrotoluene	6.3	0.032	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2
3,5-Dinitroaniline	NSV	NSV	--	--	--	--	--	--	--	<0.3	<0.3	<0.3	<0.3
4-Amino-2,6 dinitrotoluene	7.7	0.03	--	--	--	--	--	--	--	<0.6	<0.6	<0.6	0.857
4-Nitrotoluene	34	0.08	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2
HMX	3,900	26	<0.666	<0.666	<0.666	<0.947	--	<0.947	--	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	5.1	0.00184	<2.41	<2.41	<2.41	<0.283	--	<0.283	--	<0.5	<0.5	<0.5	<0.5
RDX	8.3	0.0074	<0.587	<0.587	<0.587	0.462	--	<0.323	--	<0.2	<0.2	<0.2	<0.2
Tetryl	160	7.4	<0.731	<0.731	<0.731	<1.79	--	<1.79	--	<0.6	<0.6	<0.6	<0.6
Other Analytes													
Total organic content (percent)	NSV	NSV	--	--	--	--	--	--	--	2.23	--	--	--

Notes:
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.
Shaded results denote an exceedance of the residential soil RSL.
Underlined values indicate an exceedance of soil-to-groundwater SSL.
[1] = RSL for trivalent chromium used as a surrogate
B = analyte was detected in the method blank. B-flagged data are considered to be non-detect and were not screened against the respective screening values.
-- = not applicable or not analyzed
< = analyte not detected, listed value is the reporting limit
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
L = estimated detection, biased low
MCL = maximum contaminant level
mg/kg = milligrams per kilogram
NSV = no screening value available
SSL = soil screening level
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level

Table 2.3
Tract 20B Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			FUDT-2	FUDT-4		SLFLST003	SLFL022	SLFL030	SFSB03			SFSL01	SFSL02	SFSL03	SFSL04	SFSL05	SFSL06	SFSL07	SFSL08	SFSL09		SFSL10	SFSL11	SFSL12	1LF210600	2LF210600	3LF210600	4LF210600	5LF210600
Sample Date			10/28/1990	10/28/1990	10/29/1990	1/30/1992	4/15/1992	4/15/1992	7/17/1995	7/17/1995	7/17/1995	7/7/1995	7/7/1995	7/7/1995	7/7/1995	7/20/1995	7/20/1995	7/20/1995	7/20/1995	7/20/1995	7/20/1995	7/20/1995	7/20/1995	7/20/1995	5/23/2000	5/23/2000	5/23/2000	5/23/2000	5/23/2000
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (feet bgs)			1	1	0	5	0	0	0	5	8	1	0	1	1	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.167	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]
Analyte	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)																													
Aluminum	77,000	600,000	--	--	--	18,000	12,000 B	14,000 B	15,000	11,000	14,000	20,000	8,100	16,000	18,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	31	7	--	--	--	<83	<41.3	<41.3	<41.3	<41.3	<41.3	<41.3	<41.3	<41.3	<41.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	0.68	5.8	--	--	--	6.9	4.19	1.74	10.2	4.84	3.92	11	1.73	12	10.7	2.49	8.17	10.8	12	7.29	6.73	3.01	10.9	2.92	--	--	--	--	--
Barium	15,000	3,200	--	--	--	210	236 B	170 B	199	317	1,250	287	147	278	441	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	160	380	--	--	--	<1	1.11	1.31	1.05	0.924	0.896	1.1	0.72	0.847	1.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	71	13.8	<3.05	<3.05	9.46	<1	3.96	4.88	3.39	<0.515	1.42	<0.515	1.51	<0.515	<0.515	1.24	0.749	1.01	<0.515	<0.515	<0.515	18.8	<0.515	<0.515	--	--	--	--	--
Calcium	NSV	NSV	--	--	--	110,000	5,710	8,700	3660	19,000	92,000	38,000	3,360	130,000	74,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium Total[1]	120,000	3,600,000	<12.7	<12.7	<12.7	35	13.7 B	16.5 B	15	11	13.6	14.2	8.92	12.7	15	9.23	10	12.7	10.8	9.18	11.8	10.3	10.7	9.47	--	--	--	--	--
Cobalt	23	5.4	--	--	--	10	13.1 B	15.8 B	5.69	4.18	4.08	6.68	6.1	7.17	6.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,100	920	--	--	--	19	18.4 B	41.2 B	28.6	15.7	14.1	15.9	27.6	14.5	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	23	40	--	--	--	--	--	--	1.06	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	55,000	7,000	--	--	--	16000	11,000 B	13,000 B	15,000	13,000	13,000	20,000	8,500	14,000	18,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	400	280	12.2	12	11.8	11	13.5	15	18	13.2	12	13	29	8.75	11	13	16	12.8	12	10.7	11	46	17	12	--	--	--	--	--
Magnesium	NSV	NSV	--	--	--	11000	5,730 B	6,340 B	6,000	5,080	8,100	11,000	3,370	15,000	12,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	1,800	560	--	--	--	250	202 B	271 B	166	86.3	75.5	154	250	230	265	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	11	2	--	--	--	<0.027	<0.0269	<0.0269	0.12	0.114	<0.02	0.0437	2.1	0.0276	0.071	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	390	40	--	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,500	520	--	--	--	21	16 B	21.4 B	16.5	16.3	18.6	21.5	11.6	19.5	21.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	NSV	NSV	--	--	--	5100	5,650 B	5,630 B	7,500	4,700	5,180	6,480	3,810	5,690	6,280	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	390	10.4	--	--	--	<0.25	<0.25	<0.25	<0.202	<0.202	<0.202	1.21	0.456	2.55	2.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	390	16	--	--	--	<1	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	--	--	--	--	--
Sodium	NSV	NSV	--	--	--	300	232	135	887	1,440	1,590	298	182	678	366	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	0.78	2.8	--	--	--	<29	45.8	48.5	0.224	<0.153	<0.153	0.218	0.236	0.284	0.399	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	NSV	NSV	--	--	--	240	--	--	205	246	154	168	102	114	89.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	390	1,720	--	--	--	39	29.7 B	25.5 B	33.1	28.3	28.8	43.6	14.6	43.3	33.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	23,000	7,400	--	--	--	47	41.6 L	56.6 L	68.1	45.5	48.2	48.8	73.1	42.1	48.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds (SVOCs) (mg/kg)																													
All SVOCs[2]	--	--	--	--	--	ND[3]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Explosives (mg/kg)																													
1,3-Dinitrobenzene	6.3	0.036	<0.496	<0.496	<0.496	<0.268	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
1,3,5-Trinitrobenzene	2,200	42	<0.488	<0.488	<0.488	<0.961	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
2-Amino-4, 6-dinitrotoluene	7.7	0.03	--	--	--	<1 R	--	--	0.971	0.098	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
2-Nitrotoluene	3.2	0.006	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--
2,4,6-Trinitrotoluene	21	0.3	<0.456	<0.456	<0.456	<1.2	--	--	0.471	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--
2,4-Dinitrotoluene	1.7	0.0064	<0.424	<0.424	<0.424	<0.37	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
2,6-Dinitrotoluene	0.36	0.00134	<0.524	<0.524	<0.524	<0.066	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
3-Nitrotoluene	6.3	0.032	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--
3,5-Dinitroaniline	NSV	NSV	--	--	--	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--
4-Amino-2,6 dinitrotoluene	7.7	0.03	--	--	--	--	--	--	0.952	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	--	--	--	--	--
4-Nitrotoluene	34	0.08	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--
HMX	3,900	26	<0.666	<0.666	<0.666	<0.947	--	--	76	9.5	3.19	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--
Nitrobenzene	5.1	0.00184	<2.41	<2.41	<2.41	<0.071	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
RDX	8.3	0.0074	<0.587	<0.587	<0.587	<0.323	--	--	46	47	14	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND	2.65	15.5	2.53	1.76
Tetryl	160	7.4	<0.731	<0.731	<0.731	<1.79	--	--	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	4.18	<0.6	<0.6	--	--	--	--	--

Notes:

RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.

Shaded results denote an exceedance of the residential soil RSL.

Underlined values indicate an exceedance of soil-to-groundwater SSL.

[1] = RSL for trivalent chromium used as a surrogate

[2] = Sample was analyzed for full suite SVOCs. All results were non-detect with elevated detection limits.

[3] = Confirmation sample from the 2000 remedial action for RDX. Depth of confirmation samples not provided. Samples are assumed to be from the top 3 feet of soil, as the total depth of the excavation was 2 to 3 feet bgs.

B = analyte was detected in the method blank. B-flagged data are considered to be non-detect and were not screened against the respective screening values.

-- = not applicable or not analyzed

< = analyte not detected, listed value is the reporting limit

bgs = below ground surface

HMX = cyclotetramethylenetetranitramine

L = estimated detection, biased low

MCL = maximum contaminant level

mg/kg = milligrams per kilogram

ND = analyte not detected, reporting limit is not available

NSV = no screening value available

R = rejected result

RDX = cyclotrimethylenetrinitramine

SSL = soil screening level

SVOCs = semivolatile organic compounds

Table 2.4
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRSB-04			PRSB-05			PRSB-06			PRSB-07			PRSB-08		
		Date Collected	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)																	
Aluminum	77,000	600,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	31	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	0.68	5.8	3.03	9.91	4.29	6.84	13	4.77	4.48	6.74	8.6	7.08	7.47	7.82	9.08	9.33	4.96
Barium	15,000	3,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	160	380	1.2	0.814	<0.50	1.19	0.869	0.787	1.1	0.897	0.679	1.24	1.01	0.836	1.2	0.852	0.674
Cadmium	71	13.8	<0.515	<0.515	0.72	<0.515	<0.515	<0.515	<0.515	<0.515	0.73	<0.515	<0.515	<0.515	<0.515	<0.515	0.909
Calcium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium Total[1]	120,000	3,600,000	18.2	9.52	8.38	15.3	8.57	12.4	14.5	11.2	9.05	16	15.3	13.6	13.3	11.1	10.4
Cobalt	23	5.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,100	920	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	55,000	7,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	400	280	9.68	7.76	8.15	11	7.89	7.65	11.5	9.16	8.64	11.4	7.63	9.89	11.7	9.94	8.76
Magnesium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	1,800	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	11	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	390	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,500	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	390	10.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	390	16	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521
Sodium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	0.78	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	390	1,720	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	23,000	7,400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds (mg/kg)																	
2-Chloronaphthalene	4800	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	390	1.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	240	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	630	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	190	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1300	8.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	130	0.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	6300	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	49	0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Methyl-4-Chlorophenol	6300	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRSB-04			PRSB-05			PRSB-06			PRSB-07			PRSB-08		
		Date Collected	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
3-Nitroaniline	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	2.7	0.0032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	27	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-cresol	5.1	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	3600	110	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
Acenaphthylene[2]	3600	110	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Anthracene	18000	1,160	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)anthracene	1.1	0.22	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)pyrene	0.11	4.8	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(b)fluoranthene	1.1	6	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Benzo(ghi)perylene[3]	1800	260	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Benzo(k)fluoranthene	11	58	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzoic acid	250000	300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	6300	9.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy) methane	190	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	3100	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate	39	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	290	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	110	180	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dibenz(ah)anthracene	0.11	1.92	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Dibenzofuran	78	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	6300	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	630	1,140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	51000	122	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	2400	1780	0.023	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Fluorene	2400	108	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Hexachlorobenzene	0.21	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	1.2	0.0054	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	1.8	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	1.8	0.004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)pyrene	1.1	19.6	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-04			PRSB-05			PRSB-06			PRSB-07			PRSB-08		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Isophorone	570	0.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	57	0.058	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	110	1.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	2	0.0076	<.067	<.067	<.067	<.067	<.067	0.108	<.067	<.067	0.116	<.067	<.067	<.067	<.067	<.067	<.067
o-Cresol	3,200	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Benzoquinone	NSV	NSV	--	0.0098	0.013	--	--	--	--	--	--	--	--	--	--	0.011	--
p-Cresol	6,300	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene[3]	1800	260	0.677	<.067	<.067	0.775	0.0971	<0.067	0.101	<.067	<.067	0.195	<.067	<.067	0.421	0.0943	<.067
Phenol	19,000	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	1800	260	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Explosives (mg/kg)																	
1,3-Dinitrobenzene	6.3	0.036	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,3,5-Trinitrobenzene	2200	42	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Amino-4,6-dinitrotoluene	7.7	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Nitrotoluene	3.2	0.006	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	1.7	0.0064	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,6-Trinitrotoluene	21	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2,6-Dinitrotoluene	0.36	0.00134	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
3-Nitrotoluene	6.3	0.032	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
3,5-Dinitroaniline	NSV	NSV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
4-Amino-2,6 dinitrotoluene	7.7	0.03	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
4-Nitrotoluene	34	0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
HMX	3900	26	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	5.1	0.00184	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RDX	8.3	0.0074	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetryl	160	7.4	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Volatile Organic Compounds (mg/kg)																	
1,1,1-Trichloroethane	8100	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	230	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	3.6	0.0156	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.6	0.0006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	1.1	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0051	0.0000064	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	24	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene (total)	160	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	1800	11.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRSB-04			PRSB-05			PRSB-06			PRSB-07			PRSB-08		
		Date Collected	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloroethane	0.46	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	2.5	0.034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	2.6	1.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloroethyl vinyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	61000	58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	0.14	0.000168	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	0.25	0.00022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	1.2	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.29	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	19	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	6.8	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	770	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.65	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	280	1.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	14000	118	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.32	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	110	0.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	8.3	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	24	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	87	6	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036
Ethyl methacrylate	1800	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	5.8	15.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	40000	2,800	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R
Methyl ethyl ketone	27,000	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone	33,000	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl n-butyl ketone	200	0.176	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	6,000	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	24	0.102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	4,900	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethylene	1,600	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	0.94	0.036	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	23,000	66	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Vinyl acetate	910	1.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRSB-04			PRSB-05			PRSB-06			PRSB-07			PRSB-08		
		Date Collected	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Vinyl chloride	0.059	0.0138	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes	580	198	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other Analytes (mg/kg)																	
Chloride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	23	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite/Nitrate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total organic content (percent)	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total petroleum hydrocarbons	2,500	1,780	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRSB-09			PRSB-10			PRSB-11			PRSB-12			PRSB-13		
		Date Collected	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)																	
Aluminum	77,000	600,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	31	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	0.68	5.8	8.71	5.45	6.83	2.94	10.3	9.78	6.42	8.68	8.34	1.94	8.08	1.65	2.57	13	6.36
Barium	15,000	3,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	160	380	1.07	0.854	0.794	1.23	1.28	0.683	1.09	0.787	0.877	<0.5	0.74	0.735	0.712	1.08	0.788
Cadmium	71	13.8	0.724	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	0.685	0.69	<0.515	<0.515	<0.515
Calcium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium Total[1]	120,000	3,600,000	11.8	10.9	11.2	17.9	7.27	9.07	11.8	8.64	10.6	6.96	7.94	11.2	8.93	9.63	9.01
Cobalt	23	5.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,100	920	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	55,000	7,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	400	280	11.3	12.3	9.05	9.59	8.84	13	9.7	10.8	11.9	18	11.4	8.66	11	16	11.5
Magnesium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	1,800	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	11	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	390	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,500	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	390	10.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	390	16	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521
Sodium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	0.78	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	390	1,720	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	23,000	7,400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds (mg/kg)																	
2-Chloronaphthalene	4800	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	390	1.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	240	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	630	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	190	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1300	8.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	130	0.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	6300	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	49	0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Methyl-4-Chlorophenol	6300	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-09			PRSB-10			PRSB-11			PRSB-12			PRSB-13		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
3-Nitroaniline	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	2.7	0.0032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	27	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-cresol	5.1	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	3600	110	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
Acenaphthylene[2]	3600	110	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Anthracene	18000	1,160	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)anthracene	1.1	0.22	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)pyrene	0.11	4.8	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0134	0.0143	0.0124	0.0141	0.0143	<0.007	<0.007	<0.007
Benzo(b)fluoranthene	1.1	6	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Benzo(ghi)perylene[3]	1800	260	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.0194	0.021	0.0182	0.0205	0.0208	<0.013	<0.013	<0.013
Benzo(k)fluoranthene	11	58	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0124	0.0135	0.0117	0.013	0.0132	<0.007	<0.007	<0.007
Benzoic acid	250000	300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	6300	9.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy) methane	190	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	3100	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate	39	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	290	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	110	180	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dibenz(ah)anthracene	0.11	1.92	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Dibenzofuran	78	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	6300	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	630	1,140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	51000	122	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	2400	1780	<0.013	0.0236	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Fluorene	2400	108	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Hexachlorobenzene	0.21	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	1.2	0.0054	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	1.8	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	1.8	0.004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)pyrene	1.1	19.6	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0161	0.0115	0.135	0.0519	0.0167	<0.007	<0.007	<0.007	<0.007

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-09			PRSB-10			PRSB-11			PRSB-12			PRSB-13		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Isophorone	570	0.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	57	0.058	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	110	1.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	2	0.0076	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067
o-Cresol	3,200	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Benzoquinone	NSV	NSV	--	--	--	--	--	--	0.012	--	--	--	--	--	--	--	--
p-Cresol	6,300	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene[3]	1800	260	0.265	0.157	0.0865	0.557	0.163	<.067	0.416	<.067	<.067	<.067	<.067	<.067	0.496	<.067	<.067
Phenol	19,000	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	1800	260	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0413	<0.007	<0.007	<0.007	<0.007	<0.007
Explosives (mg/kg)																	
1,3-Dinitrobenzene	6.3	0.036	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,3,5-Trinitrobenzene	2200	42	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Amino-4,6-dinitrotoluene	7.7	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Nitrotoluene	3.2	0.006	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	1.7	0.0064	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,6-Trinitrotoluene	21	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2,6-Dinitrotoluene	0.36	0.00134	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
3-Nitrotoluene	6.3	0.032	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
3,5-Dinitroaniline	NSV	NSV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
4-Amino-2,6 dinitrotoluene	7.7	0.03	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
4-Nitrotoluene	34	0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
HMX	3900	26	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.333	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	5.1	0.00184	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RDX	8.3	0.0074	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.16	<0.2	<0.2	<0.2	<0.2	<0.2
Tetryl	160	7.4	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Volatile Organic Compounds (mg/kg)																	
1,1,1-Trichloroethane	8100	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	230	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	3.6	0.0156	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.6	0.0006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	1.1	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0051	0.0000064	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	24	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene (total)	160	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	1800	11.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-09			PRSB-10			PRSB-11			PRSB-12			PRSB-13		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloroethane	0.46	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	2.5	0.034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	2.6	1.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloroethyl vinyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	61000	58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	0.14	0.000168	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	0.25	0.00022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	1.2	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.29	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	19	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	6.8	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	770	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.65	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	280	1.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	14000	118	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.32	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	110	0.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	8.3	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	24	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	87	6	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	--	--	--	--	--	<.0036	<.0036	<.0036
Ethyl methacrylate	1800	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	5.8	15.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	40000	2,800	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R
Methyl ethyl ketone	27,000	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone	33,000	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl n-butyl ketone	200	0.176	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	6,000	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	24	0.102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	4,900	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethylene	1,600	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	0.94	0.036	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	23,000	66	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	<0.002	<0.002	<0.002
Vinyl acetate	910	1.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-09			PRSB-10			PRSB-11			PRSB-12			PRSB-13		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Vinyl chloride	0.059	0.0138	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes	580	198	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other Analytes (mg/kg)																	
Chloride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	23	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite/Nitrate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total organic content (percent)	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total petroleum hydrocarbons	2,500	1,780	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-14			PRSB-15			PRSB-16			PRSB-17			PRSB-18		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals (mg/kg)																	
Aluminum	77,000	600,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	31	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	0.68	5.8	3.41	9.68	11.5	4.37	17	10.8	3.15	10.7	9.08	8.67	21	4.45	3.61	17	7.8
Barium	15,000	3,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	160	380	0.889	1.05	0.764	1.11	0.102	0.651	<0.5	0.823	0.787	1.03	0.651	0.714	0.689	0.668	0.705
Cadmium	71	13.8	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515
Calcium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium Total[1]	120,000	3,600,000	10.4	9.76	9.44	12.8	11	8.47	7.43	6.86	8.95	13.3	6.25	9.75	7.7	8.67	9.5
Cobalt	23	5.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	3,100	920	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	55,000	7,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	400	280	8.3	10	10.1	11.4	14	11	12	11.3	10.4	9.94	10.9	11.5	11	10.5	11.8
Magnesium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	1,800	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	11	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	390	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1,500	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	390	10.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	390	16	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521
Sodium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	0.78	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	390	1,720	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	23,000	7,400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds (mg/kg)																	
2-Chloronaphthalene	4800	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	390	1.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	240	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	630	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	190	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1300	8.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	130	0.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	6300	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	49	0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Methyl-4-Chlorophenol	6300	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-14			PRSB-15			PRSB-16			PRSB-17			PRSB-18		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
3-Nitroaniline	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	2.7	0.0032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	27	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-cresol	5.1	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	3600	110	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
Acenaphthylene[2]	3600	110	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Anthracene	18000	1,160	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)anthracene	1.1	0.22	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)pyrene	0.11	4.8	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0135	0.0136	<0.007	<0.007	<0.007	<0.007
Benzo(b)fluoranthene	1.1	6	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Benzo(ghi)perylene[3]	1800	260	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.0197	0.0199	<0.013	<0.013	<0.013	<0.013
Benzo(k)fluoranthene	11	58	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0125	0.0126	<0.007	<0.007	<0.007	<0.007
Benzoic acid	250000	300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	6300	9.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy) methane	190	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	3100	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate	39	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	290	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	110	180	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dibenz(ah)anthracene	0.11	1.92	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Dibenzofuran	78	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	6300	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	630	1,140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	51000	122	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	2400	1780	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Fluorene	2400	108	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Hexachlorobenzene	0.21	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	1.2	0.0054	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	1.8	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	1.8	0.004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)pyrene	1.1	19.6	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.00874	0.00979	0.0124	<0.007	<0.007	<0.007	<0.007	<0.007

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-14			PRSB-15			PRSB-16			PRSB-17			PRSB-18		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Isophorone	570	0.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	57	0.058	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	110	1.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	2	0.0076	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067
o-Cresol	3,200	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Benzoquinone	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Cresol	6,300	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene[3]	1800	260	0.428	<.067	<.067	0.236	0.114	<.067	0.31	0.0822	<.067	<.067	<.067	<.067	0.38	0.0822	<.067
Phenol	19,000	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	1800	260	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Explosives (mg/kg)																	
1,3-Dinitrobenzene	6.3	0.036	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--	--
1,3,5-Trinitrobenzene	2200	42	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--	--
2-Amino-4,6-dinitrotoluene	7.7	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--	--
2-Nitrotoluene	3.2	0.006	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--	--
2,4-Dinitrotoluene	1.7	0.0064	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--	--
2,4,6-Trinitrotoluene	21	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--
2,6-Dinitrotoluene	0.36	0.00134	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--	--
3-Nitrotoluene	6.3	0.032	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--	--
3,5-Dinitroaniline	NSV	NSV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--
4-Amino-2,6 dinitrotoluene	7.7	0.03	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	--	--	--	--	--	--
4-Nitrotoluene	34	0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--	--
HMX	3900	26	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--	--
Nitrobenzene	5.1	0.00184	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--
RDX	8.3	0.0074	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--	--
Tetryl	160	7.4	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	--	--	--	--	--	--
Volatile Organic Compounds (mg/kg)																	
1,1,1-Trichloroethane	8100	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	230	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	3.6	0.0156	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.6	0.0006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	1.1	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0051	0.0000064	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	24	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene (total)	160	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	1800	11.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-14			PRSB-15			PRSB-16			PRSB-17			PRSB-18		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloroethane	0.46	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	2.5	0.034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	2.6	1.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloroethyl vinyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	61000	58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrolein	0.14	0.000168	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	0.25	0.00022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	1.2	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.29	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	19	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	6.8	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	770	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.65	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	280	1.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	14000	118	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.32	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	110	0.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	8.3	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromomethane	24	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	87	6	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	<.0036	--	--	--	--	--	--
Ethyl methacrylate	1800	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	5.8	15.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Freon 113	40000	2,800	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	<0.01 R	--	--	--	--	--	--
Methyl ethyl ketone	27,000	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone	33,000	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl n-butyl ketone	200	0.176	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	6,000	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	24	0.102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	4,900	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethylene	1,600	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	0.94	0.036	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	23,000	66	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--
Vinyl acetate	910	1.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-14			PRSB-15			PRSB-16			PRSB-17			PRSB-18		
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	4	0	2	4	0	2	4	0	2	4
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Vinyl chloride	0.059	0.0138	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes	580	198	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other Analytes (mg/kg)																	
Chloride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	23	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite/Nitrate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total organic content (percent)	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total petroleum hydrocarbons	2,500	1,780	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-19			PRSB-20			PRSB-21			PRSB-22			PRST09			
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	7/9/1995	7/9/1995		7/9/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	6	0	2	6	0	2	6	1	3		3.5
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals (mg/kg)																		
Aluminum	77,000	600,000	--	--	--	--	--	--	--	--	--	--	--	--	12,000	15,000	13,000	14,000
Antimony	31	7	--	--	--	--	--	--	--	--	--	--	--	--	<41.3	<41.3	<41.3	<41.3
Arsenic	0.68	5.8	8.57	7.9	10.4	3.8	8.37	5.44	6.21	9.15	1.46	3.28	8.81	1.25	3.69	6.54	8.34	27
Barium	15,000	3,200	--	--	--	--	.	--	--	--	--	--	--	--	249	207	222	232
Beryllium	160	380	1	0.808	0.804	1.09	0.821	0.7	0.881	0.863	<0.5	0.817	0.836	0.814	0.902	1.2	1.15	1.08
Cadmium	71	13.8	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	<0.515	0.825	<0.515	0.756	<0.515	<0.515	<0.515
Calcium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	8,600	12,000	11,000	17,000
Chromium Total[1]	120,000	3,600,000	11	12.6	12	15.7	9.95	8.7	8.93	11.3	7.86	10.4	7.59	13.3	12.2	13.9	11.5	13.3
Cobalt	23	5.4	--	--	--	--	--	--	--	--	--	--	--	--	7.18	7.25	5.32	7.37
Copper	3,100	920	--	--	--	--	--	--	--	--	--	--	--	--	12.6	15.6	14.3	14.2
Iron	55,000	7,000	--	--	--	--	--	--	--	--	--	--	--	--	12,000	18,000	16,000	15,000
Lead	400	280	9.8	9.98	11.8	11	10.9	8.55	7.7	10.6	7.13	11	10.2	8.44	17	33	39	73
Magnesium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	4,540	5,950	5,450	5,560
Manganese	1,800	560	--	--	--	--	--	--	--	--	--	--	--	--	320	343	236	336
Mercury	11	2	--	--	--	--	--	--	--	--	--	--	--	--	0.315	<0.02	<0.02	0.0328
Molybdenum	390	40	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	<1	<1
Nickel	1,500	520	--	--	--	--	--	--	--	--	--	--	--	--	13.2	21.5	16.7	18.7
Potassium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	4,410	4,390	4,040	4,160
Selenium	390	10.4	--	--	--	--	--	--	--	--	--	--	--	--	0.581	0.659	0.495	0.712
Silver	390	16	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521	<0.521
Sodium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	1,180	770	736	234
Thallium	0.78	2.8	--	--	--	--	--	--	--	--	--	--	--	--	<0.153	0.237	<0.153	<0.153
Titanium	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	135	131	189	147
Vanadium	390	1,720	--	--	--	--	--	--	--	--	--	--	--	--	23.6	30.7	37.2	29
Zinc	23,000	7,400	--	--	--	--	--	--	--	--	--	--	--	--	44.5	47.9	52.7	59.9
Semivolatile Organic Compounds (mg/kg)																		
2-Chloronaphthalene	4800	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	390	1.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	240	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	630	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	190	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1300	8.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	130	0.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	6300	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	49	0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Methyl-4-Chlorophenol	6300	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-19			PRSB-20			PRSB-21			PRSB-22			PRST09			
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	7/9/1995	7/9/1995		7/9/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
Sample Depth (feet bgs)			0	2	4	0	2	6	0	2	6	0	2	6	1	3		3.5
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
3-Nitroaniline	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	2.7	0.0032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	27	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-cresol	5.1	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	3600	110	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
Acenaphthylene[2]	3600	110	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.013	<0.013	<0.013
Anthracene	18000	1,160	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)anthracene	1.1	0.22	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Benzo(a)pyrene	0.11	4.8	<0.007	0.0132	0.0143	0.0135	0.0135	0.0147	0.0138	0.0136	0.0141	0.0129	0.0137	0.0147	0.0104	0.0106	0.0105	0.0107
Benzo(b)fluoranthene	1.1	6	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Benzo(ghi)perylene[3]	1800	260	<0.013	0.0191	0.0211	0.0196	0.0196	0.0213	0.02	0.0199	0.0207	0.0189	0.0201	0.0213	<0.013	<0.013	<0.013	<0.013
Benzo(k)fluoranthene	11	58	<0.007	0.0122	0.0134	0.0126	0.0126	0.0135	0.0127	0.0126	0.0131	0.012	0.0127	0.0135	<0.007	<0.007	<0.007	<0.007
Benzoic acid	250000	300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	6300	9.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy) methane	190	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	3100	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate	39	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	290	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	110	180	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dibenz(ah)anthracene	0.11	1.92	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Dibenzofuran	78	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	6300	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	630	1,140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	51000	122	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	2400	1780	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Fluorene	2400	108	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Hexachlorobenzene	0.21	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	1.2	0.0054	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	1.8	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	1.8	0.004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)pyrene	1.1	19.6	<0.007	<0.007	<0.007	0.0413	<0.007	<0.007	0.0106	<0.007	<0.007	0.0389	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-19			PRSB-20			PRSB-21			PRSB-22			PRST09			
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	7/9/1995	7/9/1995		7/9/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	6	0	2	6	0	2	6	1	3		3.5
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Isophorone	570	0.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	57	0.058	--	--	--	--	--	--	--	--	--	--	--	--	<0.04	<0.04	<0.04	<0.04
N-Nitrosodiphenylamine	110	1.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	2	0.0076	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<0.067	<0.067	<0.067	<0.067
o-Cresol	3,200	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Benzoquinone	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Cresol	6,300	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene[3]	1800	260	0.152	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	<.067	0.779	<0.067	0.177	0.163
Phenol	19,000	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	1800	260	<0.007	<0.007	<0.007	0.0581	<0.007	<0.007	<0.007	<0.007	<0.007	0.0267	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Explosives (mg/kg)																		
1,3-Dinitrobenzene	6.3	0.036	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,3,5-Trinitrobenzene	2200	42	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Amino-4,6-dinitrotoluene	7.7	0.03	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Nitrotoluene	3.2	0.006	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.382	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	1.7	0.0064	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,6-Trinitrotoluene	21	0.3	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2,6-Dinitrotoluene	0.36	0.00134	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
3-Nitrotoluene	6.3	0.032	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
3,5-Dinitroaniline	NSV	NSV	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
4-Amino-2,6 dinitrotoluene	7.7	0.03	--	--	--	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
4-Nitrotoluene	34	0.08	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
HMX	3900	26	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	5.1	0.00184	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RDX	8.3	0.0074	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetryl	160	7.4	--	--	--	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Volatile Organic Compounds (mg/kg)																		
1,1,1-Trichloroethane	8100	56	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethylene	230	2	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethane	3.6	0.0156	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.6	0.0006	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,1,2-Trichloroethane	1.1	0.032	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,2,3-Trichloropropane	0.0051	0.0000064	--	--	--	--	--	--	--	--	--	--	--	--	<0.0027	<0.0027	<0.0027	<0.0027
1,2,4-Trichlorobenzene	24	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene (total)	160	0.42	--	--	--	--	--	--	--	--	--	--	--	--	<0.013	<0.013	<0.013	<0.013
1,2-Dichlorobenzene	1800	11.6	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-19			PRSB-20			PRSB-21			PRSB-22			PRST09			
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	7/9/1995	7/9/1995		7/9/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	6	0	2	6	0	2	6	1	3		3.5
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloroethane	0.46	0.028	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	2.5	0.034	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,3-Dichlorobenzene	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
1,4-Dichlorobenzene	2.6	1.44	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
2-Chloroethyl vinyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	<0.011	<0.011	<0.011	<0.011
Acetone	61000	58	--	--	--	--	--	--	--	--	--	--	--	--	<0.046	<0.046	<0.046	<0.046
Acrolein	0.14	0.000168	--	--	--	--	--	--	--	--	--	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049
Acrylonitrile	0.25	0.00022	--	--	--	--	--	--	--	--	--	--	--	--	<0.0056	<0.0056	<0.0056	<0.0056
Benzene	1.2	0.052	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Bromodichloromethane	0.29	0.44	--	--	--	--	--	--	--	--	--	--	--	--	<0.0039	<0.0039	<0.0039	<0.0039
Bromoform	19	0.42	--	--	--	--	--	--	--	--	--	--	--	--	<0.0092	<0.0092	<0.0092	<0.0092
Bromomethane	6.8	0.038	--	--	--	--	--	--	--	--	--	--	--	--	<0.017	<0.017	<0.017	<0.017
Carbon disulfide	770	4.8	--	--	--	--	--	--	--	--	--	--	--	--	<0.019	<0.019	<0.019	<0.019
Carbon tetrachloride	0.65	0.038	--	--	--	--	--	--	--	--	--	--	--	--	<0.0029	<0.0029	<0.0029	<0.0029
cis-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	<0.0021	<0.0021	<0.0021	<0.0021
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	<0.015	<0.015	<0.015	<0.015
Chlorobenzene	280	1.36	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Chloroethane	14000	118	--	--	--	--	--	--	--	--	--	--	--	--	<0.017	<0.017	<0.017	<0.017
Chloroform	0.32	0.44	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Chloromethane	110	0.98	--	--	--	--	--	--	--	--	--	--	--	--	<0.0038	<0.0038	<0.0038	<0.0038
Dibromochloromethane	8.3	0.42	--	--	--	--	--	--	--	--	--	--	--	--	<0.0054	<0.0054	<0.0054	<0.0054
Dibromomethane	24	0.042	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Dichlorodifluoromethane	87	6	--	--	--	--	--	--	--	--	--	--	--	--	<0.0036	<0.0036	<0.0036	<0.0036
Ethyl methacrylate	1800	3	--	--	--	--	--	--	--	--	--	--	--	--	<0.011	<0.011	<0.011	<0.011
Ethylbenzene	5.8	15.6	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Freon 113	40000	2,800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl ethyl ketone	27,000	24	--	--	--	--	--	--	--	--	--	--	--	--	<0.0052	<0.0052	<0.0052	<0.0052
Methyl isobutyl ketone	33,000	28	--	--	--	--	--	--	--	--	--	--	--	--	<0.0051	<0.0051	<0.0051	<0.0051
Methyl n-butyl ketone	200	0.176	--	--	--	--	--	--	--	--	--	--	--	--	<0.022	<0.022	<0.022	<0.022
Styrene	6,000	26	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Tetrachloroethylene	24	0.102	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Toluene	4,900	15.2	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
trans-1,2-Dichloroethylene	1,600	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	<0.013	<0.013	<0.013	<0.013
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	<0.016	<0.016	<0.016	<0.016
Trichloroethylene	0.94	0.036	--	--	--	--	--	--	--	--	--	--	--	--	<0.0021	<0.0021	<0.0021	<0.0021
Trichlorofluoromethane	23,000	66	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Vinyl acetate	910	1.74	--	--	--	--	--	--	--	--	--	--	--	--	<0.0072	<0.0072	<0.0072	<0.0072

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRSB-19			PRSB-20			PRSB-21			PRSB-22			PRST09			
Date Collected			9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	9/19/1995	7/9/1995	7/9/1995		7/9/1995
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
	Sample Depth (feet bgs)		0	2	4	0	2	6	0	2	6	0	2	6	1	3		3.5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Vinyl chloride	0.059	0.0138	--	--	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Xylenes	580	198	--	--	--	--	--	--	--	--	--	--	--	--	<0.0024	<0.0024	<0.0024	<0.0024
Other Analytes (mg/kg)																		
Chloride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	23	40	--	--	--	--	--	--	--	--	--	--	--	--	<0.4	<0.4	<0.4	<0.4
Fluoride	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite/Nitrate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total organic content (percent)	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	1.5	3.37	2.09	3.24
Total petroleum hydrocarbons	2,500	1,780	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRST10			PSRGSL011		PSRGSL012		PSRGST002		PSRGST003		PSRGST006
		Date Collected	7/9/1995	7/9/1995	7/9/1995	6/23/1992	6/23/1992	6/24/1992	6/24/1992	7/10/1992	7/10/1992	7/12/1992	7/12/1992	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	2.5	4	0	2	0	2	4	6.5	1	3.5	3.5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)														
Aluminum	77,000	600,000	21,000	13,000	13,000	7,200 B	--	7,600 B	--	19,000	19,000	22,000	12,000	20,000
Antimony	31	7	<41.3	<41.3	<41.3	<41.3	--	<41.3	--	<41.3	<41.3	<41.3	<41.3	<41.3
Arsenic	0.68	5.8	5.47	7.46	10.6	1.86	--	1.89	--	4.55	3.52	4.37	9.19	7.04
Barium	15,000	3,200	346	311	318	127 B	--	194 B	--	211	235	275	284	389
Beryllium	160	380	1.26	0.925	0.902	1.06	--	1.14	--	1.55	1.52	1.72	1.45	2.03
Cadmium	71	13.8	<0.515	<0.515	<0.515	<0.515	--	<0.515	--	1.69	1.14	1.04	<0.515	1.26
Calcium	NSV	NSV	25,000	56,000	53,000	4,930 B	--	3,480 B	--	13,000	19,000	14,000	120,000	87,000
Chromium Total[1]	120,000	3,600,000	16.6	13.5	12.8	9.54 B	--	9.53 B	--	18.3	19.8	20.9	31.3	32.1
Cobalt	23	5.4	8.2	7.4	7.3	10 B	--	12.6 B	--	17.2	16.8	25.7	16.3	21.2
Copper	3,100	920	17.9	14.4	14.2	14.2 B	--	14 B	--	222	41	14.4	16.9	13.4
Iron	55,000	7,000	20,000	16,000	14,000	8,200 B	--	8,800 B	--	17,000	17,000	31,000	15,000	20,000
Lead	400	280	11	11	12	120	--	10.4	--	49	36	160	10.3	11
Magnesium	NSV	NSV	11,000	12,000	10,000	2,210 B	--	2,450 B	--	5,530	6,200	6,230	11,000	9,700
Manganese	1,800	560	219	270	289	294 B	--	450 B	--	305	314	342	202	422
Mercury	11	2	0.0284	<0.02	0.0789	<0.0269	--	<0.0269	--	<0.0269	<0.0269	<0.0269	<0.0269	<0.0269
Molybdenum	390	40	<1	<1	<1	--	--	--	--	--	--	--	--	--
Nickel	1,500	520	23.5	17.5	20.4	9.22 B	--	11.5 B	--	18	16.7	26	17.8	26.2
Potassium	NSV	NSV	6,600	4,860	4,570	3,020 B	--	3,500 B	--	5,440	5,250	5,970	3,660	4,770
Selenium	390	10.4	0.575	0.674	0.682	<0.25	--	0.415	--	<0.25	<0.25	<0.25	<0.25	<0.25
Silver	390	16	<0.521	<0.521	<0.521	<0.521	--	<0.521	--	<0.521	<0.521	1.49	1.51	1.13
Sodium	NSV	NSV	265	439	303	145 B	--	152 B	--	512	684	332	108	2,080
Thallium	0.78	2.8	0.217	<0.153	<0.153	30.8	--	39.1	--	71.6	83.9	136	80.7	96.1
Titanium	NSV	NSV	126	135	87.9	--	--	--	--	--	--	--	--	--
Vanadium	390	1,720	33.3	33.9	22.6	15.8 B	--	17.1 B	--	34.8	35.3	41.9	38.3	42.1
Zinc	23,000	7,400	58.5	44.7	50.1	37.5 B	--	37.7 B	--	131	458	60.3	40.8	52
Semivolatile Organic Compounds (mg/kg)														
2-Chloronaphthalene	4800	78	--	--	--	<0.14	--	<0.14	--	<0.14	<0.14	<0.14	<0.14	<0.14
2-Chlorophenol	390	1.78	--	--	--	<0.11	--	<0.11	--	<0.11	<0.11	<0.11	<0.11	<0.11
2-Methylnaphthalene	240	3.8	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	0.18	<0.033	<0.033
2-Nitroaniline	630	1.6	--	--	--	<0.079	--	<0.079	--	<0.079	<0.079	<0.079	<0.079	<0.079
2-Nitrophenol	NSV	NSV	--	--	--	<0.069	--	<0.069	--	<0.069	<0.069	<0.069	<0.069	<0.069
2,4-Dichlorophenol	190	0.46	--	--	--	<0.141	--	<0.14	--	<0.14	<0.14	<0.14	<0.141	<0.14
2,4-Dimethylphenol	1300	8.4	--	--	--	<2.6	--	<2.6	--	<2.6	<2.6	<2.6	<2.6	<2.6
2,4-Dinitrophenol	130	0.88	--	--	--	<0.7	--	<0.7	--	<0.7	<0.7	<0.7	<0.7	<0.7
2,4,5-Trichlorophenol	6300	80	--	--	--	<0.086	--	<0.086	--	<0.086	<0.086	<0.086	<0.086	<0.086
2,4,6-Trichlorophenol	49	0.08	--	--	--	<0.082	--	<0.082	--	<0.082	<0.082	<0.082	<0.082	<0.082
3-Methyl-4-Chlorophenol	6300	34	--	--	--	<0.073	--	<0.073	--	<0.073	<0.073	<0.073	<0.073	<0.073

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRST10			PSRGSL011		PSRGSL012		PSRGST002		PSRGST003		PSRGST006
		Date Collected	7/9/1995	7/9/1995	7/9/1995	6/23/1992	6/23/1992	6/24/1992	6/24/1992	7/10/1992	7/10/1992	7/12/1992	7/12/1992	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	2.5	4	0	2	0	2	4	6.5	1	3.5	3.5
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
3-Nitroaniline	NSV	NSV	--	--	--	<0.95	--	<0.95	--	<0.95	<0.95	<0.95	<0.95	<0.95
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	--	<3.4	--	<3.4	--	<3.4	<3.4	<3.4	<3.4	<3.4
4-Bromophenyl phenyl ether	NSV	NSV	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
4-Chloroaniline	2.7	0.0032	--	--	--	<1.6	--	<1.6	--	<1.6	<1.6	<1.6	<1.6	<1.6
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	--	<0.044	--	<0.044	--	<0.044	<0.044	<0.044	<0.044	<0.044
4-Nitroaniline	27	0.032	--	--	--	<1.2	--	<1.2	--	<1.2	<1.2	<1.2	<1.2	<1.2
4-Nitrophenol	NSV	NSV	--	--	--	<0.86	--	<0.86	--	<0.86	<0.86	<0.86	<0.86	<0.86
4,6-Dinitro-2-cresol	5.1	0.052	--	--	--	<0.17	--	<0.17	--	<0.17	<0.17	<0.167	<0.167	<0.167
Acenaphthene	3600	110	<0.067	<0.067	<0.067	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Acenaphthylene[2]	3600	110	<0.13	<0.13	<0.13	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	18000	1,160	<0.007	<0.007	<0.007	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	1.1	0.22	<0.007	<0.007	<0.007	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	0.11	4.8	0.0106	0.0107	0.0104	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	1.1	6	<0.013	<0.013	<0.013	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(ghi)perylene[3]	1800	260	<0.013	<0.013	<0.013	<0.25	--	<0.25	--	<0.25	<0.25	<0.25	<0.25	<0.25
Benzo(k)fluoranthene	11	58	<0.007	<0.007	<0.007	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Benzoic acid	250000	300	--	--	--	<0.73	--	<0.73	--	<0.73	<0.73	<0.73	<0.73	3.4
Benzyl alcohol	6300	9.6	--	--	--	<0.089	--	<0.089	--	<0.089	<0.089	<0.089	<0.089	<0.089
Bis(2-chloroethoxy) methane	190	0.26	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	--	<0.033
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	--	<0.08	--	<0.08	--	<0.08	<0.08	<0.08	<0.08	<0.08
Bis(2-chloroisopropyl) ether	3100	5.2	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Bis(2-ethylhexyl) phthalate	39	28	--	--	--	<0.39	--	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39
Butylbenzyl phthalate	290	4.8	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Carbazole	NSV	NSV	--	--	--	<0.17 R	--	<0.17 R	--	<0.17 R	<0.17 R	<0.17 R	<0.17 R	<0.17 R
Chrysene	110	180	<0.007	<0.007	<0.007	<0.22	--	<0.22	--	<0.22	<0.22	<0.22	<0.22	<0.22
Dibenz(ah)anthracene	0.11	1.92	<0.013	<0.013	<0.013	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenzofuran	78	3	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Di-n-butyl phthalate	6300	46	--	--	--	<0.92	--	<0.92	--	<0.92	<0.92	2.54	1.63	<0.92
Di-n-octyl phthalate	630	1,140	--	--	--	<0.26	--	<0.26	--	<0.26	<0.26	<0.26	<0.26	<0.26
Diethyl phthalate	51000	122	--	--	--	<0.19	--	<0.19	--	<0.19	<0.19	<0.19	<0.19	<0.19
Dimethyl Phthalate	NSV	NSV	--	--	--	<0.13	--	<0.13	--	<0.13	<0.13	<0.13	<0.13	<0.13
Fluoranthene	2400	1780	<0.013	<0.013	<0.013	<0.085	--	<0.085	--	<0.085	<0.085	<0.085	<0.085	<0.085
Fluorene	2400	108	<0.013	<0.013	<0.013	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Hexachlorobenzene	0.21	0.26	--	--	--	<0.046	--	<0.046	--	0.19	0.076	<0.046	<0.046	<0.046
Hexachlorobutadiene	1.2	0.0054	--	--	--	<0.18	--	<0.18	--	<0.18	<0.18	<0.18	<0.18	<0.18
Hexachlorocyclopentadiene	1.8	3.2	--	--	--	<1.7	--	<1.7	--	<1.7	<1.7	<1.7	<1.7	<1.7
Hexachloroethane	1.8	0.004	--	--	--	<0.067	--	<0.067	--	<0.067	<0.067	<0.067	<0.067	<0.067
Indeno(1,2,3-C,D)pyrene	1.1	19.6	<0.007	<0.007	<0.007	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRST10			PSRGSL011		PSRGSL012		PSRGST002		PSRGST003		PSRGST006
		Date Collected	7/9/1995	7/9/1995	7/9/1995	6/23/1992	6/23/1992	6/24/1992	6/24/1992	7/10/1992	7/10/1992	7/12/1992	7/12/1992	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	2.5	4	0	2	0	2	4	6.5	1	3.5	3.5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Isophorone	570	0.52	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Methylene chloride	57	0.058	<0.04	<0.04	<0.04	--	--	--	--	<0.04	<0.04	<0.04	<0.04	<0.04
N-Nitrosodiphenylamine	110	1.34	--	--	--	<0.038	--	<0.038	--	<0.038	<0.038	<0.038	<0.038	<0.038
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	--	<0.071	--	<0.071	--	<0.071	<0.071	<0.071	<0.071	<0.071
Naphthalene	2	0.0076	<0.067	<0.067	<0.067	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
o-Cresol	3,200	15	--	--	--	<0.35	--	<0.35	--	<0.35	<0.35	<0.35	<0.35	<0.35
p-Benzoquinone	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--
p-Cresol	6,300	30	--	--	--	<0.3	--	<0.3	--	<0.3	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	1	0.028	--	--	--	<0.2	--	<0.2	--	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene[3]	1800	260	0.202	<0.067	0.0892	<0.033	--	<0.033	--	<0.033	<0.033	0.171	<0.033	<0.033
Phenol	19,000	66	--	--	--	<0.11	--	<0.11	--	<0.11	<0.11	<0.11	<0.11	<0.11
Pyrene	1800	260	<0.007	<0.007	<0.007	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
Explosives (mg/kg)														
1,3-Dinitrobenzene	6.3	0.036	<0.1	<0.1	<0.1	--	--	--	--	<0.268	<0.268	<0.268	<0.268	<0.268
1,3,5-Trinitrobenzene	2200	42	<0.1	<0.1	<0.1	--	--	--	--	<0.961	<0.961	<0.961	<0.961	<0.961
2-Amino-4,6-dinitrotoluene	7.7	0.03	<0.1	<0.1	<0.1	--	--	--	--	<1	<1	<1	<1	<1
2-Nitrotoluene	3.2	0.006	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	1.7	0.0064	<0.1	<0.1	<0.1	<0.37	--	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37
2,4,6-Trinitrotoluene	21	0.3	<0.3	<0.3	<0.3	--	--	--	--	<1.2	<1.2	<1.2	<1.2	<1.2
2,6-Dinitrotoluene	0.36	0.00134	<0.1	<0.1	<0.1	<0.066	--	<0.066	--	<0.066	<0.066	<0.066	<0.066	<0.066
3-Nitrotoluene	6.3	0.032	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	--
3,5-Dinitroaniline	NSV	NSV	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	--
4-Amino-2,6 dinitrotoluene	7.7	0.03	<0.6	<0.6	<0.6	--	--	--	--	--	--	--	--	--
4-Nitrotoluene	34	0.08	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	--
HMX	3900	26	<0.2	<0.2	<0.2	--	--	--	--	<0.947	1.98	1.96	<0.947	<0.947
Nitrobenzene	5.1	0.00184	<0.5	<0.5	<0.5	<0.071	--	<0.071	--	<0.071	<0.071	<0.071	<0.071	<0.071
RDX	8.3	0.0074	<0.2	<0.2	<0.2	--	--	--	--	2.08	5.01	1.52	1.38	<0.323
Tetryl	160	7.4	<0.6	<0.6	<0.6	--	--	--	--	<1.79	<1.79	<1.79	<1.79	<1.79
Volatile Organic Compounds (mg/kg)														
1,1,1-Trichloroethane	8100	56	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethylene	230	2	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethane	3.6	0.0156	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.6	0.0006	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2-Trichloroethane	1.1	0.032	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,2,3-Trichloropropane	0.0051	0.0000064	<0.0027	<0.0027	<0.0027	--	--	--	--	<0.0027	<0.0027	<0.0027	<0.0027	<0.0027
1,2,4-Trichlorobenzene	24	4	--	--	--	<0.033	--	<0.033	--	<0.033	<0.033	<0.033	<0.033	<0.033
1,2-Dichloroethylene (total)	160	0.42	<0.013	<0.013	<0.013	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	1800	11.6	<0.002	<0.002	<0.002	<0.033	--	<0.033	--	<0.002	<0.002	<0.002	<0.002	<0.002

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	PRST10			PSRGSL011		PSRGSL012		PSRGST002		PSRGST003		PSRGST006
		Date Collected	7/9/1995	7/9/1995	7/9/1995	6/23/1992	6/23/1992	6/24/1992	6/24/1992	7/10/1992	7/10/1992	7/12/1992	7/12/1992	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	2.5	4	0	2	0	2	4	6.5	1	3.5	3.5
Analyte Name	Residential Soil RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloroethane	0.46	0.028	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	2.5	0.034	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,3-Dichlorobenzene	NSV	NSV	<0.002	<0.002	<0.002	<0.12	--	<0.12	--	<0.002	<0.002	<0.002	<0.002	<0.002
1,4-Dichlorobenzene	2.6	1.44	<0.002	<0.002	<0.002	<0.033	--	<0.033	--	<0.002	<0.002	<0.002	<0.002	<0.002
2-Chloroethyl vinyl ether	NSV	NSV	<0.011	<0.011	<0.011	--	--	--	--	<0.011	<0.011	<0.011	<0.011	<0.011
Acetone	61000	58	<0.046	<0.046	<0.046	--	--	--	--	<0.046	<0.046	<0.046	<0.046	<0.046
Acrolein	0.14	0.000168	<0.0049	<0.0049	<0.0049	--	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
Acrylonitrile	0.25	0.00022	<0.0056	<0.0056	<0.0056	--	--	--	--	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
Benzene	1.2	0.052	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Bromodichloromethane	0.29	0.44	<0.0039	<0.0039	<0.0039	--	--	--	--	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039
Bromoform	19	0.42	<0.0092	<0.0092	<0.0092	--	--	--	--	<0.0092	<0.0092	<0.0092	<0.0092	<0.0092
Bromomethane	6.8	0.038	<0.017	<0.017	<0.017	--	--	--	--	<0.017	<0.017	<0.017	<0.017	<0.017
Carbon disulfide	770	4.8	<0.019	<0.019	<0.019	--	--	--	--	<0.019	<0.019	<0.019	<0.019	<0.019
Carbon tetrachloride	0.65	0.038	<0.0029	<0.0029	<0.0029	--	--	--	--	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029
cis-1,3-Dichloropropene	1.8	0.0034	<0.0021	<0.0021	<0.0021	--	--	--	--	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	<0.015	<0.015	<0.015	--	--	--	--	<0.015	<0.015	<0.015	<0.015	<0.015
Chlorobenzene	280	1.36	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Chloroethane	14000	118	<0.017	<0.017	<0.017	--	--	--	--	<0.017	<0.017	<0.017	<0.017	<0.017
Chloroform	0.32	0.44	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Chloromethane	110	0.98	<0.0038	<0.0038	<0.0038	--	--	--	--	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038
Dibromochloromethane	8.3	0.42	<0.0054	<0.0054	<0.0054	--	--	--	--	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
Dibromomethane	24	0.042	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Dichlorodifluoromethane	87	6	<0.0036	<0.0036	<0.0036	--	<0.0036	--	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036
Ethyl methacrylate	1800	3	<0.011	<0.011	<0.011	--	--	--	--	<0.011	<0.011	<0.011	<0.011	<0.011
Ethylbenzene	5.8	15.6	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Freon 113	40000	2,800	--	--	--	--	<0.01 R	--	<0.01 R	<0.01 R	0.014	<0.01 R	<0.01 R	<0.01 R
Methyl ethyl ketone	27,000	24	<0.0052	<0.0052	<0.0052	--	--	--	--	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
Methyl isobutyl ketone	33,000	28	<0.0051	<0.0051	<0.0051	--	--	--	--	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
Methyl n-butyl ketone	200	0.176	<0.022	<0.022	<0.022	--	--	--	--	<0.022	<0.022	<0.022	<0.022	<0.022
Styrene	6,000	26	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethylene	24	0.102	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	4,900	15.2	<0.002	<0.002	<0.002	--	--	--	--	0.029	0.021	0.056	0.023	0.0156
trans-1,2-Dichloroethylene	1,600	2.2	--	--	--	--	--	--	--	<0.013	<0.013	<0.013	<0.013	<0.013
trans-1,3-Dichloropropene	1.8	0.0034	<0.013	<0.013	<0.013	--	--	--	--	<0.013	<0.013	<0.013	<0.013	<0.013
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	<0.016	<0.016	<0.016	--	--	--	--	<0.016	<0.016	<0.016	<0.016	<0.016
Trichloroethylene	0.94	0.036	<0.0021	<0.0021	<0.0021	--	--	--	--	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021
Trichlorofluoromethane	23,000	66	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Vinyl acetate	910	1.74	<0.0072	<0.0072	<0.0072	--	--	--	--	<0.0072	<0.0072	<0.0072	<0.0072	<0.0072

Table 2.4 (Continued)
Tract 21B Burning Pit Area Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			PRST10			PSRGSL011		PSRGSL012		PSRGST002		PSRGST003		PSRGST006
Date Collected			7/9/1995	7/9/1995	7/9/1995	6/23/1992	6/23/1992	6/24/1992	6/24/1992	7/10/1992	7/10/1992	7/12/1992	7/12/1992	7/14/1992
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (feet bgs)			1	2.5	4	0	2	0	2	4	6.5	1	3.5	3.5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Vinyl chloride	0.059	0.0138	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	<0.002	<0.002	<0.002
Xylenes	580	198	<0.0024	<0.0024	<0.0024	--	--	--	--	0.0064	0.0033	0.0079	<0.0024	0.00532
Other Analytes (mg/kg)														
Chloride	NSV	NSV	--	--	--	--	--	--	--	9.67	22.6	<6.05	<6.05	28.4
Cyanide	23	40	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--
Fluoride	NSV	NSV	--	--	--	--	--	--	--	20.8	19	55.9	27.7	18.8
Nitrite/Nitrate	NSV	NSV	--	--	--	--	--	--	--	7.58	6.98	4.51	1.41	3.47
Sulfate	NSV	NSV	--	--	--	--	--	--	--	1,100	476	166	<90.4	2,800
Total organic content (percent)	NSV	NSV	3.06	1.98	0.517	--	--	--	--	--	--	--	--	--
Total petroleum hydrocarbons	2,500	1,780	<10	<10	<10	--	--	--	--	169	<10	<10	51.2	<10

Notes:

RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.

Shaded results denote an exceedance of the residential soil RSL.

Underlined values indicate an exceedance of soil-to-groundwater SSL.

[1] = RSL for trivalent chromium used as a surrogate

[2] = RSL for acenaphthene used as a surrogate

[3] = RSL for pyrene used as a surrogate

-- = not applicable or not analyzed

< = analyte not detected, listed value is the reporting limit

bgs = below ground surface

EPA = United States Environmental Protection Agency

HMX = cyclotetramethylenetetranitramine

MCL = maximum contaminant level

mg/kg = milligrams per kilogram

ND = analyte not detected, reporting limit is not available

NSV = no screening value available

R = rejected result

RDX = cyclotrimethylenetrinitramine

RSL = regional screening level

SSL = soil screening level

Table 2.5
Tract 21B Burning Pit Area Historical Groundwater Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location	G0071	PRGW01	PRGW02	PRGW05
	Sample Date	11/8/2005	11/8/2005	11/8/2005	11/8/2005
	Sample Type	Normal	Normal	Normal	Normal
Analyte	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**
SVOCs (µg/L)					
Acenaphthene	530	5 U	4 J	5 U	5 U
Biphenyl	0.83	5 U	4 J	5 U	5 U
Dibenzofuran	7.9	5 U	3 J	5 U	5 U
Fluorene	290	5 U	4 J	2 J	5 U
Phenanthrene[1]	120	5 U	7	1 J	5 U

Notes:
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the tap water RSL.
[1] = RSL for pyrene used as a surrogate
J = value is an estimate
RSL = regional screening level
SVOC = semivolatile organic compound
U = analyte not detected, listed value is the reporting limit
µg/L = micrograms per liter

Table 2.6
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Location ID			PSRG-1		PSRGSB001			PSRGSL001		PSRGSL002		PSRGSL003		PSRGSL004	
Date Collected			10/25/1990	10/25/1990	7/1/1992	7/1/1992	7/1/1992	6/24/1992	6/24/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992
Sample Type			Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (feet bgs)			1	12	2	5	7	0	2	0	2	0	2	0	2
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)															
Aluminum	77,000	600,000	11,000	--	8,300	12,000	13,000	8,200 B	--	5,490 B	--	10,000 B	--	8,600 B	--
Antimony	31	7	<3.8	--	<41.3	<41.3	<41.3	<41.3	--	<41.3	--	<41.3	--	<41.3	--
Arsenic	0.68	5.8	4.14	--	3.49	4.35	5.62	2.09	--	2.1	--	2.29	--	2.43	--
Barium	15,000	3,200	252	--	161	210	267	134 B	--	107	--	132 B	--	126 B	--
Beryllium	160	380	1.86	--	0.881	1.28	1.22	1.16	--	1.1	--	1.14	--	1.12	--
Cadmium	71	13.8	<3.05	--	0.686	0.873	<0.515	<0.515	--	<0.515	--	0.698	--	<0.515	--
Calcium	NSV	NSV	8,800	--	20,000	32,000	56,000	2,480 B	--	2,290 B	--	2,550 B	--	2,350 B	--
Chromium Total[1]	120,000	3,600,000	12.7	--	12.8	19.4	25.5	10.2 B	--	8.25 B	--	11.8 B	--	9.16 B	--
Cobalt	23	5.4	<15	--	9.46	11.8	11.4	12.2 B	--	9.68 B	--	12.6 B	--	11.6 B	--
Copper	3,100	920	<58.6	--	10.8	15.6	15	12.2 B	--	11 B	--	12.5 B	--	13.5 B	--
Iron	55,000	7,000	9,700	--	9,000	15,000	14,000	9,200 B	--	6,420 B	--	11,000 B	--	9,400 B	--
Lead	400	280	10.6	--	13	16	14	11.4	--	14	--	11	--	15	--
Magnesium	NSV	NSV	6,860	--	3,620	8,400	8,800	2,070 B	--	1,700 B	--	2,420 B	--	2,080 B	--
Manganese	1,800	560	440	--	272	353	346	404 B	--	292 B	--	357 B	--	328 B	--
Mercury	11	2	<0.05	--	<0.0269	<0.0269	<0.0269	<0.0269	--	<0.0269	--	<0.0269	--	<0.0269	--
Nickel	1,500	520	25.9	--	9.88	19.7	21.4	11 B	--	9.63 B	--	11 B	--	10.7 B	--
Potassium	NSV	NSV	5,140	--	2,820	4,320	4,200	2,690 B	--	2,150 B	--	3,030 B	--	2,780 B	--
Selenium	390	10.4	<0.25	--	<0.25	<0.25	<0.25	0.436	--	<0.25	--	<0.25	--	<0.25	--
Silver	390	16	<2.5	--	<0.521	0.894	1.14	<0.521	--	<0.521	--	<0.521	--	<0.521	--
Sodium	NSV	NSV	478	--	214	2,110	1,700	167 B	--	195 B	--	227 B	--	195 B	--
Thallium	0.78	2.8	<31.3	--	24.4	51.8	39.8	38.9 B	--	32.2	--	41.7	--	30.8	--
Vanadium	390	1,720	<13	--	20.2	26.5	28.8	18.8 B	--	14.4 B	--	21.9 B	--	18.6 B	--
Zinc	23,000	7,400	59.4	--	35	49.3	50.7	39.1 B	--	33.8 B	--	43.3 B	--	39 B	--
Semivolatile Organic Compounds (mg/kg)															
2-Chloronaphthalene	4,800	78	--	--	<0.14	<0.14	<0.14	--	--	--	--	--	--	--	--
2-Chlorophenol	390	1.78	--	--	<0.11	<0.11	<0.11	--	--	--	--	--	--	--	--
2-Methylnaphthalene	240	3.8	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
2-Nitroaniline	630	1.6	--	--	<0.079	<0.079	<0.079	--	--	--	--	--	--	--	--
2-Nitrophenol	NSV	NSV	--	--	<0.069	<0.069	<0.069	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	190	0.46	--	--	<0.14	<0.14	<0.14	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	1,300	8.4	--	--	<2.6	<2.6	<2.6	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	130	0.88	--	--	<0.7	<0.7	<0.7	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	6,300	80	--	--	<0.086	<0.086	<0.086	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	49	0.08	--	--	<0.082	<0.082	<0.082	--	--	--	--	--	--	--	--
3-Methyl-4-Chlorophenol	6,300	34	--	--	<0.073	<0.073	<0.073	--	--	--	--	--	--	--	--
3-Nitroaniline	NSV	NSV	--	--	<0.95	<0.95	<0.95	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	<3.4	<3.4	<3.4	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NSV	NSV	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
4-Chloroaniline	2.7	0.0032	--	--	<1.6	<1.6	<1.6	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	<0.044	<0.044	<0.044	--	--	--	--	--	--	--	--
4-Nitroaniline	27	0.032	--	--	<1.2	<1.2	<1.2	--	--	--	--	--	--	--	--
4-Nitrophenol	NSV	NSV	--	--	<0.86	<0.86	<0.86	--	--	--	--	--	--	--	--
4,6-Dinitro-2-cresol	5.1	0.052	--	--	<0.17	<0.17	<0.17	--	--	--	--	--	--	--	--
Acenaphthene	3,600	110	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRG-1		PSRGSB001			PSRGSL001		PSRGSL002		PSRGSL003		PSRGSL004	
		Date Collected	10/25/1990	10/25/1990	7/1/1992	7/1/1992	7/1/1992	6/24/1992	6/24/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	12	2	5	7	0	2	0	2	0	2	0	2
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Acenaphthylene[2]	3,600	110	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Anthracene	18,000	1,160	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Benzo(a)anthracene	1.1	0.22	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.11	4.8	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.1	6	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Benzo(ghi)perylene[3]	1,800	260	--	--	<0.25	<0.25	<0.25	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	11	58	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Benzoic acid	250,000	300	--	--	<0.73	<0.73	<0.73	--	--	--	--	--	--	--	--
Benzyl alcohol	6,300	9.6	--	--	<0.089	<0.089	<0.089	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy) methane	190	0.26	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	<0.08	<0.08	<0.08	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	3,100	5.2	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate	39	28	--	--	0.55	<0.39	<0.39	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	290	4.8	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Carbazole	NSV	NSV	--	--	<0.17 R	<0.17 R	<0.17 R	--	--	--	--	--	--	--	--
Chrysene	110	180	--	--	<0.22	<0.22	<0.22	--	--	--	--	--	--	--	--
Dibenz(ah)anthracene	0.11	1.92	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Dibenzofuran	78	3	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	6,300	46	--	--	<0.92	<0.92	<0.92	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	630	1,140	--	--	<0.26	<0.26	<0.26	--	--	--	--	--	--	--	--
Diethyl phthalate	51,000	122	--	--	<0.19	<0.19	<0.19	--	--	--	--	--	--	--	--
Dimethyl Phthalate	NSV	NSV	--	--	<0.13	<0.13	<0.13	--	--	--	--	--	--	--	--
Fluoranthene	2,400	1,780	--	--	<0.085	<0.085	<0.085	--	--	--	--	--	--	--	--
Fluorene	2,400	108	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.21	0.26	--	--	<0.046	<0.046	<0.046	--	--	--	--	--	--	--	--
Hexachlorobutadiene	1.2	0.0054	--	--	<0.18	<0.18	<0.18	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	1.8	3.2	--	--	<1.7	<1.7	<1.7	--	--	--	--	--	--	--	--
Hexachloroethane	1.8	0.004	--	--	<0.067	<0.067	<0.067	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)pyrene	1.1	19.6	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Isophorone	570	0.52	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Methylene chloride	57	0.058	<0.012	--	<0.04	<0.04	<0.04	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	110	1.34	--	--	<0.038	<0.038	<0.038	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	<0.071	<0.071	<0.071	--	--	--	--	--	--	--	--
Naphthalene	2	0.0076	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
o-Cresol	3,200	15	--	--	<0.35	<0.35	<0.35	--	--	--	--	--	--	--	--
p-Cresol	6,300	30	--	--	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--
Pentachlorophenol	1	0.028	--	--	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--
Phenanthrene[3]	1,800	260	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Phenol	19,000	66	--	--	<0.11	<0.11	<0.11	--	--	--	--	--	--	--	--
Pyrene	1,800	260	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
Explosives (mg/kg)															
1,3-Dinitrobenzene	6.3	0.036	<0.496	--	<0.268	<0.268	<0.268	--	--	--	--	--	--	--	--
1,3,5-Trinitrobenzene	2,200	42	<0.488	--	<0.961	<0.961	<0.961	--	--	--	--	--	--	--	--
2-Amino-4, 6-dinitrotoluene	7.7	0.03	--	--	<1	<1	<1	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	1.7	0.0064	<0.424	--	<0.37	<0.37	<0.37	--	--	--	--	--	--	--	--

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRG-1		PSRGSB001			PSRGSL001		PSRGSL002		PSRGSL003		PSRGSL004	
		Date Collected	10/25/1990	10/25/1990	7/1/1992	7/1/1992	7/1/1992	6/24/1992	6/24/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	12	2	5	7	0	2	0	2	0	2	0	2
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
2,4,6-Trinitrotoluene	21	0.3	<0.456	--	<1.2	<1.2	<1.2	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.36	0.00134	<0.524	--	<0.066	<0.066	<0.066	--	--	--	--	--	--	--	--
HMX	3,900	26	<0.666	--	<0.947	<0.947	<0.947	--	--	--	--	--	--	--	--
Nitrobenzene	5.1	0.00184	<2.41	--	<0.071	<0.071	<0.071	--	--	--	--	--	--	--	--
RDX	8.3	0.0074	<0.587	--	<0.323	<0.323	<0.323	--	--	--	--	--	--	--	--
Tetryl	160	7.4	<0.731	--	<1.79	<1.79	<1.79	--	--	--	--	--	--	--	--
Volatile Organic Compounds (mg/kg)															
1,1,1-Trichloroethane	8,100	56	<0.0044	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	230	2	<0.0039	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,1-Dichloroethane	3.6	0.0156	<0.0023	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.6	0.0006	<0.0024	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	1.1	0.032	<0.0054	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	0.0051	0.0000064	--	--	<0.0027	<0.0027	<0.0027	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	24	4	--	--	<0.033	<0.033	<0.033	--	--	--	--	--	--	--	--
1,2-Dichloroethylene (total)	160	0.42	<0.003	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	1,800	11.6	<0.1 R	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,2-Dichloroethane	0.46	0.028	<0.0017	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,2-Dichloropropane	2.5	0.034	<0.0029	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NSV	NSV	<0.1 R	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	2.6	1.44	<0.1 R	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
2-Chloroethyl vinyl ether	NSV	NSV	<0.01 R	--	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--
Acetone	61,000	58	<0.017	--	<0.046	<0.046	<0.046	--	--	--	--	--	--	--	--
Acrolein	0.14	0.000168	<0.1 R	--	<0.0049	<0.0049	<0.0049	--	--	--	--	--	--	--	--
Acrylonitrile	0.25	0.00022	<0.1 R	--	<0.0056	<0.0056	<0.0056	--	--	--	--	--	--	--	--
Benzene	1.2	0.052	<0.0015	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Bromodichloromethane	0.29	0.44	<0.0029	--	<0.0039	<0.0039	<0.0039	--	--	--	--	--	--	--	--
Bromoform	19	0.42	<0.0069	--	<0.0092	<0.0092	<0.0092	--	--	--	--	--	--	--	--
Bromomethane	6.8	0.038	<0.0057	--	<0.017	<0.017	<0.017	--	--	--	--	--	--	--	--
Carbon disulfide	770	4.8	<0.0044	--	<0.019	<0.019	<0.019	--	--	--	--	--	--	--	--
Carbon tetrachloride	0.65	0.038	<0.007	--	<0.0029	<0.0029	<0.0029	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	1.8	0.0034	<0.0032	--	<0.0021	<0.0021	<0.0021	--	--	--	--	--	--	--	--
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	<0.015	<0.015	<0.015	--	--	--	--	--	--	--	--
Chlorobenzene	280	1.36	<0.00086	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Chloroethane	14,000	118	<0.012	--	<0.017	<0.017	<0.017	--	--	--	--	--	--	--	--
Chloroform	0.32	0.44	<0.00087	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Chloromethane	110	0.98	<0.0088	--	<0.0038	<0.0038	<0.0038	--	--	--	--	--	--	--	--
Dibromochloromethane	8.3	0.42	<0.0031	--	<0.0054	<0.0054	<0.0054	--	--	--	--	--	--	--	--
Dibromomethane	24	0.042	--	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	87	6	--	--	<0.0036	<0.0036	<0.0036	--	<0.0036	--	<0.0036	--	<0.0036	--	<0.0036
Ethyl methacrylate	1,800	3	--	--	<0.011	<0.011	<0.011	--	--	--	--	--	--	--	--
Ethylbenzene	5.8	15.6	<0.0017	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Freon 113	40,000	2800	0.012	--	<0.01 R	<0.01 R	<0.01 R	--	<0.01 R	--	<0.01 R	--	<0.01 R	--	<0.01 R
Methyl ethyl ketone	27,000	24	<0.07	--	<0.0052	<0.0052	<0.0052	--	--	--	--	--	--	--	--
Methyl isobutyl ketone	33,000	28	<0.027	--	<0.0051	<0.0051	<0.0051	--	--	--	--	--	--	--	--
Methyl n-butyl ketone	200	0.176	<0.032	--	<0.022	<0.022	<0.022	--	--	--	--	--	--	--	--

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRG-1		PSRGSB001			PSRGSL001		PSRGSL002		PSRGSL003		PSRGSL004	
		Date Collected	10/25/1990	10/25/1990	7/1/1992	7/1/1992	7/1/1992	6/24/1992	6/24/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992	6/23/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	1	12	2	5	7	0	2	0	2	0	2	0	2
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Styrene	6,000	26	<0.0026	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Tetrachloroethylene	24	0.102	<0.00081	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Toluene	4,900	15.2	<0.00078	--	0.026	0.036	0.13	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethylene	1,600	2.2	--	--	<0.013	<0.013	<0.013	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	1.8	0.0034	<0.0028	--	<0.013	<0.013	<0.013	--	--	--	--	--	--	--	--
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	<0.016	<0.016	<0.016	--	--	--	--	--	--	--	--
Trichloroethylene	0.94	0.036	<0.0028	--	<0.0021	<0.0021	<0.0021	--	--	--	--	--	--	--	--
Trichlorofluoromethane	23,000	66	<0.0059	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Vinyl acetate	910	1.74	<0.0032	--	<0.0072	<0.0072	<0.0072	--	--	--	--	--	--	--	--
Vinyl chloride	0.059	0.0138	<0.0062	--	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Xylenes	580	198	<0.0015	--	<0.0024	<0.0024	<0.0024	--	--	--	--	--	--	--	--
Other Analytes (mg/kg)															
Cyanide	23	40	--	<0.92	--	--	--	--	--	--	--	--	--	--	--
Total petroleum hydrocarbons	2,500	1,780	--	--	<10	<10	<10	--	--	--	--	--	--	--	--

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRGSL005		PSRGSL006		PSRGSL007		PSRGSL008		PSRGSL013	PSRGSL014	PRSB-03			PSRGST001
		Date Collected	6/23/1992	6/23/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	7/17/1995	7/17/1995	7/17/1995	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	0	2	0	2	0	2	0	0	0	5	11	5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals (mg/kg)																
Aluminum	77,000	600,000	8,600 B	--	8,400 B	--	6,500 B	--	8,400 B	--	8,300 B	7,400 B	--	--	--	21,000
Antimony	31	7	<41.3	--	<41.3	--	<41.3	--	<41.3	--	<41.3	<41.3	--	--	--	<41.3
Arsenic	0.68	5.8	2.14	--	2.29	--	2.6	--	2.21	--	2.85	2.31	--	--	--	4.84
Barium	15,000	3,200	114 B	--	117 B	--	115 B	--	118 B	--	106 B	118 B	--	--	--	301
Beryllium	160	380	1.15	--	1.12	--	1.16	--	1.18	--	1.04	1.12	--	--	--	2.01
Cadmium	71	13.8	<0.515	--	<0.515	--	<0.515	--	<0.515	--	<0.515	<0.515	--	--	--	1.44
Calcium	NSV	NSV	2,160 B	--	2,080 B	--	2,340 B	--	2,350 B	--	2,010 B	2,880 B	--	--	--	48,000
Chromium Total[1]	120,000	3,600,000	10.1 B	--	9.88 B	--	8.64 B	--	9.75 B	--	10.6 B	9.06 B	--	--	--	26.4
Cobalt	23	5.4	11.5 B	--	11.5 B	--	9.83 B	--	11.5 B	--	11.5 B	10 B	--	--	--	26
Copper	3,100	920	11.4 B	--	11.3 B	--	11.5 B	--	11.7 B	--	10.6 B	13.1 B	--	--	--	13.7
Iron	55,000	7,000	9,100 B	--	9,200 B	--	7,500 B	--	9,200 B	--	9,500 B	8,200 B	--	--	--	19,000
Lead	400	280	14	--	11.8	--	13.2	--	11.4	--	9.81	12.1	--	--	--	11.7
Magnesium	NSV	NSV	2,130 B	--	2,090 B	--	1,800 B	--	2,180 B	--	3,390 B	2,030 B	--	--	--	7,800
Manganese	1,800	560	313 B	--	312 B	--	287 B	--	302 B	--	304 B	262 B	--	--	--	354
Mercury	11	2	<0.0269	--	<0.0269	--	<0.0269	--	<0.0269	--	<0.0269	<0.0269	--	--	--	<0.0269
Nickel	1,500	520	10.6 B	--	10.1 B	--	9.53 B	--	11 B	--	12.4 B	11 B	--	--	--	27.5
Potassium	NSV	NSV	2,560 B	--	2,620 B	--	2,310 B	--	2,890 B	--	2,830 B	2,460 B	--	--	--	5,180
Selenium	390	10.4	<0.25	--	<0.25	--	<0.25	--	0.433	--	<0.25	<0.25	--	--	--	<0.25
Silver	390	16	<0.521	--	<0.521	--	<0.521	--	<0.521	--	<0.521	1.84 B	--	--	--	<0.521
Sodium	NSV	NSV	205 B	--	214 B	--	243 B	--	162 B	--	378 B	144 B	--	--	--	449
Thallium	0.78	2.8	35.6	--	38.2	--	21.7	--	44.4	--	41.2	44.7	--	--	--	86.9
Vanadium	390	1,720	18.8 B	--	18.7 B	--	15.3 B	--	18 B	--	19.4 B	16.4 B	--	--	--	38.8
Zinc	23,000	7,400	35.2 B	--	35.5 B	--	33.3 B	--	37.2 B	--	32.9 B	36.7 B	--	--	--	58.1
Semivolatile Organic Compounds (mg/kg)																
2-Chloronaphthalene	4,800	78	--	--	--	--	--	--	--	--	<0.14	<0.14	--	--	--	<0.14
2-Chlorophenol	390	1.78	--	--	--	--	--	--	--	--	<0.11	<0.11	--	--	--	<0.11
2-Methylnaphthalene	240	3.8	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
2-Nitroaniline	630	1.6	--	--	--	--	--	--	--	--	<0.079	<0.079	--	--	--	<0.079
2-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	<0.069	<0.069	--	--	--	<0.069
2,4-Dichlorophenol	190	0.46	--	--	--	--	--	--	--	--	<0.14	<0.14	--	--	--	<0.14
2,4-Dimethylphenol	1,300	8.4	--	--	--	--	--	--	--	--	<2.6	<2.6	--	--	--	<2.6
2,4-Dinitrophenol	130	0.88	--	--	--	--	--	--	--	--	<0.7	<0.7	--	--	--	<0.7
2,4,5-Trichlorophenol	6,300	80	--	--	--	--	--	--	--	--	<0.086	<0.086	--	--	--	<0.086
2,4,6-Trichlorophenol	49	0.08	--	--	--	--	--	--	--	--	<0.082	<0.082	--	--	--	<0.082
3-Methyl-4-Chlorophenol	6,300	34	--	--	--	--	--	--	--	--	<0.073	<0.073	--	--	--	<0.073
3-Nitroaniline	NSV	NSV	--	--	--	--	--	--	--	--	<0.95	<0.95	--	--	--	<0.95
3,3'-Dichlorobenzidine	1.2	0.0164	--	--	--	--	--	--	--	--	<3.4	<3.4	--	--	--	<3.4
4-Bromophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
4-Chloroaniline	2.7	0.0032	--	--	--	--	--	--	--	--	<1.6	<1.6	--	--	--	<1.6
4-Chlorophenyl phenyl ether	NSV	NSV	--	--	--	--	--	--	--	--	<0.044	<0.044	--	--	--	<0.044
4-Nitroaniline	27	0.032	--	--	--	--	--	--	--	--	<1.2	<1.2	--	--	--	<1.2
4-Nitrophenol	NSV	NSV	--	--	--	--	--	--	--	--	<0.86	<0.86	--	--	--	<0.86
4,6-Dinitro-2-cresol	5.1	0.052	--	--	--	--	--	--	--	--	<0.17	<0.17	--	--	--	<0.17
Acenaphthene	3,600	110	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRGSL005		PSRGSL006		PSRGSL007		PSRGSL008		PSRGSL013	PSRGSL014	PRSB-03			PSRGST001
		Date Collected	6/23/1992	6/23/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	7/17/1995	7/17/1995	7/17/1995	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	0	2	0	2	0	2	0	0	0	5	11	5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Acenaphthylene[2]	3,600	110	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Anthracene	18,000	1,160	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Benzo(a)anthracene	1.1	0.22	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Benzo(a)pyrene	0.11	4.8	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Benzo(b)fluoranthene	1.1	6	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Benzo(ghi)perylene[3]	1,800	260	--	--	--	--	--	--	--	--	<0.25	<0.25	--	--	--	<0.25
Benzo(k)fluoranthene	11	58	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Benzoic acid	250,000	300	--	--	--	--	--	--	--	--	<0.73	<0.73	--	--	--	<0.73
Benzyl alcohol	6,300	9.6	--	--	--	--	--	--	--	--	<0.089	<0.089	--	--	--	<0.089
Bis(2-chloroethoxy) methane	190	0.26	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Bis(2-chloroethyl) ether	0.23	0.000072	--	--	--	--	--	--	--	--	<0.08	<0.08	--	--	--	<0.08
Bis(2-chloroisopropyl) ether	3,100	5.2	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Bis(2-ethylhexyl) phthalate	39	28	--	--	--	--	--	--	--	--	<0.39	<0.39	--	--	--	<0.39
Butylbenzyl phthalate	290	4.8	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Carbazole	NSV	NSV	--	--	--	--	--	--	--	--	<0.17 R	<0.17 R	--	--	--	<0.17 R
Chrysene	110	180	--	--	--	--	--	--	--	--	<0.22	<0.22	--	--	--	<0.22
Dibenz(ah)anthracene	0.11	1.92	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Dibenzofuran	78	3	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Di-n-butyl phthalate	6,300	46	--	--	--	--	--	--	--	--	<0.92	<0.92	--	--	--	<0.92
Di-n-octyl phthalate	630	1,140	--	--	--	--	--	--	--	--	<0.26	<0.26	--	--	--	<0.26
Diethyl phthalate	51,000	122	--	--	--	--	--	--	--	--	<0.19	<0.19	--	--	--	<0.19
Dimethyl Phthalate	NSV	NSV	--	--	--	--	--	--	--	--	<0.13	<0.13	--	--	--	<0.13
Fluoranthene	2,400	1,780	--	--	--	--	--	--	--	--	<0.085	<0.085	--	--	--	<0.085
Fluorene	2,400	108	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Hexachlorobenzene	0.21	0.26	--	--	--	--	--	--	--	--	<0.046	<0.046	--	--	--	<0.046
Hexachlorobutadiene	1.2	0.0054	--	--	--	--	--	--	--	--	<0.18	<0.18	--	--	--	<0.18
Hexachlorocyclopentadiene	1.8	3.2	--	--	--	--	--	--	--	--	<1.7	<1.7	--	--	--	<1.7
Hexachloroethane	1.8	0.004	--	--	--	--	--	--	--	--	<0.067	<0.067	--	--	--	<0.067
Indeno(1,2,3-C,D)pyrene	1.1	19.6	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Isophorone	570	0.52	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Methylene chloride	57	0.058	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.04
N-Nitrosodiphenylamine	110	1.34	--	--	--	--	--	--	--	--	<0.038	<0.038	--	--	--	<0.038
N-Nitrosodi-n-propylamine	0.078	0.000162	--	--	--	--	--	--	--	--	<0.071	<0.071	--	--	--	<0.071
Naphthalene	2	0.0076	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
o-Cresol	3,200	15	--	--	--	--	--	--	--	--	<0.35	<0.35	--	--	--	<0.35
p-Cresol	6,300	30	--	--	--	--	--	--	--	--	<0.3	<0.3	--	--	--	<0.3
Pentachlorophenol	1	0.028	--	--	--	--	--	--	--	--	<0.2	<0.2	--	--	--	<0.2
Phenanthrene[3]	1,800	260	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Phenol	19,000	66	--	--	--	--	--	--	--	--	<0.11	<0.11	--	--	--	<0.11
Pyrene	1,800	260	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
Explosives (mg/kg)																
1,3-Dinitrobenzene	6.3	0.036	--	--	--	--	--	--	--	--	<0.268	<0.268	--	--	--	<0.268
1,3,5-Trinitrobenzene	2,200	42	--	--	--	--	--	--	--	--	<0.961	<0.961	--	--	--	<0.961
2-Amino-4, 6-dinitrotoluene	7.7	0.03	--	--	--	--	--	--	--	--	<1	<1	--	--	--	<1
2,4-Dinitrotoluene	1.7	0.0064	--	--	--	--	--	--	--	--	<0.37	<0.37	--	--	--	<0.37

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRGSL005		PSRGSL006		PSRGSL007		PSRGSL008		PSRGSL013	PSRGSL014	PRSB-03			PSRGST001
		Date Collected	6/23/1992	6/23/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	7/17/1995	7/17/1995	7/17/1995	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	0	2	0	2	0	2	0	0	0	5	11	5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
2,4,6-Trinitrotoluene	21	0.3	--	--	--	--	--	--	--	--	--	<1.2	--	--	--	<1.2
2,6-Dinitrotoluene	0.36	0.00134	--	--	--	--	--	--	--	--	<0.066	<0.066	--	--	--	<0.066
HMX	3,900	26	--	--	--	--	--	--	--	--	<0.947	<0.947	--	--	--	<0.947
Nitrobenzene	5.1	0.00184	--	--	--	--	--	--	--	--	<0.071	<0.071	--	--	--	<0.071
RDX	8.3	0.0074	--	--	--	--	--	--	--	--	<0.323	<0.323	--	--	--	<0.323
Tetryl	160	7.4	--	--	--	--	--	--	--	--	<1.79	<1.79	--	--	--	<1.79
Volatile Organic Compounds (mg/kg)																
1,1,1-Trichloroethane	8,100	56	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,1-Dichloroethylene	230	2	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,1-Dichloroethane	3.6	0.0156	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,1,2,2-Tetrachloroethane	0.6	0.0006	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,1,2-Trichloroethane	1.1	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,2,3-Trichloropropane	0.0051	0.0000064	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0027
1,2,4-Trichlorobenzene	24	4	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.033
1,2-Dichloroethylene (total)	160	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	1,800	11.6	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.002
1,2-Dichloroethane	0.46	0.028	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,2-Dichloropropane	2.5	0.034	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
1,3-Dichlorobenzene	NSV	NSV	--	--	--	--	--	--	--	--	<0.12	<0.12	--	--	--	<0.002
1,4-Dichlorobenzene	2.6	1.44	--	--	--	--	--	--	--	--	<0.033	<0.033	--	--	--	<0.002
2-Chloroethyl vinyl ether	NSV	NSV	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.011
Acetone	61,000	58	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.046
Acrolein	0.14	0.000168	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0049
Acrylonitrile	0.25	0.00022	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0056
Benzene	1.2	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Bromodichloromethane	0.29	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0039
Bromoform	19	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0092
Bromomethane	6.8	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.017
Carbon disulfide	770	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.019
Carbon tetrachloride	0.65	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0029
cis-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0021
cis-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.015
Chlorobenzene	280	1.36	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Chloroethane	14,000	118	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.017
Chloroform	0.32	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Chloromethane	110	0.98	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0038
Dibromochloromethane	8.3	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0054
Dibromomethane	24	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Dichlorodifluoromethane	87	6	--	<0.0036	--	<0.0036	--	<0.0036	--	<0.0036	--	--	<.0036	<.0036	<.0036	<0.0036
Ethyl methacrylate	1,800	3	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.011
Ethylbenzene	5.8	15.6	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Freon 113	40,000	2800	--	<0.01 R	--	<0.01 R	--	<0.01 R	--	<0.01 R	--	--	<0.01 R	<0.01 R	<0.01 R	<0.01 R
Methyl ethyl ketone	27,000	24	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0052
Methyl isobutyl ketone	33,000	28	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0051
Methyl n-butyl ketone	200	0.176	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.022

Table 2.6 (Continued)
Tract 21B Decanting Station and Leaching Pit Historical Soil Data
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Location ID	PSRGSL005		PSRGSL006		PSRGSL007		PSRGSL008		PSRGSL013	PSRGSL014	PRSB-03			PSRGST001
		Date Collected	6/23/1992	6/23/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	6/24/1992	7/17/1995	7/17/1995	7/17/1995	7/14/1992
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Sample Depth (feet bgs)	0	2	0	2	0	2	0	2	0	0	0	5	11	5
Analyte Name	**Residential Soil RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Styrene	6,000	26	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Tetrachloroethylene	24	0.102	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Toluene	4,900	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00566
trans-1,2-Dichloroethylene	1,600	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.013
trans-1,3-Dichloropropene	1.8	0.0034	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.013
trans-1,4-Dichloro-2-butene	0.0074	0.0000124	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.016
Trichloroethylene	0.94	0.036	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0021
Trichlorofluoromethane	23,000	66	--	--	--	--	--	--	--	--	--	--	<0.002	<0.002	<0.002	<0.002
Vinyl acetate	910	1.74	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0072
Vinyl chloride	0.059	0.0138	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
Xylenes	580	198	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0024
Other Analytes (mg/kg)																
Cyanide	23	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total petroleum hydrocarbons	2,500	1,780	--	--	--	--	--	--	--	--	--	<10	--	--	--	<10

Notes:
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.
Shaded results denote an exceedance of the residential soil RSL.
Underlined values indicate an exceedance of soil-to-groundwater SSL.
[1] = RSL for trivalent chromium used as a surrogate
[2] = RSL for acenaphthene used as a surrogate
[3] = RSL for pyrene used as a surrogate
Total petroleum hydrocarbons screening values are for "Aromatic High"
-- = not applicable or not analyzed
< = analyte not detected, listed value is the reporting limit
B = analyte was detected in the method blank. B-flagged data are considered to be non-detect and were not screened against the respective screening values.
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
MCL = maximum contaminant level
mg/kg = milligrams per kilogram
ND = analyte not detected, reporting limit is not available
NSV = no screening value available
R = rejected result
RDX = cyclotrimethylenetrinitramine
SSL = soil screening level

Table 3.1
2018 Groundwater Level Measurements
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identificaiton	Top of Casing Elevation (ft amsl[1])	Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl[1])	Measurement Date
19B-G0037*	1902.13	8.18	1893.95	5/17/2018
19B-UGIA-MW01*	1902.91	10.45	1892.46	11/8/2018
19B-LGIA-MW02*	1902.73	10.62	1892.11	11/8/2018
19B-UGIA-MW03*	1903.28	10.59	1892.69	11/8/2018
19B-LGIA-MW04*	1903.31	10.51	1892.80	11/8/2018
19B-UGIA-MW05*	1903.41	10.31	1893.10	11/8/2018
19B-LGIA-MW06*	1903.35	10.31	1893.04	11/8/2018
19C-BGGW01*	1902.93	8.18	1894.75	5/17/2018
19C-BGGW02*	1903.20	8.48	1894.72	5/17/2018
19C-BGMW01*	1903.93	8.74	1895.19	5/17/2018
19C-BGMW02*	1902.60	7.73	1894.87	5/17/2018
19C-G0005*	1888.30	11.15	1877.15	5/17/2018
19C-G0006*	1887.60	9.58	1878.02	5/17/2018
19C-G0007*	1887.90	9.42	1878.48	5/17/2018
19C-G0008*	1888.70	10.63	1878.07	5/17/2018
19C-G0036*	--	8.08	--	5/17/2018
19C-UGIA-MW01*	1906.58	13.42	1893.16	8/7/2018
19C-LGIA-MW02*	1906.47	13.42	1893.05	8/7/2018
19C-UGIA-MW03*	1901.54	8.78	1892.76	8/7/2018
19C-LGIA-MW04*	1901.41	8.68	1892.73	8/7/2018
19C-UGIA-MW05*	1901.10	8.65	1892.45	8/7/2018
19C-LGIA-MW06*	1900.77	8.31	1892.46	8/7/2018
19C-LGIA-MW07*	1904.52	12.43	1892.09	8/8/2018
20B-UGIA-MW01	1904.69	8.01	1896.68	5/22/2018
20B-LGIA-MW02	1904.80	8.09	1896.71	5/22/2018
20B-UGIA-MW03	1904.27	7.62	1896.65	5/22/2018
20B-LGIA-MW04	1904.36	7.65	1896.71	5/22/2018
20B-UGIA-MW05	1903.94	7.33	1896.61	5/22/2018
20B-LGIA-MW06	1903.89	7.25	1896.64	5/22/2018
20B-UGIA-MW07	1904.51	7.79	1896.72	5/22/2018
20B-LGIA-MW08	1904.48	7.73	1896.75	5/22/2018
20B-UGIA-MW09*	1903.98	11.79	1892.19	8/8/2018
20B-UGIA-MW10*	1904.31	12.18	1892.13	8/8/2018
20B-UGIA-MW11*	1904.18	12.09	1892.09	8/8/2018
21B-BB-UGIA-MW01	1916.54	17.81	1898.73	5/30/2018
21B-BB-LGIA-MW02	1916.62	17.90	1898.72	5/30/2018
21B-BB-UGIA-MW03*	1912.63	17.08	1895.55	8/9/2018
21B-BB-LGIA-MW04*	1912.40	16.79	1895.61	8/9/2018
21B-BPA-UGIA-MW01	1909.81	11.31	1898.50	5/30/2018
21B-BPA-LGIA-MW02	1909.58	11.12	1898.46	5/30/2018
21B-BPA-UGIA-MW03	1909.89	12.36	1897.53	5/30/2018
21B-BPA-LGIA-MW04	1909.96	12.35	1897.61	5/30/2018
21B-BPA-LGIA-MW05	1910.03	12.05	1897.98	5/30/2018
21B-BPA-UGIA-MW06	1910.14	12.11	1898.03	5/30/2018
21B-BPA-UGIA-MW07	1909.00	10.66	1898.34	5/30/2018
21B-BPA-LGIA-MW08	1909.01	10.72	1898.29	5/30/2018
21B-BPA-UGIA-MW09*	1910.38	15.38	1895.00	8/13/2018
21B-BPA-LGIA-MW10*	1908.55	14.93	1893.62	8/9/2018
21B-BPA-UGIA-MW11*	1910.55	16.64	1893.91	8/21/2018
21B-BPA-UGIA-MW12*	1911.01	16.19	1894.82	8/10/2018
21B-BPA-PRGW-01*	1909.75	12.13	1897.62	5/30/2018
21B-BPA-PRGW-02*	1909.90	12.22	1897.68	5/30/2018
21B-BPA-PRGW-05*	1909.48	12.13	1897.35	5/30/2018
21B-BPA-G0071*	1902.93	11.18	1891.75	5/30/2018

Table 3.1 (Continued)
2018 Groundwater Level Measurements
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identificaiton	Top of Casing Elevation (ft amsl[1])	Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl[1])	Measurement Date
21B-DS-LGIA-MW01	1912.12	13.90	1898.22	5/30/2018
21B-DS-LGIA-MW02	1912.08	13.44	1898.64	5/30/2018
21B-DS-LGIA-MW03	1911.97	13.34	1898.63	5/30/2018
21B-DS-LGIA-MW04	1911.67	13.08	1898.59	5/30/2018
21B-DS-LGIA-MW05	1911.53	13.06	1898.47	5/30/2018
21B-DS-LGIA-MW06	1911.56	13.11	1898.45	5/30/2018
21B-DS-LGIA-MW07	1912.54	14.01	1898.53	5/30/2018
21B-DS-UGIA-MW08*	1912.49	16.94	1895.55	8/10/2018
21B-DS-LGIA-MW09*	1912.46	16.94	1895.52	8/10/2018
21B-DS-UGIA-MW10*	1912.38	16.60	1895.78	8/10/2018
21B-DS-UGIA-MW11*	1912.36	16.50	1895.86	8/10/2018
21B-DS-LGIA-MW12*	1912.31	16.42	1895.89	8/10/2018
21B-DS-LGIA-MW13*	1911.67	16.50	1895.17	8/21/2018
21B-DS-G0063*	1910.75	12.79	1897.96	5/30/2018
21B-DS-G0102*	1912.20	14.09	1898.11	5/30/2018
21B-DS-G0103*	1912.31	14.23	1898.08	5/30/2018
21B-DS-G0104*	1911.55	13.46	1898.09	5/30/2018
21B-DS-G0105*	1911.41	13.48	1897.93	5/30/2018
21B-DS-G0106*	1912.15	14.18	1897.97	5/30/2018
21B-DS-G0107*	1911.38	13.45	1897.93	5/30/2018
21C-UGIA-MW01	1910.96	13.14	1897.82	5/20/2018
21C-LGIA-MW02	1910.97	13.11	1897.86	5/20/2018
21C-UGIA-MW03	1910.65	12.88	1897.77	5/20/2018
21C-LGIA-MW04	1910.53	12.75	1897.78	5/20/2018
21C-UGIA-MW05	1910.13	12.72	1897.41	5/20/2018
21C-LGIA-MW06	1910.11	12.74	1897.37	5/20/2018
21C-UGIA-MW07	1909.83	12.68	1897.15	5/20/2018
21C-LGIA-MW08	1909.80	12.79	1897.01	5/20/2018
21C-UGIA-MW09	1910.44	12.80	1897.64	5/20/2018
21C-LGIA-MW10	1910.27	12.61	1897.66	5/20/2018
BKRD-UGIA-MW01	1917.01	18.07	1898.94	5/30/2018
BKRD-UGIA-MW02	1917.07	17.98	1899.09	5/30/2018
BKRD-UGIA-MW03	1918.21	19.11	1899.10	5/30/2018
BKRD-UGIA-MW04	1917.08	17.83	1899.25	5/30/2018
BKRD-UGIA-MW05	1912.60	13.23	1899.37	5/30/2018
BKRD-UGIA-MW06	1905.73	8.44	1897.29	5/22/2018
BKRD-UGIA-MW07	1905.83	8.82	1897.01	5/22/2018
BKRD-UGIA-MW08	1904.83	7.79	1897.04	5/22/2018
BKRD-UGIA-MW09	1906.02	8.78	1897.24	5/22/2018
BKRD-UGIA-MW10	1906.01	8.86	1897.15	5/22/2018
BKRD-LGIA-MW11	1919.22	20.20	1899.02	5/30/2018
BKRD-LGIA-MW12	1916.40	17.47	1898.93	5/30/2018
BKRD-LGIA-MW13	1921.24	21.76	1899.48	5/30/2018
BKRD-LGIA-MW14	1912.82	13.49	1899.33	5/30/2018
BKRD-LGIA-MW15	1912.70	13.24	1899.46	5/30/2018
BKRD-LGIA-MW16	1905.69	8.46	1897.23	5/22/2018
BKRD-LGIA-MW17	1905.32	8.18	1897.14	5/22/2018
BKRD-LGIA-MW18	1906.33	9.04	1897.29	5/22/2018
BKRD-LGIA-MW19	1906.44	9.35	1897.09	5/22/2018
BKRD-LGIA-MW20	1906.00	8.82	1897.18	5/22/2018

Notes:

* = Water level measurement was not applied to generate the groundwater elevation contours presented in Figure 3.1 due to either top of casing elevations of inadequate precision or water level measurement beyond the timeframe considered representative of "static" hydrologic conditions

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

ft amsl = feet above mean sea level

ft btoc = feet below top of casing

-- = top of casing elevation unknown

Table 4.1
Chronology of Project Events
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Date	Event
March 12 - March 13, 2018	Mobilization, Site Setup, Utility Survey
March 14, 2018; May 8, 2018	Soil Sampling, Background Areas 1 and 2
March 14 - April 2, 2018; July 16 and 17, 2018	Monitoring Well Installation, Tract 20B
March 15, 2018; June 15-19, 2018; August 13, 2018	Soil Sampling, Tract 20B
March 15-21, 2018; April 2, 2018; July 16 and 17, 2018	Monitoring Well Development, Tract 20B
March 17-18, 2018; May 21-23, 2018	Groundwater Sampling, Tract 21C
March 19, 2018	Soil Sampling, Background Area 3
March 26 - May 5, 2018	Monitoring Well Installation, Background
March 30, 2018; September 19, 2018	Monitoring Well Survey
March 30 - May 22, 2018; July 17-21, 2018	Monitoring Well Installation, Tract 21B (Burn Pit Area)
March 31 - April 2, 2018; May 14-22, 2018; July 18-21, 2018	Monitoring Well Installation, Tract 21B (Decanting Station)
April 1-3, 2018; May 3-9, 2018	Monitoring Well Development, Background
April 4, 2018	Topographic Survey of Tract 19B
April 4-9, 2018	Monitoring Well Installation, Tract 21C
April 4-8, 2018; May 20-21, 2018; July 23-24, 2018; August 6, 2018	Monitoring Well Development, Tract 21B (Burn Pit Area)
April 7-8, 2018; May 15-20, 2018; July 22, 2018; August 6, 2018	Monitoring Well Development, Tract 21B (Decanting Station)
April 7-10, 2018	Monitoring Well Development, Tract 21C
April 10, 2018; May 14-15, 2018	Soil Sampling, Tract 21B (Decanting Station)
April 16-22,2018; June 11-12, 2018; July 23-25, 2018	Soil Sampling, Tract 19B
April 30-May 1, 2018; June 12-13, 2018; July 25, 2018	Soil Sampling, Tract 19C
May 2 - June 3, 2018; August 7-8, 2018	Groundwater Sampling, Tract 19C
May 15-16, 2018	Soil Sampling, Tract 21B (Burn Pit Area, Backstop Berm)
May 16-22, 2018; July 19 and 20, 2018	Monitoring Well Installation, Tract 21B (Backstop Berm)
May 19; July 23-24, 2018	Monitoring Well Development, Tract 21B (Backstop Berm)
May 31 - June 4, 2018; August 8 and 12, 2018	Groundwater Sampling, Tract 20B
May 31 - June 6, 2018	Groundwater Sampling, Background Area 3
June 1-18, 2018; August 9-21, 2018	Groundwater Sampling, Tract 21B (Burn Pit Area)
June 1-19, 2018; August 8-21, 2018	Groundwater Sampling, Tract 21B (Decanting Station)
June 12-18, 2018; July 18, 2018	Monitoring Well Installation, Tract 19C
June 16, 2018; July 23, 2018	Monitoring Well Development, Tract 19C
June 19, 2018; August 9, 2018	Groundwater Sampling, Tract 21B (Backstop Berm)
September 24-27, 2018	Monitoring Well Installation, Tract 19B
October 1-2, 2018	Monitoring Well Development, Tract 19B
July 23-25, 2018; August 14, 2018; November 8, 2018	Groundwater Sampling, Tract 19B
April 24, 2018; April 30, 2018; July 20, 2018; September 27, 2018	Transportation and Disposal of Soil IDW
November 27, 2018	Demobilization

Notes:

IDW = investigation-derived waste

Table 4.2
Soil Sample Summary, Background Areas 1, 2, and 3
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Collection Depth (ft bgs)	Analyses			
		VOCs	PAHs	Explosives	Metals
Background Area 1					
BKRD-SS01; BKRD-SB01	0-0.5; 4-5	X	X	X	X
BKRD-SS02; BKRD-SB02	0-0.5; 4-5	X	X	X	X
BKRD-SS03; BKRD-SB03	0-0.5; 4-5	X	X	X	X
BKRD-SS04; BKRD-SB04	0-0.5; 4-5	X	X	X	X
BKRD-SS05; BKRD-SB05	0-0.5; 4-5	X	X	X	X
BKRD-SS06; BKRD-SB06	0-0.5; 4-5	X	X	X	X
BKRD-SS07; BKRD-SB07	0-0.5; 4-5	X	X	X	X
Background Area 2					
BKRD-SS08; BKRD-SB08	0-0.5; 4-5	X	X	X	X
BKRD-SS09; BKRD-SB09	0-0.5; 4-5	X	X	X	X
BKRD-SS10; BKRD-SB10	0-0.5; 4-5	X	X	X	X
BKRD-SS11; BKRD-SB11	0-0.5; 4-5	X	X	X	X
BKRD-SS12; BKRD-SB12	0-0.5; 4-5	X	X	X	X
BKRD-SS13; BKRD-SB13	0-0.5; 4-5	X	X	X	X
Background Area 3					
BKRD-SS14; BKRD-SB14	0-0.5; 4-5	X	X	X	X
BKRD-SS15; BKRD-SB15	0-0.5; 4-5	X	X	X	X
BKRD-SS16; BKRD-SB16	0-0.5; 4-5	X	X	X	X
BKRD-SS17; BKRD-SB17	0-0.5; 4-5	X	X	X	X
BKRD-SS18; BKRD-SB18	0-0.5; 4-5	X	X	X	X
BKRD-SS19; BKRD-SB19	0-0.5; 4-5	X	X	X	X
BKRD-SS20; BKRD-SB20	0-0.5; 4-5	X	X	X	X

Notes:

ft bgs = feet below ground surface

PAH = polynuclear aromatic hydrocarbons

VOCs = volatile organic compounds

Table 4.3
Well Construction Summary, Background Areas 1 and 3
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Depth to Fullerton Formation (ft bgs)
Background Area 1					
BKRD-UGIA-MW01	5/4/2018	1914.34	1917.01	19-29	--
BKRD-UGIA-MW02	5/4/2018	1914.66	1917.07	18-28	--
BKRD-UGIA-MW03	5/4/2018	1915.57	1918.21	17.5-27.5	--
BKRD-UGIA-MW04	5/3/2018	1914.34	1917.08	18-28	--
BKRD-UGIA-MW05	5/2/2018	1910.47	1912.60	12-22	--
BKRD-LGIA-MW11	5/5/2018	1916.52	1919.22	38-48	48.5
BKRD-LGIA-MW12	5/5/2018	1913.81	1916.40	31-41	41.0
BKRD-LGIA-MW13	5/6/2018	1918.44	1921.24	42-52	52.5
BKRD-LGIA-MW14	5/3/2018	1910.32	1912.82	37-47	47.0
BKRD-LGIA-MW15	5/2/2018	1909.91	1912.70	37-47	47.0
Background Area 3					
BKRD-UGIA-MW06	3/26/2018	1903.08	1905.73	11.5-21.5	--
BKRD-UGIA-MW07	3/27/2018	1903.05	1905.83	11.5-21.5	--
BKRD-UGIA-MW08	3/28/2018	1902.17	1904.83	10.5-20.5	--
BKRD-UGIA-MW09	3/29/2018	1903.53	1906.02	10.5-20.5	--
BKRD-UGIA-MW10	3/28/2018	1903.05	1906.01	10.5-20.5	--
BKRD-LGIA-MW16	3/26/2018	1902.93	1905.69	26.5-36.5	36.5
BKRD-LGIA-MW17	3/28/2018	1902.74	1905.32	25-35	35.0
BKRD-LGIA-MW18	3/29/2018	1903.18	1906.33	20-30	33.0
BKRD-LGIA-MW19	3/27/2018	1903.83	1906.44	23.5-33.5	35.7
BKRD-LGIA-MW20	3/28/2018	1903.52	1906.00	26.5-36.5	36.5

Notes:

No wells were installed in Background Area 2.

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.4
Groundwater Field Parameter Data, Background Areas 1 and 3
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
Background Area 1							
BKRD-UGIA-MW01	6/6/2018	6.89	5.616	16.92	21.6	0.27	-63.2
BKRD-UGIA-MW02	6/6/2018	6.85	5.441	14.18	38.7	1.31	-65.8
BKRD-UGIA-MW03	6/5/2018	6.94	1.054	14.99	11.0	0.14	-91.0
BKRD-UGIA-MW04	6/5/2018	7.05	2.388	14.43	32.00	7.24	18.8
BKRD-UGIA-MW05	6/4/2018	6.99	2.023	13.43	11.7	1.48	-37.5
BKRD-UGIA-MW11	6/5/2018	7.04	2.052	15.94	28.8	1.53	-43.0
BKRD-UGIA-MW12	6/5/2018	7.09	1.202	9.81	9.5	0.37	-89.4
BKRD-UGIA-MW13	6/4/2018	6.94	2.724	15.16	46.000	-0.05	-91.5
BKRD-UGIA-MW14	6/4/2018	7.02	2.078	13.39	9.53	1.80	-51.4
BKRD-LGIA-MW15	6/4/2018	7.29	2.657	13.16	9.7	-0.05	-87.9
Background Area 3							
BKRD-LGIA-MW06	5/3/2018	7.03	1.767	12.84	9.6	0.14	-62.4
BKRD-LGIA-MW07	6/5/2018	6.97	2.869	13.52	6.1	0.35	-191.8
BKRD-LGIA-MW08	6/6/2018	6.62	2.324	13.02	5.030	0.42	-156.0
BKRD-LGIA-MW09	5/30/2018	6.93	2.276	13.04	21.8	0.18	-55.4
BKRD-LGIA-MW10	6/5/2018	6.75	2.568	14.90	18.3	0.61	-100.1
BKRD-LGIA-MW16	5/31/2018	7.00	2.652	13.40	3	0.74	-87.3
BKRD-LGIA-MW17	5/31/2018	6.98	2.676	14.20	8.7	0.63	-107.4
BKRD-LGIA-MW18	5/30/2018	6.99	2.200	12.48	11.2	0.28	-53.5
BKRD-LGIA-MW19	5/31/2018	7.07	2.190	13.18	10.0	0.15	-84.2
BKRD-LGIA-MW20	6/5/2018	6.93	3.039	14.55	11.0	0.47	-134.1

Notes:

°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

Table 4.5
Soil Sample Summary, Tract 19B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Collection Depth	Explosives	Metals
Stockpiled Soil, Stockpile 1			
19B-SP01B to 19B-SP24B	Composite (top, middle, bottom of stockpile)	X	X
19B-SP02C to 19B-SP21C; 19B-SP24C		X	X
19B-SP02D; 19B-SP04D; 19B-SP07D;19B-SP11D to 19B-SP19D		X	X
Stockpiled Soil, Stockpile 2/3			
19B-SP27A; 19B-SP28A; 19B-SP30A; 19B-SP32A; 19B-SP34A; 19B-SP36A to 19B-SP45A	Composite (top, middle, bottom of stockpile)	X	X
19B-SP28B to 19B-SP44B		X	X
19B-SP28C to 19B-SP36C; 19B-SB39C; 19B-SB41C; 19B-SB43C; 19B-SB45C		X	X
19B-SB28D to 19B-SB44D		X	X
19B-SP28E; 19B-SP29E; 19B-SP32E to 19B-SP45E		X	X
19B-SP28F to 19B-SP44F		X	X
19B-SP31G; 19B-SP39G to 19B-SP44G		X	X
Stockpiled Soil, Stockpile 4			
19B-SP31H; 19B-SP34H	Composite (top, middle, bottom of stockpile)	X	X
19B-SP31J; 19B-SP32J		X	X
19B-SP31K		X	X
SPLP Samples			
19B-03B; 19B-13B; 19B-20B; 19B-29B; 19B-44B	Base of stockpiles 1 and 2/3	X	X
19B-09C; 19B-10C; 19B-18C; 19B-41C		X	X
19B-14D; 19B-31D; 19B-35D; 19B-42D; 19B-43D		X	X
19B-35E; 19B-40E		X	X
19B-38F; 19B-43F; 19B-44F		X	X
19B-44G			
Native Surface Soil Samples			
19B-SS01 through 19B-SS10	0-2 ft bgs	X	X
Native Subsurface Soil Samples			
19B-SB01	10-12 ft bgs	X	X
19B-SB02	6-8 ft bgs	X	X
19B-SB03	11-13 ft bgs	X	X
19B-SB04	8.5-10.5 ft bgs	X	X
19B-SB05	3-5 ft bgs	X	X
19B-SB06	8-10 ft bgs	X	X
19B-SB07	6-8 ft bgs	X	X
19B-SB08	10-12 ft bgs	X	X
19B-SB09	9-11 ft bgs	X	X
18B-SB10	6-8 ft bgs	X	X

Notes:
ft bgs = feet below ground surface
SPLP = synthetic precipitation leaching procedure

Table 4.6
Groundwater Sample Summary Tract 19B DPT
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Collection Depth (ft bgs)	VOCs	Explosives	Metals
19B-UGIA-DPT01	14-16	X	X	X
19B-LGIA-DPT02	32-36	X	X	X
19B-UGIA-DPT03	11.5-13.5	X	X	X
19B-LGIA-DPT04	36-40	X	X	X
19B-UGIA-DPT05	20.5-22.5	X	X	X
19B-LGIA-DPT06	40-44	X	X	X
19B-UGIA-DPT07	23-27	X	X	X
19B-LGIA-DPT08	44-48	X	X	X
19B-UGIA-DPT09	22-26	X	X	X
19B-LGIA-DPT10	48-52	X	X	X
19B-UGIA-DPT11	26-30	X	X	X
19B-LGIA-DPT12	48-52	X	X	X
19B-UGIA-DPT13	10-14	X	X	X
19B-LGIA-DPT14	42-46	X	X	X
19B-UGIA-DPT15	10-14	X	X	X
19B-LGIA-DPT16	32-36	X	X	X
19B-UGIA-DPT17	16-20	X	X	X
19B-LGIA-DPT18	32-36	X	X	X
19B-UGIA-DPT19	10-14	X	X	X
19B-LGIA-DPT20	32-36	X	X	X

Notes:
ft bgs = feet below ground surface
VOCs = volatile organic compounds

Table 4.7
Well Construction Summary, Tract 19B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Depth to Fullerton Formation (ft bgs)
19B-UGIA-MW01	9/24/2018	1900.74	1902.91	9.5-19.5	--
19B-LGIA-MW02	9/24/2018	1900.41	1902.73	27-37	37.0
19B-UGIA-MW03	9/26/2018	1901.02	1903.28	9-19	--
19B-LGIA-MW04	9/26/2018	1900.88	1903.31	29-39	39.0
19B-UGIA-MW05	9/27/2018	1900.96	1903.41	9-19	--
19B-LGIA-MW06	9/26/2018	1901.09	1903.35	28-38	38.2

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.8
Groundwater Field Parameters, Tract 19B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
19B-G0037	8/14/2018	6.64	2.136	10.80	4.3	1.25	-48.5
19B-UGIA-MW01	11/8/2018	7.49	1.816	11.41	11.8	0.33	-82.7
19B-LGIA-MW02	11/8/2018	7.38	2.279	11.60	20.1	0.38	-52.0
19B-UGIA-MW03	11/8/2018	7.34	2.049	11.50	15.1	0.50	-43.0
19B-LGIA-MW04	11/8/2018	7.40	2.226	11.66	23.1	0.30	-77.7
19B-UGIA-MW05	11/8/2018	7.39	2.429	11.25	12.1	1.54	-54.1
19B-LGIA-MW06	11/8/2018	--	2.302	11.36	18.8	2.35	-60.8

Notes:

-- = meter was malfuntioning; accurate reading is not available prior to sampling. Well development data show pH of 7.02.

°C = degrees Celsius

DO = dissolved oxygen

mg/L = milligrams per liter

mS/cm = milli-Siemens per centimeter

mV = millivolts

NTU = nephelometric turbidity units

ORP = oxidation-reduction potential

Table 4.9
Soil Sample Summary, Tract 19C
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Depth (ft bgs)	Explosives	Metals	Polynuclear Aromatic Hydrocarbons
Surface Soil Samples				
19C-SS03A and 19C-SS04A	Samples collected from 0-0.5 ft bgs	X	X	X
19C-SS03B to 19C-SS09B		X	X	X
19C-SS02C to 19C-SS11C		X	X	X
19C-SS02D to 19C-SS04D		X	X	X
19C-SS06D and 19C-SS07D		X	X	X
19C-SS09D to 19C-SS11D		X	X	X
19C-SS02E to 19C-SS11E		X	X	X
19C-SS02F to 19C-SS11F		X	X	X
19C-SS01G to 19C-SS11G		X	X	X
19C-SS03H to 19C-SS11H		X	X	X
19C-SS03I to 19C-SS11I		X	X	X
19C-SS01D		--	Arsenic	--
Subsurface Soil Samples				
19C-SB06B	8-9	RDX	Manganese	--
19C-SB09B	9.5-10.5	--	Manganese	--
19C-SB03C	10-11	--	Cobalt, Manganese	--
19C-SB05C	7-12	RDX	--	--
19C-SB06C	10-11	RDX	Manganese	--
19C-SB07C	11-12	--	Iron	--
19C-SB02D	12-13	--	Arsenic, Cobalt, Iron, Manganese	--
19C-SB04D	8-9	--	Iron, Manganese	--
19C-SB06D	8-9	--	Manganese	--
19C-SB07D	8-9	RDX	--	--
19C-SB10D	9.5-10.5	--	Arsenic	--
19C-SB11D	9.5-10.5	--	Iron	--
19C-SB03E	10-11	RDX	Manganese	--
19C-SB04E	11-12	RDX		--
19C-SB05E	8.5-9.5	--	Manganese	--
19C-SB08E	9.5-10.5	--	Iron, Manganese	--
19C-SB05F	10-11	--	Manganese	--
19C-SB10F	9-10	--	Cobalt	--
19C-SB03G	9.5-10.5	--	Iron	--
19C-SB05G	9-10	RDX	--	--
19C-SB10G	9.75-10.75	--	Cobalt	--
19C-SB11G	10-11	--	Manganese	--
19C-SB04H	9.5-10.5	Nitrobenzene	Manganese	--
19C-SB11H	9-10	RDX	--	--
19C-SB04I	8.5-9.5	Nitrobenzene	--	--

Notes:

- Samples 19C-SS05E, 19C-SS07E, 19C-SS06F, 19C-SS05G, and 19C-SS08G were also analyzed for hexavalent chromium
- An "X" indicates the sample was analyzed for the full suite analytical group, if a sample was analyzed for a subset of analytes, the subset is noted.

ft bgs = feet below ground surface
ID = identification
RDX = cyclotrimethylenetrinitramine
-- = not analyzed

Table 4.10
Well Construction Summary, Tract 19C
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Depth to Fullerton Formation (ft bgs)
19C-UGIA-MW01	6/14/2018	1903.83	1906.58	11-21	--
19C-LGIA-MW02	6/14/2018	1903.98	1906.47	26-36	36.0
19C-UGIA-MW03	6/12/2018	1898.97	1901.54	10.5-20.5	--
19C-LGIA-MW04	6/12/2018	1899.13	1901.41	24-34	34.0
19C-UGIA-MW05	6/13/2018	1898.30	1901.10	7-17	--
19C-LGIA-MW06	6/13/2018	1898.02	1900.77	22-32	32.0
19C-LGIA-MW07	7/18/2018	1902.43	1904.52	27-37	37.5

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.
[1] = mean sea level corresponds with North American Vertical Datum of 1988 (NAVD 88)
-- = not applicable
ft bgs = feet below ground surface
ft amsl = feet above mean sea level

Table 4.11
Groundwater Field Parameters, Tract 19C
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
19C-UGIA-MW01	8/7/2018	6.77	2.550	14.92	21.4	9.60	-80.9
19C-LGIA-MW02	8/7/2018	6.73	2.449	13.55	6.2	12.40	-78.3
19C-UGIA-MW03	8/7/2018	6.42	2.212	12.40	48.2	9.90	8.3
19C-LGIA-MW04	8/7/2018	6.70	2.450	11.89	9.6	11.70	-61.9
19C-UGIA-MW05	8/7/2018	6.65	1.524	12.85	46.6	8.80	-57.4
19C-LGIA-MW06	8/7/2018	6.67	2.577	13.17	6.3	12.0	-7.2
19C-LGIA-MW07	8/8/2018	6.74	2.504	13.42	26.3	6.40	-35.7
19C-G0005	6/3/2018	7.00	3.790	14.09	47.9	0.34	-13.3
19C-G0006	6/3/2018	7.32	2.150	13.24	5.8	2.84	1.9
19C-G0007	6/3/2018	7.18	3.211	12.14	27.5	0.61	15.5
19C-G0008	6/3/2018	7.10	3.389	14.29	15.8	2.05	-19.9
19C-G0036	8/8/2018	6.58	2.260	12.46	23.2	7.10	-74.5
19C-BGMW01	6/2/2018	7.22	2.037	12.57	11.3	0.61	24.5
19C-BGMW02	6/2/2018	6.73	2.449	13.55	6.2	12.40	-78.3
19C-BGGW01	6/2/2018	7.58	3.229	12.87	5.0	4.08	14.0
19C-BGGW02	6/2/2018	7.35	1.989	13.42	4.7	1.47	11.2

Notes:

°C = degrees Celsius
DO = dissolved oxygen
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts

Table 4.12
Soil Sample Summary, Tract 20B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Collection Depth (ft bgs)	PAHs	Explosives	Metals
20B-SS01 through 20B-SS06	0-0.5	X	X	X
20B-SS07 through 20B-SS09	0-0.5		RDX	Arsenic, Hexavalent chromium
20B-SS10	0-0.5		RDX	
20B-SS11 and 20B-SS12	0-0.5		X	
20B-SB01	3-4; 7-8; 11-12	X	X	X
20B-SB02	3-4; 7-8	X	X	X
	9-10		RDX	Arsenic, Hexavalent chromium
	11-12		RDX	
20B-SB03	3-4; 7-8	X	X	X
20B-SB04	3-4; 7-8	X	X	X
20B-SB05	3-4; 7-8	X	X	X
20B-SB06	3-4; 7-8	X	X	X
20B-SB07	3-4; 7-8; 9-10		RDX	Arsenic, Hexavalent chromium
20B-SB08	3-4; 9-10		RDX	Arsenic, Hexavalent chromium
	7-8		RDX	Arsenic
20B-SB08	3-4; 9-10		RDX	Arsenic, Hexavalent chromium
	7-8		RDX	Arsenic
20B-SB10	3-4; 7-8		RDX	
20B-SB11	3-4; 7-8		X	
20B-SB12	3-4; 7-8		X	

Notes:
ft bgs = feet below ground surface
PAH = polynuclear aromatic hydrocarbon
RDX = cyclotrimethylenetrinitramine

Table 4.13
Well Construction Summary, Tract 20B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Depth to Fullerton Formation (ft bgs)
20B-UGIA-MW01	3/18/2018	1902.12	1904.69	9-19	--
20B-LGIA-MW02	3/18/2018	1902.16	1904.80	27-37	37.0
20B-UGIA-MW03	3/19/2018	1901.75	1904.27	10-20	--
20B-LGIA-MW04	3/19/2018	1901.79	1904.36	26.5-36.5	36.5
20B-UGIA-MW05	3/15/2018	1901.29	1903.94	10-20	--
20B-LGIA-MW06	3/14/2018	1901.27	1903.89	26-36	38.5
20B-UGIA-MW07	3/16/2018	1901.98	1904.51	12.5-22.5	--
20B-LGIA-MW08	3/15/2018	1901.94	1904.48	27-37	36.5
20B-UGIA-MW09	7/17/2018	1901.29	1903.98	10-20	--
20B-UGIA-MW10	7/16/2018	1901.78	1904.31	10-20	--
20B-UGIA-MW11	7/17/2018	1901.57	1904.18	9.5-19.5	--

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.14
Groundwater Field Parameters, Tract 20B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
20B-G0064	8/9/2018	6.17	2.167	11.40	48.6	5.80	-58.2
20B-UGIA-MW01	6/4/2018	7.10	1.894	13.90	14.1	0.49	-268.2
20B-LGIA-MW02	6/4/2018	6.76	2.825	13.90	15.8	0.33	-275.0
20B-UGIA-MW03	5/31/2018	7.48	0.963	14.87	15.4	0.45	28.1
20B-LGIA-MW04	5/31/2018	7.53	2.660	15.47	15.9	0.65	20.5
20B-UGIA-MW05	6/1/2018	6.93	2.709	14.07	16.2	0.68	23.9
20B-LGIA-MW06	6/1/2018	6.99	2.564	16.16	8.5	0.59	22.8
20B-UGIA-MW07	6/4/2018	7.10	2.954	13.72	11.4	0.76	-212.2
20B-LGIA-MW08	6/1/2018	7.12	2.622	15.24	10.3	0.52	18.9
20B-UGIA-MW09	8/8/2018	6.72	1.332	11.84	31.5	5.10	-65.2
20B-UGIA-MW10	8/8/2018	6.48	1.962	11.98	13.5	6.00	-76.6
20B-UGIA-MW11	8/8/2018	6.74	0.859	12.46	18.7	5.30	-19.2

Notes:

°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

Table 4.15
Summary of Field Activities Completed by MRS
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Item Description	South Fuze Destruction Area	Abandoned Burning Area
Brush Clearance and Surface Sweep	1.84 acres	6,040 ft
Person-portable DGM	1.84 acres	6,040 ft
Intrusive Investigations	60 targets	69 targets
MEC Identified	0	0
MDAS	4.9 pounds	

Notes:

DGM = digital geophysical mapping

ft = feet

MDAS = material documented as safe

MEC = munitions and explosives of concern

Table 4.16
Soil Sample Summary, Tract 21B-Burning Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Depth (ft bgs)	Explosives	Metals	Hexavalent Chromium
Trench PRST008				
21B-BPA-SS01	0-0.5	X	X	X
21B-BPA-SB01	3-4; 7-8	X	X	X
21B-BPA-SS02	0-0.5	X	X	--
21B-BPA-SB02	3-4; 7-8	X	X	--
21B-BPA-SS03	0-0.5	X	X	X
21B-BPA-SB03	3-4; 7-8	X	X	X
21B-BPA-SS04	0-0.5	X	X	--
21B-BPA-SB04	3-4; 7-8	X	X	--
21B-BPA-SS11	0-0.5	X	X	--
21B-BPA-SS12	0-0.5	X	X	--
21B-BPA-SS13	0-0.5	X	X	--
21B-BPA-SS14	0-0.5	X	X	--
Trench PRST007				
21B-BPA-SS05	0-0.5	X	X	X
21B-BPA-SB05	3-4; 7-8	X	X	X
21B-BPA-SS06	0-0.5	X	X	--
21B-BPA-SB06	3-4; 7-8	X	X	--
21B-BPA-SS07	0-0.5	X	X	--
21B-BPA-SB07	3-4; 7-8	X	X	--
21B-BPA-SS08	0-0.5	X	X	X
21B-BPA-SB08	3-4; 7-8	X	X	X
21B-BPA-SS15	0-0.5	X	X	--
21B-BPA-SS16	0-0.5	X	X	--
21B-BPA-SS17	0-0.5	X	X	--
21B-BPA-SS18	0-0.5	X	X	--
Trench PRST004				
21B-BPA-SS09	0-0.5	X	X	--
21B-BPA-SB09	4-5	X	X	--
21B-BPA-SS10	0-0.5	X	X	X
21B-BPA-SB10	4-5	X	X	X
21B-BPA-SS19	0-0.5	X	X	--
21B-BPA-SS20	0-0.5	X	X	--
21B-BPA-SS21	0-0.5	X	X	--
21B-BPA-SB21	2-3; 5-6	X	X	--
21B-BPA-SS22	0-0.5	X	X	--

Notes:

ft bgs = feet below ground surface

-- = not analyzed

Table 4.17
Well Construction Summary, Tract 21B-Burning Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Depth to Fullerton Formation (ft bgs)
21B-BPA-UGIA-MW01	5/17/2018	1907.21	1909.81	11-21	--
21B-BPA-LGIA-MW02	5/17/2018	1907.15	1909.58	30-40	40.0
21B-BPA-UGIA-MW03	3/30/2018	1907.13	1909.89	10-20	--
21B-BPA-LGIA-MW04	3/30/2018	1907.19	1909.96	30-40	40.0
21B-BPA-LGIA-MW05	5/17/2018	1907.69	1910.03	31-41	42.0
21B-BPA-UGIA-MW06	5/17/2018	1907.75	1910.14	10-20	--
21B-BPA-UGIA-MW07	4/3/2018	1906.31	1909.00	10-20	--
21B-BPA-LGIA-MW08	4/3/2018	1906.51	1909.01	28.5-38.5	38.5
21B-BPA-UGIA-MW09	7/20/2018	1907.87	1910.38	11-21	--
21B-BPA-LGIA-MW10	7/17/2018	1906.25	1908.55	34-44	44.5
21B-BPA-UGIA-MW11	7/21/2018	1908.03	1910.55	9-19	--
21B-BPA-UGIA-MW12	7/20/2018	1908.56	1911.01	10-20	--

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.18
Groundwater Field Parameters, Tract 21B-Burning Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
21B-BPA-PRGW01	6/18/2018	7.07	2.133	13.15	8.09	0.73	-155.4
21B-BPA-PRGW02	6/18/2018	7.43	2.496	15.52	26.20	8.67	-47.0
21B-BPA-PRGW05	6/1/2018	6.98	3.268	13.55	6.51	3.92	39.2
21B-BPA-G0071	6/18/2018	6.88	2.449	14.28	43.40	0.61	-48.1
21B-BPA-UGIA-MW01	6/14/2018	7.05	2.421	13.74	5.41	0.15	-85.9
21B-BPA-LGIA-MW02	6/14/2018	7.20	2.761	16.15	9.80	0.40	-92.9
21B-BPA-UGIA-MW03	6/1/2018	7.02	2.399	13.30	10.00	0.18	-73.2
21B-BPA-LGIA-MW04	6/1/2018	6.83	3.374	13.40	10.30	0.80	83.7
21B-BPA-LGIA-MW05	6/6/2018	7.04	2.885	15.74	19.70	0.59	-131.0
21B-BPA-UGIA-MW06	6/18/2018	6.94	2.883	13.19	7.30	5.40	54.4
21B-BPA-UGIA-MW07	6/1/2018	6.92	2.149	12.63	5.99	0.31	-11.5
21B-BPA-LGIA-MW08	6/1/2018	7.00	2.722	14.23	9.98	0.39	-94.8
21B-BPA-UGIA-MW09	8/13/2018	6.62	2.093	11.06	6.32	1.04	-52.2
21B-BPA-LGIA-MW10	8/9/2018	6.81	2.407	14.02	9.20	7.50	-63.8
21B-BPA-UGIA-MW11	8/21/2018	6.75	2.771	13.57	1.59	0.33	53.5
21B-BPA-UGIA-MW12	8/10/2018	6.61	2.201	10.48	9.41	9.10	169.4

Notes:

°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

Table 4.19
Soil Sample Summary, Tract 21B-Backstop Berm and Static Ejection Site
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Collection Depth (ft bgs)	Explosives	Metals
21B-BB-SS01 through 20B-BB-SS06	0-0.5	X	X
21B-BB-SB01 through 20B-BB-SB06	3-4	X	X
SPLP Samples			
21B-BB-SS06	0-0.5	--	X
21B-BB-SB06	3-4	--	X

Notes:

ft bgs = feet below ground surface

SPLP = synthetic precipitate leaching procedure

-- = not analyzed

Table 4.20
Well Construction Summary, Tract 21B-Backstop Berm and Static Ejection Site
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Fullerton Formation (ft bgs)
21B-BB-UGIA-MW01	5/16/2018	1907.21	1913.92	15-25	--
21B-BB-LGIA-MW02	5/16/2018	1907.15	1913.90	38-48	48.0
21B-BB-UGIA-MW03	7/19/2018	1909.31	1912.63	10.5-20.5	--
21B-BB-LGIA-MW04	7/19/2018	1909.29	1912.40	33-43	43.0

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.21
Groundwater Field Parameters, Tract 21B-Backstop Berm and Static Ejection Site
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
21B-BB-UGIA-MW01	6/19/2018	6.94	1.619	12.75	7.4	0.62	-54.7
21B-BB-LGIA-MW02	6/19/2018	7.09	1.648	13.00	10.0	6.20	-97.9
21B-BB-UGIA-MW03	8/9/2018	6.39	1.478	12.31	8.4	7.10	18.9
21B-BB-LGIA-MW04	8/9/2018	6.45	2.123	12.37	18.4	6.50	-67.9

Notes:

°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

Table 4.22
Soil Sample Summary, Tract 21B-Decanting Station and Leaching Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location	Sample Collection Depth (ft bgs)	VOCs	Explosives	Metals
21B-DS-SS01	0-0.5	--	X	X
21B-DS-SB01	4-5	--	X	X
21B-DS-SS02 through 20B-DS-SS12	0-0.5	X	X	X
21B-DS-SB02 through 20B-DS-SB12	4-5	X	X	X
21B-DS-SB02 through 21B-DS-SB06	9-10	X	X	X

Notes:
ft bgs = feet below ground surface
VOC = volatile organic compound
-- = not analyzed

Table 4.23
Well Construction Summary, Tract 21B-Decanting Station and Leaching Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Fullerton Formation (ft bgs)
21B-DS-LGIA-MW01	5/15/2018	1909.53	1912.12	32.5-42.5	43.0
21B-DS-LGIA-MW02	5/15/2018	1909.51	1912.08	32.5-42.5	42.5
21B-DS-LGIA-MW03	5/14/2018	1909.28	1911.97	33-43	43.0
21B-DS-LGIA-MW04	5/14/2018	1909.24	1911.67	32-42	42.0
21B-DS-LGIA-MW05	3/31/2018	1908.68	1911.53	33-43	43.5
21B-DS-LGIA-MW06	3/31/2018	1908.95	1911.56	33-43	43.5
21B-DS-LGIA-MW07	3/31/2018	1909.81	1912.54	35-45	45.5
21B-DS-UGIA-MW08	7/19/2018	1910.01	1912.49	10-20	--
21B-DS-LGIA-MW09	7/19/2018	1910.04	1912.46	33-43	43.0
21B-DS-UGIA-MW10	7/19/2018	1909.95	1912.38	9.5-19.5	--
21B-DS-UGIA-MW11	7/19/2018	1910.05	1912.36	11.5-21.5	--
21B-DS-LGIA-MW12	7/19/2018	1910.04	1912.31	34-44	45.5
21B-DS-LGIA-MW13	7/21/2018	1909.31	1911.67	34.5-44.5	44.5

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.24
Groundwater Field Parameters, Tract 21B-Decanting Station and Leaching Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
21B-DS-G0102	6/2/2018	6.84	1.884	12.52	9.8	0.82	-40.1
21B-DS-G0103	6/2/2018	6.08	1.846	17.42	32.4	0.26	-325.3
21B-DS-G0104	8/13/2018	6.93	1.954	11.87	3.7	1.25	-232.0
21B-DS-G0105	6/13/2018	7.54	2.572	12.37	7.2	0.65	-130.5
21B-DS-G0106	6/2/2018	7.12	2.125	11.78	10.9	0.45	-60.0
21B-DS-G0107	6/2/2018	6.90	2.161	13.06	21.2	0.25	-47.4
21B-DS-G0063	6/1/2018	6.74	1.898	13.61	1.2	0.50	35.8
21B-DS-LGIA-MW01	6/2/2018	6.78	2.341	13.07	2.7	0.31	-78.9
21B-DS-LGIA-MW02	6/2/2018	6.91	2.336	13.74	11.43	0.16	-90.4
21B-DS-LGIA-MW03	8/13/2018	6.96	2.068	12.21	9.9	0.55	-84.5
21B-DS-LGIA-MW04	6/1/2018	6.96	2.350	13.91	20.2	2.93	-94.9
21B-DS-LGIA-MW05	6/13/2018	7.12	2.579	14.33	5.7	2.12	-76.1
21B-DS-LGIA-MW06	6/19/2018	6.93	1.710	14.10	40.9	11.3	-120.6
21B-DS-LGIA-MW07	6/2/2018	6.97	1.990	13.41	10.1	0.16	-41.0
21B-DS-UGIA-MW08	8/10/2018	6.42	2.220	15.82	7.2	9.00	32.2
21B-DS-LGIA-MW09	8/10/2018	6.62	2.041	12.03	10.0	8.00	-44.2
21B-DS-UGIA-MW10	8/10/2018	6.84	1.910	10.83	8.8	9.40	-6.3
21B-DS-UGIA-MW11	8/10/2018	6.70	1.974	15.26	8.0	6.90	-24.4
21B-DS-LGIA-MW12	8/10/2018	6.86	2.195	12.98	20.6	7.60	-67.4
21B-DS-LGIA-MW13	8/21/2018	6.85	2.322	14.33	9.8	0.76	-52.2

Notes:

°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

Table 4.25
Well Construction Summary, Tract 21C
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Monitoring Well Identification	Date Installed	Ground Surface Elevation (ft amsl[1])	Top of Casing Elevation (ft amsl[1])	Screened Interval (ft bgs)	Fullerton Formation (ft bgs)
21C-UGIA-MW01	4/5/2018	1908.38	1910.96	11-21	--
21C-LGIA-MW02	4/5/2018	1908.37	1910.97	32-42	43.0
21C-UGIA-MW03	4/6/2018	1908.25	1910.65	10.5-20.5	--
21C-LGIA-MW04	4/6/2018	1908.09	1910.53	34-44	43.8
21C-UGIA-MW05	4/5/2018	1907.62	1910.13	10-20	--
21C-LGIA-MW06	4/5/2018	1907.48	1910.11	34.5-44.5	44.5
21C-UGIA-MW07	4/4/2018	1907.04	1909.83	11.5-21.5	--
21C-LGIA-MW08	4/4/2018	1907.21	1909.80	35-45	45.0
21C-UGIA-MW09	4/6/2018	1907.78	1910.44	11-21	--
21C-LGIA-MW10	4/6/2018	1907.60	1910.27	35-45	45.0

Notes:

All wells constructed of 2-inch diameter, Schedule 40 polyvinyl chloride with 0.010-inch machine-slotted screens.

[1] = mean sea level is based on North American Vertical Datum of 1988 (NAVD 88)

-- = not applicable

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

Table 4.26
Groundwater Field Parameters, Tract 21C
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Well	Date	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	DO (mg/L)	ORP (mV)
21C-UGIA-MW01	5/21/2018	7.21	3.182	12.40	16.8	0.71	-16.7
21C-LGIA-MW02	5/21/2018	6.98	2.991	13.81	12.2	0.72	-30.4
21C-UGIA-MW03	5/21/2018	6.9	22.728	14.63	11.2	1.06	-28.2
21C-LGIA-MW04	5/21/2018	6.62	3.045	14.45	8.8	0.71	-35.9
21C-UGIA-MW05	5/21/2018	7.01	3.436	13.22	15.2	0.51	-12.1
21C-LGIA-MW06	5/23/2018	6.89	2.826	14.88	6.9	0.73	13.2
21C-UGIA-MW07	5/22/2018	6.82	3.225	15.29	10.4	0.67	139.9
21C-LGIA-MW08	5/22/2018	6.90	3.006	14.79	36.1	0.53	38.8
21C-UGIA-MW09	5/23/2018	7.05	3.019	14.91	6.0	0.49	0.9
21C-LGIA-MW10	5/23/2018	6.79	2.835	17.56	45.2	0.78	-4.6

Notes:

°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mS/cm = milli-Siemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

Table 5.1a
Tract 19B Stockpiled Soil, Stockpile 1, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP01B	19B-SP02B	19B-SP03B	19B-SP04B	19B-SP05B	19B-SP06B	19B-SP07B	19B-SP08B	19B-SP09B	19B-SP109B	19B-SP10B	19B-SP11B	19B-SP12B	19B-SP13B
			Sample Date	4/22/2018	4/22/2018	4/21/2018	4/21/2018	4/21/2018	4/21/2018	4/22/2018	4/22/2018	4/22/2018		4/20/2018	4/22/2018	4/20/2018	4/22/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	2,000	1,100	780	480	280	780	420	550	1,300	1,000	430	820	19 J	31 J
RDX	--	8,300	7.4	1,700	2,900	1,600	320	290	1,000	150	570	1,700	1,600	710	1,600	85 J	34 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
1,3-Dinitrobenzene	--	6,300	36	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
Tetryl	--	160,000	7,400	54 U	57 U	54 UJ	59 UJ	50 UJ	54 UJ	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
Nitrobenzene	--	5,100	1.84	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
2,4,6-Trinitrotoluene	--	21,000	300	37 J	330	54 U	76 J	44 J	51 J	37 J	36 J	31 J	27 J	240	140	92 J	44 J
2-Amino-4,6-dinitrotoluene	--	7,700	30	98 J	260	54 U	69 J	94 J	140	39 J	49 J	64 J	56 J	240	110	120	65 J
4-Amino-2,6-dinitrotoluene	--	7,700	30	98 J	360	54 U	59 U	100 J	120 J	62 J	72 J	77 J	69 J	330	230	130 J	84 J
2,6-Dinitrotoluene	--	360	1.34	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
2,4-Dinitrotoluene	--	1,700	6.4	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
2-Nitrotoluene	--	3,200	6	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
3-Nitrotoluene	--	6,300	32	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
4-Nitrotoluene	--	34,000	80	54 U	57 U	54 U	59 U	50 U	54 U	49 U	50 U	50 U	49 U	53 U	44 U	50 U	52 U
Nitroglycerin	--	6,300	17	430 U	450 U	440 U	470 U	400 U	430 U	390 U	400 U	400 U	390 U	420 U	350 U	400 U	420 U
PETN	--	130,000	560	430 U	450 U	440 U	470 U	400 U	430 U	390 U	400 U	400 U	390 U	420 U	350 U	400 U	420 U
Metals (mg/kg)																	
Aluminum	26,400	77,000	600,000	19,600	20,400	17,600	20,300	20,000	13,700	17,500	18,000	17,600	18,500	21,200	19,600	17,700	21,800
Antimony	0.333	31	7	0.216	0.259	0.18	0.213	0.235	0.326	0.244	0.224	0.194	0.211	0.248 J	0.284	0.263 J	0.264
Arsenic	13.6	0.68	5.8	5.80	7.05	4.96	7.54	6.26	4.50	5.16	4.44	3.79	4.24	4.02	6.40	4.96	4.72
Barium	375	15,000	3,200	242 J	300 J	318	230	253	179	323	191	204	194	182	197	213	188
Beryllium	1.14	160	380	0.880	0.866	0.743	0.896	0.860	0.651	0.711	0.703	0.664	0.736	0.684	0.715	0.710	0.714
Cadmium	0.31	71	13.8	0.105 J	0.0805 J	0.13 J	0.0951 J	0.136 J	0.196 J	0.137 J	0.191 J	0.206 J	0.219 J	0.300	0.219 J	0.513	0.225 J
Calcium	--	--	--	27,400 J	36,600 J	47,300 J	26,100 J	32,700 J	15,900 J	23,400 J	11,000 J	12,200 J	17,800 J	15,800 J	15,300 J	27,200 J	17,000 J
Chromium Total[1]	24.2	120,000	3,600,000	15.9	16.7	14.8	16.4	16.6	12.0	14.8	14.9	14.2	15.0	13 J	14.9	14.7 J	15.9
Cobalt	11.2	23	5.4	6.29	6.11	5.56	6.47	7.12	5.52	6.62	6.29	5.64	6.50	5.33	5.65	6.22	6.56
Copper	17.1	3,100	920	11.8	13.6	16.0	12.2	20.0	10.0	16.8	14.3	11.5	12.4	15.2	15.6	23.4	14.5
Iron	19,100	55,000	7,000	15,400	16,700	13,500	15,300	15,400	11,200	13,800 J	13,200 J	12,700 J	13,700 J	12,700	14,900 J	13,800	13,900 J
Lead	16.4	400	280	17.4	19.6	21.2 J	14.5 J	24.4 J	29.4 J	33.1	26.2	46.4	39.6	33.1 J	28.4	29.3 J	23.6
Magnesium	--	--	--	7,290	8,140	7,040	7,680	7,870	5,140	6,750	5,820	4,960	5,920	5,380	5,970	6,570	5,980
Manganese	542	1,800	560	296	286	265 J	323 J	358 J	271 J	359	341	316	386	259	284	313	342
Mercury	0.0287	11	2	0.019 J	0.02 J	0.017 J	0.019 J	0.021 J	0.018 J	0.028 J	0.027 J	0.029 J	0.021 J	0.023 J	0.025 J	0.037	0.021 J
Nickel	24.1	1,500	520	13.6	14.2	11.5	14.0	14.2	10.3	13.3	11.8	10.8	13.7	11.3	11.6	13.6	15.5
Potassium	--	--	--	5,590	5,650	5,100	6,310	5,590	4,380	4,890	5,330	4,790	5,200	4,590	4,890	4,920	5,130
Selenium	0.824	390	10.4	0.490	0.444	0.523 J	0.41 J	0.514	0.455 J	0.592	0.450	0.32 J	0.36 J	0.416	0.485 J	0.494	0.599
Silver	0.114	390	16	0.0942	0.116	0.0931 J	0.088 J	0.0892 J	0.0726 J	0.0911	0.0756 J	0.0672 J	0.0702 J	0.0784 U	0.0787 J	0.118	0.0771 J
Sodium	--	--	--	244	334	274	335	295	235	208	217	175	188	193	197	376	268
Thallium	0.405	0.78	2.8	0.297	0.307	0.259	0.286	0.300	0.233	0.282	0.253	0.263	0.279	0.219	0.256	0.240	0.274
Vanadium	50	390	1,720	33.6	36.7	31.5	34.7	35.9	24.4	34.0000	31.4	28.5	31.3	24.7	32.6	26.9	33.1
Zinc	57	23,000	7,400	45.3 J	49.9 J	49.4	48.1	66.5	41.0	58.7	59.5	53.9	51.4	51.1	58.7	60.2	53.3

Table 5.1a (Continued)
Tract 19B Stockpiled Soil, Stockpile 1, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP14B	19B-SP15B	19B-SP16B	19B-SP17B	19B-SP18B	19B-SP19B	19B-SP20B	19B-SP21B	19B-SP121B	19B-SP22B	19B-SP122B	19B-SP23B	19B-SP24B	19B-SP02C
			Sample Date	4/20/2018	4/20/2018	4/22/2018	4/22/2018	4/20/2018	4/22/2018	4/20/2018	4/22/2018		4/21/2018		4/21/2018	4/22/2018	4/22/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Duplicate	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	110	92 J	49 J	54 U	76 J	38 J	690	52 U	18 J	68 J	60 J	860	37 J	610 J
RDX	--	8,300	7.4	91 J	120	58 J	54 U	300	65 J	3,500	36 J	35 J	120	94	4,400	93 J	460
1,3,5-Trinitrobenzene	--	2,200,000	42,000	52 U	55 U	47 U	54 U	57 J	57 U	36 J	52 U	50 U	54 U	47 U	56 U	50 U	51 U
1,3-Dinitrobenzene	--	6,300	36	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
Tetryl	--	160,000	7,400	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 UJ	47 UJ	56 UJ	50 U	51 U
Nitrobenzene	--	5,100	1.84	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
2,4,6-Trinitrotoluene	--	21,000	300	8,400	110	47 J	54 U	610	170	560	52 U	50 U	72 J	2,200 J	3,300	340	51 U
2-Amino-4,6-dinitrotoluene	--	7,700	30	210	120	47 U	54 U	290	76 J	290	52 U	50 U	120	120	1,400	180	51 U
4-Amino-2,6-dinitrotoluene	--	7,700	30	300	110	47 U	54 U	380	160 J	360	52 U	50 U	140	140 J	750	140 J	51 U
2,6-Dinitrotoluene	--	360	1.34	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
2,4-Dinitrotoluene	--	1,700	6.4	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
2-Nitrotoluene	--	3,200	6	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
3-Nitrotoluene	--	6,300	32	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
4-Nitrotoluene	--	34,000	80	52 U	55 U	47 U	54 U	53 U	57 U	54 U	52 U	50 U	54 U	47 U	56 U	50 U	51 U
Nitroglycerin	--	6,300	17	410 U	440 U	380 U	440 U	420 U	460 U	430 U	420 U	400 U	430 U	370 U	450 U	400 U	410 U
PETN	--	130,000	560	410 U	440 U	380 U	440 U	420 U	460 U	430 U	420 U	400 U	430 U	370 U	450 U	400 U	410 U
Metals (mg/kg)																	
Aluminum	26,400	77,000	600,000	24,600	15,100	17,200	18,800	19,000	19,400	19,900	18,600	17,900	20,600	18,600	17,600	25,000	19,800
Antimony	0.333	31	7	0.663 J	0.18 J	0.171	0.196	0.255 J	0.322	0.14 J	0.163	0.16	0.223	0.178	0.246	0.287	0.648
Arsenic	13.6	0.68	5.8	3.95	4.28	3.88	3.8	6.24	6.34	4.36	5.10	3.95	5.78	4.90	4.08	3.87	5.03
Barium	375	15,000	3,200	179	183	174	218	206	209	174	194	186	250	213	226	197	183 J
Beryllium	1.14	160	380	0.683	0.660	0.683	0.745	0.731	0.785	0.674	0.745	0.749	0.772	0.815	0.695	0.727	0.803
Cadmium	0.31	71	13.8	0.205	0.188 J	0.106 J	0.16 J	0.238	0.249	0.236	0.143 J	0.101 J	0.141 J	0.14 J	0.986	5.48	0.199 J
Calcium	--	--	--	11,100 J	15,100 J	9,080 J	14,900 J	20,100 J	17,500 J	24,400 J	11,900 J	9,960 J	16,400	20,200	23,300	12,900 J	24,500 J
Chromium Total[1]	24.2	120,000	3,600,000	13.7 J	12.7 J	14.6	15.4	14.9 J	16.0	14.1 J	15.7	15.8	15.8	16.2	14.2	16.9	15.8
Cobalt	11.2	23	5.4	5.60	5.62	5.50	6.10	7.07	7.53	5.55	5.92	5.31	6.30	6.14	5.46	6.12	6.01
Copper	17.1	3,100	920	17.0	16.6	10.0	11.4	14.2	14.6	15.3	11.4	11.2	13.1	12.0	32.1	487	14.3
Iron	19,100	55,000	7,000	13,000	12,300	12,700 J	14,100 J	14,400	15,500 J	13,400	13,900 J	13,600 J	15,300	15,200	13,500	14,100 J	14,600
Lead	16.4	400	280	21.8 J	21.8 J	14.1	17.6	21.7 J	24.5	15.2 J	15.4	13.1	15.6	16.2	20.1	36.3	19.2
Magnesium	--	--	--	5,340	5,900	5,740	6,300	6,810	6,660	6,530	7,080	6,450	7,170	6,900	5,030	5,560	6,950
Manganese	542	1,800	560	304	318	280	287	365	375	248	310	250	310	305	268	351	254
Mercury	0.0287	11	2	0.015 J	0.025 J	0.017 J	0.022 J	0.016 J	0.024 J	0.021 J	0.021 J	0.017 J	0.022 J	0.017 J	0.130	0.0629	0.025 J
Nickel	24.1	1,500	520	12.1	12.6	11.1	11.9	13.4	15.2	11.7	12.1	11.3	13.0	12.8	11.7	13.6	14.0
Potassium	--	--	--	4,350	4,810	4,860	5,190	5,140	5,450	4,930	5,590	5,370	5,760	5,440	4,590	5,050	5,310
Selenium	0.824	390	10.4	0.44 J	0.43 J	0.448	0.374 J	0.510	0.529	0.556	0.431	0.34 J	0.582	0.469	0.398	0.646	0.572
Silver	0.114	390	16	0.0815 U	0.0783 U	0.0747	0.0774 J	0.0906	0.115	0.0807 J	0.0884	0.0798 J	0.0942 J	0.0886	0.0853	0.109	0.0877
Sodium	--	--	--	190	203	185	286	280	268	220	238	244	311	329	202	214	250
Thallium	0.405	0.78	2.8	0.243	0.236	0.255	0.271	0.267	0.301	0.244	0.275	0.270	0.297	0.270	0.257	0.246	0.272
Vanadium	50	390	1,720	25.3	25.3	30.1	30.8	32.5	35.4	28.5	34.0	30.9	33.3	35.3	30.7	31	31.0
Zinc	57	23,000	7,400	52.8	61.3	38.8	48.1	49.3	55.9	49.7	40.8	40.3	47.6	45.1	61.9	86.2	72.1 J

Table 5.1a (Continued)
Tract 19B Stockpiled Soil, Stockpile 1, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP03C	19B-SP103C	19B-SP04C	19B-SP05C	19B-SP06C	19B-SP07C	19B-SP08C	19B-SP09C	19B-SP109C	19B-SP10C	19B-SP11C	19B-SP12C	19B-SP13C	19B-SP14C
			Sample Date	4/21/2018		4/21/2018	4/21/2018	4/21/2018	4/21/2018	4/22/2018	4/22/2018		4/21/2018	4/21/2018	4/21/2018	4/21/2018	4/21/2018
			Sample Type	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	50 J	61 J	54 J	78 J	680	400	2,200	1,300 J	120 J	5,400	970	240	160	57 U
RDX	--	8,300	7.4	140	140	39 J	170	5,200	720	11,000	8,300 J	720 J	22,000	1,000	440	310	400 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	56 U	56 U	51 U	47 U	50 J	56 U	440	91 J	46 U	56 U	63 J	54 U	58 U	57 U
1,3-Dinitrobenzene	--	6,300	36	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
Tetryl	--	160,000	7,400	56 UJ	56 U	51 UJ	47 UJ	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
Nitrobenzene	--	5,100	1.84	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
2,4,6-Trinitrotoluene	--	21,000	300	46 J	98 J	120	1,200	25,000	320	1,800	1,100 J	170 J	8,200	3,300	140	220	57 U
2-Amino-4,6-dinitrotoluene	--	7,700	30	84 J	89 J	190	350	450	300	520	370 J	170 J	350	720	210	150	57 U
4-Amino-2,6-dinitrotoluene	--	7,700	30	88 J	91 J	150 J	300	300	260	750	550 J	180 J	1,200	1,400	200	240	57 U
2,6-Dinitrotoluene	--	360	1.34	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
2,4-Dinitrotoluene	--	1,700	6.4	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
2-Nitrotoluene	--	3,200	6	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
3-Nitrotoluene	--	6,300	32	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
4-Nitrotoluene	--	34,000	80	56 U	56 U	51 U	47 U	50 U	56 U	55 U	51 U	46 U	56 U	56 U	54 U	58 U	57 U
Nitroglycerin	--	6,300	17	450 U	440 U	410 U	380 U	400 U	440 U	440 U	410 U	360 U	450 U	450 U	430 U	470 U	450 U
PETN	--	130,000	560	450 U	440 U	410 U	380 U	400 U	440 U	440 U	410 U	360 U	450 U	450 U	430 U	470 U	450 U
Metals (mg/kg)																	
Aluminum	26,400	77,000	600,000	18,300	18,100	19,900	20,900	15,200	17,600	20,100	22,300	19,200	24,800	137,000	18,800	16,900	20,700
Antimony	0.333	31	7	0.180	0.188	0.910	0.481	0.599	0.364	0.272	0.318	0.278	0.334	0.865	0.250	0.341	0.287
Arsenic	13.6	0.68	5.8	4.84	7.73	5.31	4.02	3.57	3.83	4.44	6.07	5.01	9.89	3.64	4.02	5.36	6.63
Barium	375	15,000	3,200	245	236	204	210	204	202	207 J	220 J	202	262	134	178	180	202
Beryllium	1.14	160	380	0.752	0.777	0.834	0.774	0.707	0.718	0.751	0.824	0.763	1.010	0.511	0.672	0.744	0.942
Cadmium	0.31	71	13.8	0.195	0.175	0.222	0.241	0.337	0.284	0.243 J	0.996 J	0.51 J	0.346	0.585	0.365	4.04	0.233
Calcium	--	--	--	21,900 J	63,300 J	22,400 J	18,200 J	10,800	17,700	19,600 J	24,400 J	22,200 J	38,600	5,260	11,400 J	13,200 J	10,700 J
Chromium Total[1]	24.2	120,000	3,600,000	14.3	15.5	15.7	15.4	14.6	15.1	14.7	15.8	15.6	18.9	12.5	13.3	14.8	17.2
Cobalt	11.2	23	5.4	5.52	6.13	6.92	5.65	5.47	5.63	5.70	13.7 J	6.22 J	7.32	4.07	5.27	10.2	7.30
Copper	17.1	3,100	920	12.7	11.9	15.7	12.8	12.8	13.4	14.4	20.2	16.2	17.3	58.9	15.3	32.2	14.4
Iron	19,100	55,000	7,000	13,000	14,900	14,500	13,500	12,900	13,100	13,600	14,300	15,200 J	22,700	9,890	11,700	13,400	15,400
Lead	16.4	400	280	15.6 J	13.2	22.3 J	17.5 J	21.4	25.3	15.1	21.7	13.7	17.0	24.9	20.5 J	29 J	16.3 J
Magnesium	--	--	--	7,050	8,990	6,690	5,900	4,700	5,150	5,970	6,580	7,810	8,110	3,050	4,620	6,390	7,290
Manganese	542	1,800	560	316 J	377	372 J	286 J	292	297	276	593 J	301 J	498	232	256 J	548 J	312 J
Mercury	0.0287	11	2	0.042	0.021 J	0.02 J	0.023 J	0.024 J	0.021 J	0.034	0.037	0.023 J	0.031	0.037	0.0905	0.046	0.024 J
Nickel	24.1	1,500	520	12.0	12.4	14.5	12.2	11.8	11.8	12.5	19.5	13.5	15.9	15.9	11.5	18.4	15.9
Potassium	--	--	--	5,140	5,100	5,420	5,230	5,150	4,910	5,120	5,400	5,390	5,940	2,820	4,430	5,020	7,020
Selenium	0.824	390	10.4	0.482	0.532	0.437	0.525 J	0.384 J	0.432	0.496	0.461	0.515	0.516	0.37 J	0.402 J	0.458	0.576
Silver	0.114	390	16	0.0761	0.0726 J	0.0977	0.103 J	0.0752 J	0.0722	0.0911 J	0.109	0.120	0.115	0.308	0.0918	0.122	0.0916 J
Sodium	--	--	--	225	289	190	260	179	176	198	304	365	359	203	214	387	400
Thallium	0.405	0.78	2.8	0.258	0.301	0.277	0.280	0.241	0.257	0.244	0.298	0.290	0.313	0.173	0.216	0.299	0.318
Vanadium	50	390	1,720	29.9	38.3	31.6	30.5	26.8	31.4	28.6	34.5	33.7	46.4	34.5	25.9	29.1	35.7
Zinc	57	23,000	7,400	50.7	45.2	62.7	54.0	66.9	54.5	55.2 J	73.2 J	49.8	63.0	177	53.9	59.2	54.2

Table 5.1a (Continued)
Tract 19B Stockpiled Soil, Stockpile 1, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP15C	19B-SP16C	19B-SP17C	19B-SP18C	19B-SP19C	19B-SP20C	19B-SP21C	19B-SP24C	19B-SP124C	19B-SP02D
			Sample Date	4/21/2018	4/21/2018	4/20/2018	4/20/2018	4/20/2018	4/20/2018	4/20/2018	4/20/2018		4/22/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)													
HMX	--	3,900,000	26,000	130	86 J	50 J	30 J	56 U	3,400	310	53 U	42 J	62 J
RDX	--	8,300	7.4	62 J	62 J	60 J	45 J	86 J	19,000	1,800	41 J	39 J	63 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	150	51 U	48 U	52 U	56 U	65 J	53 U	53 U	48 U	56 U
1,3-Dinitrobenzene	--	6,300	36	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
Tetryl	--	160,000	7,400	57 UJ	51 UJ	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
Nitrobenzene	--	5,100	1.84	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
2,4,6-Trinitrotoluene	--	21,000	300	94,000	1,000	85 J	52 U	56 U	1,500	790	43 J	80 J	46 J
2-Amino-4,6-dinitrotoluene	--	7,700	30	520	240	150	52 U	56 U	360	160	53 U	45 J	120
4-Amino-2,6-dinitrotoluene	--	7,700	30	740	390	190	52 U	56 U	890	180	53 U	48 U	120 J
2,6-Dinitrotoluene	--	360	1.34	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
2,4-Dinitrotoluene	--	1,700	6.4	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
2-Nitrotoluene	--	3,200	6	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
3-Nitrotoluene	--	6,300	32	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
4-Nitrotoluene	--	34,000	80	57 U	51 U	48 U	52 U	56 U	53 U	53 U	53 U	48 U	56 U
Nitroglycerin	--	6,300	17	460 U	410 U	390 U	420 U	450 U	430 U	420 U	430 U	390 U	450 U
PETN	--	130,000	560	460 U	410 U	390 U	420 U	450 U	430 U	420 U	430 U	390 U	450 U
Metals (mg/kg)													
Aluminum	26,400	77,000	600,000	36,500	31,700	22,800	17,500	23,800	28,600	20,500	21,800	22,300	20,400
Antimony	0.333	31	7	1.10	3.07	1.71 J	2.9 J	0.17 J	0.2 J	0.18 J	0.216	0.272	0.488
Arsenic	13.6	0.68	5.8	6.86	4.81	4.61	12.8	7.80	3.65	5.50	3.65	3.80	5.82
Barium	375	15,000	3,200	203	215	224	232	185	187	197	198	192	243 J
Beryllium	1.14	160	380	0.812	0.817	0.740	0.749	1.08	0.632	0.796	0.852	0.826	0.845
Cadmium	0.31	71	13.8	0.215 J	0.352	0.381	0.257	0.0752 J	0.565	0.164 J	10.6	11.8	0.214 J
Calcium	--	--	--	12,800 J	10,300 J	14,600 J	30,700 J	7,250 J	16,100 J	24,300 J	13,800	19,300	24,100 J
Chromium Total[1]	24.2	120,000	3,600,000	14.4	17.0	14.9 J	33.5 J	19.2 J	12.6 J	15.1 J	16.2	16.7	17.1
Cobalt	11.2	23	5.4	5.45	5.95	6.45	8.52	6.85	5.71	6.42	5.91	6.22	6.94
Copper	17.1	3,100	920	18.8	17.8	23.7	132	15.1	31.5	16.1	160	214	21.0
Iron	19,100	55,000	7,000	13,400	13,600	13,700	51,900	18,900	11,800	15,300	15,000	15,400	15,400
Lead	16.4	400	280	19.2 J	30.1 J	30.1 J	39.4 J	15.3 J	24.6 J	15.2 J	27.3	26.6	23.1
Magnesium	--	--	--	6,690	6,150	6,780	6,770	8,210	4,840	6,770	6,160	6,430	7,110
Manganese	542	1,800	560	212 J	266 J	350	410	234	298	252	290	311	352
Mercury	0.0287	11	2	0.024 J	0.022 J	0.014 J	0.024 J	0.018 J	0.038	0.024 J	0.0488	0.0533	0.023 J
Nickel	24.1	1,500	520	13.9	13.1	13.6	42.7	16.9	13.9	13.2	13.7	14.2	14.8
Potassium	--	--	--	5,190	5,460	5,190	5,260	7,190	4,250	5,480	5,250	5,320	5,690
Selenium	0.824	390	10.4	0.22 J	0.528 J	0.431 J	0.38 J	0.530	0.34 J	0.425 J	0.520	0.476 J	0.547
Silver	0.114	390	16	0.111 J	0.112	0.0982	0.262	0.0898 J	0.160	0.0852 J	0.107	0.101	0.101 J
Sodium	--	--	--	295	191	344	280	268	234	249	222	241	271
Thallium	0.405	0.78	2.8	0.241	0.263	0.263	0.253	0.328	0.214	0.276	0.303	0.299	0.312
Vanadium	50	390	1,720	32.1	34.0	27.2	32.1	39.8	22.6	31.9	30.6	30.6	33.7
Zinc	57	23,000	7,400	61.1	68.9	69.3	54.4	53.5	78.2	52.3	83.6	80.4	58.6 J

Table 5.1a (Continued)
Tract 19B Stockpiled Soil, Stockpile 1, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP04D	19B-SP07D	19B-SP11D	19B-SP12D	19B-SP13D	19B-SP14D	19B-SP15D	19B-SP16D	19B-SP116D	19B-SP17D	19B-SP18D	19B-SP19D
			Sample Date	4/22/2018	4/21/2018	4/21/2018	4/21/2018	4/21/2018	4/21/2018	4/21/2018	4/21/2018		4/20/2018	4/20/2018	4/20/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)															
HMX	--	3,900,000	26,000	290	5,900	2,100	780	780	47 J	24 J	58 U	50 U	63 U	22 J	41 J
RDX	--	8,300	7.4	290	14,000	5,200 J	750	2,000	97 J	48 J	58 U	50 U	63 U	29 J	55 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	48 U	43 J	77 J	48 J	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
1,3-Dinitrobenzene	--	6,300	36	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
Tetryl	--	160,000	7,400	48 U	52 UJ	46 U	53 U	52 U	53 U	43 UJ	58 UJ	50 U	63 U	61 U	62 U
Nitrobenzene	--	5,100	1.84	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
2,4,6-Trinitrotoluene	--	21,000	300	120	340	470	1,100	170	99 J	5,300	58 U	130 J	42 J	61 U	62 U
2-Amino-4,6-dinitrotoluene	--	7,700	30	210	360	410	830	380	130	140	58 U	50 U	57 J	61 U	62 U
4-Amino-2,6-dinitrotoluene	--	7,700	30	210	860	730	1,100	450	130 J	170	58 U	50 U	63 U	61 U	62 U
2,6-Dinitrotoluene	--	360	1.34	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
2,4-Dinitrotoluene	--	1,700	6.4	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
2-Nitrotoluene	--	3,200	6	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
3-Nitrotoluene	--	6,300	32	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
4-Nitrotoluene	--	34,000	80	48 U	52 U	46 U	53 U	52 U	53 U	43 U	58 U	50 U	63 U	61 U	62 U
Nitroglycerin	--	6,300	17	380 U	420 U	370 U	420 U	410 U	420 U	340 U	460 U	400 U	500 U	490 U	500 U
PETN	--	130,000	560	380 U	420 U	370 U	420 U	410 U	420 U	340 U	460 U	400 U	500 U	490 U	500 U
Metals (mg/kg)															
Aluminum	26,400	77,000	600,000	23,100	21,900	23,000	49,800	19,100	14,100	22,600	15,600	17,600	19,200	19,900	18,600
Antimony	0.333	31	7	0.810	0.487	0.555	0.305	0.285	0.337	0.771	0.17	0.20	0.23 J	0.293	0.19 J
Arsenic	13.6	0.68	5.8	9.52	4.92	2.89	3.93	3.78	3.34	10.4	7.88	5.90	7.48	12.7	5.59
Barium	375	15,000	3,200	250 J	206	167	175	219	178	236	202	303	214	230	194
Beryllium	1.14	160	380	0.896	0.744	0.598	0.687	0.737	0.630	0.834	0.699	0.761	0.796	0.823	0.732
Cadmium	0.31	71	13.8	0.198 J	0.643	0.923	0.287 J	0.647	0.380	0.864	0.109 J	0.154 J	0.126 J	0.22 J	0.313
Calcium	--	--	--	32,700 J	13,000 J	10,700	8,070 J	7,900 J	10,900 J	25,100 J	18,500 J	49,600 J	20,900 J	25,600	15,600 J
Chromium Total[1]	24.2	120,000	3,600,000	18.4	15.4	12.6	13.6	14.0	12.2	23.4	13.5	14.8	16 J	16.1	15.6 J
Cobalt	11.2	23	5.4	8.09	5.50	4.76	4.92	6.14	5.22	7.65	5.88	5.55	7.91	9.44	5.94
Copper	17.1	3,100	920	26.0	16.4	39.2	23.7	22.9	13.6	30.6	12.2	11.4	14.4	85.4	14.5
Iron	19,100	55,000	7,000	16,900	13,000	10,400	11,400	13,400	11,100	17,000	13,000	13,800	15,600	16,900	13,700
Lead	16.4	400	280	25.8	19.6 J	25.7	22.2 J	16.9 J	19 J	83.3 J	12 J	11.9 J	18.1 J	22.0	22.4 J
Magnesium	--	--	--	8,070	5,570	3,460	4,500	4,710	4,420	7,780	6,680	8,460	7,070	7,570	9,810
Manganese	542	1,800	560	417	262 J	415	230 J	388 J	259 J	389 J	340 J	268 J	389	453	313
Mercury	0.0287	11	2	0.025 J	0.016 J	0.0510	0.042	0.033	0.031 J	0.028	0.014 J	0.015 J	0.016 J	0.021 J	0.017 J
Nickel	24.1	1,500	520	16.7	11.7	11.6	11.8	13.4	10.8	18.2	12.4	12.4	15.4	15.7	14.4
Potassium	--	--	--	5,670	5,050	3,520	4,540	4,500	4,150	5,270	4,730	5,100	5,910	5,890	5,520
Selenium	0.824	390	10.4	0.547	0.489	0.462 J	0.33 J	0.457	0.463 J	0.419	0.610	0.484 J	0.25 J	0.457 J	0.472 J
Silver	0.114	390	16	0.108	0.0870	0.116 J	0.106	0.0792	0.0769 J	0.316	0.074 J	0.073 J	0.109 J	0.155	0.182
Sodium	--	--	--	288	322	164	210	155	233	333	342	371	254	321	318
Thallium	0.405	0.78	2.8	0.339	0.259	0.207	0.221	0.251	0.218	0.301	0.294	0.260	0.268	0.298	0.259
Vanadium	50	390	1,720	44.2	30.4	21.9	27.9	27.2	22.5	43.1	32.6	32.3	35.1	47.0	32.0
Zinc	57	23,000	7,400	66.8 J	59.8	130	84.5	53.7	58.8	107	39.4	41.4	51.0	85.3	55.8

Notes:
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
Underlined results denote an exceedance of the Background Threshold Value (if available) and the soil-to-groundwater SSL.
[1] = RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
PETN = pentaerythritol tetranitrate
mg/kg = milligrams per kilogram
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
SSL = soil screening level
U = analyte not detected, listed value is the reporting limit

Table 5.1b
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP27A	19B-SP28A	19B-SP30A	19B-SP32A	19B-SP34A	19B-SP36A	19B-SP136A	19B-SP37A	19B-SP38A	19B-SP39A	19B-SP40A	19B-SP140A	19B-SP41A	19B-SP42A
			Sample Date	4/20/2018	4/17/2018	4/17/2018	4/17/2018	4/17/2018	4/19/2018		4/19/2018	4/19/2018	4/19/2018	4/19/2018		4/19/2018	4/19/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	52 U	340	46 J	58 U	60 U	55 U	55 U	62 U	56 U	59 U	21 J	120	130	200
RDX	--	8,300	7.4	52 U	300	77 J	58 U	60 U	55 U	55 U	62 U	56 U	59 U	24 J	110 J	83 J	260
1,3,5-Trinitrobenzene	--	2,200,000	42,000	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
1,3-Dinitrobenzene	--	6,300	36	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
Tetryl	--	160,000	7,400	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
Nitrobenzene	--	5,100	1.84	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
2,4,6-Trinitrotoluene	--	21,000	300	52 U	53 J	170	140	1,700	55 U	55 U	62 U	56 U	59 U	30 J	23 J	69 J	84 J
2-Amino-4,6-dinitrotoluene	--	7,700	30	52 U	180	400	58 U	280	55 U	55 U	62 U	56 U	59 U	54 U	67 J	140	170
4-Amino-2,6-dinitrotoluene	--	7,700	30	52 U	160	390	58 U	230	55 U	55 U	62 U	56 U	59 U	54 U	70 J	150 J	150 J
2,6-Dinitrotoluene	--	360	1.34	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
2,4-Dinitrotoluene	--	1,700	6.4	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
2-Nitrotoluene	--	3,200	6	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
3-Nitrotoluene	--	6,300	32	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
4-Nitrotoluene	--	34,000	80	52 U	56 U	54 U	58 U	60 U	55 U	55 U	62 U	56 U	59 U	54 U	54 U	59 U	61 U
Nitroglycerin	--	6,300	17	420 U	450 U	430 U	460 U	480 U	440 U	440 U	490 U	450 U	480 U	430 U	440 U	470 U	480 U
PETN	--	130,000	560	420 U	450 U	430 U	460 U	480 U	440 U	440 U	490 U	450 U	480 U	430 U	440 U	470 U	480 U
Metals (mg/kg)				x						x	x	x	x				
Aluminum	26,400	77,000	600,000	15,800	12,900	21,400	20,300	23,000	20,400	24,300	23,200	19,900	17,200	15,300	17,700	20,400	19,800
Antimony	0.333	31	7	0.11	0.13 J	0.17 J	0.16 J	0.18 J	0.17 J	0.18 J	0.166 J	0.18 J	0.14 J	0.13 J	0.13 J	0.207 J	0.199 J
Arsenic	13.6	0.68	5.8	3.22	3.64	7.20	6.32	7.46	6.16	5.58	8.13	6.11	4.84	4.22	4.92	7.41	7.43
Barium	375	15,000	3,200	152	145	267	245	267	215	208	259	241	203	182	266	376	309
Beryllium	1.14	160	380	0.724	0.660	0.964	0.905	0.976	0.854	1.03	0.986	0.881	0.802	0.740	0.806	0.786	0.773
Cadmium	0.31	71	13.8	0.152 J	0.141 J	0.0788 J	0.095 J	0.0851 J	0.142 J	0.0781 J	0.036 J	0.0996 J	0.128 J	0.117 J	0.170	0.247 J	0.128
Calcium	--	--	--	6,490	10,000 J	27,500 J	28,400 J	21,900	22,200 J	13,100 J	25,500 J	25,800	18,000	13,200	24,800	46,400	52,700
Chromium Total[1]	24.2	120,000	3,600,000	13.5	12	18	17	19	16.8	19.5	18.0	16.5	14.1	13.1	15.0	15.9	16.1
Cobalt	11.2	23	5.4	5.63	5.54	6.28	6.36	7.08	8.22	7.23	7.43	6.75	5.88	5.51	6.34	6.59	5.42
Copper	17.1	3,100	920	11.4	9.92	13.0	11.9	12.1	12.9	14.3	12.4	12.6	12.8	11.2	11.9	14.4	13.4
Iron	19,100	55,000	7,000	12,200	11,500	17,300	16,000	18,100	16,200	19,000	17,500	16,800	14,100	13,400	14,400	16,300	16,400
Lead	16.4	400	280	13.9	15	14	12	12	14.9 J	14.1 J	13.0	13.2 J	12.8 J	11.7 J	13.2 J	16.9 J	16.2 J
Magnesium	--	--	--	5,320	4,080 J	8,080 J	8,090 J	8,540	7,810	8,270	8,270	7,930	6,670	6,320	7,020	8,430	8,950
Manganese	542	1,800	560	210	284	225	278	273	396	308	323 J	282	266	261	292	377	283
Mercury	0.0287	11	2	0.018 J	0.02 J	0.035	0.022 J	0.017 J	0.021 J	0.018 J	0.014 J	0.01 J	0.012 J	0.015 J	0.0079 J	0.013 J	0.014 J
Nickel	24.1	1,500	520	12.1	10.8	14.6	14.7	15.7	18.2	16.2	18.3	14.3	13.0	12.3	13.7	15.1	13.0
Potassium	--	--	--	4,760	3,860	5,990	6,010	7,320	6,360	8,020	6,550	6,620	4,950	4,850	5,410	5,300	5,170
Selenium	0.824	390	10.4	0.518	0.477 J	0.407 J	0.38 J	0.413 J	0.485 J	0.566	0.451	0.52 J	0.486	0.396 J	0.487	0.402 J	0.516
Silver	0.114	390	16	0.0714 J	0.0688 J	0.0896 J	0.0849 J	0.0841 J	0.0756 J	0.0836 J	0.0841	0.0854 J	0.0766	0.0704 J	0.0731	0.0808 J	0.0846
Sodium	--	--	--	250	410 J	399 J	412 J	476	494	489	354	421	346	222	251	441	466
Thallium	0.405	0.78	2.8	0.260	0.236	0.316	0.303	0.317 J	0.325	0.343	0.368	0.297	0.268	0.254	0.293	0.300	0.292
Vanadium	50	390	1,720	24.4	23.6	39.7	37.3	43.7	36.3	38.3	40.5	34.9	30.3	25.9	31.7	34.8	37.3
Zinc	57	23,000	7,400	39.8	40.8	50.2	47.7	51.8	46.6	52.3	47.9	46.2	41.4	43.0	47.7	55.0	47.2

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP43A	19B-SP44A	19B-SP45A	19B-SP28B	19B-SP29B	19B-SP30B	19B-SP31B	19B-SP32B	19B-SP132B	19B-SP33B	19B-SP34B	19B-SP35B	19B-SP36B	19B-SP37B
			Sample Date	4/19/2018	4/19/2018	4/19/2018	4/21/2018	4/21/2018	4/17/2018	4/17/2018	4/18/2018		4/18/2018	4/18/2018	4/18/2018	4/18/2018	4/18/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	60 U	48 J	120	56 U	400	62 J	40 J	530 J	270 J	52 J	150	140	540	55 J
RDX	--	8,300	7.4	60 U	38 J	200	56 U	870	62 J	46 J	860 J	570 J	96 J	370	110	170	60 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000	60 U	53 U	57 U	56 U	23 J	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
1,3-Dinitrobenzene	--	6,300	36	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
Tetryl	--	160,000	7,400	60 U	53 U	57 U	56 UJ	57 UJ	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
Nitrobenzene	--	5,100	1.84	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
2,4,6-Trinitrotoluene	--	21,000	300	60 U	160	70 J	34 J	300	140	100 J	140 J	80 J	110	66 J	190 J	210 J	60 UJ
2-Amino-4,6-dinitrotoluene	--	7,700	30	60 U	160	180	32 U	290	140	140	190	190	110	140	180	190 J	48 J
4-Amino-2,6-dinitrotoluene	--	7,700	30	60 U	180	180	40 U	460	160 J	130	200	180	120 J	130 J	200	230 J	60 U
2,6-Dinitrotoluene	--	360	1.34	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
2,4-Dinitrotoluene	--	1,700	6.4	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
2-Nitrotoluene	--	3,200	6	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
3-Nitrotoluene	--	6,300	32	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
4-Nitrotoluene	--	34,000	80	60 U	53 U	57 U	56 U	57 U	54 U	53 U	59 U	59 U	53 U	58 U	44 U	55 U	60 U
Nitroglycerin	--	6,300	17	480 U	430 U	460 U	440 U	460 U	430 U	420 U	470 U	480 U	420 U	460 U	350 U	440 U	480 U
PETN	--	130,000	560	480 U	430 U	460 U	440 U	460 U	430 U	420 U	470 U	480 U	420 U	460 U	350 U	440 U	480 U
Metals (mg/kg)				x													
Aluminum	26,400	77,000	600,000	17,500	66,600	17,800	21,400	28,500	16,500	19,000	18,800	19,800	21,800	21,300	20,000	16,800	18,200
Antimony	0.333	31	7	0.15 J	0.202 J	0.19 J	0.231	0.293	0.14 J	0.17 J	0.153 J	0.18 J	0.303 J	0.16 J	0.19 J	0.16 J	0.16 J
Arsenic	13.6	0.68	5.8	3.62	4.12	6.17	5.58	8.40	5.86	6.26	5.60	5.28	6.52	6.78	12.4	5.92	6.00
Barium	375	15,000	3,200	170	202	236	221	395	214	236	241	244	240 J	232 J	242	510	184
Beryllium	1.14	160	380	0.727	0.622	0.749	0.767	0.829	0.718	0.767	0.733	0.762	0.743	0.713	0.796	0.689	0.744
Cadmium	0.31	71	13.8	0.173 J	0.219	0.322	0.152 J	0.239 J	0.164 J	0.283	0.288	0.232	0.234	0.276	0.23 J	0.899	0.145 J
Calcium	--	--	--	7,810	19,200	35,800	30,400	56,900	30,400 J	31,400 J	32,700	40,000	27,900	31,700	41,000	124,000	30,400
Chromium Total[1]	24.2	120,000	3,600,000	14.5	12.5	14.4	16.2	17.7	14	15	14.4	16.5	16.3	13.6	15.1	13.7	14.4
Cobalt	11.2	23	5.4	5.56	4.77	6.10	6.47	6.12	5.33	6.38	6.24	5.69	6.38	6.48	7.37	6.28	6.05
Copper	17.1	3,100	920	11.5	20.6	14.1	12.3	13.0	12.2	12.8	13.3	17.4	22.4	12.7	12.2	11.9	11.2
Iron	19,100	55,000	7,000	13,600	11,500	14,900	14,900	16,500	13,800	14,400	15,200	16,300	18,300	13,600	15,900	13,200	14,200
Lead	16.4	400	280	13.4 J	21.1 J	20.9 J	14.6	18.1	14	17	18.5	16.4	19.2 J	16.6 J	15.3	16.2	13.3
Magnesium	--	--	--	7,520	5,090	7,060	7,240	10,200	6,690 J	7,030 J	7,270	7,790	7,400 J	7,190 J	8,120	7,730	6,710
Manganese	542	1,800	560	259	264	378	339	255	267	468	338	313	297	366	347	430	333
Mercury	0.0287	11	2	0.014 J	0.033	0.014 J	0.02 J	0.027 J	0.02 J	0.025 J	0.025 J	0.023 J	0.023 J	0.024 J	0.014 J	0.019 J	0.02 J
Nickel	24.1	1,500	520	11.9	12.1	14.0	12.9	14.5	11.9	13.8	13.3	14.1	14.9	13.9	13.3	12.8	13.0
Potassium	--	--	--	5,860	4,560	4,710	5,440	5,830	4,680	4,790	5,090	4,840	4,960	4,610	5,250	4,480	4,990
Selenium	0.824	390	10.4	0.522 J	0.422 J	0.437 J	0.409 J	0.434	0.35 U	0.467	0.451	0.458 J	0.459 J	0.36 J	0.438 J	0.634	0.363 J
Silver	0.114	390	16	0.074 J	0.0765 J	0.09 J	0.0898 J	0.101	0.0837 J	0.0903	0.0833	0.0943 J	0.0885 J	0.0838 J	0.0855 J	0.0783 J	0.0839
Sodium	--	--	--	200	239	397	284	597	770 J	371 J	439	553	351	430	396	372	352
Thallium	0.405	0.78	2.8	0.262	0.223	0.280	0.282	0.344	0.264	0.287	0.277	0.278	0.276	0.255	0.292	0.307	0.315
Vanadium	50	390	1,720	26.5	28.1	31.1	34.9	45.8	27.8	33.7	31.4	32.2	33.9	30.7	41.8	32.0	34.3
Zinc	57	23,000	7,400	47.3	56.7	61.2	48.3	64.3	49.8	56.8	56.0	56.6	62.5	54.1	55.1	49.5	44.1

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP38B	19B-SP138B	19B-SP39B	19B-SP40B	19B-SP41B	19B-SP42B	19B-SP43B	19B-SP44B	19B-SP28C	19B-SP29C	19B-SP30C	19B-SP31C	19B-SP32C	19B-SP33C
			Sample Date	4/18/2018		4/18/2018	4/18/2018	4/19/2018	4/19/2018	4/19/2018	4/20/2018	4/17/2018	4/17/2018	4/21/2018	4/17/2018	4/18/2018	4/18/2018
			Sample Type	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	51 J	110	130	61 J	86 J	310	200	160	49 U	70 J	56 J	36 J	81 J	690
RDX	--	8,300	7.4	61 J	120	120	41 J	96 J	280	880	330	49 U	68 J	85 J	34 J	180	2,400
1,3,5-Trinitrobenzene	--	2,200,000	42,000	55 U	52 U	52 U	43 U	52 U	20 J	49 U	55 U	49 U	54 U	58 U	92 J	52 U	23 J
1,3-Dinitrobenzene	--	6,300	36	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
Tetryl	--	160,000	7,400	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 UJ	52 U	52 U	53 U
Nitrobenzene	--	5,100	1.84	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
2,4,6-Trinitrotoluene	--	21,000	300	55 UJ	50 J	160	70 J	130	490	91 J	83 J	49 U	54 U	62 J	6,600 J	83 J	720
2-Amino-4,6-dinitrotoluene	--	7,700	30	55 U	87 J	180	71 J	110	320	160	160	49 U	42 J	81 J	330	84 J	360
4-Amino-2,6-dinitrotoluene	--	7,700	30	55 U	90 J	230	120 J	120	450	190	190	49 U	68 J	100 J	380	110 J	500
2,6-Dinitrotoluene	--	360	1.34	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
2,4-Dinitrotoluene	--	1,700	6.4	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
2-Nitrotoluene	--	3,200	6	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
3-Nitrotoluene	--	6,300	32	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
4-Nitrotoluene	--	34,000	80	55 U	52 U	52 U	43 U	52 U	49 U	49 U	55 U	49 U	54 U	58 U	52 U	52 U	53 U
Nitroglycerin	--	6,300	17	440 U	420 U	420 U	340 U	410 U	390 U	400 U	440 U	390 U	440 U	460 U	420 U	410 U	420 U
PETN	--	130,000	560	440 U	420 U	420 U	340 U	410 U	390 U	400 U	440 U	390 U	440 U	460 U	420 U	410 U	420 U
Metals (mg/kg)												x					
Aluminum	26,400	77,000	600,000	17,200	15,900	20,600	20,000	17,000	19,900	16,400	20,300	16,600	18,400	22,200	19,900	16,800	23,000
Antimony	0.333	31	7	0.194 J	0.22 J	0.251 J	0.17 J	0.17 J	0.191 J	0.13 J	0.199	0.17 J	0.18 J	0.270	0.14 J	0.14 J	0.194 J
Arsenic	13.6	0.68	5.8	8.88	4.08	7.09	7.49	9.53	6.48	6.03	6.16	5.28	5.86	7.99	5.38	4.49	7.71
Barium	375	15,000	3,200	173	164 J	250 J	282 J	356 J	335 J	228 J	246	166	374	274	225	220	236 J
Beryllium	1.14	160	380	0.733	0.701	0.820	0.804	0.690	0.754	0.726	0.848	0.806	0.772	0.795	0.780	0.739	0.773
Cadmium	0.31	71	13.8	0.154 J	0.198 J	0.179 J	0.136 J	0.264 J	0.275	0.227	0.198 J	0.199 J	0.116 J	0.219	0.16 J	0.193	0.599
Calcium	--	--	--	20,800	17,800	30,700	50,400	86,500	34,500	28,400	33,600	36,200 J	39,400 J	42,200	32,000 J	28,300	23,700
Chromium Total[1]	24.2	120,000	3,600,000	14.4	13.1	16.8	15.7	14.0	14.2	12.7	18.2	15	16	16.8	16	13.6	15.7
Cobalt	11.2	23	5.4	5.85	5.58	6.46	5.59	7.23	6.86	5.44	5.68	9.90	6.09	7.49	6.38	5.55	7.36
Copper	17.1	3,100	920	11.4	11.6	13.4	11.9	10.5	12.9	10.9	16.2	11.7	12.6	13.8	12.4	11.4	23.1
Iron	19,100	55,000	7,000	13,800	12,900	17,500	16,400	17,200	15,000	13,900	17,500	13,500	14,200	16,300	15,400	13,600	15,300
Lead	16.4	400	280	15.6	13.5 J	22.7 J	12.4 J	12.3 J	15.6 J	12.9 J	44.6	16	14	18.7	29	14.2	21.5 J
Magnesium	--	--	--	7,880	6,320 J	7,940 J	10,000 J	9,340 J	7,970 J	6,780 J	7,740	6,980 J	8,830 J	8,030	7,660 J	6,570	7,300 J
Manganese	542	1,800	560	249	304	342	260	586	482	258	292	253	259	420	357	274	408
Mercury	0.0287	11	2	0.017 J	0.026 J	0.02 J	0.024 J	0.017 J	0.018 J	0.018 J	0.015 J	0.036	0.02 J	0.018 J	0.021 J	0.019 J	0.028
Nickel	24.1	1,500	520	12.3	11.7	14.6	13.1	13.3	15.3	11.2	13.5	13.0	13.7	15.4	13.5	11.6	15.0
Potassium	--	--	--	5,510	4,920	5,780	5,240	4,580	4,950	4,920	5,460	5,620	5,060	5,400	4,980	4,860	5,100
Selenium	0.824	390	10.4	0.484	0.489 J	0.522 J	0.490	0.604	0.456	0.34 J	0.374 J	0.529	0.552 U	0.443	0.492 U	0.565	0.426
Silver	0.114	390	16	0.0702 J	0.0704 J	0.0903 J	0.0733	0.074 J	0.0840	0.0686 J	0.0969	0.0873 J	0.0906 J	0.0977	0.085 J	0.0822 J	0.159
Sodium	--	--	--	288	317	394	418	370	364	376	387	236 J	1,010 J	560	482 J	722	446
Thallium	0.405	0.78	2.8	0.266	0.258	0.286	0.302	0.275	0.304	0.255	0.305	0.258	0.270	0.308	0.279	0.268	0.277
Vanadium	50	390	1,720	38.4	26.6	35.3	38.2	36.000	31.3	24.8	37.1	28.7	35.0	40.4	32.2	28.4	33.5
Zinc	57	23,000	7,400	44.9	44.0	58.0	49.1	39.8	60.9	45.5	80.7	47.6	48.6	60.6	49.2	47.7	71.9

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP34C	19B-SP35C	19B-SP36C	19B-SP39C	19B-SP41C	19B-SP141C	19B-SP43C	19B-SP45C	19B-SP28D	19B-SP29D	19B-SP30D	19B-SP31D	19B-SP32D	19B-SP33D
			Sample Date	4/18/2018	4/18/2018	4/18/2018	4/18/2018	4/19/2018		4/19/2018	4/17/2018	4/16/2018	4/16/2018	4/16/2018	4/17/2018	4/17/2018	4/17/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	700	44 U	55 U	670	180	200	3,000	53 U	32 J	17 J	62 J	110 J	140	120
RDX	--	8,300	7.4	3,300 J	44 U	55 U	740	90 J	89 J	16,000	53 U	45 J	28 J	71 J	130	110	200
1,3,5-Trinitrobenzene	--	2,200,000	42,000	350 J	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	71 J	61 U	55 U	93 J
1,3-Dinitrobenzene	--	6,300	36	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
Tetryl	--	160,000	7,400	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
Nitrobenzene	--	5,100	1.84	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
2,4,6-Trinitrotoluene	--	21,000	300	120,000	44 U	120 J	32 J	140	170	210	53 U	110	46 U	880	100 J	35 J	10,000 J
2-Amino-4,6-dinitrotoluene	--	7,700	30	510 J	47 J	55 U	54 J	200	240	270	53 U	89 J	46 U	280	110 J	110	480
4-Amino-2,6-dinitrotoluene	--	7,700	30	860 J	55 J	55 U	73 J	230	260	340	53 U	120 J	46 U	630	140 J	120 J	840
2,6-Dinitrotoluene	--	360	1.34	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
2,4-Dinitrotoluene	--	1,700	6.4	110	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
2-Nitrotoluene	--	3,200	6	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
3-Nitrotoluene	--	6,300	32	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
4-Nitrotoluene	--	34,000	80	55 U	44 U	55 U	59 U	52 U	56 U	59 U	53 U	57 U	46 U	50 U	61 U	55 U	49 U
Nitroglycerin	--	6,300	17	440 U	350 U	440 U	470 U	410 U	450 U	470 U	420 U	450 U	370 U	400 U	490 U	440 U	390 U
PETN	--	130,000	560	440 U	350 U	440 U	470 U	410 U	450 U	470 U	420 U	450 U	370 U	400 U	490 U	440 U	390 U
Metals (mg/kg)											x						
Aluminum	26,400	77,000	600,000	21,100	17,200	15,400	22,600	18,500	19,800	17,900	20,600	23,200 J	27,500 J	73,600 J	16,100	18,800	45,700
Antimony	0.333	31	7	0.157 J	0.17 J	0.11 J	0.18 J	0.199 J	0.201 J	0.17 J	0.16 J	0.45	0.279	0.506	0.315 J	0.164 J	0.193 J
Arsenic	13.6	0.68	5.8	5.86	16.8	2.21	6.03	6.84	6.17	5.12	6.31	46.7	4.74	3.91	4.99	5.99	3.19
Barium	375	15,000	3,200	252	303 J	146 J	236 J	288 J	206 J	247 J	235	322	241	216	586	256	387
Beryllium	1.14	160	380	0.763	0.772	0.748	0.781	0.726	0.704	0.663	0.901	0.811	0.737	0.605	0.613	0.833	0.622
Cadmium	0.31	71	13.8	0.331	0.128 J	0.18 J	0.219 J	0.366	0.328	0.158 J	0.07 J	0.144 J	0.231 J	0.159 J	0.303	0.175	0.268
Calcium	--	--	--	35,200	26,600	4,120	44,000	52,000	31,700	38,600	26,600	33,500 J	39,200 J	11,300 J	90,700 J	33,600 J	15,700 J
Chromium Total[1]	24.2	120,000	3,600,000	14.5	13.6	13.7	15.4	14.0	13.6	14.5	17	15.8	15	14.3	12.2	16.4	12.5
Cobalt	11.2	23	5.4	6.83	15.6	5.70	6.49	5.80	6.37	5.92	6.48	9.52	6.18	5.02	5.93	5.95	5.58
Copper	17.1	3,100	920	13.6	12.4	10.3	12.6	13.7	13.9	13.0	11.1	13.9	15.20	19.7	12.1	13.4	18.2
Iron	19,100	55,000	7,000	15,100	15,100	12,700	16,000	15,700	14,500	14,000	16,100	19,700	15,300	11,900	12,100	16,400	11,500
Lead	16.4	400	280	18.9	14 J	14 J	15.6 J	16.2 J	16.7 J	14.6 J	14	22.8 J	14.4 J	17.4 J	17	19	21
Magnesium	--	--	--	7,320	7,450 J	4,820 J	8,630 J	8,210 J	7,640 J	7,520 J	7,830	7,600	6,610	4,820	6,270 J	7,580 J	4,500 J
Manganese	542	1,800	560	440	569	282	351	381	351	304	288	543	480	232	295	313	307
Mercury	0.0287	11	2	0.023 J	0.022 J	0.025 J	0.021 J	0.017 J	0.024 J	0.013 J	0.049	0.019 J	0.015 J	0.026 J	0.02 J	0.02 J	0.032
Nickel	24.1	1,500	520	14.6	17.5	11.9	13.8	13.3	13.6	11.9	13.5	17.9	16.4	12.4	11.0	13.6	11.6
Potassium	--	--	--	4,860	5,140	4,370	5,230	4,720	4,600	4,930	6,050	5,120	4,640	3,890	3,890	5,190	3,550
Selenium	0.824	390	10.4	0.436	0.31 J	0.447 J	0.454 J	0.506	0.32 J	0.33 U	0.51	0.768 U	0.42 U	0.494 U	0.615	0.508	0.32 U
Silver	0.114	390	16	0.0805	0.0724 J	0.0703 J	0.0827 J	0.0855 J	0.0877	0.0978 J	0.0774 J	0.0925 J	0.0968 J	0.0822 J	0.0808 J	0.09	0.0976
Sodium	--	--	--	392	401	276	346	396	334	281	482	418	330	191	347 J	384 J	254 J
Thallium	0.405	0.78	2.8	0.295	0.311	0.288	0.293	0.263	0.263	0.260	0.294 J	0.559	0.281	0.220	0.240	0.295	0.223
Vanadium	50	390	1,720	33.3	45.0	19.7	32.9	31.2	29.1	31.9	38.4	95.2	31.8	30.6	25.7	35.4	25.0
Zinc	57	23,000	7,400	62.2	42.7	41.7	66.1	58.5	64.8	50.9	44.3	49.9	51.9	154	52.2	51.4	68.1

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP34D	19B-SP35D	19B-SP36D	19B-SP37D	19B-SP38D	19B-SP39D	19B-SP40D	19B-SP41D	19B-SP42D	19B-SP43D	19B-SP44D	19B-SP28E	19B-SP29E	19B-SP32E	19B-SP132E
			Sample Date	4/17/2018	4/17/2018	4/18/2018	4/18/2018	4/18/2018	4/18/2018	4/19/2018	4/20/2018	4/20/2018	4/18/2018	4/19/2018	4/16/2018	4/16/2018	4/16/2018	
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate
Analyte	**Total Soil BTV**	**Residential RSL**	**Soil-to-Groundwater SSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Explosives (µg/kg)																		
HMX	--	3,900,000	26,000	220	100	86 J	41 J	180	930	640	1,300	45 J	66 J	220	120 J	60 J	83 J	51 J
RDX	--	8,300	7.4	330	83 J	550	34 J	98 J	1,000	200	1,000	62 J	57 J	1,000	180	78 J	87 J	62 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	39 J	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
1,3-Dinitrobenzene	--	6,300	36	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
Tetryl	--	160,000	7,400	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
Nitrobenzene	--	5,100	1.84	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
2,4,6-Trinitrotoluene	--	21,000	300	410	49 U	59 UJ	44 J	50 UJ	360	49 U	56 U	60 U	56 UJ	130	130	330	220	210
2-Amino-4,6-dinitrotoluene	--	7,700	30	240	52 J	59 U	47 J	50 U	120	49 U	56 U	60 U	56 U	97	89 J	170	160	140
4-Amino-2,6-dinitrotoluene	--	7,700	30	410	54 J	59 U	59 J	50 U	240	49 U	56 U	60 U	56 U	150	130 J	250	300	230
2,6-Dinitrotoluene	--	360	1.34	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
2,4-Dinitrotoluene	--	1,700	6.4	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
2-Nitrotoluene	--	3,200	6	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
3-Nitrotoluene	--	6,300	32	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
4-Nitrotoluene	--	34,000	80	57 U	49 U	59 U	44 U	50 U	55 U	49 U	56 U	60 U	56 U	46 U	58 U	58 U	60 U	60 U
Nitroglycerin	--	6,300	17	450 U	390 U	470 U	350 U	400 U	440 U	390 U	450 U	480 U	440 U	370 U	460 U	460 U	480 U	480 U
PETN	--	130,000	560	450 U	390 U	470 U	350 U	400 U	440 U	390 U	450 U	480 U	440 U	370 U	460 U	460 U	480 U	480 U
Metals (mg/kg)																		
Aluminum	26,400	77,000	600,000	33,000	19,100	19,200	16,700	19,800	17,200	17,800	19,600	20,200	18,000	18,800	18,900 J	24,600 J	21,600 J	23,000 J
Antimony	0.333	31	7	0.392 J	0.237 J	0.261 J	0.16 J	0.213 J	1.59 J	0.16 J	0.16	0.189	0.154 UJ	0.273 J	1.14	2.16	0.53	0.499
Arsenic	13.6	0.68	5.8	4.97	6.30	6.26	3.42	6.47	5.24	6.50	5.77	6.97	6.45	5.54	5.9	6.97	6.8	4.32
Barium	375	15,000	3,200	261	227	224	171 J	252	219 J	304 J	275	256	195	196	239	236	264	190
Beryllium	1.14	160	380	0.706	0.806	0.846	0.704	0.844	0.731	0.720	0.794	0.813	0.786	0.694	0.735	0.679	0.803	0.713
Cadmium	0.31	71	13.8	0.240	0.142 J	0.156 J	0.113 J	0.15 J	0.294	0.204 J	0.132 J	0.134 J	0.123 J	0.136 J	0.126 J	0.276 J	0.154 J	0.216 J
Calcium	--	--	--	36,200 J	36,700 J	34,200	8,610	39,600	34,400	58,800	34,600	32,000	29,800	20,300	20,800 J	16,500 J	33,600 J	23,700 J
Chromium Total[1]	24.2	120,000	3,600,000	14.4	16.1	15.9	12.7	16.3	14.6	14.5	16.0	16.1	14.8	13.9	14.6	14.6	17.2	15.1
Cobalt	11.2	23	5.4	6.47	5.88	6.75	6.26	6.47	6.03	6.20	6.16	8.02	6.87	5.91	7.6	9.77	6.76	6.74
Copper	17.1	3,100	920	16.4	12.3	15.2	9.86	12.9	17.4	13.3	12.9	12.4	11.5	12.0	11.9	14.9	17	13.9
Iron	19,100	55,000	7,000	13,200	15,300	16,100	12,700	16,100	19,600	15,500	15,600	16,100	14,900	13,900	15100	14100	16500	14700
Lead	16.4	400	280	23	18	17.5	13.7 J	23.9	25.1 J	30.4 J	49.5	18.0	15.0	25.8 J	18.8 J	31.5 J	21.3 J	17.8 J
Magnesium	--	--	--	5,990 J	7,700 J	7,820	4,890 J	8,080	7,510 J	7,470 J	7,720	8,320	7,580	6,580	6210	5880	7360	5700
Manganese	542	1,800	560	398	321	350	310	331	361	404	298	392	366	294	423	775	327	385
Mercury	0.0287	11	2	0.180	0.016 J	0.036	0.018 J	0.02 J	0.021 J	0.0092 J	0.013 J	0.011 J	0.018 J	0.011 J	0.022 J	0.024 J	0.039	0.019 J
Nickel	24.1	1,500	520	13.1	13.2	13.6	11.8	14.3	14.7	14.5	13.5	14.5	14.1	12.2	13.6	16.6	13.7	13.5
Potassium	--	--	--	4,210	5,230	5,390	4,260	5,400	4,900	4,980	5,510	5,710	5,260	4,960	4670	4430	5260	4230
Selenium	0.824	390	10.4	0.424 U	0.447 U	0.437	0.366 J	0.433 J	0.402 J	0.507 J	0.351 J	0.440	0.429	0.424	0.37 U	0.424 U	0.43 U	0.493 U
Silver	0.114	390	16	0.0905 J	0.0896 J	0.114	0.0866 J	0.093 J	0.116	0.0881 J	0.0987	0.0895	0.0809	0.0802	0.0954 J	0.0926	0.0969 J	0.0956
Sodium	--	--	--	390 J	472 J	458	228	409	224	334	388	432	464	322	284	284	406	316
Thallium	0.405	0.78	2.8	0.244	0.270	0.300	0.258	0.292	0.270	0.264	0.298	0.309	0.285	0.257	0.269	0.383	0.283	0.256
Vanadium	50	390	1,720	30.4	34.0	36.1	25.0	37.5	30.1	33.4	36.9	37.2	34.8	30.7	31.3	32.8	39.3	30
Zinc	57	23,000	7,400	53.3	55.7	50.4	41.2	48.6	148	48.0	51.2	47.5	42.2	50.1	46.6	74	52.1	54.7

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP33E	19B-SP34E	19B-SP35E	19B-SP135E	19B-SP36E	19B-SP37E	19B-SP38E	19B-SP39E	19B-SP40E	19B-SP140E	19B-SP41E	19B-SP42E	19B-SP43E	19B-SP44E
			Sample Date	4/17/2018	4/17/2018	4/17/2018		4/18/2018	4/20/2018	4/20/2018	4/20/2018	4/20/2018		4/20/2018	4/20/2018	4/18/2018	4/19/2018
			Sample Type	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	26,000	26 J	140	140	100 J	100	580	59 U	54 U	47 J	55 J	190	60 J	49 U	92 J
RDX	--	8,300	7.4	49 J	130	200	130	190	880	59 U	54 U	38 J	36 J	160	84 J	49 U	200 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	55 U	62 U	57 U	57 U	53 U	50 U	64 J	54 U	56 U	46 U	55 U	54 U	49 U	53 U
1,3-Dinitrobenzene	--	6,300	36	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
Tetryl	--	160,000	7,400	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
Nitrobenzene	--	5,100	1.84	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
2,4,6-Trinitrotoluene	--	21,000	300	420	36 J	42 J	22 J	56 J	140	3300	130	56 U	46 U	76 J	140	49 U	750 J
2-Amino-4,6-dinitrotoluene	--	7,700	30	260	62 U	95 J	57 U	91 J	130	590	80 J	56 U	46 U	64 J	75 J	49 U	160
4-Amino-2,6-dinitrotoluene	--	7,700	30	380	59 J	110 J	57 U	130	180 J	620	84 J	56 U	46 U	85 J	120	49 U	200 J
2,6-Dinitrotoluene	--	360	1.34	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
2,4-Dinitrotoluene	--	1,700	6.4	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
2-Nitrotoluene	--	3,200	6	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
3-Nitrotoluene	--	6,300	32	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
4-Nitrotoluene	--	34,000	80	55 U	62 U	57 U	57 U	53 U	50 U	59 U	54 U	56 U	46 U	55 U	54 U	49 U	53 U
Nitroglycerin	--	6,300	17	440 U	500 U	460 U	450 U	420 U	400 U	470 U	430 U	450 U	370 U	440 U	430 U	390 U	420 UJ
PETN	--	130,000	560	440 U	500 U	460 U	450 U	420 U	400 U	470 U	430 U	450 U	370 U	440 U	430 U	390 U	420 U
Metals (mg/kg)																x	
Aluminum	26,400	77,000	600,000	45300	20300	20800	17800	32700	17600	21200	20900	18200	18800	22200	20900	19600	21700
Antimony	0.333	31	7	0.195 J	0.356 J	26 J	7.5 J	12.7 J	0.2 J	9.64	0.278	0.14 U	0.16 U	0.241	0.23	0.15 UJ	0.29 J
Arsenic	13.6	0.68	5.8	3.53	6.46	7	5.96	5.51	6	6.76	7.5	5.8	6.27	5.87	7.14	7.07	5.28
Barium	375	15,000	3,200	181	320	415	298	332	211	375	238	265	304	215	311	291	215 J
Beryllium	1.14	160	380	0.65	0.882	0.719	0.744	0.757	0.735	0.785	0.775	0.764	0.787	0.805	0.83	0.829	0.731
Cadmium	0.31	71	13.8	0.342	0.165 J	1.14 J	0.61 J	0.25 J	0.12 J	0.779	0.327	0.136 J	0.19 J	0.151 J	0.107 J	0.173 J	0.181 J
Calcium	--	--	--	15,800 J	42,900 J	19,600 J	34,100 J	32400	26,000 J	37000	42200	30,600 J	52,900 J	21400	33000	49000	18600
Chromium Total[1]	24.2	120,000	3,600,000	13.6	17.7	51.8 J	20.5 J	27.8	13.4 J	22.8	16.7	15.2	16	16.1	17	15.7	14.5
Cobalt	11.2	23	5.4	5.48	7.12	9.1	7.53	8.25	6.23	7.1	6.45	7.15	6.01	7.47	6.3	7.86	7.72
Copper	17.1	3,100	920	24.2	15.2	66.5 J	25.8 J	17.2	13.1	25.7	16.1	14.4	16.6	15.2	12.7	12.9	13.3
Iron	19,100	55,000	7,000	12300	17600	36,400 J	16,400 J	15400	14400	16600	20000	15100	15600	16100	16600	15700	14600
Lead	16.4	400	280	26	18.4	566 J	126 J	108	27.7 J	122	19.6	15.9	15.7	18.8	14.6	16.9	31.8 J
Magnesium	--	--	--	4,770 J	8,340 J	5,780 J	6,580 J	7340	6670	7480	8230	7770	8120	7100	8830	8180	6,330 J
Manganese	542	1,800	560	286	446	457	390	584	342	353	367	404	345	450	328	379	447
Mercury	0.0287	11	2	0.034	0.019 J	0.0528	0.077	0.039	0.017 J	0.029 J	0.015 J	0.011 J	0.018 J	0.013 J	0.014 J	0.016 J	0.014 J
Nickel	24.1	1,500	520	12	14.7	26.3	17.5	15.9	13.1	15.5	14.7	14.7	13.4	16.3	13.7	14	15
Potassium	--	--	--	3820	5410	4320	4540	4690	4680	5240	5340	5330	5370	5770	5460	5530	4770
Selenium	0.824	390	10.4	0.24 U	0.33 U	0.374 U	0.472 U	0.38 J	0.37 J	0.434	0.425	0.523	0.33 J	0.37 J	0.39 J	0.474	0.32 U
Silver	0.114	390	16	0.119	0.108 J	0.226	0.153	0.106	0.076 U	0.158	0.101	0.103	0.136	0.109 J	0.0893 J	0.0949	0.0864 J
Sodium	--	--	--	303 J	480 J	283 J	324 J	394	333	416	408	466	506	296	501	468	306
Thallium	0.405	0.78	2.8	0.222	0.309	0.244	0.252	0.307	0.245	0.284	0.287	0.299	0.324	0.292	0.306	0.305	0.283
Vanadium	50	390	1,720	26.4	38.4	29.7	29.8	33.5	28.2	36.5	38.6	34.4	35.3	33.8	37.8	37.1	30.5
Zinc	57	23,000	7,400	69	52.6	472 J	183 J	96.5	46.6	384	71.3	46.8	46.1	48.9	50	46.2	54.5

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP45E	19B-SP28F	19B-SP29F	19B-SP129F	19B-SP30F	19B-SP31F	19B-SP32F	19B-SP33F	19B-SP34F	19B-SP35F	19B-SP36F	19B-SP37F	19B-SP38F	19B-SP39F	19B-SP40F	19B-SP41F
			Sample Date	4/17/2018	4/16/2018	4/16/2018		4/16/2018	4/16/2018	4/16/2018	4/16/2018	4/17/2018	4/17/2018	4/20/2018	4/20/2018	4/18/2018	4/18/2018	4/18/2018	4/18/2018
			Sample Type	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																			
HMX	--	3,900,000	26,000	150	34 J	70 J	39 J	470	340	100	24 J	29 J	160	1800	66 J	130	62 U	48 U	58 U
RDX	--	8,300	7.4	270	35 J	51 J	32 J	930	260	210	28 J	36 J	170	6700	130	150	62 U	24 J	58 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000	34 J	53 U	58 U	52 U	320	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
1,3-Dinitrobenzene	--	6,300	36	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
Tetryl	--	160,000	7,400	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
Nitrobenzene	--	5,100	1.84	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
2,4,6-Trinitrotoluene	--	21,000	300	320	200	240 J	51 J	--	64 J	49 U	520	110 J	160	430	39 J	170	62 U	98	58 U
2-Amino-4,6-dinitrotoluene	--	7,700	30	220	260	170	66 J	820	110 J	49 U	480	55 J	220	340	81 J	180	62 U	140	58 U
4-Amino-2,6-dinitrotoluene	--	7,700	30	290	380	220 J	92 J	1400	170	49 U	340	76 J	280	390	110	260	62 U	130 J	58 U
2,6-Dinitrotoluene	--	360	1.34	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
2,4-Dinitrotoluene	--	1,700	6.4	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
2-Nitrotoluene	--	3,200	6	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
3-Nitrotoluene	--	6,300	32	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
4-Nitrotoluene	--	34,000	80	54 U	53 U	58 U	52 U	53 U	59 U	49 U	51 U	58 U	52 U	58 U	52 U	47 U	62 U	48 U	58 U
Nitroglycerin	--	6,300	17	430 U	420 U	460 U	420 U	420 U	470 U	400 U	410 U	470 U	420 U	460 U	420 U	380 U	490 U	380 U	460 U
PETN	--	130,000	560	430 U	420 U	460 U	420 U	420 U	470 U	400 U	410 U	470 U	420 U	460 U	420 U	380 U	490 U	380 U	460 U
Metals (mg/kg)																	x		
Aluminum	26,400	77,000	600,000	19600	19,100 J	20,700 J	19,700 J	45,400 J	18,800 J	20,200 J	20,400 J	18700	24200	18100	18200	28700	19300	19700	19000
Antimony	0.333	31	7	0.21 J	0.32	2.33 J	0.975 J	0.38	0.864	0.363	0.318	5.37 J	12.6 J	0.193	0.197	76.8 J	0.16 UJ	0.272 UJ	0.16 UJ
Arsenic	13.6	0.68	5.8	4.35	6.11	5.7	5.65	5	4.73	8.74	8.53	6.01	4.58	4.97	13.9	5.61	4.17	5.15	10.6
Barium	375	15,000	3,200	207	209	214	205	178	186	282	250	248	308	244	352	541	236	298	242
Beryllium	1.14	160	380	0.721	0.778	0.709	0.747	0.608	0.669	0.818	0.759	0.751	0.809	0.749	0.777	0.713	0.86	0.79	0.802
Cadmium	0.31	71	13.8	0.235 J	0.146 J	0.22 J	0.206 J	0.241 J	0.174 J	0.164 J	0.0831 J	0.314	0.737	0.158 J	0.229	1.38	0.159 J	0.187 J	0.134 J
Calcium	--	--	--	33700	13,700 J	30,200 J	23,900 J	17,500 J	18,100 J	41,100 J	46,000 J	28,100 J	20,000 J	33600	38700	20400	11900	48300	42600
Chromium Total[1]	24.2	120,000	3,600,000	13.5	15.1	15.5	14.3	13.3	13.8	18.1	15.6	18.2	29.1	15.2	14.6	38.4	15.8	15.8	14.6
Cobalt	11.2	23	5.4	6.52	11.7	6.63	6.99	7.41	7.04	6.32	6.81	6.97	7.8	7.37	9.04	8.88	6.36	7.25	8.31
Copper	17.1	3,100	920	17.5	12.5	13.2	12.5	20.2	12.6	15.3	12.8	15.6	86.6	12.7	17.1	51.6	12.7	16.1	11.7
Iron	19,100	55,000	7,000	13900	15700	14900	14600	12300	13500	19600	15000	15300	16600	16100	16400	20900	15500	19400	14900
Lead	16.4	400	280	17.4	18.9 J	27.9 J	21.8 J	22.6 J	24.2 J	18.4 J	17.8 J	48	169	34.9	19.6	403	14.9	21.6	13.8
Magnesium	--	--	--	6510	5900	6690	6240	4940	5380	9980	11300	7,030 J	6,030 J	7630	7670	6010	6700	7320	9260
Manganese	542	1,800	560	454	591	387	373	428	363	286	299	348	407	572	694	451	236	570	526
Mercury	0.0287	11	2	0.016 J	0.033	0.016 J	0.018 J	0.024 J	0.02 J	0.019 J	0.028 J	0.059	0.203	0.014 J	0.016 J	0.344	0.016 J	0.026 J	0.014 J
Nickel	24.1	1,500	520	12.8	18.4	13.5	14.4	12.6	12.8	14.8	15.6	14.3	22.4	15.8	18.6	23.2	13.7	15.2	16.8
Potassium	--	--	--	4240	4690	4680	4810	3720	4190	5660	4980	4890	4810	4730	4980	4940	6160	5100	5310
Selenium	0.824	390	10.4	0.42 J	0.39 U	0.36 U	0.48 U	0.452 U	0.36 U	0.604 U	0.571 U	0.33 U	0.394	0.4	0.489	0.452 J	0.495	0.36 J	0.37 J
Silver	0.114	390	16	0.154	0.138	0.102 J	0.0823 J	0.102	0.0932 J	0.109 J	0.0942 J	0.107	0.226	0.0886	0.127	0.247	0.0808 J	0.0856 J	0.0766 J
Sodium	--	--	--	320	257	266	278	184	223	960	1460	323 J	283 J	449	460	176	312	350	402
Thallium	0.405	0.78	2.8	0.247 J	0.301	0.275	0.268	0.236	0.255	0.304	0.303	0.27	0.274	0.291	0.37	0.257	0.314	0.304	0.308
Vanadium	50	390	1,720	26.7	31.6	30.7	29.6	29.1	27.7	43.4	38.5	32.3	33.6	32.7	48.6	30.9	31.3	34.5	41
Zinc	57	23,000	7,400	50.3	50.3	70	56.7	61	62.8	55.4	47.5	105	329	52.3	46.2	590	50.8	58.6	39.6

Table 5.1b (Continued)
Tract 19B Stockpiled Soil, Stockpile 2/3, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP42F	19B-SP43F	19B-SP44F	19B-SP31G	19B-SP39G	19B-SP40G	19B-SP41G	19B-SP42G	19B-SP43G	19B-SP143G	19B-SP44G
			Sample Date	4/18/2018	4/18/2018	4/19/2018	4/16/2018	4/20/2018	4/20/2018	4/19/2018	4/19/2018	4/19/2018		4/19/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)														
HMX	--	3,900,000	26,000	52 U	40 J	130	130	51 J	150	300	50 J	59 J	33 J	400
RDX	--	8,300	7.4	52 U	120	480	93 J	60 J	140	390	51 J	130	62 J	280
1,3,5-Trinitrobenzene	--	2,200,000	42,000	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
1,3-Dinitrobenzene	--	6,300	36	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
Tetryl	--	160,000	7,400	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
Nitrobenzene	--	5,100	1.84	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
2,4,6-Trinitrotoluene	--	21,000	300	52 UJ	48 U	120	82 J	370	33 J	29 J	56 U	51 U	56 U	130
2-Amino-4,6-dinitrotoluene	--	7,700	30	52 U	48 U	120	120	260	54 J	77 J	56 U	51 U	56 U	170
4-Amino-2,6-dinitrotoluene	--	7,700	30	52 U	48 U	150	170 J	320	76 J	82 J	56 U	51 U	56 U	210
2,6-Dinitrotoluene	--	360	1.34	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
2,4-Dinitrotoluene	--	1,700	6.4	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
2-Nitrotoluene	--	3,200	6	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
3-Nitrotoluene	--	6,300	32	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
4-Nitrotoluene	--	34,000	80	52 U	48 U	52 U	57 U	52 U	57 U	60 U	56 U	51 U	56 U	60 U
Nitroglycerin	--	6,300	17	410 U	390 U	420 U	460 U	420 U	460 U	480 U	450 U	410 U	450 U	480 U
PETN	--	130,000	560	410 U	390 U	420 U	460 U	420 U	460 U	480 U	450 U	410 U	450 U	480 U
Metals (mg/kg)				x										
Aluminum	26,400	77,000	600,000	16800	15900	18300	18,200 J	43700	26600	16000	20100	19100	19000	20500
Antimony	0.333	31	7	0.13 UJ	0.15 UJ	0.194 J	1.33	0.196	0.185	0.16 J	0.2 J	0.225 J	0.24 J	0.22 J
Arsenic	13.6	0.68	5.8	2.04	3.85	10.1	8.21	5.99	5.7	3.94	9.7	5.68 J	12.1 J	8.84
Barium	375	15,000	3,200	174	180	380	270	255	258	241	259	232	266	200
Beryllium	1.14	160	380	0.749	0.71	0.806	0.742	0.806	0.782	0.658	0.828	0.791	0.868	0.804
Cadmium	0.31	71	13.8	0.127 J	0.153 J	0.421	0.124 J	0.29	0.191 J	0.332	0.128 J	0.154 J	0.106 J	0.172 J
Calcium	--	--	--	3440	4610	23300	38,100 J	47100	44000	127000	35100	33800	33900	50400
Chromium Total[1]	24.2	120,000	3,600,000	14.4	13.5	15.2	16	16	15.6	13	16.6	15.2	16.2	15.4
Cobalt	11.2	23	5.4	5.47	5.52	12	5.79	5.45	6.61	5.8	7.49	7.54 J	13.7 J	6.69
Copper	17.1	3,100	920	10	10.4	32.4	16.3	15.5	12.1	12.6	12.7	13.2	13.3	11.8
Iron	19,100	55,000	7,000	13200	13000	16000	16200	15400	15700	12700	17600	15800	17600	15900
Lead	16.4	400	280	11.7	14.5	17.3 J	24.1 J	18.1	17.9	18 J	15.8 J	18.5 J	16.9 J	18.8 J
Magnesium	--	--	--	5430	5100	7100	8380	8250	8060	7270	9020	7300	8570	7840
Manganese	542	1,800	560	261	262	958	314	333	413	333	438	436	695	403
Mercury	0.0287	11	2	0.018 J	0.021 J	0.02 J	0.018 J	0.014 J	0.02 J	0.014 J	0.017 J	0.014 J	0.014 J	0.013 J
Nickel	24.1	1,500	520	11.4	11.6	19.1	12.7	13	13.2	11.1	15.4	15.7	17.7	13.1
Potassium	--	--	--	5620	6160	5820	5060	5120	4870	4360	5860	5120	5540	4890
Selenium	0.824	390	10.4	0.412 J	0.42	0.426	0.666 U	0.399 J	0.473	0.641	0.46 J	0.375 J	0.444 J	0.44 J
Silver	0.114	390	16	0.0663 J	0.0792 J	0.269	0.0902 J	0.0989	0.0852 J	0.0932	0.0904 J	0.0942	0.0898 J	0.0844 J
Sodium	--	--	--	258	824	436	870	416	304	369	607	360	542	455
Thallium	0.405	0.78	2.8	0.262	0.257	0.394	0.268	0.291	0.302	0.244	0.311	0.28	0.309	0.271
Vanadium	50	390	1,720	24.4	26.1	40.4	37.4	37.2	35.2	26.8	40.9	32.1	43.9	38.1
Zinc	57	23,000	7,400	39.8	41.8	52.4	54.8	59.5	53.1	40.8	44.4	47.4	45.5	47.2

Notes:
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-
Shaded results denote an exceedance of the BTV (if available) and the residential RSI
Underlined results denote an exceedance of the Background Threshold Value (if available) and the soil-to-groundwater SSL
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
PETN = pentaerythritol tetranitrate
mg/kg = milligrams per kilogram
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
SSL = soil screening level
U = analyte not detected, listed value is the reporting limi

Table 5.1c
Tract 19B Stockpiled Soil, Stockpile 4, Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SP31H	19B-SP34H	19B-SP31J	19B-SP32J	19B-SP31K
			Sample Date	4/20/2018	4/20/2018	4/21/2018	4/21/2018	4/20/2018
			Sample Type	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result
Explosives (µg/kg)								
HMX	--	3,900,000	26,000	160	71 J	230	280	32 J
RDX	--	8,300	7.4	570	160	58 U	710	76 J
1,3,5-Trinitrobenzene	--	2,200,000	42,000	58 U	52 U	58 U	46 J	53 U
1,3-Dinitrobenzene	--	6,300	36	58 U	52 U	58 U	56 U	53 U
Tetryl	--	160,000	7,400	58 U	52 U	58 UJ	56 UJ	53 U
Nitrobenzene	--	5,100	1.84	58 U	52 U	58 U	56 U	53 U
2,4,6-Trinitrotoluene	--	21,000	300	82 J	55 J	38 J	85,000	37 J
2-Amino-4,6-dinitrotoluene	--	7,700	30	94 J	66 J	40 J	240	41 J
4-Amino-2,6-dinitrotoluene	--	7,700	30	150	110	49 J	460	62 J
2,6-Dinitrotoluene	--	360	1.34	58 U	52 U	58 U	56 U	53 U
2,4-Dinitrotoluene	--	1,700	6.4	58 U	52 U	58 U	50 J	53 U
2-Nitrotoluene	--	3,200	6	58 U	52 U	58 U	56 U	53 U
3-Nitrotoluene	--	6,300	32	58 U	52 U	58 U	56 U	53 U
4-Nitrotoluene	--	34,000	80	58 U	52 U	58 U	56 U	53 U
Nitroglycerin	--	6,300	17	460 U	420 U	460 U	440 U	430 U
PETN	--	130,000	560	460 U	420 U	460 U	440 U	430 U
Metals (mg/kg)								
Aluminum	26,400	77,000	600,000	22400	17600	20,200	23,600	20,300
Antimony	0.333	31	7	0.384	0.2 J	0.327	0.342	0.275
Arsenic	13.6	0.68	5.8	4.42	5.68	14.8	11.6	4.36
Barium	375	15,000	3,200	199	186	563	406	208
Beryllium	1.14	160	380	0.704	0.742	0.766	0.855	0.714
Cadmium	0.31	71	13.8	0.182 J	0.17 J	0.0841 J	0.025 J	0.168 J
Calcium	--	--	--	13600	7,980 J	78,500	58,400	18,000
Chromium Total[1]	24.2	120,000	3,600,000	14	15.6 J	17.8	20.2	13.8
Cobalt	11.2	23	5.4	6.55	5.95	6.45	7.20	5.96
Copper	17.1	3,100	920	13.7	12.8	12.7	12.8	12.0
Iron	19,100	55,000	7,000	14000	13600	16,400	17,200	13,500
Lead	16.4	400	280	19.4	17 J	11.2	12.2	17.8
Magnesium	--	--	--	5340	6340	16,600	14,800	6,010
Manganese	542	1,800	560	364	257	316	251	301
Mercury	0.0287	11	2	0.019 J	0.031	0.021 J	0.019 J	0.017 J
Nickel	24.1	1,500	520	12.5	13	14.2	16.4	11.6
Potassium	--	--	--	4450	5680	5,970	6,480	4,780
Selenium	0.824	390	10.4	0.34 J	0.603	0.608	0.443 J	0.465
Silver	0.114	390	16	0.0873 J	0.114	0.0706 J	0.0708 J	0.0870
Sodium	--	--	--	219	980	2,210	900	629
Thallium	0.405	0.78	2.8	0.256	0.235	0.327	0.361	0.254
Vanadium	50	390	1,720	27.3	32.7	54.8	59.9	27.3
Zinc	57	23,000	7,400	52	47.5	42.3	45.7	47.0

Notes:
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
Underlined results denote an exceedance of the BTV (if available) and the soil-to-groundwater SSL.
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
SSL = soil screening level
U = analyte not detected, listed value is the reporting limit

Table 5.2
Tract 19B SPLP Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-03B-SPLP	19B-13B-SPLP	19B-20B-SPLP	19B-29B-SPLP	19B-129B-SPLP	19B-44B-SPLP	19B-09C-SPLP	19B-10C-SPLP	19B-18C-SPLP	19B-41C-SPLP	19B-14D-SPLP	19B-31D-SPLP	19B-35D-SPLP
			Sample Date	6/11/2018	6/11/2018	6/11/2018	6/11/2018		6/11/2018	6/11/2018	6/12/2018	6/11/2018	6/11/2018	6/12/2018	6/11/2018	6/11/2018
			Sample Type	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/L)																
HMX	--	--	1,000	9.4	1.6	1.1 J	4.5	6.3	9.5	530	470	0.67	2.3 J	2.2	13	6.4
RDX	--	--	0.97	5	1.6	2.3 J	14	20	49 J	5,400	3,200	0.57	0.94 J	9.4	8.1	6.5
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 UJ	0.31	0.24 J	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 UJ	17 J	43 J	0.36 J	240	8.1 J	0.12 U	0.12 UJ	0.28 J	0.12 U	72 J
4-Am-DNT	--	--	1.9	0.96	0.62	0.46 J	3.7	5	0.73	32	17 J	0.12 U	1.5 J	0.83 J	0.63 J	3.9
2-Am-DNT	--	--	1.9	0.53	0.12 U	0.12 UJ	2.2	2.9	0.33 J	12	4 J	0.12 U	0.99 J	0.46	0.37 J	1.6
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 UJ	2 U	2 UJ	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 UJ	2 U	2 UJ	2 U	2 U	2 U
Metals (µg/L)																
Aluminum	7,110	--	20,000	59,400	148,000	77,200	95,600	100,000	188,000	32,400	35,300	52,100	196,000	197,000	210,000	170,000
Antimony	--	6	7.8	1.14	1.49	0.973 U	1.16	1.22	1.5 U	3.4	1.3	1.12	1.79 U	2	2 U	1.65 U
Arsenic	14.8	10	0.052	**24.5**	**28.7**	**31.4**	**40.4**	**40.2**	**45.8**	9.6	11	**20**	**57**	**84**	**44.1**	**45.1**
Barium	81.5	2,000	3,800	469	723	449 U	756	741	1,070	292	236	345	1,470	401	1,240	1,120
Beryllium	0.31	4	25	2.43	**6.27**	3.36	**4.14**	**4.31**	**8.2**	1.23	1.38	2	**8.68**	**9.36**	**9.69**	**7.63**
Cadmium	--	5	9.2	0.2 U	0.24 U	0.2 U	0.2 U	0.2 U	0.2 U	0.714 J	0.28 U	0.2 U	0.2 U	0.2 U	0.16 J	0.2 U
Calcium	--	--	--	29,600	29,000	21,000	42,400	33,200	64,800	29,000	17,200	18,800	84,200	34,600	55,600	49,200
Chromium Total[1]	--	100	22,000	47.5	**112**	62.2	72.3	76.1	**148**	28.1 J	30.1 J	42.5 J	**153**	**148**	**160**	**136**
Cobalt	5.5	--	6	10.1 J	27.1	13.8	16.5	16.6	36.7	6.35 J	5.92 J	9.15 J	34.5	33.1	37.6	31.2
Copper	--	1,300	800	55.6 J	64.3 J	42.4 J	50 J	47.6 J	74.1 J	32.4 J	25.2 J	26 J	89.9	82.8	91.8	87.8
Iron	10,500	--	14,000	46,300 J	112,000 J	60,200	72,500 J	79,200 J	146,000	25,000 J	26,600	41,800 J	165,000	149,000	170,000	137,000
Lead	4.06	15	15	**36.3**	**59.4**	**29.1**	**33**	**37.5**	**65**	**25.3**	**18.6**	**21.4**	**71.9**	**75**	**129**	**78.6**
Magnesium	--	--	--	21,700	45,100	25,500	32,700	32,200	65,600	12,000	11,000	16,600	65,400	65,900	60,200	53,400
Manganese	1,730	--	430	358	874	417	443	469	1,160	211	208	286	1,090	798	1,220	1,040
Mercury	--	2	0.63	0.051 J	0.068 J	0.1 U	0.066 J	0.04 J	0.1 U	0.056 J	0.071 J	0.047 J	0.1 U	0.09 J	0.11 J	0.1 U
Nickel	8.04	--	390	28.4 J	67	38 J	48.7 J	50.6	99	17.4 J	17.1 J	26 J	98.6	104	101	84.9
Potassium	--	--	--	27,100	46,600	37,800	38,500	38,100	66,000	21,900	18,800	22,700	61,600	77,600	59,200	52,500
Selenium	-	50	100	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Silver	--	--	94	0.18 J	0.18 J	0.15 J	0.2 J	0.19 J	0.3 J	0.13 J	0.09 J	0.11 J	0.34 J	0.34 J	0.4 J	0.4 J
Sodium	--	--	--	4,380	6,360	1,700	6,460	6,080	6,800	4,020	2,970	6,340	7,500	12,900	6,860	11,600 U
Thallium	--	2	0.2	0.633 J	1.46	0.69 J	0.843 J	0.862 J	1.88	0.43 J	0.4 U	0.51 J	1.73	1.9	1.94	1.5
Vanadium	12.5	--	86	135	234	181	195	211	310	61.9	67.6	115	333	460	317	303
Zinc	34	--	6,000	183	364	114 J	164 J	119 J	367	160	162	113 J	271	485	511	408

Table 5.2 (Continued)
Tract 19B SPLP Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-42D-SPLP	19B-43D-SPLP	19B-35E-SPLP	19B-40E-SPLP	19B-38F-SPLP	19B-43F-SPLP	19B-44F-SPLP	19B-44G-SPLP	19B-144G-SPLP
			Sample Date	6/11/2018	6/11/2018	6/11/2018	6/11/2018	6/11/2018	6/11/2018	6/11/2018	6/11/2018	
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/L)												
HMX	--	--	1,000	6.6 J	5.3	13	6.2	1.4 J	4.9	1.9	14 J	7.5 J
RDX	--	--	0.97	10 J	12	9.7	10	1.8 J	9.8	5.6	29	9.8
1,3,5-Trinitrobenzene	--	--	590	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	2.7 J	0.12 UJ
1,3-Dinitrobenzene	--	--	2	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 UJ	0.12 U	100	0.12 U	20 J	1.9	7.8	1,400 J	2.7 J
4-Am-DNT	--	--	1.9	0.66 J	0.12 U	3.8	0.59 J	7.6 J	3.6	2	12 J	1.9 J
2-Am-DNT	--	--	1.9	0.37 J	0.12 U	1.6	0.4	7.8 J	1.4	0.86	6.8 J	0.99 J
2,6-Dinitrotoluene	--	--	0.049	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.42 J	0.12 UJ
2-Nitrotoluene	--	--	0.31	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	1.7	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	4.3	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 UJ	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U
PETN	--	--	19	2 UJ	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U
Metals (µg/L)												
Aluminum	7,110	--	20,000	220,000	133,000	108,000	205,000	196,000	191,000	234,000	204,000	237,000
Antimony	--	6	7.8	2.24	2.51	**85.6**	1.87	**38.5**	3.12	3.53	1.67	2.51
Arsenic	14.8	10	0.052	**62.6**	**48.9**	**22**	**53.2**	**48.6**	**49.7**	**67.7**	**47.6**	**57.8**
Barium	81.5	2,000	3,800	1,540	1,100	761	1,290	1,280	1,460	1,620	1,390	1,410
Beryllium	0.31	4	25	**10.4**	**5.74**	**4.66**	**8.98**	**8.88**	**8.78**	**10.9**	**9.21**	**10.6**
Cadmium	--	5	9.2	0.2 U	0.2 U	0.406 J	0.2 U	0.664 J	0.2 U	0.56 J	0.2 U	0.2 U
Calcium	--	--	--	54,100	58,800	33,500	56,300	58,000	51,700	109,000	71,600	89,100
Chromium Total[1]	--	100	22,000	**164**	**105**	**107**	**159**	**160**	**146**	**172**	**154**	**177**
Cobalt	5.5	--	6	39.1	24.7	20.8	37.4	33.8	34.8	39.7	34.6	41.9
Copper	--	1,300	800	102	66.4 J	85.8	102	122	97.6	117	111	119
Iron	10,500	--	14,000	180,000	103,000	88,400	163,000	161,000	152,000	190,000	161,000	193,000
Lead	4.06	15	15	**93**	**69.3**	**273**	**98.4**	**264**	**100**	**123**	**90.3**	**107**
Magnesium	--	--	--	74,900	44,500	33,000	63,000	61,100	61,000	82,200	63,600	76,000
Manganese	1,730	--	430	1,180	965	715	1,230	1,090	1,230	1,400	1,170	1,430
Mercury	--	2	0.63	0.088 J	0.071 J	1.14	0.258	0.199 J	0.11 J	0.093 J	0.095 J	0.11 J
Nickel	8.04	--	390	107	65.7	59.1	100	102	96.2	124	98.8	117
Potassium	--	--	--	70,200	44,200	36,100	59,500	59,600	56,200	72,200	59,200	71,400
Selenium	-	50	100	3.34 U	3.32 U	3 U	3 U	3.19 U	3 U	3.97 U	3 U	3 U
Silver	--	--	94	0.42 J	0.29 J	0.36 J	0.638 J	0.672 J	0.42 J	0.506 J	0.552 J	0.578 J
Sodium	--	--	--	8,480	12,900	4,240	8,740	7,850	8,820	11,700	10,800	13,400
Thallium	--	2	0.2	1.91	1.26	0.987 J	1.86	1.76	1.72	**2.06**	1.85	**2.16**
Vanadium	12.5	--	86	358	259	172	348	306	318	372	323	372
Zinc	34	--	6,000	335	535	512	451	371	533	769	461	633 J

Notes:
Shaded results denote an exceedance of the Background Threshold Value (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer HQ = 1.0)
Bold results denote an exceedance of the Background Threshold Value and the MCL
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
SPLP = synthetic precipitation leaching procedure
U = analyte not detected, listed value is the reporting limit
PETN = pentaerythritol tetranitrate
4-Am-DNT = 4-amino-2,6-dinitrotoluene
2-Am-DNT = 2-Amino-4,6-dinitrotoluene

Table 5.3
Tract 19B: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-SS01	19B-SB01	19B-SS02	19B-SB02	19B-SS03	19B-SB03	19B-SS04	19B-SB04	19B-SS05	19B-SB05	19B-SS06	19B-SB06	19B-SB106	19B-SS07	19B-SB07	19B-SS08	19B-SB08	19B-SS09	19B-SB09	19B-SS10	19B-SB10
			Sample Date	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/25/2018	7/25/2018		7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018
			Sample Interval (feet bgs)	0-2	10-12	0-2	6-8	0-2	11-13	0-2	8.5-10.5	0-2	3-5	0-2	8-10		0-2	6-8	0-2	10-12	0-2	9-11	0-2	6-8
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Surface Soil BTV	Subsurface Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																								
HMX	--	--	3,900,000	59 U	51 U	56 U	47 U	250	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
RDX	--	--	8,300	59 U	51 U	56 U	47 U	1,200	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
1,3,5-Trinitrobenzene	--	--	2,200,000	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
1,3-Dinitrobenzene	--	--	6,300	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
Tetryl	--	--	160,000	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 UJ	65 U	53 U	46 U	53 U	56 U	57 U	57 UJ	53 U	54 U
Nitrobenzene	--	--	5,100	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
2,4,6-Trinitrotoluene	--	--	21,000	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
2-Amino-4,6-dinitrotoluene	--	--	7,700	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
4-Amino-2,6-dinitrotoluene	--	--	7,700	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
2,6-Dinitrotoluene	--	--	360	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
2,4-Dinitrotoluene	--	--	1,700	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
2-Nitrotoluene	--	--	3,200	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
3-Nitrotoluene	--	--	6,300	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
4-Nitrotoluene	--	--	34,000	59 U	51 U	56 U	47 U	51 U	49 U	56 U	47 U	65 U	62 U	57 U	60 U	65 U	53 U	46 U	53 U	56 U	57 U	57 U	53 U	54 U
Nitroglycerin	--	--	6,300	480 U	410 U	450 U	380 U	410 U	390 U	450 U	380 U	520 U	500 U	460 U	480 U	520 U	430 U	370 U	420 U	450 U	460 U	460 U	420 U	430 U
PETN	--	--	130,000	480 U	410 U	450 U	380 U	410 U	390 U	450 U	380 U	520 U	500 U	460 U	480 U	520 U	430 U	370 U	420 U	450 U	460 U	460 U	420 U	430 U
Metals (mg/kg)																								
Aluminum	23,900	21,600	77,000	18,200	13,500	11,700	17,100	21,500	16,000	11,600 J	18,800 J	24,500 J	16,400 J	24,600	18,300	18,000	23,000 J	20,300 J	22,000 J	15,600 J	20,200 J	13,100 J	21,400 J	19,600 J
Antimony	0.225	0.317	31	0.19	0.14	0.093	0.258	0.27	0.138	0.12	0.11 J	0.15	0.11	0.21	0.12 J	0.12 J	0.251	0.18	0.222	0.076	0.175	0.096	0.255	0.13 J
Arsenic	5.09	15.1	0.68	7.45	2.3	2.04	8.77	3.74	7.06 J	2.33	1.3	7.12	5.11	3.22	2.42	2.89	11.6	14.5	5.97	1.57	7.25	3.06	10.6	1.8
Barium	248	409	15,000	246	230	137	487	121	193	136	179	181	198	187	239	332	384	305	380	224	217	188	474	352
Beryllium	1.07	0.965	160	0.77	0.732	0.566	0.912	0.937	0.834	0.502	0.824	1.12	0.807	0.971	0.823	0.801	0.933	1.02	0.971	0.767	0.891	0.698	0.831	0.85
Cadmium	0.275	0.158	71	0.021 U	0.022 U	0.052 J	0.182 J	0.016 U	0.147 J	0.104 J	0.019 J	0.019 U	0.133 J	0.021 U	0.024 U	0.024 U	0.024 U	0.131 J	0.074 UJ	0.0082 J	0.024 U	0.024 J	0.02 U	0.026 U
Calcium	--	--	--	50,400	6,210	2,960	8,080	45,000	14,100	2,350 J	16,700 J	5,360 J	12,900 J	4,600	20,100	18,600	72,100 J	19,200 J	43,800 J	6,240 J	45,900 J	16,000 J	73,000 J	13,500 J
Chromium Total[1]	20.2	20.8	120,000	13.9	11.8	10.4	17	17.2	15.3 J	10.9 J	19.6 J	18.6 J	16.4 J	18.8	17.8	17.8	19.1 J	19.2 J	18.5 J	16.1 J	17 J	13.8 J	18.7 J	19.8 J
Cobalt	7.68	10.3	23	5.17	8.32	4.59	16	3.73	6.12 J	4.57	5.36	8.58	4.66	6.98	5.57	5.22	6.88	8.41	7.51	4.77	6.33	5.52	6.73	4.87
Copper	13.6	15.7	3,100	8.26	9.74	7.53	15.3	11.9	14.2 J	8.35	14.9	14.2	13.6	13.2	12.8	13.4	12.8	17.1	13.3	13.4	13.6	11.8	12.6	14.4
Iron	18,500	19,600	55,000	12,800	11,400	9,080	17,800	16,400	16,100 J	9,070 J	14,300 J	17,600 J	15,100 J	17,400	15,400	16,000	16,800 J	25,800 J	16,900 J	12,600 J	15,000 J	13,000 J	16,300 J	16,000 J
Lead	16	15.9	400	9.53	12.8	9.99	16.1	9.48	12.3	13.1	10.5	13.4	10.8	12.1	9.9	12	11.9	18.1	13.1	11.4	11.5	10.2	11.6	10.7
Magnesium	--	--	--	7,860	4,830	3,710	6,930	8,450	6,500	3,630 J	7,240 J	9,640 J	6,980 J	9,170	8,400	8,040	14,900 J	8,760 J	10,400 J	5,880 J	11,700 J	6,490 J	14,700 J	8,660 J
Manganese	484	562	1,800	182	347	188	1,460	94.5	352 J	237 J	370 J	225 J	315 J	288	240	328	232 J	640 J	116 J	178 J	109 J	231 J	213 J	125 J
Mercury	0.0256	0.0294	11	0.019 U	0.018 U	0.018 U	0.026 U	0.018 U	0.022 U	0.02 J	0.016 J	0.016 J	0.022 J	0.019 J	0.021 J	0.014 J	0.017 J	0.03 J	0.021 J	0.026 J	0.018 J	0.0096 J	0.012 J	0.021 J
Nickel	16.6	24	1,500	11.4	12.8	8.37	20.3	11.7	14.6 J	8.28	15.9	18.3	15.7	17.8	11.3	13.7	16.2	20.7	16.4	13.1	17	13.5	15	13.1
Potassium	--	--	--	5,140	3,310	3,290	3,620	5,150	3,430	4,640 J	3,910 J	8,750 J	3,350 J	8,710	3,700	3,650	6,440 J	4,020 J	4,650 J	3,380 J	5,020 J	3,040 J	5,720 J	4,290 J
Selenium	0.823	0.615	390	0.34 U	0.33 U	0.472	0.416 U	0.322 U	0.424 UJ	0.735	0.31 J	0.558	0.3 J	0.41 J	0.37 J	0.37 U	0.351	0.444	0.36 J	0.252 J	0.4	0.613	0.545	0.38 J
Silver	0.0991	0.104	390	0.0808 J	0.0787 J	0.0616 J	0.0979 U	0.0989	0.082 J	0.0923	0.1 J	0.0965	0.0874 J	0.0929 J	0.109 J	0.0897 J	0.0896	0.112	0.107	0.0886	0.109	0.0872	0.0914 J	0.126 J
Sodium	--	--	--	440	444	246	316	439	259	1,380	337	422	399	346	560	537	1,540	537	313	412	695	336	1,270	872
Thallium	0.345	0.356	0.78	0.287	0.255	0.222	0.34	0.343	0.312	0.192	0.301	0.313	0.31	0.308	0.29	0.272	0.358	0.379	0.362	0.278	0.338	0.251	0.319	0.31
Vanadium	34.7	50.9	390	33	22.6	16.8	35.6	31.3	29 J	19.9	31.6	36.3	28.9	29	31.6	31.6	56.9	42.6	47.8	24.9	41.3	24.7	55.1	32.7
Zinc	58.5	50.6	23,000	34.2	31.4	27	48.8	46.2	46.7 J	33.4 J	58 J	53.6 J	47.3 J	51.2	47	49.2	42.8 J	58.2 J	46.8 J	47.6 J	43 J	38.5 J	45.5 J	58.8 J

Notes:
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
ft bgs = feet below ground surface
HMX = cyclotetramethylenetetranitramine
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
J = value listed was reported below the quantitation limit and is estimated
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.4
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT01	19B-LGIA-DPT02	19B-UGIA-DPT03	19B-LGIA-DPT04	19B-UGIA-DPT05	19B-LGIA-DPT06	19B-UGIA-DPT07	19B-LGIA-DPT08	19B-UGIA-DPT09	19B-LGIA-DPT10
			Sample Date	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	14-16	32-36	11.5-13.5	36-40	20.5-22.5	40-44	23-27	44-48	22-26	48-52
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)													
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Freon 113	--	--	10,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	8.2 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	5.9	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	2.3	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT01	19B-LGIA-DPT02	19B-UGIA-DPT03	19B-LGIA-DPT04	19B-UGIA-DPT05	19B-LGIA-DPT06	19B-UGIA-DPT07	19B-LGIA-DPT08	19B-UGIA-DPT09	19B-LGIA-DPT10
			Sample Date	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	14-16	32-36	11.5-13.5	36-40	20.5-22.5	40-44	23-27	44-48	22-26	48-52
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.64 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.34 J	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Explosives (µg/L)													
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 UJ
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals (µg/L)													
Aluminum	7,110	--	20,000	172,000	48,200	303,000	64,400	100,000	173,000	122,000	94,200	298,000	95,500
Antimony	--	6	7.8	1.74 J	0.802 J	**7.8**	0.725 J	1.9 J	1.26 J	2.43 J	2.28 J	3.75 J	1.41 J
Arsenic	14.8	10	0.052	**158**	**19**	**409**	**21**	**40.2**	**46.2**	**53.2**	**63.2**	**188**	**28.5**
Barium	81.5	2,000	3,800	**2,740**	999	**7,580**	1,000	1,860	1,670	1,940	751	**6,630**	1,690
Beryllium	0.31	4	25	**10.8**	2.82	**27.3**	3.63	**6.68**	**11.6**	**8.53**	**6.15**	**20.4**	**6.47**
Cadmium	--	5	9.2	3.99	0.11 J	**294**	1.44 J	2.08 J	0.649 J	**14.1**	1.27 J	3.22 J	0.359 J
Calcium	--	--	--	436,000	392,000	1,100,000	385,000	546,000	440,000	604,000	442,000	648,000	430,000
Chromium Total[2]	--	100	22,000	**634**	**378**	**2,610**	**332**	**1,140**	**673**	**574**	**463**	**4,600**	**592**
Cobalt	5.5	--	6	112	31.9	276	38.8	49.4	99.9	64.2	96.2	165	45.3
Copper	--	1,300	800	311	112	**1,950**	155	411	696	351	898	1,160 J	310 J
Iron	10,500	--	14,000	281,000	85,000	742,000	105,000	183,000	253,000	197,000	208,000	803,000 J	168,000 J
Lead	4.06	15	15	**227**	**99.3**	**754**	**133**	**195**	**539**	**302**	**514**	**488**	**206**
Magnesium	--	--	--	102,000	62,000	144,000	64,700	79,000	92,300	88,000	74,100	128,000 J	74,900 J

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT01	19B-LGIA-DPT02	19B-UGIA-DPT03	19B-LGIA-DPT04	19B-UGIA-DPT05	19B-LGIA-DPT06	19B-UGIA-DPT07	19B-LGIA-DPT08	19B-UGIA-DPT09	19B-LGIA-DPT10
			Sample Date	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	14-16	32-36	11.5-13.5	36-40	20.5-22.5	40-44	23-27	44-48	22-26	48-52
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Manganese	1,730	--	430	7,490	1,880	9,220	2,040	3,040	2,760	3,070	2,410	9,480 J	2,640 J
Mercury	--	2	0.63	0.256	0.1 UJ	**5.3**	0.1 UJ	0.12 J	0.043 J	0.269	0.181 J	0.455	0.098 J
Nickel	8.04	--	390	306	153	892	123	217	369	199	304	796	168
Potassium	--	--	--	58,800	29,500	91,200	32,300	46,100	53,000	49,000	33,700	94,000 J	40,500 J
Selenium	--	50	100	**53**	3 U	46.3	3 U	5.5	5.48	10.5	7.9	20.9	4.07 J
Silver	--	--	94	1.01 U	0.4 U	2.34	0.4 U	0.644 U	0.986 U	0.681 U	0.776 U	1.83	0.583 U
Sodium	--	--	--	77,800	251,000	204,000	245,000	242,000	241,000	199,000	218,000	185,000 J	198,000 J
Thallium	--	2	0.2	**3.45**	0.803 J	**11.8**	1.26	1.87	**3.12**	**3.18**	1.58	**5.88**	1.5
Vanadium	12.5	--	86	411	162	928	240	302	638	476	670	859 J	393 J
Zinc	34	--	6,000	888	176	2,670	326	573	713	580	436	2,490	333

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT11	19B-LGIA-DPT12	19B-LGIA-DPT112	19B-UGIA-DPT13	19B-LGIA-DPT14	19B-UGIA-DPT15	19B-LGIA-DPT16	19B-UGIA-DPT17	19B-LGIA-DPT18
			Sample Date	7/25/2018	7/25/2018		7/25/2018	7/25/2018	7/24/2018	7/24/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	26-30	48-52		10-14	42-46	10-14	32-36	16-20	32-36
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)												
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	10 J	0.5 U	0.5 U	28 J	0.5 U	21 J	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	--	5	0.28	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 UJ	0.5 U	0.5 U	0.25 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	1.1 J	1 U	1 U	5.7 J	1 U	0.9 J	1 U	1 U	1 U
Ethylbenzene	--	700	1.5	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 UJ	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT11	19B-LGIA-DPT12	19B-LGIA-DPT112	19B-UGIA-DPT13	19B-LGIA-DPT14	19B-UGIA-DPT15	19B-LGIA-DPT16	19B-UGIA-DPT17	19B-LGIA-DPT18
			Sample Date	7/25/2018	7/25/2018		7/25/2018	7/25/2018	7/24/2018	7/24/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	26-30	48-52		10-14	42-46	10-14	32-36	16-20	32-36
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Isopropylbenzene	--	--	450	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Explosives (µg/L)												
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals (µg/L)												
Aluminum	7,110	--	20,000	51,000	30,100	24,000	140,000	36,500	189,000	45,900	350,000	71,100
Antimony	--	6	7.8	1.19	0.593 U	0.558 U	2.9	0.838 J	2.78 J	0.5 UJ	2.12 J	0.647 J
Arsenic	14.8	10	0.052	**19**	14	**15**	**70.2**	**24.1**	**112**	**16**	**165**	**26.5**
Barium	81.5	2,000	3,800	929	464	371	**3,480**	644	**4,700**	**2,200**	**8,690**	1,340
Beryllium	0.31	4	25	2.47	1.28	1.17	**9.16**	1.88	**15.4**	2.82	**22.1**	3.73
Cadmium	--	5	9.2	0.61 J	0.2 UJ	0.2 U	3.32	0.2 U	**5.47**	0.2 UJ	**5.58**	0.2 UJ
Calcium	--	--	--	288,000	392,000	386,000	516,000	414,000	846,000	442,000	814,000	427,000
Chromium Total[2]	--	100	22,000	**391**	**117**	**104**	**647**	**143**	**1,170**	**150**	**2,710**	**423**
Cobalt	5.5	--	6	28.5	14.3	12.9	103	24.2	208	25.8	183	34.5
Copper	--	1,300	800	109	88	81.2	343	112	640 J	122 J	828 J	172 J
Iron	10,500	--	14,000	102,000	55,800	48,800	243,000	71,200	382,000 J	99,400 J	818,000 J	158,000 J
Lead	4.06	15	15	**57.3**	**47.2**	**41.9**	**280**	**83**	**522**	**79.6**	**504**	**142**
Magnesium	--	--	--	54,400	73,600	68,400	116,000	72,200	121,000 J	69,400 J	157,000 J	69,200 J

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT11	19B-LGIA-DPT12	19B-LGIA-DPT112	19B-UGIA-DPT13	19B-LGIA-DPT14	19B-UGIA-DPT15	19B-LGIA-DPT16	19B-UGIA-DPT17	19B-LGIA-DPT18
			Sample Date	7/25/2018	7/25/2018		7/25/2018	7/25/2018	7/24/2018	7/24/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	26-30	48-52		10-14	42-46	10-14	32-36	16-20	32-36
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
Manganese	1,730	--	430	2,780	2,130	2,070	5,080	2,410	5,670 J	2,280 J	11,100 J	2,530 J
Mercury	--	2	0.63	0.1 UJ	0.1 UJ	0.1 UJ	0.248 U	0.1 UJ	0.469	0.1 UJ	0.698	0.047 J
Nickel	8.04	--	390	98	40.9	36.1	254	69.2	480	69.3	727	134
Potassium	--	--	--	36,100	24,300	23,500	53,900	25,600	80,200 J	27,200 J	107,000 J	33,300 J
Selenium	--	50	100	4.42 J	1.2 J	3 U	37	1.8 J	**58.2**	3 U	45.7	3.3 U
Silver	--	--	94	0.4 U	0.4 U	0.4 U	1.08	0.4 U	1.59	0.4 U	1.98	0.504 U
Sodium	--	--	--	171,000	222,000	209,000	189,000	201,000	212,000 J	202,000 J	185,000 J	200,000 J
Thallium	--	2	0.2	0.816 J	0.44 J	0.29 J	**3.18**	0.671 J	**5.39**	0.828 J	**7.25**	1.22
Vanadium	12.5	--	86	169	184	160	548	288	796 J	322 J	1,000 J	328 J
Zinc	34	--	6,000	201	91.6 J	85 J	678	163	898	195	2,080	292

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT19	19B-UGIA-DPT119	19B-LGIA-DPT20
			Sample Date	7/24/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	10-14		32-36
			Sample Type	Normal	Duplicate	Normal
Analyte	**BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**
Volatile Organic Compounds (µg/L)						
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 UJ	0.5 UJ	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	5.8 J	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	1 U	1 U	1 U
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT19	19B-UGIA-DPT119	19B-LGIA-DPT20
			Sample Date	7/24/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	10-14		32-36
			Sample Type	Normal	Duplicate	Normal
Analyte	**BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U
Explosives (µg/L)						
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 UJ	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U
Metals (µg/L)						
Aluminum	7,110	--	20,000	252,000	294,000	83,600
Antimony	--	6	7.8	1.39 J	2.04 J	0.58 J
Arsenic	14.8	10	0.052	**106**	**112**	**25.3**
Barium	81.5	2,000	3,800	**5,920**	**6,440**	932
Beryllium	0.31	4	25	**20.7**	**23.5**	**4.64**
Cadmium	--	5	9.2	2.68 J	2.24 J	0.2 UJ
Calcium	--	--	--	750,000	768,000	430,000
Chromium Total[2]	--	100	22,000	**2,080**	**2,330**	**479**
Cobalt	5.5	--	6	146	158	39.3
Copper	--	1,300	800	551 J	608 J	246 J
Iron	10,500	--	14,000	625,000 J	881,000 J	190,000 J
Lead	4.06	15	15	**343**	**372**	**111**
Magnesium	--	--	--	136,000 J	145,000 J	71,700 J

Table 5.4 (Continued)
Tract 19B DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-UGIA-DPT19	19B-UGIA-DPT119	19B-LGIA-DPT20
			Sample Date	7/24/2018	7/24/2018	7/24/2018
			Screen Interval (feet bgs)	10-14		32-36
			Sample Type	Normal	Duplicate	Normal
Analyte	BTV	MCL	Tap Water RSL	Result	Result	Result
Manganese	1,730	--	430	10,800 J	13,800 J	2,550 J
Mercury	--	2	0.63	0.271	0.296	0.034 J
Nickel	8.04	--	390	548	588	137
Potassium	--	--	--	80,400 J	88,500 J	34,000 J
Selenium	--	50	100	13.8	15.5	3 U
Silver	--	--	94	1.17 U	1.23	0.5 U
Sodium	--	--	--	160,000 J	160,000 J	203,000 J
Thallium	--	2	0.2	**4.71**	**5.41**	1.24
Vanadium	12.5	--	86	664 J	800 J	544 J
Zinc	34	--	6,000	1,620	1,770	312

Notes:

Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).

Bold results denote an exceedance of the BTV and the MCL

[1] = RSL for total 1,3-dichloropropene used as a surrogate

[2] = RSL for trivalent chromium used as a surrogate

-- = not available or not analyzed

µg/L = micrograms per liter

BTV = background threshold value

ft bgs = feet below ground surface

HMX = cyclotetramethylenetetranitramine

J = value listed was reported below the quantitation limit and is estimated

MCL = maximum contaminant level

PETN = pentaerythritol tetranitrate

RDX = cyclotrimethylenetrinitramine

RSL = regional screening level

U = analyte not detected, listed value is the reporting limit

Table 5.5
Tract 19B: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-G0037	19B-UGIA-MW01	19B-LGIA-MW02	19B-UGIA-MW03	19B-LGIA-MW04	19B-UGIA-MW05	19B-LGIA-MW06
			Sample Date	8/14/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
			Screen Interval (feet bgs)	UGIA	9.5-19.5	27-37	9-19	29-39	9-19	28-38
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)										
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	0.37 J	9.6 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.5 (Continued)
Tract 19B: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-G0037	19B-UGIA-MW01	19B-LGIA-MW02	19B-UGIA-MW03	19B-LGIA-MW04	19B-UGIA-MW05	19B-LGIA-MW06
			Sample Date	8/14/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
			Screen Interval (feet bgs)	UGIA	9.5-19.5	27-37	9-19	29-39	9-19	28-38
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**Groundwater BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Chloromethane	--	--	190	1 U	1 UJ	1 UJ	1 UJ	0.39 J	1 UJ	1 UJ
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	1 UJ	1.2 J	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Explosives (µg/L)										
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U

Table 5.5 (Continued)
Tract 19B: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19B-G0037	19B-UGIA-MW01	19B-LGIA-MW02	19B-UGIA-MW03	19B-LGIA-MW04	19B-UGIA-MW05	19B-LGIA-MW06
			Sample Date	8/14/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
			Screen Interval (feet bgs)	UGIA	9.5-19.5	27-37	9-19	29-39	9-19	28-38
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result
Metals (µg/L)										
Aluminum	7,110	--	20,000	389	255	798	308	458	271	424
Antimony	--	6	7.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052	12	12	8.6	10	10	10	10
Barium	81.5	2,000	3,800	43	54.6	51.8	58.8	44.6	50.3	50.6
Beryllium	0.31	4	25	0.054 J	0.2 U	0.059 J	0.2 U	0.038 J	0.034 J	0.2 U
Cadmium	--	5	9.2	0.2 UJ	0.2 U	0.079 J	0.052 J	0.042 J	0.054 J	0.068 J
Calcium	--	--	--	402,000	268,000	380,000	351,000	373,000	411,000	386,000
Chromium Total[2]	--	100	22,000	4 U	4 U	1.8 J	4 U	4 U	4 U	4 U
Cobalt	5.5	--	6	0.977 J	1.79 J	0.918 J	1.53 J	0.684 J	1.38 J	0.836 J
Copper	--	1,300	800	4.92 UJ	3.46 J	4.23 J	34.4	1.92 J	1.8 J	1.91 J
Iron	10,500	--	14,000	8,680	3,600	3,060	2,860	6,260	6,680	6,480
Lead	4.06	15	15	0.5 U	0.51 J	0.935 J	0.24 J	0.43 J	0.41 J	0.44 J
Magnesium	--	--	--	67,600	52,600	66,000	65,000	61,400	73,300	61,600
Manganese[3]	1,730	--	430	1,720	1,000	1,920	1,200	1,630	1,490	1,470
Mercury	--	2	0.63	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8.04	--	390	2.83 J	0.48 J	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ
Potassium	--	--	--	16,900	20,300	18,400	20,500	16,200	21,100	18,200
Selenium	--	50	100	3 UJ	3 U	3 U	3 U	3 U	3 U	3 U
Silver	--	--	94	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--	218,000	206,000	205,000	161,000	210,000	220,000	245,000
Thallium	--	2	0.2	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium	12.5	--	86	0.85 J	1.2 J	2.9 J	1.7 J	2 J	1.2 J	1.9 J
Zinc	34	--	6,000	6.3 J	4.3 J	34	4.4 J	4.6 J	8 U	7.4 J

Notes:
Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).
[1] RSL for total 1,3-dichloropropene used as a surrogate
[2] RSL for trivalent chromium used as a surrogate
[3] Because manganese was identified as a sitewide contaminant in the background study, the BTV was not used in the screening of individual results.
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
ft bgs = feet below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.6
Tract 19C Surface Soil Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-SS03A	19C-SS103A	19C-SS04A	19C-SS03B	19C-SS04B	19C-SS05B	19C-SS06B	19C-SS07B	19C-SS08B	19C-SS09B	19C-SS02C	19C-SS03C	19C-SS04C	19C-SS05C	19C-SS06C	19C-SS07C	19C-SS08C	19C-SS09C	19C-SS10C
			Sample Date	4/30/2018		4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018
			Sample Type	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons (µg/kg																						
Naphthalene	--	2,000	7.6	12 UJ	12 U	12 U	12 U	13 UJ	12 UJ	12 U	11 U	12 U	12 U	12 U	12 UJ	12 U	11 U	11 U	12 U	12 U	11 U	12 U
2-Methylnaphthalene	--	240,000	3,800	12 U	12 U	12 U	12 U	13 UJ	12 UJ	12 U	11 U	12 U	12 U	12 U	12 UJ	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Acenaphthylene[1]	--	3,600,000	110,000	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Acenaphthene	--	3,600,000	110,000	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Fluorene	--	2,400,000	108,000	12 U	12 UJ	12 U	12 UJ	13 UJ	12 U	12 UJ	11 UJ	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	11 UJ	11 UJ	12 UJ	12 UJ	11 UJ	12 UJ
Phenanthrene[2]	--	1,800,000	260,000	12 U	12 U	12 U	12 U	13 U	12 U	12 U	3.4 J	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Anthracene	--	18,000,000	1,160,000	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Fluoranthene	41	2,400,000	1,780,000	3.2 J	12 U	12 U	12 U	13 U	12 U	12 U	3.1 J	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Pyrene	--	1,800,000	260,000	12 UJ	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Benzo(a)anthracene	--	1,100	220	2.6 J	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Chrysene	--	110,000	180,000	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Benzo(b)fluoranthene	--	1,100	6,000	4.9 J	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Benzo(k)fluoranthene	--	11,000	58,000	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Benzo(a)pyrene	--	110	4,800	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Indeno(1,2,3-cd)pyrene	--	1,100	19,600	12 U	12 U	12 U	12 U	13 U	12 U	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Dibenz(a,h)anthracene	--	110	1,920	12 U	12 U	12 U	12 U	13 U	12 UJ	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Benzo(g,h,i)perylene[2]	--	1,800,000	260,000	12 U	12 U	12 U	12 U	13 U	12 UJ	12 U	11 U	12 U	12 U	12 U	12 U	12 U	11 U	11 U	12 U	12 U	11 U	12 U
Explosives (µg/kg)																						
HMX	--	3,900,000	26,000	54 U	57 U	58 U	63 U	58 U	29 J	110 J	51 U	60 U	63 U	52 U	26 J	53 U	500	1,000	60 U	60 U	56 U	58 U
RDX	--	8,300	7.4	54 U	57 U	58 U	63 U	58 U	52 U	130	51 U	60 U	63 U	52 U	58 U	53 U	190	960	60 U	60 U	56 U	58 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
1,3-Dinitrobenzene	--	6,300	36	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
Tetryl	--	160,000	7,400	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
Nitrobenzene	--	5,100	1.84	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
2,4,6-Trinitrotoluene	--	21,000	300	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
2-Amino-4,6-dinitrotoluene	--	7,700	30	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
4-Amino-2,6-dinitrotoluene	--	7,700	30	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
2,6-Dinitrotoluene	--	360	1.34	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
2,4-Dinitrotoluene	--	1,700	6.4	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
2-Nitrotoluene	--	3,200	6	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
3-Nitrotoluene	--	6,300	32	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
4-Nitrotoluene	--	34,000	80	54 U	57 U	58 U	63 U	58 U	52 U	62 U	51 U	60 U	63 U	52 U	58 U	53 U	56 U	58 U	60 U	60 U	56 U	58 U
Nitroglycerin	--	6,300	17	430 U	460 U	460 U	500 U	470 U	420 UJ	500 U	410 U	480 U	500 U	420 U	460 U	430 U	450 U	460 U	480 U	480 U	440 U	460 U
PETN	--	130,000	560	430 U	460 U	460 U	500 U	470 U	420 U	500 U	410 U	480 U	500 U	420 U	460 U	430 U	450 U	460 U	480 U	480 U	440 U	460 U
Metals (mg/kg)																						
Aluminum	26,400	77,000	600,000	15,600 J	13,900 J	18,300 J	19,900 J	19,000 J	15,600 J	18,400	17,500 J	19,900 J	16,600 J	18,700 J	21,100	16,600 J	15,500	17,900 J	20,100	18,700 J	18,600 J	17,800 J
Antimony	0.333	31	7	0.141 J	0.13 J	0.164 J	0.16 J	0.175 J	0.13 J	0.196	0.147 J	0.2 J	0.278 J	0.149 J	0.224	0.17 J	0.19	0.16 J	0.216	0.16 J	0.277 J	0.17 J
Arsenic	13.6	0.68	5.8	8.59	7.67	9.49	10.7	7.79	1.8	2.48	3.13	3.99	14.8	5.72	8.95	3.48	5.60	2.06	2.98	3.41	18.1	6.63
Barium	375	15,000	3,200	312 J	316 J	319 J	168 J	215 J	213 J	270	182 J	207 J	518 J	206 J	466	304 J	398	282 J	170	182 J	342 J	322 J
Beryllium	1.14	160	380	0.716	0.674	0.895	0.957	0.846	0.747	0.837	0.803	0.891	0.861	0.914	0.939	0.788	0.699	0.802	0.879	0.908	0.876	0.837
Cadmium	0.31	71	13.8	0.14 J	0.0781 J	0.136	0.021 J	0.066 J	0.242 J	0.127	0.038 J	0.02 U	0.061 J	0.105 J	0.208	0.121	0.201	0.071 J	0.067 J	0.046 J	0.0824 J	0.027 J
Calcium	--	--	--	41,700 J	35,100 J	39,100 J	6,020 J	31,400 J	80,300 J	38,400	40,200 J	39,500 J	42,400 J	18,000 J	31,900	71,000 J	141,000	64,200 J	47,000	31,300 J	80,800 J	72,600 J
Chromium Total[3]	24.2	120,000	3,600,000	14.5	12.8	17.0	15.1	17.4	15.0	17.7	16.9	17.0	15.0	17.1	18.6	15.0	14.3	15.2	17.7	18.6	17.4	15.9
Chromium VI	--	0.3	0.0134	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	5.4	6.46	6.12	8.08	7.36	8.37	5.52	7.01	6.33	7.96	8.71	6.45	13.4	5.72	7.43	6.76	4.48	5.94	7.05	5.26
Copper	17.1	3,100	920	9.19	8.86	11.0	10.7	9.66	8.86	12.1	9.99	11.2	13.0	10.1	12.6	10.6	8.96	8.99	12.9	11.8	14.0	10.6
Iron	19,100	55,000	7,000	12,900 J	11,500 J	16,700 J	15,400 J	15,900 J	14,100 J	18,200	17,400 J	16,800 J	17,700 J	15,200 J	19,500	14,600 J	13,500	14,700 J	21,700	15,700 J	19,900 J	14,000 J
Lead	16.4	400	280	10.9	10.8	14.5	12.8	13.4	12.6	11.3	10.9	11.2	12.5	13.2	16.9	12.1	10.6	11.1	10.9	12.9	13.6	10.8
Magnesium	--	--	--	10,900	9,970	8,210	7,190	7,560	7,750	8,810	8,150	7,630	8,710	6,990	7,820	7,290	11,000	7,970	8,750	7,670	11,100	9,400
Manganese	542	1,800	560	312 J	287 J	406 J	303 J	370 J	353 J	993	473 J	289 J	1,110 J	271 J	821	349 J	471	561 J	181	328 J	496 J	168 J
Mercury	0.0287	11	2	0.016 UJ	0.017 UJ	0.011 J	0.0075 J	0.013 J	0.013 J	0.012 J	0.01 J	0.013 J	0.015 J	0.0067 J	0.0093 J	0.0099 J	0.013 J	0.011 J	0.013 J	0.013 J	0.013 J	0.014 J
Nickel	24.1	1,500	520	11.4	10.7	16.1	13.7	14.1	11.0	18.1	13.3	16.2	26.0	13.1	21.6	13.6	16.2	16.9	13.1	14.8	14.7	12.9
Potassium	--	--	--	4,700	4,360	5,320	5,880	4,630	3,610	4,200	4,200	4,720	4,170	5,580	5,230	3,980	3,910	4,400	4,610	4,530	4,820	4,820
Selenium	0.824	390	10.4	0.487	0.418	0.510	0.19 J	0.398	0.39 J	0.334 J	0.392	0.35 J	0.378 J	0.444	0.32 J	0.536	0.470	0.35 J	0.32 J	0.509 J	0.579	0.534
Silver	0.114	390	16	0.0677 J	0.077 J	0.0733	0.066 J	0.0817	0.063 J	0.0723	0.0755	0.0708 J	0.0703 J	0.0711	0.0821	0.0817 J	0.054 J	0.0663 J	0.0792 J	0.088 J	0.0819 J	0.0937 J
Sodium	--	--	--	228	206	175	170	354	984	1,480	469	1,240	1,190	214	341	374	350	986	507	644	348	326
Thallium	0.405	0.78	2.8	0.282 J	0.276 J	0.345	0.3 J	0.309	0.262 J	0.311	0.275	0.328 J	0.434	0.312	0.379	0.305	0.307	0.301 J	0.295	0.314 J	0.34 J	0.348 J
Vanadium	50	390	1,720	39.0	33.8	42.7	43.3	45.2	29.6	35.3	35.0	34.5	49.7	38.3	43.6	28.4	31.9	31.0	36.3	34.6	54.1	37.4
Zinc	57	23,000	7,400	37.1	34.0	44.8	40.8	40.0	35.4	46.4	42.1	42.8	37.5	43.0	48.5	37.7	33.7	36.2	44.3	47.9	43.6	37.3

Table 5.6 (Continued)
Tract 19C Surface Soil Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-SS11C	19C-SS111C	19C-D01	19C-SS02D	19C-SS102D	19C-SS03D	19C-SS04D	19C-SS06D	19C-SS07D	19C-SS09D	19C-SS10D	19C-SS11D	19C-SS02E	19C-SS03E	19C-SS04E	19C-SS05E	19C-SS105E	19C-SS06E
				Sample Date	4/30/2018		7/25/2018	5/1/2018		5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018		5/1/2018
				Sample Type	Normal	Duplicate	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons (µg/kg)																						
Naphthalene	--	2,000	7.6	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
2-Methylnaphthalene	--	240,000	3,800	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 UJ	12 U
Acenaphthylene[1]	--	3,600,000	110,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Acenaphthene	--	3,600,000	110,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Fluorene	--	2,400,000	108,000	12 UJ	13 UJ	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Phenanthrene[2]	--	1,800,000	260,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Anthracene	--	18,000,000	1,160,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Fluoranthene	41	2,400,000	1,780,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Pyrene	--	1,800,000	260,000	12 U	13 U	--	12 UJ	12 UJ	12 U	12 UJ	12 UJ	12 U	12 U	12 UJ	12 U	13 U	12 UJ	12 U	13 U	12 U	13 U	12 U
Benzo(a)anthracene	--	1,100	220	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	9 J	12 U	8.4 J	9.4 J	12 U	8.3 J	11 J	12 U	13 U	8.5 J
Chrysene	--	110,000	180,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Benzo(b)fluoranthene	--	1,100	6,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Benzo(k)fluoranthene	--	11,000	58,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	13 U	12 U	13 U	12 U
Benzo(a)pyrene	--	110	4,800	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	6.3 J	12 U	13 U	12 U
Indeno(1,2,3-cd)pyrene	--	1,100	19,600	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	21 J	12 U	13 U	12 U
Dibenz(a,h)anthracene	--	110	1,920	12 U	13 U	--	12 U	12 U	12 U	12 U	9.6 J	12 U	12 U	12 U	12 U	13 U	5.6 J	12 U	21 J	12 U	13 U	12 U
Benzo(g,h,i)perylene[2]	--	1,800,000	260,000	12 U	13 U	--	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	12 U	12 U	15 J	12 U	13 U	12 U
Explosives (µg/kg)																						
HMX	--	3,900,000	26,000	57 U	56 U	--	56 U	61 U	53 U	37 J	43 J	35 J	57 U	60 U	64 U	12 J	180	2,300	58 U	21 J	35 J
RDX	--	8,300	7.4	57 U	56 U	--	56 U	36 J	53 U	42 J	47 U	58 J	57 U	60 U	64 U	47 U	110	2,800	58 U	61 U	60 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
1,3-Dinitrobenzene	--	6,300	36	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
Tetryl	--	160,000	7,400	57 U	56 U	--	56 UJ	61 UJ	53 U	52 UJ	47 UJ	48 U	57 UJ	60 U	64 U	47 UJ	46 U	63 UJ	58 U	61 U	60 UJ
Nitrobenzene	--	5,100	1.84	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
2,4,6-Trinitrotoluene	--	21,000	300	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
2-Amino-4,6-dinitrotoluene	--	7,700	30	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
4-Amino-2,6-dinitrotoluene	--	7,700	30	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
2,6-Dinitrotoluene	--	360	1.34	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
2,4-Dinitrotoluene	--	1,700	6.4	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
2-Nitrotoluene	--	3,200	6	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
3-Nitrotoluene	--	6,300	32	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
4-Nitrotoluene	--	34,000	80	57 U	56 U	--	56 U	61 U	53 U	52 U	47 U	48 U	57 U	60 U	64 U	47 U	46 U	63 U	58 U	61 U	60 U
Nitroglycerin	--	6,300	17	450 U	450 U	--	440 U	480 U	430 U	420 U	380 U	390 U	450 U	480 U	520 U	370 U	370 U	500 U	460 U	490 U	480 U
PETN	--	130,000	560	450 U	450 U	--	440 U	480 U	430 U	420 U	380 U	390 U	450 U	480 U	520 U	370 U	370 U	500 U	460 U	490 U	480 U
Metals (mg/kg)																						
Aluminum	26,400	77,000	600,000	21,400 J	20,800 J	--	21,500	20,500	17,400	13,800	15,500	17,400	16,200	20,200	26,200	18,600	17,300	18,400	17,400	15,400	14,700	
Antimony	0.333	31	7	0.198 J	0.208 J	--	0.253	0.343	0.13	0.15	0.255	0.162	0.18	0.313	0.254	0.222	0.221	0.20	0.13	0.16	0.17	
Arsenic	13.6	0.68	5.8	7.22	7.92	4.00	8.59 J	35.2 J	4.58	2.33	3.06	2.16	4.87	28.9	7.64	4.33	10.5	11.6	1.88	2.37	2.88	
Barium	375	15,000	3,200	264 J	271 J	--	235 J	398 J	222 J	492 J	543 J	319 J	386	617 J	244 J	324 J	348 J	414 J	179 J	309 J	270 J	
Beryllium	1.14	160	380	0.994	1.04	--	0.981	1.08	0.738	0.688	0.819	0.801	0.760	0.863	1.11	0.859	0.757	0.738	0.753	0.790	0.700	
Cadmium	0.31	71	13.8	0.0681 J	0.047 J	--	0.054 J	0.0913 J	0.15 J	0.161 J	0.221 J	0.0895	0.046 J	0.071 J	0.074 J	0.109 J	0.191	0.107 J	0.039 J	0.0857 J	0.140	
Calcium	--	--	--	37,000 J	30,000 J	--	16,200 J	11,700	54,100	104,000 J	67,100 J	38,600 J	59,400 J	77,200 J	15,900 J	45,600 J	73,300 J	79,500 J	43,600	43,800	118,000 J	
Chromium Total[3]	24.2	120,000	3,600,000	18.3	17.8	--	18.5	18.5	15.1	12.7	14.4	17.6	15.0	18.6	22.9	15.0	17.0	16.7	15.9	14.7	14.1	
Chromium VI	--	0.3	0.0134	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5 U	0.58 U	--	
Cobalt	11.2	23	5.4	6.8	7.45	--	7.29 J	14.4 J	9.07	5.96	7.03	5.30	5.73	10.2	8.44	7.50	10.3	6.51	5.02	8.08	6.18	
Copper	17.1	3,100	920	12.1	12.1	--	11.4	14.6	8.60	9.27	11.0	11.4	9.92	12.2	14.7	9.11	10.4	9.92	8.96	10.2	8.58	
Iron	19,100	55,000	7,000	16,900 J	17,100 J	--	16,700	20,900	14,600	27,800	15,500	19,000	15,000	18,700	22,800	15,000	16,300	18,900	15,400	14,600	13,400	
Lead	16.4	400	280	12.6	12.3	--	16.2	20.2	12.6	9.25	11.4	13.9	10.2	12.5	14.2	12.0	14.4	10.5	9.95	11.2	10.1	
Magnesium	--	--	--	8,710	9,040	--	8,470	7,640	8,190	6,770	7,520	7,670	8,860	10,400	8,860	8,420	9,220	8,800	8,260	8,440	9,380	
Manganese	542	1,800	560	245 J	232 J	--	292 J	1,160 J	453	983 J	1,850 J	490	239	339	378	330 J	565	447	313 J	885 J	387	
Mercury	0.0287	11	2	0.014 J	0.013 J	--	0.0092 J	0.016 J	0.016 J	0.016 J	0.024 J	0.02 J	0.018 J	0.019 J	0.019 J	0.018 J	0.019 J	0.017 J	0.018 J	0.017 J	0.018 J	
Nickel	24.1	1,500	520	15.7	16.1	--	13.9 J	26 J	13.5	12.2	20.2	13.8	12.3	18.0	22.2	12.2	16.8	13.4	10.6	17.7	10.9	
Potassium	--	--	--	6,230	6,430	--	6,460	6,110	4,150	3,040	3,620	4,190	4,440	5,940	8,290	4,710	4,910	4,800	4,100	3,780	3,460	
Selenium	0.824	390	10.4	0.516	0.376	--	0.35 U	0.395 U	0.394 U	0.486	0.43 J	0.332 J	0.36 U	0.518	0.41 U	0.372	0.39 U	0.4 U	0.398 U	0.41 U	0.511	
Silver	0.114	390	16	0.0888	0.0932	--	0.0766 J	0.0821	0.0668 J	0.0546 J	0.062 J	0.069 J	0.077 J	0.0757 J	0.103 J	0.0694 J	0.068 J	0.065 J	0.0694 J	0.072 J	0.06 J	
Sodium	--	--	--	258 J	345 J	--	168	139	658	504	447	524	363	1,050	283	230	576	329	414 J	602 J	711	
Thallium	0.405	0.78	2.8	0.362	0.36	--	0.31 J	0.59 J	0.299	0.234	0.349	0.287	0.276	0.340	0.377	0.286	0.302	0.278	0.262	0.270	0.278	
Vanadium	50	390	1,720	42.8	42.2	--	44.2 J	78.8 J	33.3	25.8	35.9	35.7	33.4	81.1	49.3	33.6	45.7	39.0	30.9	28.2	28.8	
Zinc	57	23,000	7,400	46.3	48.9	--	45.4	45.0	35.6	33.8	32.7	46.1	36.6	42.4	60.4	32.6	39.7	38.6	36.3	35.2	32.6	

Table 5.6 (Continued)
Tract 19C Surface Soil Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-SS07E	19C-SS08E	19C-SS09E	19C-SS10E	19C-SS11E	19C-SS02F	19C-SS03F	19C-SS04F	19C-SS104F	19C-SS05F	19C-SS06F	19C-SS07F	19C-SS08F	19C-SS09F	19C-SS10F	19C-SS11F	19C-SS01G	19C-SS02G	19C-SS03G	19C-SS04G
				Sample Date	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018		5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018
				Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons (µg/kg)																								
Naphthalene	--	2,000	7.6		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
2-Methylnaphthalene	--	240,000	3,800		12 U	12 UJ	13 UJ	11 U	14 U	11 UJ	11 U	12 U	10 UJ	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 UJ	12 UJ	13 UJ	12 UJ
Acenaphthylene[1]	--	3,600,000	110,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Acenaphthene	--	3,600,000	110,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Fluorene	--	2,400,000	108,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Phenanthrene[2]	--	1,800,000	260,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Anthracene	--	18,000,000	1,160,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Fluoranthene	41	2,400,000	1,780,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Pyrene	--	1,800,000	260,000		12 U	12 U	13 UJ	11 UJ	14 U	11 U	11 UJ	12 UJ	10 U	13 UJ	12 U	12 UJ	12 UJ	12 UJ	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Benzo(a)anthracene	--	1,100	220		8.8 J	8.8 J	13 UJ	3.2 J	10 J	11 U	11 U	12 U	7.7 J	13 U	2.5 J	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Chrysene	--	110,000	180,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Benzo(b)fluoranthene	--	1,100	6,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Benzo(k)fluoranthene	--	11,000	58,000		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	12 U
Benzo(a)pyrene	--	110	4,800		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	4.2 J
Indeno(1,2,3-cd)pyrene	--	1,100	19,600		12 U	12 U	13 UJ	11 U	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	18 J
Dibenz(a,h)anthracene	--	110	1,920		12 U	12 U	13 UJ	11 J	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	19 J
Benzo(g,h,i)perylene[2]	--	1,800,000	260,000		12 U	12 U	13 UJ	7.8 J	14 U	11 U	11 U	12 U	10 U	13 U	12 U	12 U	12 U	12 U	9.8 U	11 U	12 U	12 UJ	13 U	13 J
Explosives (µg/kg)																								
HMX	--	3,900,000	26,000		130	72 J	62 U	56 U	78 U	110	55 U	68 J	63 J	55 U	30 J	51 U	29 J	61 U	58 U	46 U	57 U	51 U	65 U	180
RDX	--	8,300	7.4		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
1,3-Dinitrobenzene	--	6,300	36		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
Tetryl	--	160,000	7,400		60 UJ	61 UJ	62 UJ	56 UJ	78 U	54 UJ	55 UJ	59 UJ	51 UJ	55 UJ	62 UJ	51 UJ	55 UJ	61 UJ	58 U	46 U	57 U	51 U	65 U	60 U
Nitrobenzene	--	5,100	1.84		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
2,4,6-Trinitrotoluene	--	21,000	300		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
2-Amino-4,6-dinitrotoluene	--	7,700	30		60 U	61 U	62 U	56 U	78 U	83 J	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
4-Amino-2,6-dinitrotoluene	--	7,700	30		60 U	61 U	62 U	56 U	78 U	130	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
2,6-Dinitrotoluene	--	360	1.34		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
2,4-Dinitrotoluene	--	1,700	6.4		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
2-Nitrotoluene	--	3,200	6		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
3-Nitrotoluene	--	6,300	32		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
4-Nitrotoluene	--	34,000	80		60 U	61 U	62 U	56 U	78 U	54 U	55 U	59 U	51 U	55 U	62 U	51 U	55 U	61 U	58 U	46 U	57 U	51 U	65 U	60 U
Nitroglycerin	--	6,300	17		480 U	490 U	500 U	450 U	630 U	430 U	440 U	470 U	410 U	440 U	490 U	410 U	440 U	490 U	460 U	370 U	460 U	410 U	520 U	480 U
PETN	--	130,000	560		480 U	490 U	500 U	450 U	630 U	430 U	440 U	470 U	410 U	440 U	490 U	410 U	440 U	490 U	460 U	370 U	460 U	410 U	520 U	480 U
Metals (mg/kg)																								
Aluminum	26,400	77,000	600,000		17,500	22,700	20,300	17,800	19,500	11,200	20,500	17,600	18,400	16,900	15,000	15,900	17,400	17,400	16,700	18,200	21,000	13,800	26,500	15,500
Antimony	0.333	31	7		0.174	0.303	0.212	0.295	0.187	0.18	0.215	0.204	0.212	0.201	0.12	0.195	0.255	0.17	0.16	0.16	0.17	0.13	0.288	0.19
Arsenic	13.6	0.68	5.8		7.90	10.3	7.42	13.5	6.95	1.75	12.8	4.93	4.59	3.13	3.72	7.61	6.76	8.16	8.80	9.89	2.60	1.64	8.11	2.66
Barium	375	15,000	3,200		620 J	389	471	314 J	279 J	154	309	282	259	373	311 J	310	310 J	174	273 J	300 J	192	172	280	324
Beryllium	1.14	160	380		0.752	0.926	0.896	0.846	0.800	0.542	0.894	0.774	0.770	0.700	0.715	0.724	0.840	0.873	0.743	0.779	0.951	0.691	1.22	0.826
Cadmium	0.31	71	13.8		0.0922	0.094 J	0.0611 J	0.0686 J	0.0907	0.227	0.0952	0.132	0.0899 J	0.115	0.0969 J	0.0798 J	0.028 J	0.025 U	0.0954 J	0.075 J	0.027 J	0.0706 J	0.066 J	0.0984 J
Calcium	--	--	--		127,000 J	79,100 J	88,000 J	78,400 J	38,000 J	2,680 J	24,100 J	62,100 J	46,300 J	61,900 J	96,600	72,600 J	82,100 J	31,000	73,700	79,900	3,880	4,970	22,200	84,200
Chromium Total[3]	24.2	120,000	3,600,000		15.3	21.4	19.0	15.9	17.7	11.4	18.1	16.0	17.1	16.2	13.6	14.8	15.8	16.6	15.3	15.4	16.8	12.7	21.9	14.1
Chromium VI	--	0.3	0.0134		0.49 U	--	--	--	--	--	--	--	--	--	0.62 U	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	5.4		4.94	9.16	6.20	5.41	6.62	4.76	8.30	7.69	8.12	7.50	4.18	6.04	5.75	4.68	15.5	6.10	7.10	5.37	9.34	7.10
Copper	17.1	3,100	920		8.79	15.2	10.9	10.0	11.4	9.10	11.1	10.7	10.7	10.0	8.01	9.66	9.68	9.28	10.9	9.75	12.6	8.99	13.3	10.6
Iron	19,100	55,000	7,000		14,400	21,100	17,900	15,800	17,800	10,500	17,500	16,600	16,300	14,400	12,800	15,300	16,000	16,500	14,300	17,700	15,700	11,000	20,200	16,100
Lead	16.4	400	280		10.3	13.6	11.4	12.5	11.5	25.5	13.6	12.3	13.9	10.9	9.72	10.5	10.6	10.4	12.3	11.3	11.2	9.90	15.2	10.9
Magnesium	--	--	--		11,200	12,000	11,900	12,000	8,970	2,940	7,830	8,000	7,510	7,970	9,530	9,840	11,200	9,120	9,830	9,370	5,230	4,260	10,300	8,700
Manganese	542	1,800	560		201	1,250	301	254 J	246	306	357	439	467	1,040	310	301	347 J	248	470	411	341	277	404	337
Mercury	0.0287	11	2		0.019 J	0.023 J	0.025 J	0.014 J	0.032	0.02 J	0.015 J	0.019 J	0.017 J	0.018 J	0.02 J	0.015 J	0.012 J	0.019 J	0.016 J	0.015 J	0.016 J	0.01 J	0.013 J	0.015 J
Nickel	24.1	1,500	520		10.7	28.4	13.7	11.9	14.2	9.94	15.7	14.7	14.9	17.4	10.1	12.5	13.0	12.5	17.0	12.8	14.9	10.6	18.4	13.0
Potassium	--	--	--		4,220	5,760	5,400	4,850	5,950	3,440	5,910	4,960	5,250	4,150	3,770	4,110	4,410	4,500	4,500	4,750	5,880	4,060	8,140	4,120
Selenium	0.824	390	10.4		0.542	0.506 J	0.452	0.518	0.389	0.371 J	0.409	0.438	0.411 J	0.408 J	0.556 U	0.448	0.480	0.42 U	0.465 U	0.717	0.4 U	0.396 U	0.507 U	0.555
Silver	0.114	390	16		0.0578 J	0.0961 J	0.0778	0.0627 J	0.0765	0.0612 J	0.0732	0.0736 J	0.0735 J	0.0672 J	0.074 J	0.0644 J	0.0641 J	0.074 J	0.0753 J	0.072 J	0.0831 J	0.0738 J	0.0852 J	0.06 J
Sodium	--	--	--		717	764	564	313	320	104	139	278	278	675	593	317	562	711	319	349	102 J	121	194	465
Thallium	0.405	0.78	2.8		0.305	0.404	0.327	0.298	0.300	0.192	0.318	0.281	0.357	0.284	0.279	0.266	0.303	0.277	0.289	0.297	0.276	0.236	0.366	0.260
Vanadium	50	390	1,720		40.8	52.3	44.6	52.8	41.6	19.7	49.5	36.2	39.2	35.4	28.0	36.1	38.9	34.0	38.3	38.5	30.5	22.1	50.5	28.6
Zinc	57	23,000	7,400		34.4	46.6	40.1	33.9	45.1	37.6	44.8	41.6	41.6	36.9	33.3	37.2	31.4	37.0	37.5	36.1	45.6	33.7	53.3	37.5

Table 5.6 (Continued)
Tract 19C Surface Soil Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-SS05G	19C-SS06G	19C-SS106G	19C-SS07G	19C-SS08G	19C-SS09G	19C-SS10G	19C-SS110G	19C-SS11G	19C-SS03H	19C-SS04H	19C-SS104H	19C-SS05H	19C-SS06H	19C-SS07H	19C-SS08H	19C-SS09H
				Sample Date	5/1/2018	5/1/2018		5/1/2018	5/1/2018	5/1/2018	5/1/2018		5/1/2018	5/1/2018	5/1/2018		5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018
				Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Soil-to-Groundwater SSL		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons (µg/kg)																					
Naphthalene	--	2,000	7.6		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
2-Methylnaphthalene	--	240,000	3,800		12 UJ	11 U	12 U	11 U	11 U	11 U	12 U	12 UJ	10 U	12 U	12 U	12 UJ	12 U	12 U	11 U	12 UJ	12 U
Acenaphthylene[1]	--	3,600,000	110,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Acenaphthene	--	3,600,000	110,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Fluorene	--	2,400,000	108,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Phenanthrene[2]	--	1,800,000	260,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Anthracene	--	18,000,000	1,160,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Fluoranthene	41	2,400,000	1,780,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 UJ	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Pyrene	--	1,800,000	260,000		12 U	11 U	12 U	11 U	11 UJ	11 UJ	12 UJ	12 U	10 UJ	12 UJ	12 U	12 U	12 U	12 U	11 U	12 U	12 UJ
Benzo(a)anthracene	--	1,100	220		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	9 J	2.4 J	11 U	12 U	12 U
Chrysene	--	110,000	180,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Benzo(b)fluoranthene	--	1,100	6,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 U	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Benzo(k)fluoranthene	--	11,000	58,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 UJ	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Benzo(a)pyrene	--	110	4,800		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 UJ	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Indeno(1,2,3-cd)pyrene	--	1,100	19,600		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 UJ	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Dibenz(a,h)anthracene	--	110	1,920		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	5.3 J	12 U	12 U	12 U	12 U	11 U	12 U	12 U
Benzo(g,h,i)perylene[2]	--	1,800,000	260,000		12 U	11 U	12 U	11 U	11 U	11 U	12 U	12 U	10 U	12 UJ	12 U	12 U	12 U	12 U	11 U	12 U	2.6 J
Explosives (µg/kg)																					
HMX	--	3,900,000	26,000		180	55 U	28 J	38 J	17 J	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	23 J	53 U	52 U	57 U
RDX	--	8,300	7.4		720	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
1,3-Dinitrobenzene	--	6,300	36		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
Tetryl	--	160,000	7,400		52 U	55 U	54 U	55 U	55 UJ	54 UJ	60 UJ	45 U	54 UJ	64 UJ	61 U	46 U	56 U	48 U	53 U	52 U	57 UJ
Nitrobenzene	--	5,100	1.84		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	27 J	56 U	48 U	53 U	52 U	57 U
2,4,6-Trinitrotoluene	--	21,000	300		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
2-Amino-4,6-dinitrotoluene	--	7,700	30		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
4-Amino-2,6-dinitrotoluene	--	7,700	30		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
2,6-Dinitrotoluene	--	360	1.34		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
2,4-Dinitrotoluene	--	1,700	6.4		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
2-Nitrotoluene	--	3,200	6		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
3-Nitrotoluene	--	6,300	32		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
4-Nitrotoluene	--	34,000	80		52 U	55 U	54 U	55 U	55 U	54 U	60 U	45 U	54 U	64 U	61 U	46 U	56 U	48 U	53 U	52 U	57 U
Nitroglycerin	--	6,300	17		420 U	440 U	430 U	440 U	440 U	440 U	480 U	360 U	440 U	510 U	490 U	370 U	450 U	390 U	430 U	410 U	460 U
PETN	--	130,000	560		420 U	440 U	430 U	440 U	440 U	440 U	480 U	360 U	440 U	510 U	490 U	370 U	450 U	390 U	430 U	410 U	460 U
Metals (mg/kg)																					
Aluminum	26,400	77,000	600,000		18,700	17,900	14,300	18,000	16,200	19,200	19,500	17,300	19,300	18,600	21,700	21,400	18,900	16,900	17,800	18,300	16,200
Antimony	0.333	31	7		0.235	0.18	0.17	0.14	0.17	0.18	0.268	0.19	0.252	0.234	0.24	0.220	0.217	0.192	0.19	0.20	0.271
Arsenic	13.6	0.68	5.8		3.62	5.92	6.69	5.51	5.10	3.96	8.31	9.83	9.38	2.30	2.22	2.68	6.14	5.05	3.60	12.5	5.18
Barium	375	15,000	3,200		245	461 J	1,050 J	251 J	229	202	282 J	349	364 J	290 J	210	239	250 J	204 J	190 J	242	304
Beryllium	1.14	160	380		0.823	0.769	0.690	0.762	0.867	0.965	0.926	0.892	0.875	0.926	1.03	1.09	0.864	0.795	0.828	0.959	0.754
Cadmium	0.31	71	13.8		0.109	0.074 J	0.152	0.027 J	0.027 J	0.015 J	0.025 U	0.021 U	0.031 J	0.145 J	0.1 J	0.176	0.119	0.0696 J	0.0804 J	0.056 J	0.114
Calcium	--	--	--		79,300	58,900 J	129,000 J	56,300	49,800	35,300	43,500 J	45,400	57,700 J	58,600 J	42,400	48,400	60,500	62,900	40,000	52,800	39,600 J
Chromium Total[3]	24.2	120,000	3,600,000		17.7	16.4	14.1	16.7	15.2	17.0	18.7	15.6	16.8	16.4	20.5	20.0	17.2	16.6	18.0	17.0	15.7
Chromium VI	--	0.3	0.0134		0.5 U	--	--	--	0.45 U	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	5.4		5.29	6.03	7.64	6.98	5.61	5.82	6.15 J	14.7 J	6.81	5.96	7.24	8.32	5.44	6.04	5.61	7.27	5.84
Copper	17.1	3,100	920		9.56	10.9	10.0	10.2	10.3	11.4	11.4	11.2	10.3	15.0	15.4	14.6	10.9	10.3	12.1	11.6	10.8
Iron	19,100	55,000	7,000		16,700	15,300	13,200	15,500	15,400	17,400	16,300	15,600	17,700	16,000	19,300	18,300	17,600	15,300	16,600	18,200	15,800
Lead	16.4	400	280		11.5	11.2	10.2	12.5	10.0	10.5	11.8	12.4	11.0	12.3	14.6	15.5	11.0	10.6	11.2	12.8	11.3
Magnesium	--	--	--		9,560	9,230	10,800	9,240	8,740	9,740	8,880	8,720	9,070	7,570	8,150	8,980	9,500	9,400	8,520	9,360	7,130
Manganese	542	1,800	560		255	467	516	388	255	234	239 J	457 J	592 J	301 J	545	630	324	280	287	389	486
Mercury	0.0287	11	2		0.014 J	0.019 J	0.023 J	0.017 J	0.016 J	0.019 J	0.01 J	0.016 J	0.012 J	0.013 J	0.017 J	0.015 J	0.018 J	0.021 J	0.016 J	0.016 J	0.018 J
Nickel	24.1	1,500	520		11.6	14.9	14.2	14.0	13.1	13.7	14.9	20.7	15.4	15.2	18.7	17.3	14.1	14.1	13.4	15.1	16.5
Potassium	--	--	--		4,310	4,660	3,970	4,640	4,220	4,670	5,210	4,570	4,910	4,470	4,970	4,960	5,060	4,440	4,540	4,640	4,070
Selenium	0.824	390	10.4		0.607	0.467 U	0.687	0.429 U	0.541 U	0.35 U	0.48 U	0.514 U	0.488 J	0.33 U	0.4 U	0.402 U	0.463 J	0.429 J	0.36 U	0.497 U	0.352 J
Silver	0.114	390	16		0.0835 J	0.0775 J	0.0641 J	0.0756 J	0.0796 J	0.0733 J	0.08 J	0.07 J	0.0761 J	0.0777 J	0.0987 J	0.100	0.0833 J	0.0709 J	0.084 J	0.0744 J	0.0677 J
Sodium	--	--	--		715	538	477	830	577	262	286 J	440 J	454	224	311	308	422	415	486	353	241
Thallium	0.405	0.78	2.8		0.308	0.339	0.366	0.294	0.282	0.304	0.320	0.285	0.330	0.293	0.325	0.335	0.306	0.319	0.304	0.295	0.291
Vanadium	50	390	1,720		40.4	38.7	32.8	36.7	30.7	35.9	44.8	39.0	40.5	30.9	40.9	38.6	38.6	35.9	36.1	41.1	33.8
Zinc	57	23,000	7,400		38.1	39.9	33.0	38.8	38.1	47.9	40.0	39.8	36.0	46.7	53.1	52.8	41.8	39.2	44.4	41.5	42.6

Table 5.6 (Continued)
Tract 19C Surface Soil Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-SS10H	19C-SS11H	19C-SS03I	19C-SS04I	19C-SS05I	19C-SS06I	19C-SS07I	19C-SS08I	19C-SS09I	19C-SS10I	19C-SS11I
				Sample Date	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018
				Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**Total Soil BTV**	**Residential RSL**	**Soil-to-Groundwater SSL**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Polynuclear Aromatic Hydrocarbons (µg/kg)															
Naphthalene	--	2,000	7.6		12 U	12 U	12 U	12 U	12 U	13 U	11 U	11 U	12 U	12 U	11 U
2-Methylnaphthalene	--	240,000	3,800		12 U	12 U	12 U	12 U	12 U	13 UJ	11 U	11 U	12 U	12 U	11 U
Acenaphthylene[1]	--	3,600,000	110,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	11 U	12 U	12 U	11 U
Acenaphthene	--	3,600,000	110,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	11 U	12 U	12 U	11 U
Fluorene	--	2,400,000	108,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	11 U	12 U	12 U	11 U
Phenanthrene[2]	--	1,800,000	260,000		12 U	12 U	12 U	2.7 J	2.8 J	3.4 J	11 U	18 J	12 U	12 U	11 U
Anthracene	--	18,000,000	1,160,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	3.7 J	12 U	12 U	11 U
Fluoranthene	41	2,400,000	1,780,000		12 U	12 U	12 U	3.2 J	7.1 J	11 J	3.2 J	38	2.9 J	12 U	2.3 J
Pyrene	--	1,800,000	260,000		12 UJ	12 U	12 U	12 UJ	12 U	13 U	11 UJ	37 J	12 UJ	12 UJ	11 UJ
Benzo(a)anthracene	--	1,100	220		12 U	12 U	8.9 J	2.8 J	4.9 J	13 U	2.8 J	23	2.4 J	12 U	11 U
Chrysene	--	110,000	180,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	17 J	12 U	12 U	11 U
Benzo(b)fluoranthene	--	1,100	6,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	24	12 U	12 U	11 U
Benzo(k)fluoranthene	--	11,000	58,000		12 U	12 U	12 U	12 U	12 U	13 U	11 U	6.6 J	12 U	12 U	11 U
Benzo(a)pyrene	--	110	4,800		12 U	12 U	12 U	12 U	12 U	6.4 J	11 U	16 J	12 U	12 U	11 U
Indeno(1,2,3-cd)pyrene	--	1,100	19,600		12 U	12 U	12 U	12 U	12 U	16 J	11 U	11 U	12 U	12 U	11 U
Dibenz(a,h)anthracene	--	110	1,920		12 U	12 U	12 U	12 U	12 U	15 J	11 U	5.8 J	12 U	12 U	11 U
Benzo(g,h,i)perylene[2]	--	1,800,000	260,000		12 U	12 U	12 U	12 U	12 U	7.3 J	11 U	6.5 J	12 U	12 U	11 U
Explosives (µg/kg)															
HMX	--	3,900,000	26,000		50 U	560	54 U	58 U	32 J	34 J	42 J	64 J	57 U	52 U	56 U
RDX	--	8,300	7.4		50 U	880	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
1,3,5-Trinitrobenzene	--	2,200,000	42,000		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
1,3-Dinitrobenzene	--	6,300	36		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
Tetryl	--	160,000	7,400		50 UJ	54 U	54 U	58 UJ	55 U	57 U	52 UJ	53 UJ	57 UJ	52 UJ	56 UJ
Nitrobenzene	--	5,100	1.84		50 U	54 U	54 U	92 J	55 U	57 U	52 U	53 U	57 U	52 U	56 U
2,4,6-Trinitrotoluene	--	21,000	300		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	92 J
2-Amino-4,6-dinitrotoluene	--	7,700	30		50 U	54 U	54 U	58 U	55 U	57 U	52 U	43 J	57 U	52 U	39 J
4-Amino-2,6-dinitrotoluene	--	7,700	30		50 U	54 U	54 U	58 U	55 U	57 U	52 U	56 J	57 U	52 U	77 J
2,6-Dinitrotoluene	--	360	1.34		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
2,4-Dinitrotoluene	--	1,700	6.4		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
2-Nitrotoluene	--	3,200	6		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
3-Nitrotoluene	--	6,300	32		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
4-Nitrotoluene	--	34,000	80		50 U	54 U	54 U	58 U	55 U	57 U	52 U	53 U	57 U	52 U	56 U
Nitroglycerin	--	6,300	17		400 U	440 U	430 U	470 U	440 U	460 U	420 U	420 U	460 U	420 U	450 U
PETN	--	130,000	560		400 U	440 U	430 U	470 U	440 U	460 U	420 U	420 U	460 U	420 U	450 U
Metals (mg/kg)															
Aluminum	26,400	77,000	600,000		17,500	19,100	19,800	20,100	21,700	21,000	13,800	15,600	18,700	15,300	20,600
Antimony	0.333	31	7		0.177	0.19	0.236	0.18	0.256	0.21	0.234	0.19	0.21	0.172	0.214
Arsenic	13.6	0.68	5.8		4.39	6.00	7.31	3.52	6.22	7.40	6.10	9.58	12.6	8.27	8.96
Barium	375	15,000	3,200		219	180	309	191	287 J	290	292 J	220	293	374	287
Beryllium	1.14	160	380		0.829	0.858	0.881	1.07	0.954	1.01	0.709	0.766	0.896	0.752	0.800
Cadmium	0.31	71	13.8		0.013 U	0.016 J	0.123	0.021 U	0.156	0.024 U	0.182	0.114 J	0.086 J	0.113 J	0.0867 J
Calcium	--	--	--		17,200 J	34,300	53,100	25,400	47,700	40,800	67,800 J	33,800	49,000	84,100	18,200 J
Chromium Total[3]	24.2	120,000	3,600,000		17.1	16.2	18.3	18.4	19.6	19.1	13.0	13.9	14.6	13.5	16.0
Chromium VI	--	0.3	0.0134		--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	5.4		4.40	5.37	6.98	5.99	6.73	6.13	7.88	5.78	7.39	7.51	7.43
Copper	17.1	3,100	920		10.1	11.1	12.2	12.6	17.0	13.0	9.63	10.2	10.6	8.84	11.8
Iron	19,100	55,000	7,000		16,500	14,400	17,600	16,900	18,200	17,100	11,900	12,500	14,700	12,000	15,800
Lead	16.4	400	280		12.0	21.9	12.2	10.7	16.0	12.2	13.6	25.2	11.8	11.8	14.0
Magnesium	--	--	--		8,300	7,040	10,100	9,570	9,920	10,400	7,670	6,170	15,100	7,540	6,040
Manganese	542	1,800	560		143	218	468	208	296	239	470 J	254	341	367	309
Mercury	0.0287	11	2		0.015 J	0.01 J	0.025 J	0.028 J	0.017 J	0.014 J	0.011 J	0.014 J	0.015 J	0.014 J	0.014 J
Nickel	24.1	1,500	520		11.8	12.7	15.9	14.0	15.8	15.6	13.1	11.4	15.0	12.6	13.7
Potassium	--	--	--		4,500	4,430	5,230	4,860	6,000	6,080	4,450	4,630	6,000	4,440	5,590
Selenium	0.824	390	10.4		0.307 J	0.38 U	0.42 J	0.41 U	0.489 J	0.632	0.650	0.438 U	0.533 U	0.640	0.31 U
Silver	0.114	390	16		0.0799	0.073 J	0.088 J	0.0937 J	0.0942 J	0.082 J	0.0603 J	0.0703 J	0.0783 J	0.0688 J	0.0785 J
Sodium	--	--	--		432	249	722	314	713	1,240	334	658	248	346	236
Thallium	0.405	0.78	2.8		0.252	0.296	0.347	0.309	0.340	0.305	0.269	0.244	0.297	0.313	0.290
Vanadium	50	390	1,720		38.1	33.8	43.0	34.4	42.4	44.5	29.7	36.3	46.6	30.7	38.1
Zinc	57	23,000	7,400		41.5	39.0	45.4	48.0	57.7	47.3	34.5	47.8	40.4	30.3	46.2

Notes:
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
Underlined results denote an exceedance of the BTV (if available) and the soil-to-groundwater SSL
[1] RSL for acenaphthene used as a surrogate
[2] RSL for pyrene used as a surrogate
[3] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
ft bgs = feet below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
SSL = soil screening level
U = analyte not detected, listed value is the reporting limi

Table 5.7
Tract 19C Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	19C-SS06B	19C-SB06B	19C-SS09B	19C-SB09B	19C-SS03C	19C-SB03C	19C-SB103C	19C-SS05C	19C-SB05C	19C-SS06C	19C-SB06C	19C-SS07C	19C-SB07C	19C-SS09C
		Sample Date	4/30/2018	6/12/2018	4/30/2018	6/12/2018	4/30/2018	6/13/2018		4/30/2018	6/12/2018	4/30/2018	6/12/2018	4/30/2018	6/12/2018	4/30/2018
		Sample Interval (feet bgs)	0-0.5	8-9	0-0.5	9.5-10.5	0-0.5	10-11		0-0.5	6-7	0-0.5	8.5-9.5	0-0.5	11-12	0-0.5
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																
HMX	--	3,900,000	110 J	--	63 U	--	26 J	--	--	500	--	1000	--	60 U	--	56 U
RDX	--	8,300	130	59 U	63 U	--	58 U	--	--	190	67 UJ	960	69 UJ	60 U	--	56 U
1,3,5-Trinitrobenzene	--	2,200,000	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
1,3-Dinitrobenzene	--	6,300	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
Tetryl	--	160,000	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
Nitrobenzene	--	5,100	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
2,4,6-Trinitrotoluene	--	21,000	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
2-Amino-4,6-dinitrotoluene	--	7,700	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
4-Amino-2,6-dinitrotoluene	--	7,700	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
2,6-Dinitrotoluene	--	360	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
2,4-Dinitrotoluene	--	1,700	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
2-Nitrotoluene	--	3,200	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
3-Nitrotoluene	--	6,300	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
4-Nitrotoluene	--	34,000	62 U	--	63 U	--	58 U	--	--	56 U	--	58 U	--	60 U	--	56 U
Nitroglycerin	--	6,300	500 U	--	500 U	--	460 U	--	--	450 U	--	460 U	--	480 U	--	440 U
PETN	--	130,000	500 U	--	500 U	--	460 U	--	--	450 U	--	460 U	--	480 U	--	440 U
Metals (mg/kg)																
Aluminum	26,400	77,000	18,400	--	16,600 J	--	21,100	--	--	15,500	--	17,900 J	--	20,100	--	18,600 J
Antimony	0.333	31	0.196	--	0.278 J	--	0.224	--	--	0.19	--	0.16 J	--	0.216	--	0.277 J
Arsenic	13.6	0.68	2.48	--	14.8	--	8.95	--	--	5.60	--	2.06	--	2.98	--	18.1
Barium	375	15,000	270	--	518 J	--	466	--	--	398	--	282 J	--	170	--	342 J
Beryllium	1.14	160	0.837	--	0.861	--	0.939	--	--	0.699	--	0.802	--	0.879	--	0.876
Cadmium	0.31	71	0.127	--	0.061 J	--	0.208	--	--	0.201	--	0.071 J	--	0.067 J	--	0.0824 J
Calcium	--	--	38,400	--	42,400 J	--	31,900	--	--	141,000	--	64,200 J	--	47,000	--	80,800 J
Chromium Total[1]	24.2	120,000	17.7	--	15.0	--	18.6	--	--	14.3	--	15.2	--	17.7	--	17.4
Chromium VI	--	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	7.01	--	8.71	--	13.4	5.87	6.99	7.43	--	6.76	--	4.48	--	7.05
Copper	17.1	3,100	12.1	--	13.0	--	12.6	--	--	8.96	--	8.99	--	12.9	--	14
Iron	19,100	55,000	18,200	--	17,700 J	--	19,500	--	--	13,500	--	14,700 J	--	21,700	14,300	19,900 J
Lead	16.4	400	11.3	--	12.5	--	16.9	--	--	10.6	--	11.1	--	10.9	--	13.6
Magnesium	--	--	8,810	--	8,710	--	7,820	--	--	11,000	--	7,970	--	8,750	--	11,100
Manganese	542	1,800	993	82.6	1,110 J	415	821	642 J	337 J	471	--	561 J	171	181	--	496 J
Mercury	0.0287	11	0.012 J	--	0.015 J	--	0.0093 J	--	--	0.013 J	--	0.011 J	--	0.013 J	--	0.013 J
Nickel	24.1	1,500	18.1	--	26.0	--	21.6	--	--	16.2	--	16.9	--	13.1	--	14.7
Potassium	--	--	4,200	--	4,170	--	5,230	--	--	3,910	--	4,400	--	4,610	--	4,820
Selenium	0.824	390	0.334 J	--	0.378 J	--	0.32 J	--	--	0.470	--	0.35 J	--	0.32 J	--	0.579
Silver	0.114	390	0.0723	--	0.0703 J	--	0.0821	--	--	0.054 J	--	0.0663 J	--	0.0792 J	--	0.0819 J
Sodium	--	--	1,480	--	1,190	--	341	--	--	350	--	986	--	507	--	348
Thallium	0.405	0.78	0.311	--	0.434	--	0.379	--	--	0.307	--	0.301 J	--	0.295	--	0.34 J
Vanadium	50	390	35.3	--	49.7	--	43.6	--	--	31.9	--	31.0	--	36.3	--	54.1
Zinc	57	23,000	46.4	--	37.5	--	48.5	--	--	33.7	--	36.2	--	44.3	--	43.6

Table 5.7 (Continued)
Tract 19C Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	19C-SS02D	19C-SS102D	19C-SB02D	19C-SB102D	19C-SS04D	19C-SB04D	19C-SS06D	19C-SB06D	19C-SS07D	19C-SB07D	19C-SS10D	19C-SB10D	19C-SS11D	19C-SB11D	19C-SS03E
		Sample Date	5/1/2018		6/13/2018		5/1/2018	6/13/2018	5/1/2018	6/12/2018	5/1/2018	6/12/2018	5/1/2018	6/12/2018	5/1/2018	6/12/2018	5/1/2018
		Sample Interval (feet bgs)	0-0.5		13-14.5		0-0.5	8-9	0-0.5	8-9	0-0.5	8-9	0-0.5	9.5-10.5	0-0.5	9.5-10.5	0-0.5
		Sample Type	Normal	Duplicate	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	56 U	61 U	--	--	37 J	--	43 J	--	35 J	--	60 U	--	64 U	--	180
RDX	--	8,300	56 U	36 J	--	--	42 J	--	47 U	--	58 J	70 UJ	60 U	--	64 U	--	110
1,3,5-Trinitrobenzene	--	2,200,000	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
1,3-Dinitrobenzene	--	6,300	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
Tetryl	--	160,000	56 UJ	61 UJ	--	--	52 UJ	--	47 UJ	--	48 U	--	60 U	--	64 U	--	46 U
Nitrobenzene	--	5,100	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
2,4,6-Trinitrotoluene	--	21,000	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
2-Amino-4,6-dinitrotoluene	--	7,700	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
4-Amino-2,6-dinitrotoluene	--	7,700	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
2,6-Dinitrotoluene	--	360	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
2,4-Dinitrotoluene	--	1,700	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
2-Nitrotoluene	--	3,200	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
3-Nitrotoluene	--	6,300	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
4-Nitrotoluene	--	34,000	56 U	61 U	--	--	52 U	--	47 U	--	48 U	--	60 U	--	64 U	--	46 U
Nitroglycerin	--	6,300	440 U	480 U	--	--	420 U	--	380 U	--	390 U	--	480 U	--	520 U	--	370 U
PETN	--	130,000	440 U	480 U	--	--	420 U	--	380 U	--	390 U	--	480 U	--	520 U	--	370 U
Metals (mg/kg)																	
Aluminum	26,400	77,000	21,500	20,500	--	--	13,800	--	15,500	--	17,400	--	20,200	--	26,200	--	17,300
Antimony	0.333	31	0.253	0.343	--	--	0.15	--	0.255	--	0.162	--	0.313	--	0.254	--	0.221
Arsenic	13.6	0.68	8.59 J	35.2 J	6.66	4.87	2.33	--	3.06	--	2.16	--	28.9	1.98	7.64	--	10.5
Barium	375	15,000	235 J	398 J	--	--	492 J	--	543 J	--	319 J	--	617 J	--	244 J	--	348 J
Beryllium	1.14	160	0.981	1.08	--	--	0.688	--	0.819	--	0.801	--	0.863	--	1.11	--	0.757
Cadmium	0.31	71	0.054 J	0.0913 J	--	--	0.161 J	--	0.221 J	--	0.0895	--	0.071 J	--	0.074 J	--	0.191
Calcium	--	--	16,200 J	11,700	--	--	104,000 J	--	67,100 J	--	38,600 J	--	77,200 J	--	15,900 J	--	73,300 J
Chromium Total[1]	24.2	120,000	18.5	18.5	--	--	12.7	--	14.4	--	17.6	--	18.6	--	22.9	--	17.0
Chromium VI	--	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	7.29 J	14.4 J	6 J	7.53	5.96	--	7.03	--	5.30	--	10.2	--	8.44	--	10.3
Copper	17.1	3,100	11.4	14.6	--	--	9.27	--	11.0	--	11.4	--	12.2	--	14.7	--	10.4
Iron	19,100	55,000	16,700	20,900	25,200 J	18,200 J	27,800	34,700 J	15,500	--	19,000	--	18,700	--	22,800	15,400	16,300
Lead	16.4	400	16.2	20.2	--	--	9.25	--	11.4	--	13.9	--	12.5	--	14.2	--	14.4
Magnesium	--	--	8,470	7,640	--	--	6,770	--	7,520	--	7,670	--	10,400	--	8,860	--	9,220
Manganese	542	1,800	292 J	1,160 J	286 J	640 J	983 J	406 J	1,850 J	136	490	--	339	--	378	--	565
Mercury	0.0287	11	0.0092 J	0.016 J	--	--	0.016 J	--	0.024 J	--	0.02 J	--	0.019 J	--	0.019 J	--	0.019 J
Nickel	24.1	1,500	13.9 J	26 J	--	--	12.2	--	20.2	--	13.8	--	18.0	--	22.2	--	16.8
Potassium	--	--	6,460	6,110	--	--	3,040	--	3,620	--	4,190	--	5,940	--	8,290	--	4,910
Selenium	0.824	390	0.35 U	0.395 U	--	--	0.486	--	0.43 J	--	0.332 J	--	0.518	--	0.41 U	--	0.39 U
Silver	0.114	390	0.0766 J	0.0821	--	--	0.0546 J	--	0.062 J	--	0.069 J	--	0.0757 J	--	0.103 J	--	0.068 J
Sodium	--	--	168	139	--	--	504	--	447	--	524	--	1,050	--	283	--	576
Thallium	0.405	0.78	0.31 J	0.59 J	--	--	0.234	--	0.349	--	0.287	--	0.340	--	0.377	--	0.302
Vanadium	50	390	44.2 J	78.8 J	--	--	25.8	--	35.9	--	35.7	--	81.1	--	49.3	--	45.7
Zinc	57	23,000	45.4	45.0	--	--	33.8	--	32.7	--	46.1	--	42.4	--	60.4	--	39.7

Table 5.7 (Continued)
Tract 19C Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	19C-SB03E	19C-SS04E	19C-SB04E	19C-SB104E	19C-SS05E	19C-SS105E	19C-SB05E	19C-SS08E	19C-SB08E	19C-SS05F	19C-SB05F	19C-SS10F	19C-SB10F	19C-SS03G	19C-SB03G
		Sample Date	6/13/2018	5/1/2018	6/13/2018		5/1/2018		6/13/2018	5/1/2018	6/12/2018	5/1/2018	6/13/2018	5/1/2018	6/12/2018	5/1/2018	6/13/2018
		Sample Interval (feet bgs)	10-11	0-0.5	11-12		0-0.5		8.5-9.5	0-0.5	9.5-10.5	0-0.5	10-11	0-0.5	9-10	0-0.5	9.5-10.5
		Sample Type	Normal	Normal	Normal	Duplicate	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																	
HMX	--	3,900,000	--	2,300	--	--	58 U	21 J	--	72 J	--	55 U	--	58 U	--	65 U	--
RDX	--	8,300	70 U	2,800	44 U	44 U	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
1,3,5-Trinitrobenzene	--	2,200,000	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
1,3-Dinitrobenzene	--	6,300	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
Tetryl	--	160,000	--	63 UJ	--	--	58 U	61 U	--	61 UJ	--	55 UJ	--	58 U	--	65 U	--
Nitrobenzene	--	5,100	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
2,4,6-Trinitrotoluene	--	21,000	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
2-Amino-4,6-dinitrotoluene	--	7,700	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
4-Amino-2,6-dinitrotoluene	--	7,700	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
2,6-Dinitrotoluene	--	360	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
2,4-Dinitrotoluene	--	1,700	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
2-Nitrotoluene	--	3,200	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
3-Nitrotoluene	--	6,300	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
4-Nitrotoluene	--	34,000	--	63 U	--	--	58 U	61 U	--	61 U	--	55 U	--	58 U	--	65 U	--
Nitroglycerin	--	6,300	--	500 U	--	--	460 U	490 U	--	490 U	--	440 U	--	460 U	--	520 U	--
PETN	--	130,000	--	500 U	--	--	460 U	490 U	--	490 U	--	440 U	--	460 U	--	520 U	--
Metals (mg/kg)																	
Aluminum	26,400	77,000	--	18,400	--	--	17,400	15,400	--	22,700	--	16,900	--	16,700	--	26,500	--
Antimony	0.333	31	--	0.20	--	--	0.13	0.16	--	0.303	--	0.201	--	0.16	--	0.288	--
Arsenic	13.6	0.68	--	11.6	--	--	1.88	2.37	--	10.3	--	3.13	--	8.80	--	8.11	--
Barium	375	15,000	--	414 J	--	--	179 J	309 J	--	389	--	373	--	273 J	--	280	--
Beryllium	1.14	160	--	0.738	--	--	0.753	0.790	--	0.926	--	0.700	--	0.743	--	1.22	--
Cadmium	0.31	71	--	0.107 J	--	--	0.039 J	0.0857 J	--	0.094 J	--	0.115	--	0.0954 J	--	0.066 J	--
Calcium	--	--	--	79,500 J	--	--	43,600	43,800	--	79,100 J	--	61,900 J	--	73,700	--	22,200	--
Chromium Total[1]	24.2	120,000	--	16.7	--	--	15.9	14.7	--	21.4	--	16.2	--	15.3	--	21.9	--
Chromium VI	--	0.3	--	--	--	--	0.5 U	0.58 U	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	--	6.51	--	--	5.02	8.08	--	9.16	--	7.50	--	15.5	5.86	9.34	--
Copper	17.1	3,100	--	9.92	--	--	8.96	10.2	--	15.2	--	10.0	--	10.9	--	13.3	--
Iron	19,100	55,000	--	18,900	--	--	15,400	14,600	--	21,100	15,900	14,400	--	14,300	--	20,200	11,900 J
Lead	16.4	400	--	10.5	--	--	9.95	11.2	--	13.6	--	10.9	--	12.3	--	15.2	--
Magnesium	--	--	--	8,800	--	--	8,260	8,440	--	12,000	--	7,970	--	9,830	--	10,300	--
Manganese	542	1,800	166 J	447	--	--	313 J	885 J	154 J	1,250	166	1,040	262 J	470	--	404	--
Mercury	0.0287	11	--	0.017 J	--	--	0.018 J	0.017 J	--	0.023 J	--	0.018 J	--	0.016 J	--	0.013 J	--
Nickel	24.1	1,500	--	13.4	--	--	10.6	17.7	--	28.4	--	17.4	--	17.0	--	18.4	--
Potassium	--	--	--	4,800	--	--	4,100	3,780	--	5,760	--	4,150	--	4,500	--	8,140	--
Selenium	0.824	390	--	0.4 U	--	--	0.398 U	0.41 U	--	0.506 J	--	0.408 J	--	0.465 U	--	0.507 U	--
Silver	0.114	390	--	0.065 J	--	--	0.0694 J	0.072 J	--	0.0961 J	--	0.0672 J	--	0.0753 J	--	0.0852 J	--
Sodium	--	--	--	329	--	--	414 J	602 J	--	764	--	675	--	319	--	194	--
Thallium	0.405	0.78	--	0.278	--	--	0.262	0.270	--	0.404	--	0.284	--	0.289	--	0.366	--
Vanadium	50	390	--	39.0	--	--	30.9	28.2	--	52.3	--	35.4	--	38.3	--	50.5	--
Zinc	57	23,000	--	38.6	--	--	36.3	35.2	--	46.6	--	36.9	--	37.5	--	53.3	--

Table 5.7 (Continued)
Tract 19C Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	19C-SS05G	19C-SB05G	19C-SS10G	19C-SS110G	19C-SB10G	19C-SS11G	19C-SB11G	19C-SS04H	19C-SS104H	19C-SB04H	19C-SS11H	19C-SB11H	19C-SS04I	19C-SB04I
		Sample Date	5/1/2018	6/13/2018	5/1/2018		6/12/2018	5/1/2018	6/12/2018	5/1/2018		6/13/2018	5/1/2018	6/12/2018	5/1/2018	6/13/2018
		Sample Interval (feet bgs)	0-0.5	9-10	0-0.5		9.75-10.75	0-0.5	10-11	0-0.5		9.5-10.5	0-0.5	9-10	0-0.5	8.5-9.5
		Sample Type	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																
HMX	--	3,900,000	180	--	60 U	45 U	--	54 U	--	61 U	46 U	--	560	--	58 U	--
RDX	--	8,300	720	62 U	60 U	45 U	--	54 U	--	61 U	46 U	--	880	71 UJ	58 U	--
1,3,5-Trinitrobenzene	--	2,200,000	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
1,3-Dinitrobenzene	--	6,300	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
Tetryl	--	160,000	52 U	--	60 UJ	45 U	--	54 UJ	--	61 U	46 U	--	54 U	--	58 UJ	--
Nitrobenzene	--	5,100	52 U	--	60 U	45 U	--	54 U	--	61 U	27 J	65 U	54 U	--	92 J	68 U
2,4,6-Trinitrotoluene	--	21,000	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
2-Amino-4,6-dinitrotoluene	--	7,700	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
4-Amino-2,6-dinitrotoluene	--	7,700	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
2,6-Dinitrotoluene	--	360	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
2,4-Dinitrotoluene	--	1,700	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
2-Nitrotoluene	--	3,200	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
3-Nitrotoluene	--	6,300	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
4-Nitrotoluene	--	34,000	52 U	--	60 U	45 U	--	54 U	--	61 U	46 U	--	54 U	--	58 U	--
Nitroglycerin	--	6,300	420 U	--	480 U	360 U	--	440 U	--	490 U	370 U	--	440 U	--	470 U	--
PETN	--	130,000	420 U	--	480 U	360 U	--	440 U	--	490 U	370 U	--	440 U	--	470 U	--
Metals (mg/kg)																
Aluminum	26,400	77,000	18,700	--	19,500	17,300	--	19,300	--	21,700	21,400	--	19,100	--	20,100	--
Antimony	0.333	31	0.235	--	0.268	0.19	--	0.252	--	0.24	0.220	--	0.19	--	0.18	--
Arsenic	13.6	0.68	3.62	--	8.31	9.83	--	9.38	--	2.22	2.68	--	6.00	--	3.52	--
Barium	375	15,000	245	--	282 J	349	--	364 J	--	210	239	--	180	--	191	--
Beryllium	1.14	160	0.823	--	0.926	0.892	--	0.875	--	1.03	1.09	--	0.858	--	1.07	--
Cadmium	0.31	71	0.109	--	0.025 U	0.021 U	--	0.031 J	--	0.1 J	0.176	--	0.016 J	--	0.021 U	--
Calcium	--	--	79,300	--	43,500 J	45,400	--	57,700 J	--	42,400	48,400	--	34,300	--	25,400	--
Chromium Total[1]	24.2	120,000	17.7	--	18.7	15.6	--	16.8	--	20.5	20.0	--	16.2	--	18.4	--
Chromium VI	--	0.3	0.5 U	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	5.29	--	6.15 J	14.7 J	5.91	6.81	--	7.24	8.32	--	5.37	--	5.99	--
Copper	17.1	3,100	9.56	--	11.4	11.2	--	10.3	--	15.4	14.6	--	11.1	--	12.6	--
Iron	19,100	55,000	16,700	--	16,300	15,600	--	17,700	--	19,300	18,300	--	14,400	--	16,900	--
Lead	16.4	400	11.5	--	11.8	12.4	--	11.0	--	14.6	15.5	--	21.9	--	10.7	--
Magnesium	--	--	9,560	--	8,880	8,720	--	9,070	--	8,150	8,980	--	7,040	--	9,570	--
Manganese	542	1,800	255	--	239 J	457 J	--	592 J	294	545	630	162 J	218	--	208	--
Mercury	0.0287	11	0.014 J	--	0.01 J	0.016 J	--	0.012 J	--	0.017 J	0.015 J	--	0.01 J	--	0.028 J	--
Nickel	24.1	1,500	11.6	--	14.9	20.7	--	15.4	--	18.7	17.3	--	12.7	--	14.0	--
Potassium	--	--	4,310	--	5,210	4,570	--	4,910	--	4,970	4,960	--	4,430	--	4,860	--
Selenium	0.824	390	0.607	--	0.48 U	0.514 U	--	0.488 J	--	0.4 U	0.402 U	--	0.38 U	--	0.41 U	--
Silver	0.114	390	0.0835 J	--	0.08 J	0.07 J	--	0.0761 J	--	0.0987 J	0.100	--	0.073 J	--	0.0937 J	--
Sodium	--	--	715	--	286 J	440 J	--	454	--	311	308	--	249	--	314	--
Thallium	0.405	0.78	0.308	--	0.320	0.285	--	0.330	--	0.325	0.335	--	0.296	--	0.309	--
Vanadium	50	390	40.4	--	44.8	39.0	--	40.5	--	40.9	38.6	--	33.8	--	34.4	--
Zinc	57	23,000	38.1	--	40.0	39.8	--	36.0	--	53.1	52.8	--	39.0	--	48.0	--

Notes:
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
ft bgs = feet below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.8
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-UGIA-DPT01	19C-UGIA-DPT02	19C-LGIA-DPT03	19C-LGIA-DPT04	19C-LGIA-DPT05	19C-LGIA-DPT06	19C-LGIA-DPT07	19C-LGIA-DPT107	19C-LGIA-DPT08	19C-LGIA-DPT09
			Sample Date	5/6/2018	5/2/2018	5/6/2018	5/5/2018	5/5/2018	5/4/2018	5/4/2018		5/4/2018	5/4/2018
			Screen Interval (feet bgs)	16-20	16-20	28-32	28-32	28-32	28-32	28-32		28-32	28-32
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	duplicate	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)													
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	1,200 J	0.5 U	0.5 U	0.5 U	2.8	490 J	5.4	5.7	0.5 U	0.5 U
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	5.8	1 U	1 U	1 U	1 U	1.6 J	1 U	1 U	1 UJ	1 UJ
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-UGIA-DPT01	19C-UGIA-DPT02	19C-LGIA-DPT03	19C-LGIA-DPT04	19C-LGIA-DPT05	19C-LGIA-DPT06	19C-LGIA-DPT07	19C-LGIA-DPT107	19C-LGIA-DPT08	19C-LGIA-DPT09
			Sample Date	5/6/2018	5/2/2018	5/6/2018	5/5/2018	5/5/2018	5/4/2018	5/4/2018		5/4/2018	5/4/2018
			Screen Interval (feet bgs)	16-20	16-20	28-32	28-32	28-32	28-32	28-32		28-32	28-32
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	duplicate	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)													
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Polynuclear Aromatic Compounds (µg/L)													
Naphthalene	--	--	0.12	0.1 U	0.095 UJ	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
2-Methylnaphthalene	--	--	36	0.44	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Acenaphthylene[2]	--	--	530	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Acenaphthene	--	--	530	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Fluorene	--	--	290	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Phenanthrene	--	--	120	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Anthracene	--	--	1,800	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Fluoranthene	--	--	800	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Pyrene	--	--	120	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Benzo(a)anthracene	--	--	0.03	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Chrysene	--	--	25	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.099 U
Benzo(b)fluoranthene	--	--	0.25	0.1 U	0.12 U	0.096 U	0.095 U	0.1 U	0.19 UJ	0.18 UJ	0.2 U	0.2 U	0.19 U
Benzo(k)fluoranthene	--	--	2.5	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 UJ	0.095 UJ	0.1 U	0.1 U	0.099 U
Benzo(a)pyrene	--	0.2	0.025	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 UJ	0.095 UJ	0.1 U	0.1 U	0.099 U
Indeno(1,2,3-cd)pyrene	--	--	0.25	0.1 UJ	0.095 U	0.096 UJ	0.095 UJ	0.1 UJ	0.1 UJ	0.095 UJ	0.1 U	0.1 U	0.099 U
Dibenz(a,h)anthracene	--	--	0.025	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 UJ	0.095 UJ	0.1 U	0.1 U	0.099 U
Benzo(g,h,i)perylene[3]	--	--	120	0.1 U	0.095 U	0.096 U	0.095 U	0.1 U	0.1 UJ	0.095 UJ	0.1 U	0.1 U	0.099 U
Explosives (µg/L)													
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-UGIA-DPT01		19C-UGIA-DPT02		19C-LGIA-DPT03		19C-LGIA-DPT04		19C-LGIA-DPT05		19C-LGIA-DPT06		19C-LGIA-DPT07		19C-LGIA-DPT107		19C-LGIA-DPT08		19C-LGIA-DPT09	
			Sample Date	5/6/2018		5/2/2018		5/6/2018		5/5/2018		5/5/2018		5/4/2018		5/4/2018				5/4/2018		5/4/2018	
			Screen Interval (feet bgs)	16-20		16-20		28-32		28-32		28-32		28-32		28-32				28-32		28-32	
			Sample Type	Normal		Normal		Normal		Normal		Normal		Normal		Normal		duplicate		Normal		Normal	
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result		Result		Result		Result		Result		Result		Result		Result		Result		Result	
Metals (µg/L)				Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered
Aluminum	7,110	--	20,000	17,300	40 U	24,400	40 U	4,020	40 U	4,500	40 U	3,500	40 U	9,370	40 U	4,870	40 U	4,160	40 U	6,800	40 U	4,730	40 U
Antimony	--	6	7.8	0.718 J	0.5 U	0.41 J	0.095 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052	**15**	9.7	**31.2**	10	8.9	10	11	10	12	9.4	12	9	11	9.4	10	9.2	14	13	12	11
Barium	81.5	2,000	3,800	321	36.7	330	41.8	163	29.4	99	31	94	31.2	176	30.4	132	33.4	118	31.6	234	28.6	104	30.9
Beryllium	0.31	4	25	0.806 J	0.2 U	1.48	0.2 U	0.2 J	0.2 U	0.24 J	0.2 U	0.18 J	0.2 U	0.386 J	0.2 U	0.24 J	0.2 U	0.2 J	0.2 U	0.342 J	0.2 U	0.2 J	0.2 U
Cadmium	--	5	9.2	0.16 J	0.2 U	0.478 J	0.2 U	0.2 U	0.2 U	0.18 J	0.2 U	0.2 U	0.2 U	0.28 J	0.2 U	0.079 J	0.036 J	0.034 J	0.2 U	0.2 U	0.2 U	0.071 J	0.2 U
Calcium	--	--	--	376,000	346,000	419,000	390,000	369,000	371,000	382,000	386,000	388,000	384,000	370,000	351,000	352,000	360,000	363,000	345,000	326,000	327,000	346,000	336,000
Chromium Total[4]	--	100	22,000	48	1.6 J	**106 J**	2.3 J	17.7	1.5 J	33.6	1.4 J	34.6	1.5 J	45	2.1 J	32.1	2.1 J	36.9	2 J	40.3	2.22 J	28.6	1.6 J
Chromium VI	--	--	0.035	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	5.5	--	6	5.73	0.44 J	12.3	0.49 J	1.76 J	0.43 J	2.47 J	0.44 J	2.04 J	0.52 J	3.77	0.52 J	2.03 J	0.42 J	2.02 J	0.4 J	3.59	0.43 J	2.68 J	0.37 J
Copper	--	1,300	800	31.6 J	1.4 J	31.8 J	1.6 J	7.79 J	1.5 J	11.8 J	2.03 J	15.8 J	1.5 J	22.2 J	2 U	13 J	2 U	12.6 J	2 U	15.6 J	1.3 J	14.4 J	1.98 J
Iron	10,500	--	14,000	23,300	4,960	35,400	5,120	12,000	6,310	13,300	6,980	13,600	6,610	13,300 J	3,340 J	9,110 J	4,060 J	8,960 J	3,750 J	13,300 J	4,400 J	11,600 J	5,300 J
Lead	4.06	15	15	**26.4**	0.5 U	**22.8**	0.5 U	3.33	0.5 U	6.14	0.5 U	4.67	0.5 U	13.4	0.5 U	6.51	0.5 U	6.58	0.5 U	14.5	0.5 U	7.88	0.5 U
Magnesium	--	--	--	77,800	69,600	81,400	76,200	91,400	90,800	91,500	91,800	85,800	83,600	74,900	68,800	67,000	68,000	67,000	64,100	60,000	59,000	64,600	62,300
Manganese	1,730	--	430	1,370	1,170	1,990	1,380	1,340	1,290	1,380	1,340	1,450	1,370	1,420	1,310	1,460	1,460	1,480	1,390	1,230	1,170	1,320	1,250
Mercury	--	2	0.63	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Nickel	8.04	--	390	19.8	1.1 J	63.8	1.9 J	6.91 J	0.6 J	12.7 J	0.57 J	14.1 J	2.78 J	18.8	1.95 J	10.2 J	1.4 J	12.8 J	1.4 J	16.1	1.4 J	11.9 J	0.9 J
Potassium	--	--	--	23,400	18,000	23,800	18,700	22,200	21,400	22,400	21,700	21,700	21,000	21,100	18,100	18,800	18,100	19,300	17,400	18,600	17,100	18,500	16,700
Selenium	--	50	100	0.96 J	0.84 J	6.9	3 U	1 J	0.88 J	1.1 J	0.93 J	1.3 J	0.8 J	0.49 J	0.29 J	0.75 J	1.5 J	3 UJ	1.4 J	1.6 J	0.41 J	0.49 J	0.84 J
Silver	--	--	94	0.073 J	0.4 U	0.12 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--	331,000	312,000	296,000	308,000	374,000	373,000	377,000	380,000	366,000	365,000	325,000	312,000	296,000	303,000	296,000	290,000	268,000	271,000	288,000	283,000
Thallium	--	2	0.2	0.15 J	0.4 UJ	0.43 J	0.4 U	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 U	0.4 UJ	0.4 UJ	0.4 U	0.4 UJ	0.4 UJ	0.4 UJ	0.072 J	0.4 U	0.4 U	0.4 U
Vanadium	12.5	--	86	47.8	4 U	60	4 U	11.1	4 U	16.8	4 UJ	8.97	4 UJ	20.8	0.83 J	9.14	4 U	8.16	4 U	18.5	4 U	13.1	4 U
Zinc	34	--	6,000	70.7 J	6.9 J	143	21 J	31 J	10 J	49.4 J	13 J	152	29 J	112	15 J	62 J	18 J	64.7 J	17 J	44.2 J	6.7 J	51 J	11 J

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-LGIA-DPT10	19C-UGIA-DPT11	19C-LGIA-DPT12	19C-UGIA-DPT13	19C-LGIA-DPT14	19C-LGIA-DPT114	19C-UGIA-DPT15	19C-LGIA-DPT16	19C-LGIA-DPT116	19C-UGIA-DPT17	19C-LGIA-DPT18	19C-UGIA-DPT19	19C-LGIA-DPT20
				Sample Date	5/4/2018	5/3/2018	5/3/2018	5/2/2018	5/2/2018		5/3/2018	5/3/2018		5/2/2018	5/2/2018	5/3/2018	5/3/2018
				Screen Interval (feet bgs)	28-32	16-20	28-32	16-20	28-32		16-20	28-32		16-20	28-32	16-20	28-32
				Sample Type	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																	
1,1,1,2-Tetrachloroethane	--	--	0.57		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	--	5	0.28		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600		2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38		2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300		2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5		1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Carbon disulfide	--	--	810		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.91 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47		0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ
Dibromomethane	--	--	8.3		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200		1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ
Ethylbenzene	--	700	1.5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12		0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	2.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-LGIA-DPT10	19C-UGIA-DPT11	19C-LGIA-DPT12	19C-UGIA-DPT13	19C-LGIA-DPT14	19C-LGIA-DPT114	19C-UGIA-DPT15	19C-LGIA-DPT16	19C-LGIA-DPT116	19C-UGIA-DPT17	19C-LGIA-DPT18	19C-UGIA-DPT19	19C-LGIA-DPT20
			Sample Date	5/4/2018	5/3/2018	5/3/2018	5/2/2018	5/2/2018		5/3/2018	5/3/2018		5/2/2018	5/2/2018	5/3/2018	5/3/2018
			Screen Interval (feet bgs)	28-32	16-20	28-32	16-20	28-32		16-20	28-32		16-20	28-32	16-20	28-32
			Sample Type	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Polynuclear Aromatic Compounds (µg/L)																
Naphthalene	--	--	0.12	0.098 U	0.1 U	0.098 U	0.1 UJ	0.094 UJ	0.098 UJ	0.11 U	0.1 U	0.097 U	0.095 UJ	0.096 UJ	0.1 U	0.097 U
2-Methylnaphthalene	--	--	36	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Acenaphthylene[2]	--	--	530	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Acenaphthene	--	--	530	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Fluorene	--	--	290	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Phenanthrene	--	--	120	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Anthracene	--	--	1,800	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Fluoranthene	--	--	800	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Pyrene	--	--	120	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Benzo(a)anthracene	--	--	0.03	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Chrysene	--	--	25	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Benzo(b)fluoranthene	--	--	0.25	0.18 U	0.1 U	0.098 U	0.12 U	0.14 U	0.098 U	0.11 U	0.1 U	0.097 U	0.12 U	0.11 U	0.1 U	0.097 U
Benzo(k)fluoranthene	--	--	2.5	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Benzo(a)pyrene	--	0.2	0.025	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Indeno(1,2,3-cd)pyrene	--	--	0.25	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Dibenz(a,h)anthracene	--	--	0.025	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Benzo(g,h,i)perylene[3]	--	--	120	0.098 U	0.1 U	0.098 U	0.1 U	0.094 U	0.098 U	0.11 U	0.1 U	0.097 U	0.095 U	0.096 U	0.1 U	0.097 U
Explosives (µg/L)																
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-LGIA-DPT10		19C-UGIA-DPT11		19C-LGIA-DPT12		19C-UGIA-DPT13		19C-LGIA-DPT14		19C-LGIA-DPT114		19C-UGIA-DPT15		19C-LGIA-DPT16		19C-LGIA-DPT116		19C-UGIA-DPT17		19C-LGIA-DPT18		19C-UGIA-DPT19		19C-LGIA-DPT20	
			Sample Date	5/4/2018		5/3/2018		5/3/2018		5/2/2018		5/2/2018				5/3/2018		5/3/2018				5/2/2018		5/2/2018		5/3/2018		5/3/2018	
			Screen Interval (feet bgs)	28-32		16-20		28-32		16-20		28-32				16-20		28-32				16-20		28-32		16-20		28-32	
			Sample Type	Normal		Normal		Normal		Normal		Normal		Duplicate		Normal		Normal		Duplicate		Normal		Normal		Normal		Normal	
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result		Result		Result		Result		Result		Result		Result		Result		Result		Result		Result		Result		Result	
Metals (µg/L)				Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered
Aluminum	7,110	--	20,000	7,000	40 U	18,400	12 J	3,020	11 J	34,000	40 U	26,600 J	40 U	40,900 J	40 U	45,900	16 J	2,900 J	9.8 J	9,400 J	10 J	10,400	40 U	3,140	40 U	7,380	12 J	14,800	10 J
Antimony	--	6	7.8	0.5 U	0.5 U	0.798 J	0.098 J	0.5 U	0.1 J	0.667 J	0.1 J	0.49 J	0.15 J	0.779 J	0.14 J	0.54 J	0.18 J	0.5 U	0.081 J	0.5 U	0.087 J	0.974 J	0.764 J	0.3 J	0.26 J	0.631 J	0.13 J	0.58 J	0.12 J
Arsenic	14.8	10	0.052	10	9.1	**37.4**	**21**	9.4	9.5	**15**	9.8	**45.5 J**	**26.6 J**	**16 J**	9.4 J	**38.8**	9.1	9.9	8.3	11	8.4	**20**	13	12	12	**24.7**	**19**	12	9.3
Barium	81.5	2,000	3,800	137	36.7	430	66.6	71.1	32.6	364	32.4	704 J	40.7	448 J	32.3	598	55.8	73.9 J	30.8	188 J	32.6	245	38.3	96.8	30.6	272	35.5	261	32.7
Beryllium	0.31	4	25	0.34 J	0.2 U	0.907 J	0.2 U	0.16 J	0.2 U	1.73	0.2 U	1.76	0.2 U	2.1	0.2 U	2.55	0.2 U	0.2 J	0.2 U	0.396 J	0.2 U	0.565 J	0.2 U	0.16 J	0.2 U	0.427 J	0.2 U	0.594 J	0.2 U
Cadmium	--	5	9.2	0.2 U	0.2 U	0.716 J	0.2 U	0.2 U	0.2 U	0.327 J	0.2 U	0.14 J	0.2 U	0.391 J	0.2 U	0.628 J	0.2 U	0.065 J	0.2 U	0.058 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.576 J	0.2 U	0.062 J	0.2 U
Calcium	--	--	--	378,000	374,000	351,000	318,000	377,000	384,000	378,000	350,000	419,000	377,000	366,000	349,000	198,000	130,000	380,000	377,000	399,000	380,000	331,000	355,000	372,000	381,000	250,000	212,000	368,000	364,000
Chromium Total[4]	--	100	22,000	38.8	2.1 J	71.7	1.4 J	39.3 J	2.2 J	**114 J**	2.44 J	92.1 J	1.9 J	**145 J**	2.32 J	**139**	1.1 J	34.2 J	1.9 J	50.8 J	1.9 J	41.6	2.24 J	27.8	1.9 J	46.1 J	2.33 J	57.8	2.2 J
Chromium VI	--	--	0.035	--	--	--	--	0.0125 UJ	0.0125 UJ	--	--	--	--	--	--	0.0125 R	0.0125 UJ	0.062 UJ	0.0125 UJ	0.0125 UJ	0.0125 UJ	0.0125 UJ	0.0125 U	0.062 UJ	0.062 U	--	--	--	--
Cobalt	5.5	--	6	3.95	0.44 J	21.8	0.59 J	1.98 J	0.58 J	17.8	0.622 J	10.3 J	1.09 J	22.7 J	0.605 J	20.6	0.26 J	2.64 J	0.6 J	4.78 J	0.619 J	6.26 J	1.55 J	1.96 J	0.805 J	3.64 J	0.46 J	7.66	0.606 J
Copper	--	1,300	800	14.6 J	2.68 J	37.6 J	2 U	13.6 J	16.1 J	47.8 J	1.4 J	42.4 J	1.6 J	54.5	1.4 J	50.6	2 U	18.2 J	1.6 J	21 J	2.63 J	15.4 J	5.28 J	12.6 J	1.5 J	33.6 J	2 U	31.8 J	2 U
Iron	10,500	--	14,000	14,500 J	6,230 J	31,900	4,250	12,400	7,780	43,600	6,580	43,000	4,090 J	52,000	6,380 J	56,300	1,600	13,600 J	7,920	19,000 J	7,690	15,600	1,780	11,200	6,960	15,100	2,990	25,000	7,560
Lead	4.06	15	15	11.9	0.5 U	**33.8**	0.5 UJ	6.24	0.751 U	**34.5**	0.5 U	**23.4 J**	0.5 U	**41.2 J**	0.5 U	**38.3**	0.5 UJ	7.07	0.5 UJ	9.3	0.5 UJ	10.7	0.5 U	3.4	0.5 U	**27.8**	0.5 UJ	**23.9**	0.5 UJ
Magnesium	--	--	--	65,000	63,600	68,300	62,500	94,800	98,100	77,100	68,600	77,100	69,200	74,800	68,800	41,200	24,600	89,200	88,800	96,100	90,800	66,400	71,200	79,200	81,900	41,000	37,200	74,500	72,800
Manganese	1,730	--	430	1,410	1,360	1,980	1,400	1,280	1,260	1,720	1,330	1,870	1,280	1,740	1,300	2,460	842	1,360	1,300	1,440	1,290	1,480	1,410	1,370	1,340	1,170	770	1,470	1,350
Mercury	--	2	0.63	0.1 UJ	0.1 UJ	0.039 J	0.1 U	0.1 U	0.1 U	0.03 J	0.1 U	0.028 J	0.1 U	0.026 J	0.1 U	0.021 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.014 J	0.1 U	0.044 J	0.1 U	0.027 J	0.1 U	0.1 U	0.1 U
Nickel	8.04	--	390	17.7	1.3 J	41.7	1.3 J	13.9 J	2.21 J	55.8	4.24 J	47.2 J	20.4 J	71.6 J	3.64 J	82	1.3 J	13.3 J	2.52 J	19.2 J	1.86 J	20.2	5.68	10.9	4.24 J	17.8	5.19 J	26.6	3.82 J
Potassium	--	--	--	20,100	18,200	25,000	20,900	23,300	23,000	24,800	17,200	24,100	18,400	25,100	17,200	28,300	18,400	21,300	20,700	24,000	20,900	20,300	19,100	19,600	19,100	16,400	13,700	21,300	18,000
Selenium	--	50	100	0.73 J	0.58 J	3.45 U	3 U	3 U	3 U	4.24 J	3 U	4.8 J	3 U	3.88 J	3 U	3.41 U	3 U	3 U	3 U	3 U	3 U	3 U	U	3 U	3 U	3 U	3 U	3 U	3 U
Silver	--	--	94	0.4 U	0.4 U	0.086 J	0.4 U	0.4 U	0.4 U	0.11 J	0.4 U	0.14 J	0.4 U	0.11 J	0.4 U	0.18 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.057 J	0.4 U
Sodium	--	--	--	278,000	274,000	243,000	247,000	378,000	388,000	297,000	288,000	274,000	272,000	282,000	280,000	67,200	67,500	365,000	353,000	377,000	362,000	281,000	305,000	319,000	330,000	200,000	189,000	300,000	322,000
Thallium	--	2	0.2	0.063 J	0.4 U	0.44 J	0.4 U	0.4 U	0.4 U	0.5 J	0.4 U	0.38 J	0.4 U	0.59 J	0.4 U	0.771 J	0.4 U	0.4 U	0.4 U	0.12 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.099 J	0.4 U	0.22 J	0.4 U
Vanadium	12.5	--	86	17.6	0.73 J	45.4	4 U	9.82	4 U	78.8	4 U	75.6	4 U	99.8	4 U	110	4 U	9.96 J	4 U	24.7 J	4 U	34.9	1.4 J	7.28 U	4 U	20.8	4 U	38	4 U
Zinc	34	--	6,000	79.4 J	9.3 J	126	11 J	58.2 J	24 J	197	18 J	207	52.4 J	225	15 J	183	7.4 J	76.4 J	18 J	89.8 J	15 J	142	27 J	142	49.1 J	83.8 J	15	170	26 J

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-UGIA-DPT21	19C-LGIA-DPT22	19C-UGIA-DPT23	19C-LGIA-DPT24	19C-UGIA-DPT25	19C-LGIA-DPT26	19C-UGIA-DPT27	19C-LGIA-DPT28	19C-UGIA-DPT29	19C-LGIA-DPT30
			Sample Date	5/2/2018	5/2/2018	5/3/2018	5/3/2018	5/5/2018	5/5/2018	5/6/2018	5/6/2018	5/5/2018	5/5/2018
			Screen Interval (feet bgs)	16-20	28-32	16-20	28-32	16-20	28-32	16-20	28-32	16-20	28-32
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)													
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	0.5 U	0.5 U	0.5 U	0.5 U	32	6.8	0.79 J	2.4	4.1	13
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1.3 J	1 U
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-UGIA-DPT21	19C-LGIA-DPT22	19C-UGIA-DPT23	19C-LGIA-DPT24	19C-UGIA-DPT25	19C-LGIA-DPT26	19C-UGIA-DPT27	19C-LGIA-DPT28	19C-UGIA-DPT29	19C-LGIA-DPT30
			Sample Date	5/2/2018	5/2/2018	5/3/2018	5/3/2018	5/5/2018	5/5/2018	5/6/2018	5/6/2018	5/5/2018	5/5/2018
			Screen Interval (feet bgs)	16-20	28-32	16-20	28-32	16-20	28-32	16-20	28-32	16-20	28-32
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)													
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Polynuclear Aromatic Compounds (µg/L)													
Naphthalene	--	--	0.12	0.099 UJ	0.095 UJ	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
2-Methylnaphthalene	--	--	36	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Acenaphthylene[2]	--	--	530	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Acenaphthene	--	--	530	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Fluorene	--	--	290	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Phenanthrene	--	--	120	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Anthracene	--	--	1,800	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Fluoranthene	--	--	800	0.082 J	0.12 J	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Pyrene	--	--	120	0.099 UJ	0.095 UJ	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Benzo(a)anthracene	--	--	0.03	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Chrysene	--	--	25	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Benzo(b)fluoranthene	--	--	0.25	0.12 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Benzo(k)fluoranthene	--	--	2.5	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Benzo(a)pyrene	--	0.2	0.025	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Indeno(1,2,3-cd)pyrene	--	--	0.25	0.099 U	0.095 U	0.094 U	0.095 U	0.1 UJ	0.098 UJ	0.098 UJ	0.097 UJ	0.099 UJ	0.098 UJ
Dibenz(a,h)anthracene	--	--	0.025	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Benzo(g,h,i)perylene[3]	--	--	120	0.099 U	0.095 U	0.094 U	0.095 U	0.1 U	0.098 U	0.098 U	0.097 UJ	0.099 U	0.098 U
Explosives (µg/L)													
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U

Table 5.8 (Continued)
Tract 19C DPT Groundwater Sample Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-UGIA-DPT21		19C-LGIA-DPT22		19C-UGIA-DPT23		19C-LGIA-DPT24		19C-UGIA-DPT25		19C-LGIA-DPT26		19C-UGIA-DPT27		19C-LGIA-DPT28		19C-UGIA-DPT29		19C-LGIA-DPT30	
			Sample Date	5/2/2018		5/2/2018		5/3/2018		5/3/2018		5/5/2018		5/5/2018		5/6/2018		5/6/2018		5/5/2018		5/5/2018	
			Screen Interval (feet bgs)	16-20		28-32		16-20		28-32		16-20		28-32		16-20		28-32		16-20		28-32	
			Sample Type	Normal		Normal		Normal		Normal		Normal		Normal		Normal		Normal		Normal		Normal	
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result		Result		Result		Result		Result		Result		Result		Result		Result		Result	
Metals (µg/L)				Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered
Aluminum	7,110	--	20,000	8,650	40 U	10,300	40 U	34,800	12 J	3,420	--	10,400	40 U	5,880	40 U	5,440	40 U	11,000	40 U	244,000	40 U	52,400	40 U
Antimony	--	6	7.8	0.43 J	0.19 J	0.32 J	0.12 J	0.926 J	0.11 J	0.5 U	--	0.684 J	0.34 J	0.34 J	0.5 U	0.37 J	0.11 J	0.34 J	0.5 U	1.78	0.5 U	0.918 J	0.5 U
Arsenic	14.8	10	0.052	**28.2**	**22**	13	9.2	**23**	13	10	--	6.6	4 U	**18**	**17**	14	13	14	10	**73.5**	2.6 J	**23**	12
Barium	81.5	2,000	3,800	198	30	224	36.6	551	33.2	82.4	--	226	36	123	29.5	190	48.7	251	34.7	**2,590**	61.2	1,000	40.3
Beryllium	0.31	4	25	0.509 J	0.2 U	0.508 J	0.2 U	1.66	0.2 U	0.15 J	--	0.602 J	0.2 U	0.28 J	0.2 U	0.343 J	0.2 U	0.582 J	0.2 U	**16.7**	0.2 U	2.24	0.2 U
Cadmium	--	5	9.2	0.12 J	0.2 U	0.2 U	0.2 U	0.325 J	0.2 U	0.2 U	--	0.046 J	0.041 J	0.2 U	0.2 U	0.398 J	0.2 U	0.12 J	0.2 U	3.96	0.2 U	0.308 J	0.2 U
Calcium	--	--	--	361,000	349,000	361,000	362,000	228,000	182,000	356,000	--	317,000	296,000	374,000	376,000	363,000	368,000	396,000	386,000	495,000	214,000	392,000	362,000
Chromium Total[4]	--	100	22,000	33.6 J	1.6 J	56.1	2.2 J	**135**	1.9 J	30.2 J	--	46.5	1.3 J	31.7	1.9 J	27.8	2.1 J	54	1.3 J	**399**	0.76 J	**502**	2.51 J
Chromium VI	--	--	0.035	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	5.5	--	6	4.07 J	0.51 J	5.53	0.736 J	17.8	0.31 J	2.18 J	--	4.38	0.5 J	3.79	1.03 J	2.6 J	0.57 J	5.24	0.51 J	115	0.3 J	23.6	1.2 J
Copper	--	1,300	800	17.6 J	2 U	26 J	1.94 J	52.6	2 U	9.24 J	--	23.2 J	1.4 J	12.6 J	1.4 J	16.5 J	1.5 J	23.3 J	1.8 J	269	3.15 J	160	1.6 J
Iron	10,500	--	14,000	16,100	2,300	21,000	6,240	44,200	2,850	10,400	--	16,000	1,830	10,300	2,700	10,800	4,860	22,700	7,910	251,000	1,230	104,000	5,560
Lead	4.06	15	15	12.2	0.5 U	10.3	0.5 U	**47.5**	0.5 UJ	6.09	--	8.18	0.5 U	6.75	0.5 U	12.2	0.5 U	14.7	0.5 U	**228**	0.5 U	**58.8**	0.5 U
Magnesium	--	--	--	59,100	58,000	66,800	64,200	41,300	31,000	68,500	--	61,000	55,600	81,600	82,200	74,700	76,200	88,000	85,500	194,000	37,100	83,600	73,500
Manganese	1,730	--	430	1,400	1,240	1,410	1,320	1,100	595	1,380	--	1,450	1,250	1,540	1,510	1,350	1,270	1,540	1,420	4,900	914	2,130	1,330
Mercury	--	2	0.63	0.1 U	0.014 J	0.1 U	0.1 U	0.032 J	0.1 U	0.1 U	--	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.076 J	0.1 UJ	0.1 UJ	0.1 UJ
Nickel	8.04	--	390	13.8 J	1.67 J	28.4	7.23 J	61.2	1.1 J	13.9 J	--	23.6	3.59 J	14.8 J	2.64 J	12.7 J	4.58 J	28.1	2.98 J	333	1.86 J	182	10.5 J
Potassium	--	--	--	19,400	17,800	20,500	17,800	21,200	13,200	17,400	--	21,300	18,300	20,600	19,200	20,900	20,200	22,900	20,000	73,200	15,800	32,200	18,500
Selenium	--	50	100	3 U	3 U	3 U	3 U	3 U	3 U	3 U	--	1.5 J	3 U	1.6 J	1.8 J	1.1 J	1.2 J	1.3 J	1.4 J	18.6	3 U	2.15 J	1.2 J
Silver	--	--	94	0.4 U	0.4 U	0.4 U	0.4 U	0.13 J	0.4 U	0.4 U	--	0.057 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	1.33	0.4 U	0.22 J	0.4 U
Sodium	--	--	--	238,000	240,000	280,000	281,000	196,000	187,000	302,000	--	249,000	239,000	337,000	344,000	282,000	293,000	365,000	352,000	92,600	93,800	338,000	324,000
Thallium	--	2	0.2	0.4 U	0.4 U	0.4 U	0.4 U	0.59 J	0.4 U	0.4 U	--	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	**4.63**	0.4 UJ	0.682 J	0.4 U
Vanadium	12.5	--	86	26.1	4 U	34.6	4 U	115	4 U	9.28	--	31.7	4 UJ	16.7	0.55 J	13.4	4 U	32.9	4 U	506	4 UJ	118	0.84 J
Zinc	34	--	6,000	60.5 J	13 J	90.3 J	27 J	153	6.3 J	46.9 J	--	251	36 J	52 J	17 J	32 J	22 J	158	30 J	1,270	10 J	1,260	50.2 J

Notes:
Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).
Bold results denote an exceedance of the BTV and the MCL
[1] RSL for total 1,3-dichloropropene used as a surrogate
[2] RSL for acenaphthene used as a surrogate
[3] RSL for pyrene used as a surrogate
[4] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
ft bgs = feet below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.9
Tract 19C: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-UGIA-MW01	19C-LGIA-MW02	19C-LGIA-MW102	19C-UGIA-MW03	19C-LGIA-MW04	19C-UGIA-MW05	19C-LGIA-MW06
				Sample Date	8/7/2018	8/7/2018		8/7/2018	8/7/2018	8/7/2018	8/7/2018
				Screen Interval (feet bgs)	11-21	26-36		10.5-20.5	24-34	7-17	22-32
				Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL		Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)											
1,1,1,2-Tetrachloroethane	--	--	0.57		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Freon 113	--	--	10,000		0.43 J	0.49 J	0.68 J	0.5 U	0.5 U	7,000	43
1,1,2-Trichloroethane	--	5	0.28		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,1-Dichloroethane	--	--	2.8		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,1-Dichloroethene	--	7	280		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,1-Dichloropropene	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2		0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	5 UJ	0.5 UJ
1,2,4-Trimethylbenzene	--	--	56		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2-Dichlorobenzene	--	600	300		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2-Dichloroethane	--	5	0.17		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,2-Dichloropropane	--	5	0.85		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,3-Dichlorobenzene	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,3-Dichloropropane	--	--	370		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
2,2-Dichloropropane	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
2-Butanone	--	--	5,600		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
2-Chlorotoluene	--	--	240		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
2-Hexanone	--	--	38		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
4-Chlorotoluene	--	--	250		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
4-Isopropyltoluene	--	--	--		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
Acetone	--	--	14,000		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
Benzene	--	5	0.46		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Bromobenzene	--	--	62		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Bromoform	--	80	3.3		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Bromomethane	--	--	7.5		1 U	1 U	1 U	1 U	1 U	10 U	1 U
Carbon disulfide	--	--	810		0.5 U	1.8	1.9	0.5 U	0.5 U	5 U	0.5 U
Carbon tetrachloride	--	5	0.46		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Chlorobenzene	--	100	78		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Bromochloromethane	--	--	83		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Chlorodibromomethane	--	80	0.87		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Chloroethane	--	--	21,000		1 U	1 U	1 U	1 U	1 U	10 U	1 U
Chloroform	--	80	0.22		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Chloromethane	--	--	190		1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	10 UJ	1 UJ
cis-1,2-Dichloroethene	--	70	36		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Dibromomethane	--	--	8.3		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Bromodichloromethane	--	80	0.13		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Dichlorodifluoromethane	--	--	200		1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	14 J	1 UJ
Ethylbenzene	--	700	1.5		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Hexachlorobutadiene	--	--	0.14		0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	7.5 U	0.75 U
Isopropylbenzene	--	--	450		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Methyl tert-butyl ether	--	--	14		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U

Table 5.9 (Continued)
Tract 19C: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-UGIA-MW01	19C-LGIA-MW02	19C-LGIA-MW102	19C-UGIA-MW03	19C-LGIA-MW04	19C-UGIA-MW05	19C-LGIA-MW06
				Sample Date	8/7/2018	8/7/2018		8/7/2018	8/7/2018	8/7/2018	8/7/2018
				Screen Interval (feet bgs)	11-21	26-36		10.5-20.5	24-34	7-17	22-32
				Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL		Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)											
Methylene chloride	--	5	11		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U
m&p-Xylene	--	--	190		1 U	1 U	1 U	1 U	1 U	10 U	1 U
Naphthalene	--	--	0.12		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
n-Butylbenzene	--	--	1,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
n-Propylbenzene	--	--	660		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
o-Xylene	--	--	190		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
sec-Butylbenzene	--	--	2,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Styrene	--	100	1,200		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
tert-Butylbenzene	--	--	690		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Tetrachloroethene	--	5	11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Toluene	--	1,000	1,100		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Trichloroethene	--	5	0.49		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Trichlorofluoromethane	--	--	5,200		1 U	1 U	1 U	1 U	1 U	10 U	1 U
Vinyl chloride	--	2	0.019		1 U	1 U	1 U	1 U	1 U	10 U	1 U
Polynuclear Aromatic Hydrocarbons (µg/L)											
Naphthalene	--	--	0.12		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
2-Methylnaphthalene	--	--	36		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.61	0.1 U
Acenaphthylene[2]	--	--	530		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Acenaphthene	--	--	530		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Fluorene	--	--	290		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Phenanthrene	--	--	120		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.2	0.1 U
Anthracene	--	--	1,800		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Fluoranthene	--	--	800		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Pyrene	--	--	120		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.11 U
Benzo(a)anthracene	--	--	0.03		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 J
Chrysene	--	--	25		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.16 U
Benzo(b)fluoranthene	--	--	0.25		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.16 J
Benzo(k)fluoranthene	--	--	2.5		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.23
Benzo(a)pyrene	--	0.2	0.025		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.11 J
Indeno(1,2,3-cd)pyrene	--	--	0.25		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Dibenz(a,h)anthracene	--	--	0.025		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Benzo(g,h,i)perylene[3]	--	--	120		0.096 U	0.099 U	0.1 U	0.1 U	0.095 U	0.095 U	0.1 U
Explosives (µg/L)											
HMX	--	--	1,000		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39		0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ
Nitrobenzene	--	--	0.14		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2		2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19		2 U	2 U	2 U	2 U	2 U	2 U	2 U

Table 5.9 (Continued)
Tract 19C: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-UGIA-MW01	19C-LGIA-MW02	19C-LGIA-MW102	19C-UGIA-MW03	19C-LGIA-MW04	19C-UGIA-MW05	19C-LGIA-MW06
				Sample Date	8/7/2018	8/7/2018		8/7/2018	8/7/2018	8/7/2018	8/7/2018
				Screen Interval (feet bgs)	11-21	26-36		10.5-20.5	24-34	7-17	22-32
				Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL		Result	Result	Result	Result	Result	Result	Result
Metals (µg/L)											
Aluminum	7,110	--	20,000		271	412 J	514 J	1,300	413	1,160	212
Antimony	--	6	7.8		0.5 U	0.5 U	0.5 U	0.696 J	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052		**17**	7.7	8.4	**19**	10	9.2	14
Barium	81.5	2,000	3,800		34.8	33.2	32.3	58.1	33.1	68.8	25.8
Beryllium	0.31	4	25		0.2 U	0.055 J	0.056 J	0.1 J	0.044 J	0.11 J	0.2 U
Cadmium	--	5	9.2		0.2 U	0.044 J	0.2 U	0.2 U	0.2 U	0.07 J	0.2 U
Calcium	--	--	--		371,000	364,000	354,000	346,000	360,000	213,000	377,000
Chromium Total[4]	--	100	22,000		4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	5.24 J
Cobalt	5.5	--	6		1.27 J	1.2 J	1.2 J	2.53 J	1.37 J	3.5 J	1.71 J
Copper	--	1,300	800		5.32 UJ	4.8 UJ	4.3 UJ	5.25 UJ	4 UJ	7.36 UJ	4.53 UJ
Iron	10,500	--	14,000		7,420	9,580	9,360	3,750	8,460	4,740	3,610
Lead	4.06	15	15		0.18 J	0.65 J	0.7 J	0.912 J	0.4 J	1.29	0.22 J
Magnesium	--	--	--		73,600	80,000	77,600	71,600	79,100	37,600	79,200
Manganese	1,730	--	430		1,410	1,370	1,340	1,480	1,330	778	1,520
Mercury	--	2	0.63		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8.04	--	390		4.99 J	4.88 J	5.2 J	6.5 J	5.35 J	7.19 J	5.73 J
Potassium	--	--	--		18,400	18,500	18,000	19,900	18,600	17,300	19,400
Selenium	--	50	100		3 U	3 U	3 U	3 U	3 U	3 U	3 U
Silver	--	--	94		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--		295,000	293,000	286,000	304,000	311,000	194,000	332,000
Thallium	--	2	0.2		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium	12.5	--	86		4 UJ	4 UJ	0.87 J	4.2 J	4 UJ	2.8 J	0.62 J
Zinc	34	--	6,000		5.9 J	5.5 J	6.9 J	8.6 J	10 J	8.7 J	8.2 J

Table 5.9 (Continued)
Tract 19C: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	19C-LGIA-MW07	19C-G0005	19C-G10005	19C-G0006	19C-G0007	19C-G0008	19C-G0036			19C-BGMW01	19C-BGMW02	19C-BGGW01	19C-BGGW02
			Sample Date	8/8/2018	6/3/2018		6/3/2018	6/3/2018	6/3/2018	6/3/2018	8/8/2018		6/2/2018	6/2/2018	6/2/2018	6/2/2018
			Screen Interval (feet bgs)	27-37	UGIA co-located with LGIA-DPT04		UGIA co-located with LGIA-DPT08	UGIA co-located with LGIA-DPT10	MGIA co-located with UGIA-DPT02	UGIA co-located with LGIA-DPT09			UGIA co-located with LGIA-DPT05	UGIA co-located with LGIA-DPT07	UGIA co-located with LGIA-DPT06	MGIA co-located with LGIA-DPT06
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal			Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result			Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	530 J	0.5 U	0.5 U	0.35 J	0.5 U	0.5 UJ	0.5 U	--	--	1,100	0.36 J	65	150 J
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	--	--	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	--	--	0.7 J	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	5.2 J	1 U	1 U	1 U	1 U	1 U	1 U	--	--	50	1 U	3.3	0.95 J
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	--	--	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.9 (Continued)
Tract 19C: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-LGIA-MW07	19C-G0005	19C-G10005	19C-G0006	19C-G0007	19C-G0008	19C-G0036			19C-BGMW01	19C-BGMW02	19C-BGGW01	19C-BGGW02
				Sample Date	8/8/2018	6/3/2018		6/3/2018	6/3/2018	6/3/2018	6/3/2018	8/8/2018		6/2/2018	6/2/2018	6/2/2018	6/2/2018
				Screen Interval (feet bgs)	27-37	UGIA co-located with LGIA-DPT04		UGIA co-located with LGIA-DPT08	UGIA co-located with LGIA-DPT10	MGIA co-located with UGIA-DPT02	UGIA co-located with LGIA-DPT09			UGIA co-located with LGIA-DPT05	UGIA co-located with LGIA-DPT07	UGIA co-located with LGIA-DPT06	MGIA co-located with LGIA-DPT06
				Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal			Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL		Result	Result	Result	Result	Result	Result	Result			Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																	
Methylene chloride	--	5	11		2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190		1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200		1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	--	--	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019		1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	--	--	1 U	1 U	1 U	1 U
Polynuclear Aromatic Hydrocarbons (µg/L)																	
Naphthalene	--	--	0.12		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
2-Methylnaphthalene	--	--	36		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Acenaphthylene[2]	--	--	530		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Acenaphthene	--	--	530		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Fluorene	--	--	290		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Phenanthrene	--	--	120		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Anthracene	--	--	1,800		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Fluoranthene	--	--	800		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Pyrene	--	--	120		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Benzo(a)anthracene	--	--	0.03		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Chrysene	--	--	25		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Benzo(b)fluoranthene	--	--	0.25		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Benzo(k)fluoranthene	--	--	2.5		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Benzo(a)pyrene	--	0.2	0.025		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	--	--	0.25		0.11 U	0.095 U	0.1 U	0.098 U	0.093 J	0.1 U	0.097 J	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Dibenz(a,h)anthracene	--	--	0.025		0.11 U	0.095 U	0.1 U	0.098 U	0.099 U	0.1 U	0.098 U	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Benzo(g,h,i)perylene[3]	--	--	120		0.11 U	0.095 U	0.1 U	0.098 U	0.1 J	0.1 U	0.12 J	--	--	0.098 U	0.099 U	0.1 U	0.1 U
Explosives (µg/L)																	
HMX	--	--	1,000		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2		2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	--	2 U	2 U	2 U	2 U
PETN	--	--	19		2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	--	2 U	2 U	2 U	2 U

Table 5.9 (Continued)
Tract 19C: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	19C-LGIA-MW07	19C-G0005		19C-G10005		19C-G0006		19C-G0007		19C-G0008		19C-G0036			19C-BGMW01		19C-BGMW02		19C-BGGW01		19C-BGGW02	
				Sample Date	8/8/2018	6/3/2018				6/3/2018		6/3/2018		6/3/2018		6/3/2018	8/8/2018		6/2/2018		6/2/2018		6/2/2018		6/2/2018	
				Screen Interval (feet bgs)	27-37	UGIA co-located with LGIA-DPT04				UGIA co-located with LGIA-DPT08		UGIA co-located with LGIA-DPT10		MGIA co-located with UGIA-DPT02		UGIA co-located with LGIA-DPT09			UGIA co-located with LGIA-DPT05		UGIA co-located with LGIA-DPT07		UGIA co-located with LGIA-DPT06		MGIA co-located with LGIA-DPT06	
				Sample Type	Normal	Normal		Duplicate		Normal		Normal		Normal		Normal			Normal		Normal		Normal		Normal	
Analyte	Groundwater BTV	MCL	Tap Water RSL		Result	Result																				
Metals (µg/L)						Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered	Total	Field Filtered
Aluminum	7,110	--	20,000	831	40 U	--	40 U	--	40 U	--	75.1 J	--	40 U	--	40 U	44.1 U	40 U	40 U	--	40 U	--	40 U	--	40 U	--	
Antimony	--	6	7.8	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.086 J	--	0.45 J	--	0.5 U	--	
Arsenic	14.8	10	0.052	11	**15**	--	14	--	3.8 J	--	9.1	--	12	--	**31.2**	**28.4**	13	5.6	--	12	--	10	--	14	--	
Barium	81.5	2,000	3,800	45.7	34.2	--	30.7	--	32.8	--	31.3	--	26	--	31.8	30.1	27.2	32.5	--	38.2	--	25.2	--	29.8	--	
Beryllium	0.31	4	25	0.053 J	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	0.045 J	0.2 U	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--	
Cadmium	--	5	9.2	0.2 U	0.03 J	--	0.2 U	--	0.2 U	--	0.05 J	--	0.2 U	--	0.2 U	0.033 J	0.092 J	0.031 J	--	0.044 J	--	0.035 J	--	0.032 J	--	
Calcium	--	--	--	367,000	411,000	--	390,000	--	201,000	--	398,000	--	354,000	--	341,000	353,000	350,000	276,000	--	247,000	--	315,000	--	394,000	--	
Chromium Total[4]	--	100	22,000	4 UJ	4 UJ	--	4 UJ	--	4 UJ	--	4 UJ	--	4 UJ	--	4 UJ	4 UJ	4 UJ	4 U	--	4 UJ	--	4 UJ	--	4 U	--	
Cobalt	5.5	--	6	2.29 J	0.733 J	--	0.719 J	--	0.39 J	--	0.641 J	--	0.662 J	--	0.56 J	0.856 J	0.807 J	0.48 J	--	0.605 J	--	0.59 J	--	0.638 J	--	
Copper	--	1,300	800	4.72 J	2.25 J	--	1.7 J	--	1.1 J	--	1.8 J	--	1.9 J	--	1.7 J	3.91 UJ	3.86 J	2 U	--	2 U	--	2.66 UJ	--	2.47 UJ	--	
Iron	10,500	--	14,000	5,890	8,320	--	7,800	--	1,150	--	4,870	--	4,810	--	7,880	10,500	7,690	1,980	--	3,390	--	1,120	--	5,130	--	
Lead	4.06	15	15	0.6 J	0.5 U	--	0.5 U	--	0.5 U	--	0.077 J	--	0.5 U	--	0.5 U	0.12 J	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.098 J	--	
Magnesium	--	--	--	70,700	86,400	--	81,600	--	41,000	--	66,400	--	80,600	--	57,400	63,200	62,400	48,400	--	46,700	--	96,500	--	73,800	--	
Manganese	1,730	--	430	1,410	1,750	--	1,620	--	131	--	860	--	405	--	1,410	1,440	1,340	587	--	818	--	74.8	--	1,730	--	
Mercury	--	2	0.63	0.1 U	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--	
Nickel	8.04	--	390	5.64 J	2.74 J	--	2.83 J	--	1.5 J	--	2.37 J	--	2.96 J	--	2.38 J	4.48 J	4.33 J	3.4 J	--	2.1 J	--	3.25 J	--	2.74 J	--	
Potassium	--	--	--	18,700	20,800	--	19,900	--	20,500	--	19,100	--	19,800	--	16,600	17,200	17,000	17,700	--	18,600	--	31,100	--	18,600	--	
Selenium	--	50	100	3 U	1.3 J	--	3 U	--	2.25 J	--	0.8 J	--	0.28 J	--	3 U	3 U	3 U	3 U	--	3 U	--	2.64 J	--	3 U	--	
Silver	--	--	94	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	--	
Sodium	--	--	--	317,000	359,000	--	339,000	--	183,000	--	267,000	--	285,000	--	268,000	286,000	280,000	151,000	--	228,000	--	413,000	--	337,000	--	
Thallium	--	2	0.2	0.4 U	0.4 UJ	--	0.4 UJ	--	0.4 UJ	--	0.4 UJ	--	0.4 UJ	--	0.4 UJ	0.4 U	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	--	
Vanadium	12.5	--	86	1.1 J	4 U	--	4 U	--	4 U	--	4 U	--	4 U	--	0.94 J	4 UJ	4 UJ	4 U	--	4 U	--	4 U	--	4 U	--	
Zinc	34	--	6,000	6.6 J	8 U	--	8 U	--	8 U	--	8 U	--	8 U	--	8 U	4.3 J	8 U	8 U	--	8 U	--	8 U	--	8 U	--	

Notes:
Shaded results denote an exceedance of the Background Threshold Value (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).
Bold results denote an exceedance of the Background Threshold Value and the MCL
[1] RSL for total 1,3-dichloropropene used as a surrogate
[2] RSL for acenaphthene used as a surrogate
[3] RSL for pyrene used as a surrogate
[4] RSL for trivalent chromium used for total chromium
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
ft bgs = feet below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.10
Tract 20B: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	20B-SS01	20B-SB01			20B-SS02		20B-SB02				20B-SS03	20B-SB03		20B-SS04		20B-SB04		20B-SS05	20B-SB05		20B-SS06	20B-SB06	
		Sample Date	3/15/2018				3/15/2018				6/15/2018	6/19/2018	3/15/2018			3/15/2018				3/15/2018			3/15/18		
		Sample Interval (feet bgs)	0-0.5	3-4	7-8	11-12	0-0.5		3-4	7-8	9-10	11-12	0-0.5	3-4	7-8	0-0.5		3-4	7-8	0-0.5	3-4	7-8	0-0.5	3-4	7-8
		Sample Type	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons (µg/kg)																									
Naphthalene	--	2,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
2-Methylnaphthalene	--	240,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Acenaphthylene[1]	--	3,600,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Acenaphthene	--	3,600,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Fluorene	--	2,400,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Phenanthrene[2]	--	1,800,000	11 U	12 U	12 U	3.1 J	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	3.6 J	13 U	13 U	12 U	12 U	12 U	13 U
Anthracene	--	18,000,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Fluoranthene	41	2,400,000	11 U	2.4 J	12 U	3.4 J	11 U	12 U	12 U	13 U	--	--	2.8 U	12 U	12 U	12 U	12 U	12 U	5.8 U	13 U	13 U	2.9 U	12 U	12 U	13 U
Pyrene	--	1,800,000	11 U	2.6 J	12 UJ	3.2 J	11 U	12 U	12 U	13 U	--	--	3 U	12 U	12 U	12 U	12 U	12 U	5.4 U	13 U	13 U	3.8 U	12 U	12 U	13 U
Benzo(a)anthracene	--	1,100	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	2.6 U	13 U	13 U	12 U	12 U	12 U	13 U
Chrysene	--	110,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Benzo(b)fluoranthene	--	1,100	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Benzo(k)fluoranthene	--	11,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Benzo(a)pyrene	--	110	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Indeno(1,2,3-cd)pyrene	--	1,100	11 UJ	12 U	12 U	13 U	11 UJ	3 J	12 U	13 U	--	--	3.1 J	12 U	12 U	12 UJ	12 UJ	12 U	12 U	13 UJ	13 UJ	12 UJ	2.6 J	12 UJ	13 UJ
Dibenz(a,h)anthracene	--	110	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	13 U	12 U	12 U	12 U	12 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	13 U
Benzo(g,h,i)perylene[2]	--	1,800,000	11 U	12 U	12 U	13 U	11 U	12 U	12 U	13 U	--	--	3.7 J	12 U	12 U	3.6 J	12 U	12 U	2.7 J	13 U	13 U	12 U	12 U	12 U	13 U
Explosives (µg/kg)																									
HMX	--	3,900,000	170	2,300 J	1,800 J	1,000	400	390	950	3,200	--	--	870	1,200	1,400	120 J	140	390	550	79 J	60 U	26 J	440	1,400	2,600
RDX	--	8,300	43 J	2,200	3,100	2,700	490 J	22,000 J	3,500	7,200	8,600 J	2,800 J	79 J	240	630	61 U	58 U	67 J	880	64 U	60 U	100 J	170	110 J	2,000
1,3,5-Trinitrobenzene	--	2,200,000	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
1,3-Dinitrobenzene	--	6,300	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
Tetryl	--	160,000	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
Nitrobenzene	--	5,100	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
2,4,6-Trinitrotoluene	--	21,000	58 U	61 U	59 U	64 U	74 J	46 J	60 U	64 U	--	--	76 J	65 U	60 U	22 J	58 U	62 U	64 U	64 U	60 U	64 U	120	63 U	66 U
2-Amino-4,6-dinitrotoluene	--	7,700	58 U	61 U	59 U	64 U	84 J	56 J	60 U	64 U	--	--	58 J	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	91 J	63 U	66 U
4-Amino-2,6-dinitrotoluene	--	7,700	58 U	61 U	59 U	64 U	130 J	85 J	60 U	64 U	--	--	180	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	170	63 U	66 U
2,6-Dinitrotoluene	--	360	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
2,4-Dinitrotoluene	--	1,700	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
2-Nitrotoluene	--	3,200	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
3-Nitrotoluene	--	6,300	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
4-Nitrotoluene	--	34,000	58 U	61 U	59 U	64 U	58 U	57 U	60 U	64 U	--	--	62 U	65 U	60 U	61 U	58 U	62 U	64 U	64 U	60 U	64 U	62 U	63 U	66 U
Nitroglycerin	--	6,300	470 U	490 U	470 U	510 U	460 U	460 U	480 U	520 U	--	--	500 U	520 U	480 U	490 U	460 U	500 U	520 U	510 U	480 U	510 U	500 U	500 U	530 U
PETN	--	130,000	470 U	490 U	470 U	510 U	460 U	460 U	480 U	520 U	--	--	500 U	520 U	480 U	490 U	460 U	500 U	520 U	510 U	480 U	510 U	500 U	500 U	530 U
Metals (mg/kg)																									
Aluminum	26,400	77,000	14,200	18,300	16,400	15,400	12,800	12,900	15,300	16,000	--	--	17,000	18,400	15,900	12,900	12,500	27,800	19,000	14,100	17,900	15,200	14,100	22,300	18,300
Antimony	0.333	31	0.16	0.16	0.13	0.13	0.243	0.218	0.167	0.356	--	--	0.494	0.16	0.14	0.19	0.187	0.379	0.198	0.203	0.276	0.181	0.275	0.272	0.183
Arsenic	13.6	0.68	2.88	1.59	0.76	6.10	2.43	2.79	2.20	47.4	3.84	--	2.93	5.22	2.82	2.20	2.14	11.6	2.15	2.47	5.44	1.98	2.45	3.86	2.56
Barium	375	15,000	158	286	309	292	169	165	243	388	--	--	202	232	319	137	147	413	233	154	232	284	206	208	282
Beryllium	1.14	160	0.703	0.892	0.871	0.881	0.671	0.648	0.727	1.13	--	--	0.803	0.974	0.848	0.588	0.633	1.24	0.894	0.688	0.951	0.852	0.726	1.12	0.922
Cadmium	0.31	71	0.0666 J	0.027 J	0.019 U	0.169 J	2.93	2.49	0.0808	0.231 J	--	--	9.59	0.022 U	0.036 J	0.358	0.450	0.012 U	0.125 J	0.158	0.0645 J	0.166	2.46	0.0071 J	0.017 U
Calcium	--	--	2,740	11,500	8,720	8,190	3,930	3,260	96,100	31,900	--	--	3,290	11,400	14,500	2,400	2,520	78,600	8,630	2,540	8,810	11,100	4,790	19,900	18,100
Chromium Total[3]	24.2	120,000	11.8	17.1	15.7	17.6	12.6	13.2	13.6	17.9	--	--	18.2	17.1	15.1	11.2	11.5	24.8	19.2	12.2	16.0	14.5	13.5	21.9	18.6
Chromium VI	--	0.3	0.34 U	0.38 U	--	--	0.36 U	0.33 J	0.35 U	--	0.38 UJ	--	0.57 J	0.19 J	--	0.37 UJ	0.37 UJ	0.4 J	--	--	0.42 J	--	0.41 J	--	--
Cobalt	11.2	23	4.57	6.30	3.95	4.93	4.75	5.09	5.22	8.14	--	--	6.64	5.26	6.38	4.65	5.02	6.80	11.6	5.05	8.74	9.79	5.20	8.50	4.71
Copper	17.1	3,100	8.23	12.2	12.0	14.4	23.0	20.5	8.54	25.7	--	--	34.0	13.5	12.1	16.7	17.8	15.4	14.1	9.96	12.8	12.1	47.6	14.9	13.8
Iron	19,100	55,000	11,700 J	14,800	13,200	18,100	10,700 J	11,000 J	12,100	36,300	--	--	13,000 J	18,500	14,600	9,750 J	10,400 J	22,200 J	15,500 J	11,100 J	16,800 J	15,200 J	11,900 J	19,900 J	16,400 J
Lead	16.4	400	9.94	11.6	10.5	13.3	21.2	22.5	9.65	19.9	--	--	51.6	14.0	12.9	13.3	14.1	16.3	12.7	13.0	16.7	13.6	29.2	13.2	12.4
Magnesium	--	--	3,590	7,240	7,460	6,360	3,590	3,500	9,200	7,540	--	--	4,920	7,670	6,970	3,560	3,900	11,800	8,130	4,200	7,760	7,780	4,110	7,860	8,080
Manganese	542	1,800	206 J	234	84.5	339	218 J	246 J	240	609	--	--	274 J	176	222	208 J	244 J	148 J	314 J	243 J	455 J	361 J	229 J	308 J	165 J
Mercury	0.0287	11	0.01 J	0.021 J	0.022 J	0.019 J	0.165 J	0.172 J	0.023 J	0.019 J	--	--	0.487 J	0.022 J	0.021 J	0.051 J	0.029 J	0.023 J	0.02 J	0.019 J	0.026 J	0.02 J	0.362 J	0.02 J	0.02 J
Nickel	24.1	1,500	9.78	13.6	11.2	15.2	10.2	9.77	10.3	14.6	--	--	13.8	11.4	11.8	8.79	9.55	22.9	16.3	10.0	17.9	18.6	11.2	24.8	12.1
Potassium	--	--	3680	4250	3650	3300	4250	4220	3520	3830	--	--	5920	4370	3480	4440	4680	7430	3960	5010	4230	3520	4860	5420	4150
Selenium	0.824	390	0.406 J	0.396 J	0.403 J	0.456	0.447	0.494	0.436	0.656	--	--	0.534	0.34 J	0.419 J	0.502 J	0.451	0.527	0.522	0.504	0.432	0.434	0.494	0.491	0.432
Silver	0.114	390	0.0695 J	0.0783 J	0.0802 J	0.0802	0.221	0.182	0.0747 J	0.0872	--	--	0.456	0.0764 J	0.077 J	0.244	0.242	0.126	0.0980	0.177	0.0782	0.0712 J	0.249	0.0960	0.0978
Sodium	--	--	91.2	810	545	443	89.9	94.6 J	195	165	--	--	198	804	547	108	107	1060	706	196	1180	714	94.0	202	171
Thallium	0.405	0.78	0.231	0.318	0.303	0.278	0.228	0.227	0.282	0.328	--	--	0.259	0.337	0.304	0.202	0.234	0.461	0.325	0.251	0.356	0.315	0.246	0.377	0.321
Vanadium	50	390	23.6	32.4	28.4	31.2	20.3	21.9	29.2	76.9	--	--	25.7	35.2	28.0	20.9	20.5	59.6	35.5	22.6	34.0	27.8	21.4	42.4	34.6
Zinc	57	23,000	32.7	46.3	42.8	52.2	56.3	51.1	33.3	45.5	--	--	87.4	48.7	46.0	39.6	43.5	60.4	51.6	35.6	44.4	41.2	88.7	58.9	48.9

Table 5.10 (Continued)
Tract 20B: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

	Sample Location		20B-SS07	20B-SB07			20B-SS08	20B-SB08			20B-SS09	20B-SB09			20B-SS10	20B-SB10			20B-SS11	20B-SB11		20B-SS12	20B-SB12	
	Sample Date		6/15/2018				6/15/2018				6/15/2018				7/25/2018				8/13/2018			8/13/2018		
	Sample Interval (feet bgs)		0-0.5	3-4	7-8	9-10	0-0.5	3-4	7-8	9-10	0-0.5	3-4	7-8	9-10	0-0.5	3-4		7-8	0-0.5	3-4	7-8	0-0.5	3-4	7-8
	Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons (µg/kg)																								
Naphthalene	--	2,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	--	240,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene[1]	--	3,600,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	--	3,600,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	--	2,400,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene[2]	--	1,800,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	--	18,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	41	2,400,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	--	1,800,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	1,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	--	110,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	--	1,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	--	11,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	--	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	1,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene[2]	--	1,800,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Explosives (µg/kg)																								
HMX	--	3,900,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	--	8,300	55 U	47 J	54 J	61 U	66 J	82 J	2,400 J	680 J	690	11,000 J	3,500 J	2,800 J	25,000	16,000	18,000	12,000	55 U	56 U	60 U	56 U	60 U	920
1,3,5-Trinitrobenzene	--	2,200,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	--	6,300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetryl	--	160,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	--	5,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trinitrotoluene	--	21,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Amino-4,6-dinitrotoluene	--	7,700	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Amino-2,6-dinitrotoluene	--	7,700	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	--	360	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	--	1,700	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrotoluene	--	3,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitrotoluene	--	6,300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrotoluene	--	34,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitroglycerin	--	6,300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PETN	--	130,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals (mg/kg)																								
Aluminum	26,400	77,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	0.333	31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	13.6	0.68	2.88	16.0	3.21	2.32	4.60	14.7	5.67	6.08	2.85	9.19	18.6	3.60	--	--	--	--	--	--	--	--	--	--
Barium	375	15,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	1.14	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	0.31	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium Total[3]	24.2	120,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium VI	--	0.3	0.31 UJ	0.19 J	--	0.3 J	0.33 UJ	0.19 J	--	0.37 UJ	0.62 J	0.21 J	--	0.2 J	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	17.1	3,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	19,100	55,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	16.4	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	542	1,800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	0.0287	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	24.1	1,500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	0.824	390	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	0.114	390	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	0.405	0.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	50	390	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	57	23,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
[1] RSL for acenaphthene used as a surrogate
[2] RSL for pyrene used as a surrogate
[3] RSL for trivalent chromium used for total chromium
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.11
Tract 20B: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	20B-UGIA-MW01	20B-LGIA-MW02	20B-LGIA-MW102	20B-UGIA-MW03	20B-LGIA-MW04	20B-UGIA-MW05	20B-LGIA-MW06	20B-UGIA-MW07	20B-LGIA-MW08	20B-UGIA-MW09	20B-UGIA-MW10	20B-UGIA-MW11	20B-G0064
			Sample Date	6/4/2018	6/4/2018		5/31/2018	5/31/2018	6/1/2018	6/1/2018	6/4/2018	6/1/2018	8/8/2018	8/12/2018	8/12/2018	8/9/2018
			Screen Interval (feet bgs)	9-19	27-37		10-20	26.5-36.5	10-20	26-36	12.5-22.5	27-37	10-20	10-20	9.5-19.5	
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Freon 113	--	--	10,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2,4-Trimethylbenzene	--	--	56	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	--	--	--	--
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
2,2-Dichloropropane	--	--	--	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	--	--	--	--
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	--	--
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	--	--
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	--	--
Acetone	--	--	14,000	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	--	--	--	--
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Chloromethane	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Dichlorodifluoromethane	--	--	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	--	--	--	--
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	--	--	--	--
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--
Polynuclear Aromatic Hydrocarbons (µg/L)																
Naphthalene	--	--	0.12	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
2-Methylnaphthalene	--	--	36	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Acenaphthylene[2]	--	--	530	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Acenaphthene	--	--	530	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Fluorene	--	--	290	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Phenanthrene	--	--	120	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--

Table 5.11 (Continued)
Tract 20B: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	20B-UGIA-MW01	20B-LGIA-MW02	20B-LGIA-MW102	20B-UGIA-MW03	20B-LGIA-MW04	20B-UGIA-MW05	20B-LGIA-MW06	20B-UGIA-MW07	20B-LGIA-MW08	20B-UGIA-MW09	20B-UGIA-MW10	20B-UGIA-MW11	20B-G0064
			Sample Date	6/4/2018	6/4/2018		5/31/2018	5/31/2018	6/1/2018	6/1/2018	6/4/2018	6/1/2018	8/8/2018	8/12/2018	8/12/2018	8/9/2018
			Screen Interval (feet bgs)	9-19	27-37		10-20	26.5-36.5	10-20	26-36	12.5-22.5	27-37	10-20	10-20	9.5-19.5	
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Anthracene	--	--	1,800	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Fluoranthene	--	--	800	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Pyrene	--	--	120	0.096 U	0.058 J	0.075 J	0.099 U	0.096 U	0.097 U	0.096 U	0.057 J	0.1 U	--	--	--	--
Benzo(a)anthracene	--	--	0.03	0.096 U	0.094 U	0.051 J	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Chrysene	--	--	25	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Benzo(b)fluoranthene	--	--	0.25	0.15 U	0.16 U	0.17 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Benzo(k)fluoranthene	--	--	2.5	0.096 U	0.094 U	0.094 U	0.099 UJ	0.096 UJ	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Benzo(a)pyrene	--	0.2	0.025	0.096 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	0.25	0.18 UJ	0.094 UJ	0.094 UJ	0.099 U	0.096 U	0.097 U	0.096 U	0.094 UJ	0.1 U	--	--	--	--
Dibenz(a,h)anthracene	--	--	0.025	0.096 U	0.094 U	0.094 U	0.099 UJ	0.096 UJ	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Benzo(g,h,i)perylene[3]	--	--	120	0.18 U	0.094 U	0.094 U	0.099 U	0.096 U	0.097 U	0.096 U	0.094 U	0.1 U	--	--	--	--
Explosives (µg/L)																
HMX	--	--	1,000	1.4	0.12 U	0.12 U	130	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
RDX	--	--	0.97	2.2	0.12 U	0.12 U	200	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	--	--	--	--
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	--	--	--
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	--	--	--
Metals (µg/L)																
Aluminum	7,110	--	20,000	142	347	445	48.7 U	1,360	528	300	163	40 U	--	--	--	--
Antimony	--	6	7.8	0.077 J	0.5 U	0.072 J	0.44 J	0.16 J	0.5 U	0.5 U	0.1 J	0.5 U	--	--	--	--
Arsenic	14.8	10	0.052	8.6	8.7	8.3	9.4	8.6	7.5	8.7	8	9.6	--	--	--	--
Barium	81.5	2,000	3,800	62.5	37.5	40.4	68	46	44.4	41.8	42.7	37.7	--	--	--	--
Beryllium	0.31	4	25	0.2 U	0.2 U	0.2 U	0.2 U	0.098 J	0.058 J	0.039 J	0.038 J	0.2 U	--	--	--	--
Cadmium	--	5	9.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	--	--
Calcium	--	--	--	231,000	366,000	381,000	199,000	356,000	376,000	366,000	390,000	372,000	--	--	--	--
Chromium Total[4]	--	100	22,000	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	--	--	--	--
Chromium VI	--	--	0.035	12.5 UJ	12.5 UJ	12.5 UJ	62 U	2 J	--	--	12.5 UJ	--	--	--	--	--
Cobalt	5.5	--	6	1.07 J	0.817 J	0.816 J	0.949 J	2.2 J	1.04 J	0.811 J	0.909 J	0.724 J	--	--	--	--
Copper	--	1,300	800	2 U	17.1 J	9.74 J	2.67 U	23 J	4.69 UJ	4.65 UJ	5.43 J	3.75 UJ	--	--	--	--
Iron	10,500	--	14,000	3,160	7,480	7,550	2,540	8,210	6,140	7,070	7,590	7,230	--	--	--	--
Lead	4.06	15	15	0.16 J	0.929 J	2.05 J	0.5 U	1.83	0.843 J	0.32 J	0.31 J	0.078 J	--	--	--	--
Magnesium	--	--	--	45,100	55,400	57,100	36,900	55,600	66,400	58,000	69,700	59,700	--	--	--	--
Manganese	1,730	--	430	902	1,450	1,520	618	1,280	1,130	1,330	1,540	1,310	--	--	--	--
Mercury	--	2	0.63	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	--	--	--	--
Nickel	8.04	--	390	1.58 J	3.04 J	2.84 J	1.64 J	294	1.94 J	1.67 J	2.8 J	1.61 J	--	--	--	--
Potassium	--	--	--	17,900	16,600	17,300	17,700	16,000	22,600	16,600	18,600	17,400	--	--	--	--
Selenium	--	50	100	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	--	--	--	--
Silver	--	--	94	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	--	--	--
Sodium	--	--	--	192,000	244,000	255,000	144,000	237,000	240,000	232,000	249,000	258,000	--	--	--	--
Thallium	--	2	0.2	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	--	--	--
Vanadium	12.5	--	86	4 UJ	4 UJ	4 UJ	1.2 J	4.2 J	4 U	4 U	4 UJ	4 U	--	--	--	--
Zinc	34	--	6,000	8 U	8 U	8 U	8 U	10 J	5.5 J	8 U	8 U	8 U	--	--	--	--

Notes:

Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).

[1] = RSL for total 1,3-dichloropropene used as a surrogate
[2] = RSL for acenaphthene used as a surrogate
[3] = RSL for pyrene used as a surrogate
[4] = RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.12
Summary of Intrusive Results - South Fuze Destruction Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Anomaly Type	Number of Targets
Munitions Debris	11
Non-Munitions-Related Debris	39
Unknown (groundwater encountered)	2
Unknown (underwater targets)	3
No Contacts	4
Blind Seed Items	1
Total	60

Table 5.13
Summary of Intrusive Results - Abandoned Burning Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Anomaly Type	Number of Targets
Munitions Debris	12
Non-Munitions-Related Debris	55
No Contacts	1
Utility	1
Total	69

Table 5.14
Tract 21B-Burning Pit Area: Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21B-BPA-SS01	21B-BPA-SB01			21B-BPA-SS02	21B-BPA-SB02		21B-BPA-SS03	21B-BPA-SB03	
		Sample Date	5/15/2018	5/15/2018		5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018
		Sample Interval (feet bgs)	0-0.5	3-4		7-8	0-0.5	3-4	7-8	0-0.5	3-4	7-8
		Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)												
HMX	--	3,900,000	60 U	63 U	62 U	59 U	420	510	63 U	62 U	29 J	47 U
RDX	--	8,300	60 U	63 U	62 U	59 U	300	3,200	130	62 U	87 J	37 J
1,3,5-Trinitrobenzene	--	2,200,000	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
1,3-Dinitrobenzene	--	6,300	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
Tetryl	--	160,000	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
Nitrobenzene	--	5,100	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
2,4,6-Trinitrotoluene	--	21,000	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
2-Amino-4,6-dinitrotoluene	--	7,700	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
4-Amino-2,6-dinitrotoluene	--	7,700	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
2,6-Dinitrotoluene	--	360	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
2,4-Dinitrotoluene	--	1,700	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
2-Nitrotoluene	--	3,200	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
3-Nitrotoluene	--	6,300	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
4-Nitrotoluene	--	34,000	60 U	63 U	62 U	59 U	59 U	59 U	63 U	62 U	59 U	47 U
Nitroglycerin	--	6,300	480 U	500 U	490 U	470 U	470 U	470 U	500 U	500 U	480 U	370 U
PETN	--	130,000	480 U	500 U	490 U	470 U	470 U	470 U	500 U	500 U	480 U	370 U
Metals (mg/kg)												
Aluminum	26,400	77,000	13,600	19,800	21,500	18,500	20,500	20,600	18,200	24,600	18,600	18,500
Antimony	0.333	31	0.174 J	0.396 J	0.339 J	0.19 J	0.269 J	0.290	0.20	0.209 J	0.19	0.16 J
Arsenic	13.6	0.68	3.62 J	17.8 J	12.1 J	8.01 J	4.71 J	8.11 J	4.65 J	5.93 J	4.48 J	4.2 J
Barium	375	15,000	192 J	368 J	392 J	644 J	292 J	592 J	249 J	410 J	334	257 J
Beryllium	1.14	160	0.654	0.877	0.953	0.844	0.901	0.900	0.816	1.16	0.813	0.848
Cadmium	0.31	71	0.181 J	0.042 J	0.018 J	0.274 J	0.08 J	0.068 J	0.208 J	0.0892 J	0.116 J	0.064 J
Calcium	--	--	3,530	48,700	46,700	59,000	4,100	55,900	27,000	3,300	53,000 J	18,000
Chromium Total[1]	24.2	120,000	13.5	18.4	19.9	19.0	17.2	19.3	18.5	20.9	17.5	19.2
Chromium VI	--	0.3	0.35 UJ	0.36 UJ	0.47 UJ	--	--	--	--	0.49 UJ	0.4 UJ	--
Cobalt	11.2	23	5.87	6.36	7.07	6.29	8.04	6.41	5.93	8.00	6.12	6.36
Copper	17.1	3,100	9.95	14.1	12.9	14.3	13.0	13.4	13.5	15.2	11.2	13.8
Iron	19,100	55,000	12,100	19,600	18,800	19,000 J	16,600	17,600	19,900	19,500 J	16,300	17,900 J
Lead	16.4	400	18.1	11.6	11.5	11.70	22.1	11.8	11.4	13.9	10.4	12.2
Magnesium	--	--	3,360	9,660	10,000	9,270	6,600	10,200	9,060	7,480	9,230	8,870
Manganese	542	1,800	312 J	272 J	265 J	466 J	296 J	225 J	370 J	311 J	366	254 J
Mercury	0.0287	11	0.012 J	0.011 J	0.011 J	0.014 J	0.0094 J	0.017 J	0.014 J	0.016 J	0.017 J	0.015 J
Nickel	24.1	1,500	10.1	16.1	16.4	14.6	17.4	15.5	14.8	17.8	14.8	14.6
Potassium	--	--	4,020	4,990	5,320	4,320	5,560	4,900	4,230	6,960	4,360	4,280
Selenium	0.824	390	0.489	0.44 J	0.4 J	0.39 J	0.37 J	0.32 J	0.37 J	0.461	0.444 U	0.37 J
Silver	0.114	390	0.0611 J	0.0848 J	0.09 J	0.0942 J	0.0957 J	0.102	0.0755 J	0.112	0.0813 J	0.072 J
Sodium	--	--	142	680	619	2,160	252	1,330	1,920	209	896	1,430
Thallium	0.405	0.78	0.251	0.318	0.351	0.321	0.335	0.328	0.316	0.386	0.276	0.307
Vanadium	50	390	27.0	55.3	51.4	41.2	32.4	48.5	35.7	39.8	38.0	37.8
Zinc	57	23,000	41.2	49.4	50.1	51.1	48.2	47.5	50.6	56.7	42.1	51.2

Table 5.14 (Continued)
Tract 21B-Burning Pit Area: Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Sample Location			21B-BPA-SS04	21B-BPA-SS104	21B-BPA-SB04		21B-BPA-SS05	21B-BPA-SB05		21B-BPA-SS06	21B-BPA-SB06		21B-BPA-SS07	21B-BPA-SB07	
Sample Date			5/15/2018		5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018
Sample Interval (feet bgs)			0-0.5		3-4	7-8	0-0.5	3-4	7-8	0-0.5	3-4	7-8	0-0.5	3-4	7-8
Sample Type			Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)															
HMX	--	3,900,000	110 J	89 J	1,300	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
RDX	--	8,300	62 J	44 J	4,900	64 J	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
1,3,5-Trinitrobenzene	--	2,200,000	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
1,3-Dinitrobenzene	--	6,300	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
Tetryl	--	160,000	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
Nitrobenzene	--	5,100	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
2,4,6-Trinitrotoluene	--	21,000	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
2-Amino-4,6-dinitrotoluene	--	7,700	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
4-Amino-2,6-dinitrotoluene	--	7,700	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
2,6-Dinitrotoluene	--	360	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
2,4-Dinitrotoluene	--	1,700	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
2-Nitrotoluene	--	3,200	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
3-Nitrotoluene	--	6,300	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
4-Nitrotoluene	--	34,000	55 U	51 U	52 U	62 U	57 U	59 U	52 U	59 U	61 U	59 U	63 U	61 U	50 U
Nitroglycerin	--	6,300	440 U	410 U	410 U	490 U	460 U	470 U	410 U	470 U	490 U	470 U	510 U	480 U	400 U
PETN	--	130,000	440 U	410 U	410 U	490 U	460 U	470 U	410 U	470 U	490 U	470 U	510 U	480 U	400 U
Metals (mg/kg)															
Aluminum	26,400	77,000	15,600	13,200	21,300	19,200	30,200	19,700	19,100	15,400	22,400	18,800	28,000	20,600	20,000
Antimony	0.333	31	0.15 J	0.14 J	0.297 J	0.24 J	0.258 J	0.2 J	0.166 J	0.19 J	0.262 J	0.16	0.329 J	0.257 J	0.18 J
Arsenic	13.6	0.68	4.26 J	3.98 J	17.8 J	10.4 J	5.52 J	5.14 J	2.27 J	3.54 J	10.3 J	1.72 J	9.48	9.47	8.49
Barium	375	15,000	194 J	155 J	460 J	287 J	214 J	366 J	311 J	177 J	312 J	247	296	278	242
Beryllium	1.14	160	0.705	0.616	0.910	0.898	1.34	0.892	0.928	0.701	1.02	0.876	1.24	0.906	0.908
Cadmium	0.31	71	0.0862 J	0.116 J	0.13 J	0.04 J	0.023 J	0.017 U	0.039 J	0.156 J	0.018 U	0.03 J	0.056 J	0.139 J	0.048 J
Calcium	--	--	4,940	5,240	55,400	9,350	6,060	48,000	12,200	4,890	28,700	11,500 J	7,850 J	47,400 J	10,300 J
Chromium Total[1]	24.2	120,000	14.2	13.1	18.9	19.5	23.7	17.7	19.7	14.7	19.2	19.1	22.8	19.4	19.7
Chromium VI	--	0.3	--	--	--	--	0.39 UJ	0.41 UJ	--	--	--	--	--	--	--
Cobalt	11.2	23	5.70	4.70	11.8	6.55	8.01	5.07	8.09	6.13	7.06	7.60	9.06	8.94	8.77
Copper	17.1	3,100	10.3	9.52	13.1	16.2	16.5	9.94	14.2	11.8	13.3	13.4	15.2	11.9	14.0
Iron	19,100	55,000	13,100 J	11,600 J	19,400 J	20,400 J	24,000 J	15,000 J	16,000 J	13,300 J	20,000 J	16,300	23,400	18,500	19,000
Lead	16.4	400	47.6 J	97 J	12.8	14.0	14.6	10.8	11.9	43.5	13.6	11.9	14.7	12.2	10.4
Magnesium	--	--	4,070	3,420	10,300	9,390	8,450	9,210	8,760	4,140	8,980	8,090	8,790	10,600	8,700
Manganese	542	1,800	251 J	215 J	830 J	206 J	242 J	161 J	211 J	339 J	315 J	222	702	617	279
Mercury	0.0287	11	0.02 UJ	0.0092 J	0.016 J	0.018 J	0.021 J	0.016 J	0.017 J	0.014 J	0.019 J	0.014 J	0.024 J	0.018 J	0.017 J
Nickel	24.1	1,500	11.7	9.38	26.4	15.0	22.6	12.7	15.1	11.4	16.6	16.1	23.1	21.0	18.0
Potassium	--	--	4,200	3,210	5,220	4,670	8,600	4,680	4,470	4,740	5,290	4,370	6,830	5,000	4,420
Selenium	0.824	390	0.38 J	0.361 J	0.451 J	0.43 J	0.462 J	0.28 J	0.336 J	0.41 J	0.596	0.28 U	0.3 U	0.409 U	0.28 U
Silver	0.114	390	0.0662 J	0.054 J	0.0938 J	0.0894 J	0.059 J	0.0857 J	0.0793 J	0.063 J	0.0776 J	0.0847 J	0.0729 J	0.0816	0.077 J
Sodium	--	--	134	130	638	2,360	272	404	720	119	204	253	197	389	906
Thallium	0.405	0.78	0.254	0.208	0.390	0.326	0.396	0.293	0.309	0.251	0.345	0.296	0.431	0.347	0.308
Vanadium	50	390	28.2	25.3	59.8	45.0	40.6	40.8	34.9	28.1	47.1	36.2	52.6	49.2	42.8
Zinc	57	23,000	43.8	49.4	45.6	56.7	64.4	41.6	54.4	47.2	50.7	50.9	56.6	46.0	53.2

Table 5.14 (Continued)
Tract 21B-Burning Pit Area: Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21B-BPA-SS08	21B-BPA-SB08		21B-BPA-SS09	21B-BPA-SB09	21B-BPA-SS10	21B-BPA-SB10	21B-BPA-SS11	21B-BPA-SS12	21B-BPA-SS13	21B-BPA-SS14
		Sample Date	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/16/2018	5/16/2018	5/16/2018	5/16/2018
		Sample Interval (feet bgs)	0-0.5	3-4	7-8	0-0.5	4-5	0-0.5	4-5	0-0.5	0-0.5	0-0.5	0-0.5
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)													
HMX	--	3,900,000	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
RDX	--	8,300	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
1,3,5-Trinitrobenzene	--	2,200,000	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
1,3-Dinitrobenzene	--	6,300	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
Tetryl	--	160,000	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
Nitrobenzene	--	5,100	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
2,4,6-Trinitrotoluene	--	21,000	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
2-Amino-4,6-dinitrotoluene	--	7,700	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
4-Amino-2,6-dinitrotoluene	--	7,700	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
2,6-Dinitrotoluene	--	360	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
2,4-Dinitrotoluene	--	1,700	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
2-Nitrotoluene	--	3,200	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
3-Nitrotoluene	--	6,300	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
4-Nitrotoluene	--	34,000	67 U	58 U	55 U	56 U	60 U	57 U	59 U	58 U	64 U	60 U	54 U
Nitroglycerin	--	6,300	540 U	460 U	440 U	440 U	480 U	460 U	470 U	470 U	510 U	480 U	440 U
PETN	--	130,000	540 U	460 U	440 U	440 U	480 U	460 U	470 U	470 U	510 U	480 U	440 U
Metals (mg/kg)													
Aluminum	26,400	77,000	20,400	20,500	19,300	12,800	19,800	10,000	22,100	12,800	11,000	16,600	11,700
Antimony	0.333	31	0.22 J	0.22 J	0.14	0.16 J	0.231 J	0.13 J	0.356 J	0.150	0.14	0.177	0.110
Arsenic	13.6	0.68	4.34 J	5.66	1 J	3.02 J	2.33 J	2.61 J	11.2 J	3.55	4.11	3.92	2.72
Barium	375	15,000	170	878	308	144 J	177 J	121 J	181 J	161	144	194	126
Beryllium	1.14	160	0.901	0.922	0.841	0.578	0.932	0.518	0.972	0.613	0.554	0.720	0.489
Cadmium	0.31	71	0.136 J	0.282	0.027 J	0.119 J	0.017 U	0.175 J	0.17 J	0.143 J	0.138 J	0.112 J	0.0522 J
Calcium	--	--	3,460 J	58,200 J	8,840 J	2,470	13,800	2,800	27,700	3,470	2,950	5,020	2,260
Chromium Total[1]	24.2	120,000	17.9	18.8	20.2	13.0	19.7	10.8	20.8	13.9	11.4	15.9	10.7
Chromium VI	--	0.3	0.39 UJ	0.5 UJ	--	--	--	0.35 UJ	0.37 UJ	--	--	--	--
Cobalt	11.2	23	8.10	6.95	7.47	5.70	3.99	5.73	12.2	6.30	5.37	6.10	4.76
Copper	17.1	3,100	13.5	12.1	13.5	9.58	14.2	8.82	15.3	10.7	9.38	10.9	7.22
Iron	19,100	55,000	17,100	17,100	13,600	10,900	16,700	9,310	19,500	12,000	10,400	13,500	9,790
Lead	16.4	400	16.1	12.2	10.5	18.2	9.45	15.2	14.0	41.0	20.9	25.6	9.87
Magnesium	--	--	5,840	10,700	8,730	3,080	6,330	2,500	6,920	3,180	2,790	4,130	2,440
Manganese	542	1,800	470	304	183	292 J	103 J	305 J	879 J	354	311	320	262
Mercury	0.0287	11	0.014 J	0.012 J	0.014 J	0.012 J	0.016 J	0.0093 J	0.014 J	0.012 J	0.013 J	0.0069 J	0.02 UJ
Nickel	24.1	1,500	15.7	16.1	15.1	9.04	12.6	8.01	27.3	10.5	8.59	11.4	8.76
Potassium	--	--	6,010	4,890	4,180	3,940	4,960	3,250	5,100	3,960	3,600	4,470	2,560
Selenium	0.824	390	0.45 U	0.449 U	0.28 U	0.518 J	0.31 J	0.28 J	0.395 J	0.423	0.526	0.398	0.296 J
Silver	0.114	390	0.0889 J	0.0804 J	0.0747 J	0.061 J	0.0863	0.057 J	0.0875	0.063 J	0.0572 J	0.0782	0.0491 J
Sodium	--	--	307	1,160	813	206	1,670	176	1,480	129	120	146	83.4
Thallium	0.405	0.78	0.316	0.329	0.310	0.226	0.309	0.195	0.420	0.238	0.219	0.280	0.176
Vanadium	50	390	36.9	41.0	35.1	25.2	34.3	20.6	54.0	27.5	24.7	32.2	22.7
Zinc	57	23,000	52.1	43.6	52.6	35.6	50.8	32.4	52.1	42.2	36.9	47.1	28.2

Table 5.14 (Continued)
Tract 21B-Burning Pit Area: Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21B-BPA-SS15	21B-BPA-SS115	21B-BPA-SS16	21B-BPA-SS17	21B-BPA-SS18	21B-BPA-SS19	21B-BPA-SS119	21B-BPA-SS20	21B-BPA-SS21	21B-BPA-SB21		21B-BPA-SS22
		Sample Date	5/16/2018		5/16/2018	5/16/2018	5/16/2018	5/16/2018		5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/16/2018
		Sample Interval (feet bgs)	0-0.5		0-0.5	0-0.5	0-0.5	0-0.5		0-0.5	0-0.5	2-3	5-6	0-0.5
		Sample Type	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)														
HMX	--	3,900,000	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
RDX	--	8,300	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
1,3,5-Trinitrobenzene	--	2,200,000	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
1,3-Dinitrobenzene	--	6,300	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
Tetryl	--	160,000	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
Nitrobenzene	--	5,100	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
2,4,6-Trinitrotoluene	--	21,000	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
2-Amino-4,6-dinitrotoluene	--	7,700	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
4-Amino-2,6-dinitrotoluene	--	7,700	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
2,6-Dinitrotoluene	--	360	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
2,4-Dinitrotoluene	--	1,700	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
2-Nitrotoluene	--	3,200	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
3-Nitrotoluene	--	6,300	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
4-Nitrotoluene	--	34,000	58 U	58 U	64 U	60 U	53 U	52 U	55 U	57 U	56 U	58 U	58 U	52 U
Nitroglycerin	--	6,300	470 U	460 U	510 U	480 U	420 U	420 U	440 U	450 U	450 U	460 U	460 U	420 U
PETN	--	130,000	470 U	460 U	510 U	480 U	420 U	420 U	440 U	450 U	450 U	460 U	460 U	420 U
Metals (mg/kg)														
Aluminum	26,400	77,000	15,100	15,600	14,300	14,700	12,800	11,100	10,300	10,600	13,500	25,000	19,700	11,100
Antimony	0.333	31	0.17	0.171	0.202	0.18	0.14	0.12	0.14	0.14	0.17 J	0.29 J	0.242 J	0.13
Arsenic	13.6	0.68	3.42	3.04	4.81	3.44	2.64	3.00	2.84	2.53	3.48 J	6.74 J	2.82 J	2.76
Barium	375	15,000	171	177	185	163	142	132	129	146	140 J	464 J	229 J	131
Beryllium	1.14	160	0.717	0.719	0.692	0.688	0.571	0.548	0.532	0.517	0.647	1.20	0.912	0.517
Cadmium	0.31	71	0.097 J	0.112 J	0.144 J	0.111 J	0.0753 J	0.16 J	0.167 J	0.205 J	0.137 J	0.011 J	0.221 J	0.168 J
Calcium	--	--	2,700	2,650	3,090	2,470	2,320	2,880	2,620	3,330	2,780	7,590	5,670	2,750
Chromium Total[1]	24.2	120,000	15.2	14.4	13.5	13.9	12.2	12.2	10.8	11.1	13.3	20.5	19.3	11.3
Chromium VI	--	0.3	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	11.2	23	6.42	6.78	7.12	7.76	4.77	5.50	5.89	5.59	6.12	6.89	9.41	5.25
Copper	17.1	3,100	11.4	10.3	11.0	10.4	8.28	9.88	9.28	10.2	9.84	14.2	15.2	9.08
Iron	19,100	55,000	13,200	12,400	12,800	12,100	10,400	9,800	9,270	9,100	11,800	19,800	16,800	9,220
Lead	16.4	400	22.3	21.7	16.4	14.7	15.4	17.5	18.1	20.0	14.1	12.7	15.7	21.4
Magnesium	--	--	3,900	4,080	3,620	3,850	2,870	2,640	2,520	2,720	3,880	10,100	7,110	2,670
Manganese	542	1,800	334	330	471	410	249	289	298	311	289 J	172 J	625 J	269
Mercury	0.0287	11	0.013 J	0.014 J	0.018 J	0.016 J	0.011 J	0.014 J	0.013 J	0.015 J	0.01 J	0.015 J	0.017 J	0.011 J
Nickel	24.1	1,500	11.60	11.1	11.7	10.7	9.02	8.35	8.15	8.41	10.8	19.4	22.0	7.73
Potassium	--	--	5,070	5,160	4,580	4,770	3,520	3,560	3,290	3,500	4,000	6,350	4,540	3,560
Selenium	0.824	390	0.502 J	0.435	0.635	0.45 J	0.397	0.602	0.536	0.536	0.568	0.33 J	0.411 J	0.562
Silver	0.114	390	0.074 J	0.0715 J	0.0794 J	0.072 J	0.0557 J	0.059 J	0.0553 J	0.064 J	0.0739 J	0.101	0.0824 J	0.056 J
Sodium	--	--	304	320	128	483	95.8	174	155	145	539	3,300	2,540	173
Thallium	0.405	0.78	0.258	0.271	0.263	0.265	0.215	0.227	0.189	0.208	0.250	0.385	0.342	0.205
Vanadium	50	390	30	28.0	27.9	27.9	24.0	23.6	21.0	20.8	26.0	39.7	37.1	21.6
Zinc	57	23,000	43.4	43.3	44.9	43.4	39.4	36.8	35.1	41.0	39.5	56.0	51.9	37.4

Notes:
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the BTV (if available) and the residential RSL
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.15
Tract 21B- Burning Pit Area: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

				Sample Location	BPA-UGIA-MW01	BPA-LGIA-MW02	BPA-UGIA-MW03	BPA-LGIA-MW04	BPA-LGIA-MW05	CHAAP-G0071	BPA-UGIA-MW06	BPA-UGIA-MW07
				Sample Date	6/14/2018	6/14/2018	6/1/2018	6/1/2018	6/6/2018	6/18/2018	6/18/2018	6/1/2018
				Sample Interval (feet bgs)	11-21	30-40	10-20	30-40	31-41	UGIA co-located with MW06	UGIA (screened 10 - 20 feet) co-located with G0071	10-20
				Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**Groundwater BTV**	**MCL**	**Tap Water RSL**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Volatile Organic Compounds (µg/L)												
1,1,1,2-Tetrachloroethane	--	--	0.57		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000		25,000 J	13	230	3,000	30	0.5 U	2.7	0.5 U
1,1,2-Trichloroethane	--	5	0.28		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56		16 J	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600		100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38		100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300		100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000		100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5		40 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
Carbon disulfide	--	--	810		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000		40 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
Chloroform	--	80	0.22		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190		40 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200		40 U	1 U	2.7	18	0.67 J	1 U	1 U	1 U
Ethylbenzene	--	700	1.5		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14		30 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11		100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190		40 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12		20 U	0.5 U	0.5 U	0.36 J	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690		20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.15 (Continued)
Tract 21B- Burning Pit Area: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	BPA-UGIA-MW01	BPA-LGIA-MW02	BPA-UGIA-MW03	BPA-LGIA-MW04	BPA-LGIA-MW05	CHAAP-G0071	BPA-UGIA-MW06	BPA-UGIA-MW07
			Sample Date	6/14/2018	6/14/2018	6/1/2018	6/1/2018	6/6/2018	6/18/2018	6/18/2018	6/1/2018
			Sample Interval (feet bgs)	11-21	30-40	10-20	30-40	31-41	UGIA co-located with MW06	UGIA (screened 10 - 20 feet) co-located with G0071	10-20
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**Groundwater BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Tetrachloroethene	--	5	11	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	40 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	40 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Explosives (µg/L)											
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	1.7	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals (µg/L)											
Aluminum	7,110	--	20,000	52.8 U	250	122	231	3,400	40 U	214	129
Antimony	--	6	7.8	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052	6	8.3	7.1	3 J	4.6 J	13	4.3 J	8.3
Barium	81.5	2,000	3,800	58.8	41.6	37.6	33.4	64.8	38.3	38.7	38.8
Beryllium	0.31	4	25	0.2 U	0.2 U	0.2 U	0.045 J	0.2 J	0.2 U	0.042 J	0.035 J
Cadmium	--	5	9.2	0.03 J	0.039 J	0.2 U	0.2 U	0.2 U	0.2 U	0.379 J	0.2 U
Calcium	--	--	--	394,000	420,000	384,000	473,000	390,000	376,000	455,000	380,000
Chromium Total[2]	--	100	22,000	4 UJ	4 UJ	4 U	4 U	4 UJ	4 UJ	4 UJ	4 UJ
Chromium VI	--	--	0.035	62 UJ	12.5 UJ	--	--	--	--	12.5 U	--
Cobalt	5.5	--	6	2.14 J	1.05 J	0.796 J	1.18 J	2.08 J	0.804 J	2.46 J	0.841 J
Copper	--	1,300	800	2.69 U	4.15 UJ	5.58 UJ	9.98 UJ	3.72 UJ	2.39 UJ	5.28 UJ	3.82 UJ
Iron	10,500	--	14,000	4,150	7,390	6,370	2,620	8,090	9,420	3,140	5,600
Lead	4.06	15	15	0.5 U	0.947 J	0.26 J	0.29 J	1.95	0.5 U	0.099 J	0.2 J
Magnesium	--	--	--	73,800	74,300	66,200	88,800	64,700	64,300	90,000	66,400
Manganese	1,730	--	430	1,310	1,360	1,410	200	1,490	1,420	286	1,390
Mercury	--	2	0.63	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8.04	--	390	4.31 J	3.66 J	1.97 J	4 J	5.76 UJ	3.96 J	12.1 J	1.4 J
Potassium	--	--	--	23,800 J	19,500 J	16,200	24,500	17,100	16,800	24,800	18,100
Selenium	--	50	100	3 U	3 U	3 U	9.78	3 U	3 U	19.4	3 U
Silver	--	--	94	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--	194,000	300,000	271,000	365,000	259,000	264,000	340,000	201,000
Thallium	--	2	0.2	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium	12.5	--	86	4 U	4 U	4 U	5.96	4.4 J	0.73 J	9.37	4 U
Zinc	34	--	6,000	10 J	8 U	4.3 J	6.1 J	9.8 J	8 U	6.3 J	6.2 J

Table 5.15 (Continued)
Tract 21B- Burning Pit Area: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	BPA-LGIA-MW08	BPA-UGIA-MW09	BPA-LGIA-MW10	BPA-UGIA-MW11	BPA-UGIA-MW12	21B-BPA-PRGW01	21B-BPA-PRGW02		21B-BPA-PRGW05	
			Sample Date	6/1/2018	8/13/2018	8/9/2018	8/21/2018	8/10/2018	6/18/2018	6/18/2018		6/1/2018	
			Sample Interval (feet bgs)	28.5-38.5	11-21	34-44	9-19	10-20	UGIA co-located with PRGW02	MGIA co-located with PRGW01		(BPA-UGIA)	
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Duplicate
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)													
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	0.5 U	0.5 U	--	--	130	6,200	1.1	1.2	4,300	4,300
1,1,2-Trichloroethane	--	5	0.28	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 UJ	--	--	--	--	5.6 J	0.5 U	0.5 U	0.5 UJ	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	--	--	--	--	25 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	--	--	--	--	25 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	--	--	--	--	25 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	--	--	--	--	25 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	--	--	--	--	10 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	--	--	--	--	10 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	--	--	--	--	10 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	--	200	1 U	--	--	--	--	10 U	1 U	1 U	12	12
Ethylbenzene	--	700	1.5	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	--	--	--	--	7.5 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	--	--	--	--	25 U	2.5 UJ	2.5 UJ	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	--	--	--	--	10 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	--	0.5 UJ	0.5 U	--	5 U	0.5 U	0.5 U	0.61 J	0.69 J
n-Butylbenzene	--	--	1,000	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.15 (Continued)
Tract 21B- Burning Pit Area: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	BPA-LGIA-MW08	BPA-UGIA-MW09	BPA-LGIA-MW10	BPA-UGIA-MW11	BPA-UGIA-MW12	21B-BPA-PRGW01	21B-BPA-PRGW02		21B-BPA-PRGW05	
			Sample Date	6/1/2018	8/13/2018	8/9/2018	8/21/2018	8/10/2018	6/18/2018	6/18/2018		6/1/2018	
			Sample Interval (feet bgs)	28.5-38.5	11-21	34-44	9-19	10-20	UGIA co-located with PRGW02	MGIA co-located with PRGW01		(BPA-UGIA)	
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Duplicate
Analyte	**Groundwater BTV**	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Tetrachloroethene	--	5	11	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	--	--	--	--	5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	--	--	--	--	10 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	--	--	--	--	10 U	1 U	1 U	1 U	1 U
Explosives (µg/L)													
HMX	--	--	1,000	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	--	--	0.12 U	2.8	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	--	--	--	--	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	--	--	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	--	--	--	--	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	--	--	--	--	2 U	2 U	2 U	2 U	2 U
Metals (µg/L)													
Aluminum	7,110	--	20,000	692	--	--	--	--	40 U	888 J	481 J	40 U	40 U
Antimony	--	6	7.8	0.15 U	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052	7.4	--	--	--	--	4 U	5.4	4.1 J	3.6 J	3.3 J
Barium	81.5	2,000	3,800	43.4	--	--	--	--	39.8	42.5	35.4	32.4	32.3
Beryllium	0.31	4	25	0.065 J	--	--	--	--	0.2 U	0.054 J	0.2 U	0.2 U	0.2 U
Cadmium	--	5	9.2	0.2 U	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	--	--	--	382,000	--	--	--	--	473,000	395,000	360,000	441,000	445,000
Chromium Total[2]	--	100	22,000	4 U	--	--	--	--	4 UJ	4 UJ	4 UJ	4 U	4 U
Chromium VI	--	--	0.035	--	--	--	--	--	12.5 U	17 J	12.5 U	--	--
Cobalt	5.5	--	6	0.936 J	--	--	--	--	1.04 J	1.08 J	0.938 J	0.958 J	1.08 J
Copper	--	1,300	800	4.31 UJ	--	--	--	--	3.84 UJ	4.16 UJ	3.54 UJ	4.7 UJ	4.91 UJ
Iron	10,500	--	14,000	6,350	--	--	--	--	3,210	7,620	6,340	2,700	2,690
Lead	4.06	15	15	0.56 J	--	--	--	--	0.5 U	0.61 J	0.35 J	0.5 U	0.5 U
Magnesium	--	--	--	70,400	--	--	--	--	77,000	73,200	66,300	92,400	93,600
Manganese	1,730	--	430	1,080	--	--	--	--	1,160	1,400	1,230	218	214
Mercury	--	2	0.63	0.1 U	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8.04	--	390	2.31 J	--	--	--	--	5.06 J	4.54 J	4 J	5.2 J	5.03 J
Potassium	--	--	--	20,500	--	--	--	--	17,200	18,000	16,500	27,800	27,700
Selenium	--	50	100	3 U	--	--	--	--	3 U	3 U	3 U	3 U	3 U
Silver	--	--	94	0.4 U	--	--	--	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--	293,000	--	--	--	--	263,000	284,000	257,000	278,000	281,000
Thallium	--	2	0.2	0.4 U	--	--	--	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium	12.5	--	86	4 U	--	--	--	--	4 UJ	1.2 J	1.1 J	4 U	4 U
Zinc	34	--	6,000	6.4 J	--	--	--	--	7.9 J	14 J	8.2 J	5.1 J	5.2 J

Notes:
Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).
[1] RSL for total 1,3-dichloropropene used as a surrogate
[2] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
MGIA = Middle Grand Island Aquifer
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit
UGIA = Upper Grand Island Aquifer

Table 5.16
Tract 21B-Backstop Berm: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21B-BB-SS01	21B-BB-SS101	21B-BB-SB01	21B-BB-SS02	21B-BB-SB02	21B-BB-SS03	21B-BB-SB03	21B-BB-SS04	21B-BB-SB04	21B-BB-SS05	21B-BB-SB05	21B-BB-SS06	21B-BB-SS106	21B-BB-SB06
		Sample Date	5/15/2018		5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018	5/15/2018		5/15/2018
		Sample Interval (feet bgs)	0-0.5		3-4	0-0.5	3-4	0-0.5	3-4	0-0.5	3-4	0-0.5	3-4	0-0.5		3-4
		Sample Type	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal
Analyte	Total Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Explosives (µg/kg)																
HMX	--	3,900,000	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
RDX	--	8,300	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
1,3,5-Trinitrobenzene	--	2,200,000	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
1,3-Dinitrobenzene	--	6,300	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
Tetryl	--	160,000	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
Nitrobenzene	--	5,100	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
2,4,6-Trinitrotoluene	--	21,000	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
2-Amino-4,6-dinitrotoluene	--	7,700	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
4-Amino-2,6-dinitrotoluene	--	7,700	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
2,6-Dinitrotoluene	--	360	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
2,4-Dinitrotoluene	--	1,700	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
2-Nitrotoluene	--	3,200	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
3-Nitrotoluene	--	6,300	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
4-Nitrotoluene	--	34,000	59 U	58 U	54 U	57 U	60 U	57 U	57 U	57 U	52 U	59 U	56 U	64 U	64 U	56 U
Nitroglycerin	--	6,300	470 U	470 U	440 U	460 U	480 U	460 U	290 J	460 U	410 U	470 U	440 U	520 U	510 U	450 U
PETN	--	130,000	470 U	470 U	440 U	460 U	480 U	460 U	460 U	460 U	410 U	470 U	440 U	520 U	510 U	450 U
Metals (mg/kg)																
Aluminum	26,400	77,000	19,600	17,800	18,600	23,000	18,900	18,600	17,900	19,900	19,900	25,000	18,700	27,400	22,400	22,100
Antimony	0.333	31	0.21 J	0.422 J	0.353 J	0.299 J	0.19 J	0.284	0.635	0.284	0.308	0.326 J	0.451 J	0.399 J	0.366 J	0.330
Arsenic	13.6	0.68	4.91	4.87	6.04	7.52	5.28	5.01 J	3.18 J	5.03 J	5.96 J	6.84	3.92	8.8 J	3.66 J	10.3 J
Barium	375	15,000	227	177	254	276	163	234 J	226 J	246 J	243 J	354	195	426 J	336 J	436 J
Beryllium	1.14	160	0.853	0.836	0.820	1.04	0.888	0.831	0.800	0.884	0.879	1.17	0.869	1.15	0.989	0.900
Cadmium	0.31	71	0.073 J	0.108 J	0.0882 J	0.111 J	0.145 J	0.0949 J	0.216 J	0.0888 J	0.0992 J	0.118 J	0.12 J	0.0851 J	0.0922 J	0.043 J
Calcium	--	--	6,590	5,080	8,720	6,030	2,150	5,120	5,180	5,740	8,190	8,120	4,890	24,200 J	4,360 J	43,200
Chromium Total[1]	24.2	120,000	17.2	16.0	16.4	19.3	16.8	16.7	15.7	17.3	17.6	21.9	16.7	22.7	19.3	20.6
Chromium VI	--	0.3	0.43 U	0.41 U	0.34 U	--	--	0.36 UJ	0.18 U	0.4 U	0.36 U	0.43 U	0.49 U	0.37 UJ	0.39 UJ	0.45 U
Cobalt	11.2	23	6.86	6.57	6.81	7.52	7.44	6.73	6.52	6.69	6.92	8.89	6.78	8.68	7.60	7.23
Copper	17.1	3,100	12.5	12.1	12.4	15.1	11.8	12.0	14.0	11.7	12.7	15.8	12.4	15.9	15.0	12.2
Iron	19,100	55,000	15,700	15,000	15,800	19,800	15,800	15,600	14,400	15,600	16,200	21,300	15,500	20,800	17,900	18,500
Lead	16.4	400	15.1 J	62.6 J	22.9	13.4	12.4	12.9	36.9	15.0	15.8	21.0	33.4	15.5	16.8	12.0
Magnesium	--	--	5,380	4,850	6,720	7,880	5,970	5,120	5,130	5,360	6,780	7,370	5,440	11,800 J	6,330 J	10,900
Manganese	542	1,800	324	337	306	281	414	320 J	319 J	301 J	319 J	409	303	322 J	320 J	324 J
Mercury	0.0287	11	0.025 J	0.01 J	0.019 J	0.018 J	0.014 J	0.014 J	0.027 J	0.016 J	0.017 J	0.017 J	0.044	0.018 J	0.017 J	0.0098 J
Nickel	24.1	1,500	14.0	13.5	14.7	19.7	14.8	13.7	12.3	14.0	14.7	19.6	13.2	22.2	17.5	15.3
Potassium	--	--	6,000	5,600	5,670	7,020	6,710	5,800	6,380	6,020	6,330	7,810	6,260	10,200	8,600	7,970
Selenium	0.824	390	0.593	0.634	0.656	0.647	0.729	0.618	0.458 J	0.494 J	0.549	0.746	0.548	0.428 J	0.496 J	0.392 J
Silver	0.114	390	0.0808 J	0.0787 J	0.0943 J	0.118	0.0834 J	0.0952 J	0.0938 J	0.0949 J	0.0952	0.0983	0.0927 J	0.093 J	0.0862 J	0.0971 J
Sodium	--	--	143	127	1,920	240	2950	142	1,010	143	3,010	156	1,200	240	149	315
Thallium	0.405	0.78	0.317	0.288	0.313	0.330	0.331	0.291	0.257	0.324	0.306	0.397	0.289	0.457 J	0.336 J	0.321
Vanadium	50	390	35.0	32.1	34.3	38.5	32.6	34.4	28.3	35.8	37.3	45.5	31.6	55.0	36.9	49.8
Zinc	57	23,000	48.3	46.6	47.3	56.8	48.8	46.7	54.7	46.8	48.7	62.7	47.8	56.5	54.5	47.3

Notes:
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
[1] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/kg = micrograms per kilogram
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
mg/kg = milligrams per kilogram
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.17
Tract 21B-Backstop Berm: SPLP Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21B-BB-SS06	21B-BB-SS106	21B-BB-SB06
		Sample Date	5/15/2018		5/15/2018
		Screen Interval (feet bgs)	0-0.5		3-4
		Sample Type	Normal	Duplicate	Normal
Analyte	MCL	Tap Water RSL	Result	Result	Result
Metals (µg/L)					
Aluminum	--	20,000	126,000	97,600	2,320
Antimony	6	7.8	3.36 U	2.8 U	2.5 U
Arsenic	10	0.052	**29**	**27**	**56**
Barium	2,000	3,800	935	938	100 U
Beryllium	4	25	**5.02**	3.94 J	1 U
Cadmium	5	9.2	1 UJ	1 UJ	1 UJ
Calcium	--	--	14,600	14,200	3,560
Chromium (Total)	100	22,000[1]	96.6	80.5	20 U
Cobalt	--	6	21.5 J	16.4 J	0.48 J
Copper	1,300	800	66.4	55.4 J	10 U
Iron	--	14,000	86,800	68,100	1,420
Lead	15	15	**40.8**	**36.2**	2.5 U
Magnesium	--	--	35,500	28,100	1,930
Manganese	--	430	559	436	11
Mercury	2	0.63	0.019 J	0.028 J	0.1 UJ
Nickel	--	390	76.3 J	63.7 J	6.2 U
Potassium	--	--	64,600	59,200	54,700
Selenium	50	100	15 U	15 U	15 U
Silver	--	94	0.27 J	0.29 J	0.8 U
Sodium	--	--	2,510 J	2,640 J	3,130 J
Thallium	2	0.2	1.2 J	0.86 J	0.8 U
Vanadium	--	86	219	186	125
Zinc	--	6,000	462	429	40 U

Notes:

RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the tap water RSL
Bold results denote an exceedance of the MCL.
[1] RSL for trivalent chromium
-- = not available or not analyzed
µg/L = micrograms per liter
bgs = below ground surface
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
RSL = regional screening level
SPLP = synthetic precipitation leaching procedure
U = analyte not detected, listed value is the reporting limit

Table 5.18
Tract 21B-Backstop Berm: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	BB-UGIA-MW01	BB-LGIA-MW02	BB-UGIA-MW03	BB-LGIA-MW04
			Sample Date	6/19/2018	6/19/2018	8/9/2018	8/9/2018
			Screen Interval (feet bgs)	15-25	38-48	10.5-20.5	33-43
			Sample Type	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)							
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	--	--
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	--	--
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	--	--
Freon 113	--	--	10,000	0.5 U	0.5 U	--	--
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	--	--
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	--	--
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	--	--
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	--	--
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	--	--
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	--	--
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	--	--
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 U	--	--
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	--	--
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	--	--
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	--	--
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	--	--
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	--	--
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	--	--
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	--	--
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	--	--
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	--	--
2-Butanone	--	--	5,600	2.5 UJ	2.5 U	--	--
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	--	--
2-Hexanone	--	--	38	2.5 UJ	2.5 U	--	--
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	--	--
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	--	--
4-Methyl-2-pentanone	--	--	6,300	2.5 UJ	2.5 U	--	--
Acetone	--	--	14,000	2.5 UJ	2.5 U	--	--
Benzene	--	5	0.46	0.5 U	0.5 U	--	--
Bromobenzene	--	--	62	0.5 U	0.5 U	--	--
Bromoform	--	80	3.3	0.5 U	0.5 U	--	--
Bromomethane	--	--	7.5	1 U	1 U	--	--
Carbon disulfide	--	--	810	0.5 U	0.5 U	--	--
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	--	--
Chlorobenzene	--	100	78	0.5 U	0.5 U	--	--
Bromochloromethane	--	--	83	0.5 U	0.5 U	--	--
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	--	--
Chloroethane	--	--	21,000	1 U	1 U	--	--
Chloroform	--	80	0.22	0.5 U	0.5 U	--	--
Chloromethane	--	--	190	1 U	1 U	--	--
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	--	--
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	--	--
Dibromomethane	--	--	8.3	0.5 U	0.5 U	--	--
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	--	--
Dichlorodifluoromethane	--	--	200	1 U	1 U	--	--
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	--	--
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	--	--
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	--	--
Isopropylbenzene	--	--	450	0.5 U	0.5 U	--	--
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	--	--
Methylene chloride	--	5	11	2.5 UJ	2.5 UJ	--	--
m&p-Xylene	--	--	190	1 U	1 U	--	--
Naphthalene	--	--	0.12	0.5 UJ	0.5 U	--	--
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	--	--
n-Propylbenzene	--	--	660	0.5 U	0.5 U	--	--
o-Xylene	--	--	190	0.5 U	0.5 U	--	--
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	--	--
Styrene	--	100	1,200	0.5 U	0.5 U	--	--
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	--	--
Tetrachloroethene	--	5	11	0.5 U	0.5 U	--	--
Toluene	--	1,000	1,100	0.5 U	0.5 U	--	--
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	--	--
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	--	--
Trichloroethene	--	5	0.49	0.5 U	0.5 U	--	--
Trichlorofluoromethane	--	--	5,200	1 U	1 U	--	--
Vinyl chloride	--	2	0.019	1 U	1 U	--	--

Table 5.18 (Continued)
Tract 21B-Backstop Berm: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	BB-UGIA-MW01	BB-LGIA-MW02	BB-UGIA-MW03	BB-LGIA-MW04
			Sample Date	6/19/2018	6/19/2018	8/9/2018	8/9/2018
			Screen Interval (feet bgs)	15-25	38-48	10.5-20.5	33-43
			Sample Type	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result
Explosives (µg/L)							
HMX	--	--	1,000	0.12 U	0.12 U	--	--
RDX	--	--	0.97	0.12 U	0.12 U	--	--
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	--	--
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	--	--
Tetryl	--	--	39	0.12 UJ	0.12 UJ	--	--
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	--	--
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	--	--
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	--	--
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	--	--
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	--	--
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	--	--
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	--	--
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	--	--
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	--	--
Nitroglycerin	--	--	2	2 U	2 U	--	--
PETN	--	--	19	2 U	2 U	--	--
Metals (µg/L)							
Aluminum	7,110	--	20,000	253	376	471	1,100
Antimony	--	6	7.8	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052	6.7	8.7	5.9	8.9
Barium	81.5	2,000	3,800	67.3	43.6	68.8	41.2
Beryllium	0.31	4	25	0.048 J	0.2 U	0.051 J	0.069 J
Cadmium	--	5	9.2	0.2 U	0.2 U	0.079 J	0.055 J
Calcium	--	--	--	358,000	353,000	215,000	350,000
Chromium Total[2]	--	100	22,000	4 U	4 U	4 U	4 U
Chromium VI	--	--	0.035	0.0125 U	0.062 U	--	--
Cobalt	5.5	--	6	1.14 J	0.828 J	1.15 J	1.38 J
Copper	--	1,300	800	2.31 UJ	2 U	12.6 J	6.17 J
Iron	10,500	--	14,000	2,630	4,420	2,190	7,530
Lead	4.06	15	15	0.29 J	0.16 J	0.58 J	1.32
Magnesium	--	--	--	74,100	56,700	52,000	57,800
Manganese	1,730	--	430	888	1,140	530	1,000
Mercury	--	2	0.63	0.018 J	0.1 U	0.1 UJ	0.1 UJ
Nickel	8.04	--	390	1.2 U	1.3 U	3.93 J	5.22 J
Potassium	--	--	--	27,200	16,500	21,800	16,800
Selenium	--	50	100	4 J	3 U	4.47 J	1.4 J
Silver	--	--	94	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--	209,000	241,000	171,000	224,000
Thallium	--	2	0.2	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium	12.5	--	86	2.1 J	1 J	7.02	5.96
Zinc	34	--	6,000	6.9 J	4 J	4.8 J	7.1 J

Notes:
Tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).
[1] RSL for total 1,3-dichloropropene used as a surrogate
[2] RSL for trivalent chromium used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = analyte not detected, listed value is the reporting limit

Table 5.19
Tract 21B-Decanting Station: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-SS01	21B-DS-SB01	21B-DS-SS02	21B-DS-SS102	21B-DS-SB02	21B-DS-SB02	21B-DS-SS03	21B-DS-SS103	21B-DS-SB03		21B-DS-SS04	21B-DS-SB04		21B-DS-SS05	21B-DS-SB05		21B-DS-SS06	21B-DS-SB06	
			Sample Date	5/15/2018	5/15/2018	5/14/2018		5/14/2018	5/14/2018	5/14/2018		5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	4/10/2018	4/10/2018	4/10/2018	5/14/2018	5/14/2018	5/14/2018
			Sample Depth (feet bgs)	0-0.5	4-5	0-0.5	0-0.5	4-5	9-10	0-0.5	0-0.5	4-5	9-10	0-0.5	4-5	9-10	0-0.5	4-5	9-10	0-0.5	4-5	9-10
			Sample Type	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Surface Soil BTV	Subsurface Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/kg)																						
1,1,1,2-Tetrachloroethane	--	--	2,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,1,1-Trichloroethane	--	--	8,100,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,1,2,2-Tetrachloroethane	--	--	600	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
Freon 113	--	--	6,700,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,1,2-Trichloroethane	--	--	1,100	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,1-Dichloroethane	--	--	3,600	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,1-Dichloroethene	--	--	230,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,1-Dichloropropene	--	--	--	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,2,3-Trichlorobenzene	--	--	63,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,2,3-Trichloropropane	--	--	5.1	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,2,4-Trichlorobenzene	--	--	24,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,2,4-Trimethylbenzene	--	--	300,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,2-Dibromo-3-chloropropane	--	--	5.3	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 UJ	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
Ethylene dibromide	--	--	36	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,2-Dichlorobenzene	--	--	1,800,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,2-Dichloroethane	--	--	460	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,2-Dichloropropane	--	--	2500	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,3,5-Trimethylbenzene	--	--	270,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,3-Dichlorobenzene	--	--	--	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
1,3-Dichloropropane	--	--	1,600,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
1,4-Dichlorobenzene	--	--	2,600	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
2,2-Dichloropropane	--	--	--	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 UJ	2.5 UJ	2.8 UJ	2.8 U	2.8 U	2.4 U
2-Butanone	--	--	27,000,000	--	--	15 U	14 U	12 U	12 U	18 U	15 UJ	12 U	14 U	16 UJ	14 U	12 U	14 U	12 U	14 U	14 U	14 U	12 U
2-Chlorotoluene	--	--	1,600,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
2-Hexanone	--	--	200,000	--	--	15 U	14 U	12 U	12 U	18 U	15 UJ	12 U	14 U	16 UJ	14 U	12 U	14 U	12 U	14 U	14 U	14 U	12 U
4-Chlorotoluene	--	--	1,600,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
4-Isopropyltoluene	--	--	--	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
4-Methyl-2-pentanone	--	--	33,000,000	--	--	15 U	14 U	12 U	12 U	18 U	15 UJ	12 U	14 U	16 UJ	14 U	12 U	14 U	12 U	14 U	14 U	14 U	12 U
Acetone	--	--	61,000,000	--	--	15 UJ	14 U	12 UJ	7.2 J	17 J	15 UJ	12 U	14 U	16 UJ	14 U	12 U	20 J	12 U	14 U	14 UJ	14 UJ	12 UJ
Benzene	--	--	1,200	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Bromobenzene	--	--	290,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
Bromochloromethane	--	--	150,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Bromodichloromethane	--	--	290	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Bromoform	--	--	19,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Bromomethane	--	--	6,800	--	--	6 U	5.5 U	5 U	5 U	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 U	5 U	5.5 U	5.5 U	5.5 U	4.8 U
Carbon disulfide	--	--	770,000	--	--	3 U	2.8 U	2.5 U	1.2 J	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	0.96 J	2.4 U
Carbon tetrachloride	--	--	650	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Chlorobenzene	--	--	280,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Chlorodibromomethane	--	--	8,300	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Chloroethane	--	--	14,000,000	--	--	6 U	5.5 U	5 U	5 U	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 U	5 U	5.5 U	5.5 U	5.5 U	4.8 U
Chloroform	--	--	320	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Chloromethane	--	--	110,000	--	--	6 U	5.5 U	5 U	5 U	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 UJ	5 UJ	5.5 UJ	5.5 U	5.5 U	4.8 U
cis-1,2-Dichloroethene	--	--	160,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
cis-1,3-Dichloropropene[1]	--	--	1,800	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Dibromomethane	--	--	24,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Dichlorodifluoromethane	--	--	87,000	--	--	6 UJ	5.5 U	5 UJ	5 UJ	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 UJ	5 UJ	5.5 UJ	5.5 UJ	5.5 UJ	4.8 UJ
Ethylbenzene	--	--	5,800	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Hexachlorobutadiene	--	--	1,200	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
Isopropylbenzene	--	--	1,900,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
m&p-Xylene	--	--	550,000	--	--	6 U	5.5 U	5 U	5 U	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 U	5 U	5.5 U	5.5 U	5.5 U	4.8 U
Methyl tert-butyl ether	--	--	47,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Methylene chloride	--	--	57,000	--	--	15 U	14 U	12 U	12 U	18 U	15 UJ	12 U	14 U	16 UJ	14 U	12 U	14 U	12 U	14 U	14 U	14 U	12 U
n-Butylbenzene	--	--	3,900,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
n-Propylbenzene	--	--	3,800,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
Naphthalene	--	--	3,800	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
o-Xylene	--	--	650,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
sec-Butylbenzene	--	--	7,800,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U
Styrene	--	--	6,000,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
tert-Butylbenzene	--	--	7,800,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 U	2.4 U

Table 5.19 (Continued)
Tract 21B-Decanting Station: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-SS01	21B-DS-SB01	21B-DS-SS02	21B-DS-SS102	21B-DS-SB02	21B-DS-SB02	21B-DS-SS03	21B-DS-SS103	21B-DS-SB03		21B-DS-SS04	21B-DS-SB04		21B-DS-SS05	21B-DS-SB05		21B-DS-SS06	21B-DS-SB06	
			Sample Date	5/15/2018	5/15/2018	5/14/2018		5/14/2018	5/14/2018	5/14/2018		5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	4/10/2018	4/10/2018	4/10/2018	5/14/2018	5/14/2018	5/14/2018
			Sample Depth (feet bgs)	0-0.5	4-5	0-0.5	0-0.5	4-5	9-10	0-0.5	0-0.5	4-5	9-10	0-0.5	4-5	9-10	0-0.5	4-5	9-10	0-0.5	4-5	9-10
			Sample Type	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	**Surface Soil BTV**	**Subsurface Soil BTV**	**Residential RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Volatile Organic Compounds (µg/kg)																						
Tetrachloroethene	--	--	24,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Toluene	--	--	4,900,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
trans-1,2-Dichloroethene	--	--	1,600,000	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
trans-1,3-Dichloropropene[1]	--	--	1,800	--	--	3 UJ	2.8 U	2.5 UJ	2.5 UJ	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 UJ	2.8 UJ	2.4 UJ
Trichloroethene	--	--	940	--	--	3 U	2.8 U	2.5 U	2.5 U	3.5 U	3 UJ	2.4 U	2.8 U	3.2 UJ	2.8 U	2.5 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.4 U
Trichlorofluoromethane	--	--	23,000,000	--	--	6 U	5.5 U	5 U	5 U	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 U	5 U	5.5 U	5.5 U	5.5 U	4.8 U
Vinyl chloride	--	--	59	--	--	6 U	5.5 U	5 U	5 U	7 U	6 UJ	4.8 U	5.5 U	6.5 UJ	5.5 U	5 U	5.5 U	5 U	5.5 U	5.5 U	5.5 U	4.8 U
Explosives (µg/kg)																						
HMX	--	--	3,900,000	70 J	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	61 J	67 U	57 U	65 U	59 U	66 U	190	49 U	50 U
RDX	--	--	8,300	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
1,3,5-Trinitrobenzene	--	--	2,200,000	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
1,3-Dinitrobenzene	--	--	6,300	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
Tetryl	--	--	160,000	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
Nitrobenzene	--	--	5,100	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
2,4,6-Trinitrotoluene	--	--	21,000	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
2-Amino-4,6-dinitrotoluene	--	--	7,700	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
4-Amino-2,6-dinitrotoluene	--	--	7,700	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
2,6-Dinitrotoluene	--	--	360	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
2,4-Dinitrotoluene	--	--	1,700	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
2-Nitrotoluene	--	--	3,200	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
3-Nitrotoluene	--	--	6,300	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
4-Nitrotoluene	--	--	34,000	54 U	54 U	56 U	58 U	58 U	62 U	61 U	57 U	55 U	65 U	60 U	67 U	57 U	65 U	59 U	66 U	54 U	49 U	50 U
Nitroglycerin	--	--	6,300	440 U	430 U	450 U	470 U	470 U	500 U	490 U	450 U	440 U	520 U	480 U	530 U	460 U	520 U	470 U	520 U	430 U	400 U	400 U
PETN	--	--	130,000	440 U	430 U	450 U	470 U	470 U	500 U	490 U	450 U	440 U	520 U	480 U	530 U	460 U	520 U	470 U	520 U	430 U	400 U	400 U
Metals (mg/kg)																						
Aluminum	23,900	21,600	77,000	12,800	13,400	12,700	12,700	18,200	21,900	22,400	21,700	18,000	21,700	25,800	24,700	20,200	13,700	19,100	22,800	14,200	29,500	20,300
Antimony	0.225	0.317	31	0.13 J	0.15 J	0.13 J	0.12 J	0.219 J	0.18 J	0.24 J	0.26 J	0.242 J	0.17 J	0.265 J	0.19 J	0.18 J	0.14	0.269	0.202	0.161 J	0.241 J	0.201 J
Arsenic	5.09	15.1	0.68	2.66	3.45	2.77	2.86	7.81	4.02	4.78	4.61	5.19	5.12	6.19	2.36	3.24	3.30	6.45	3.17	3.39	6.87	4.08
Barium	248	409	15,000	140	646	144	145	208	301	232	329	281	274	225	296	327	139	230	246	167	357	199
Beryllium	1.07	0.965	160	0.664	0.615	0.642	0.626	0.856	0.999	1.06	1.10	0.861	1.01	1.26	1.11	0.906	0.706	0.946	1.12	0.686	1.39	0.926
Cadmium	0.275	0.158	71	0.138 J	0.548	0.176	0.150	0.023 J	0.166	0.043 J	0.03 J	0.186 J	0.147 J	0.029 J	0.265 J	0.153 J	0.117 J	0.021 J	0.0972 J	0.155	0.136	0.125
Calcium	--	--	--	2,410	187,000	2,140	2,170	31,300	16,400	10,900	3,930	21,000	14,500	3,890	25,400	15,600	2,310	23,300	25,800	3,860	23,800	37,300
Chromium Total[2]	20.2	20.8	120,000	13.0	12.9	12.8	13.1	17.6	21.7	19.2	18.5	22.3	23.0	20.8	24.7	20.8	14.0	20.7	24.1	13.8	29.1	20.1
Chromium VI	--	--	0.3	--	--	0.33 U	0.35 U	0.4 U	--	0.35 U	0.34 U	0.41 U	--	0.44 U	0.53 U	--	--	--	--	--	--	--
Cobalt	7.68	10.3	23	7.16	5.25	5.56	6.04	8.33	7.92	7.62	7.62	9.05	11.1	8.76	10.4	18.8	7.08	7.27	7.28	5.82	12.4	6.39
Copper	13.6	15.7	3,100	10.2	11.3	9.74	9.81	12.6	16.5	13.7	14.1	20.8	15.9	15.8	17.9	15.1	9.23	14.2	15.6	9.96	21.5	15.8
Iron	18,500	19,600	55,000	11,200	11,100	10,400	10,800	17,000	19,800	17,000 J	17,000 J	22,100 J	21,100 J	20,200 J	21,800 J	18,500 J	12,000	20,900	24,800	11,700	27,400	17,200
Lead	16	15.9	400	17.8	8.78	19.0	19.1	12.8	15.3	17.4	17.0	12.4	11.6	15.7	16.5	15.2	12.9	13.8	15.0	20.6	19.2	10.6
Magnesium	--	--	--	3,040	7,620	2,980 J	3,080 J	8,100 J	8,560 J	8,220 J	8,600 J	8,740 J	9,490 J	9,410 J	10,200 J	9,420 J	3,630	8,620	8,960	3,220 J	10,400 J	7,780 J
Manganese	484	562	1,800	404	218	292	307	317	446	260 J	260 J	466 J	335 J	205 J	803 J	728 J	416	299	324	336	580	514
Mercury	0.0256	0.0294	11	0.02 J	0.014 J	0.018 J	0.019 J	0.024 J	0.019 J	0.022 J	0.014 J	0.023 J	0.019 J	0.022 J	0.018 J	0.017 J	0.018 J	0.018 J	0.025 J	0.016 J	0.019 J	0.022 J
Nickel	16.6	24	1,500	9.66	10.4	9.10	9.44	15.7	20.2	17.3	18.2	19.7	20.5	23.5	27.1	24.3	11.5	16.8	15.8	10.2	26.0	22.1
Potassium	--	--	--	3,450	3,320	4,340	4,400	4,460	4,320	6,480	6,300	3,920	4,420	7,880	5,170	4,990	4,360	5,200	4,620	3,560	5,940	4,150
Selenium	0.823	0.615	390	0.680	0.823	0.568	0.577	0.400	0.34 J	0.445	0.389 J	0.439 J	0.416 J	0.451 J	0.38 J	0.39 J	0.626	0.500	0.501	0.520	0.600	0.522
Silver	0.0991	0.104	390	0.062 J	0.053 J	0.0714	0.0742 J	0.0852	0.0897 J	0.0876	0.0942	0.0774 J	0.0897 J	0.0955 J	0.087 J	0.0818 J	0.0856 J	0.0632 J	0.0871	0.0664	0.134	0.0921 J
Sodium	--	--	--	132	683	186	196	2,050	711	268	266	1,050	773	275	1,410	1,870	378	2,610	965	167	1,110	1,870
Thallium	0.345	0.356	0.78	0.245	0.246	0.240	0.243	0.293	0.360	0.339	0.358	0.305	0.345	0.373	0.492	0.360	0.294	0.303	0.368	0.254	0.486	0.338
Vanadium	34.7	50.9	390	24.6	26.4	23.7	24.2	38.8	43.2	40.6	37.0	41.5	44.8	36.3	45.0	38.3	25.1	41.8	44.6	27.8	60.0	42.0
Zinc	58.5	50.6	23,000	39.1	35.8	38.6	39.4	47.0	62.2	53.1	53.0	55.0	66.4	61.0	71.1	60.0	35.5	53.0	59.2	38.8	87.8	49.0

Table 5.19 (Continued)
Tract 21B-Decanting Station: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-SS07	21B-DS-SB07	21B-DS-SB107	21B-DS-SB07	21B-DS-SS08	21B-DS-SB08	21B-DS-SS09	21B-DS-SB09	21B-DS-SS10	21B-DS-SB10	21B-DS-SS11	21B-DS-SS111	21B-DS-SB11	21B-DS-SS12	21B-DS-SB12
			Sample Date	5/14/2018	5/14/2018		5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018		5/14/2018	4/10/2018	4/10/2018
			Sample Depth (feet bgs)	0-0.5	4-5	4-5	9-10	0-0.5	4-5	0-0.5	4-5	0-0.5	4-5	0-0.5	0-0.5	4-5	0-0.5	4-5
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal
Analyte	Surface Soil BTV	Subsurface Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/kg)																		
1,1,1,2-Tetrachloroethane	--	--	2,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,1,1-Trichloroethane	--	--	8,100,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
1,1,2,2-Tetrachloroethane	--	--	600	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Freon 113	--	--	6,700,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	0.96 J
1,1,2-Trichloroethane	--	--	1,100	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,1-Dichloroethane	--	--	3,600	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,1-Dichloroethene	--	--	230,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
1,1-Dichloropropene	--	--	--	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
1,2,3-Trichlorobenzene	--	--	63,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.6 U	2.4 U
1,2,3-Trichloropropane	--	--	5.1	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,2,4-Trichlorobenzene	--	--	24,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,2,4-Trimethylbenzene	--	--	300,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,2-Dibromo-3-chloropropane	--	--	5.3	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Ethylene dibromide	--	--	36	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,2-Dichlorobenzene	--	--	1,800,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,2-Dichloroethane	--	--	460	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,2-Dichloropropane	--	--	2500	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,3,5-Trimethylbenzene	--	--	270,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,3-Dichlorobenzene	--	--	--	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,3-Dichloropropane	--	--	1,600,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
1,4-Dichlorobenzene	--	--	2,600	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
2,2-Dichloropropane	--	--	--	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 UJ	2.4 UJ
2-Butanone	--	--	27,000,000	14 UJ	12 U	12 U	14 U	15 U	12 U	14 U	12 U	18 U	12 U	15 UJ	15 UJ	15 UJ	12 U	12 U
2-Chlorotoluene	--	--	1,600,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
2-Hexanone	--	--	200,000	14 UJ	12 U	12 U	14 U	15 U	12 U	14 U	12 U	18 U	12 U	15 UJ	15 UJ	15 UJ	12 U	12 U
4-Chlorotoluene	--	--	1,600,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
4-Isopropyltoluene	--	--	--	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
4-Methyl-2-pentanone	--	--	33,000,000	14 UJ	12 U	12 U	14 U	15 U	12 U	14 U	12 U	18 U	12 U	15 UJ	15 UJ	15 UJ	12 U	12 U
Acetone	--	--	61,000,000	14 UJ	12 UJ	12 UJ	14 UJ	15 UJ	12 UJ	14 UJ	12 UJ	18 U	12 U	15 UJ	15 UJ	15 UJ	6.8 J	12 U
Benzene	--	--	1,200	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Bromobenzene	--	--	290,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Bromochloromethane	--	--	150,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Bromodichloromethane	--	--	290	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Bromoform	--	--	19,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Bromomethane	--	--	6,800	5.5 UJ	5 U	4.6 U	5.5 U	6 U	4.6 U	5.5 U	5 U	7 U	4.8 U	6 UJ	6 UJ	6 U	5 U	4.8 U
Carbon disulfide	--	--	770,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	0.83 J	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
Carbon tetrachloride	--	--	650	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
Chlorobenzene	--	--	280,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Chlorodibromomethane	--	--	8,300	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Chloroethane	--	--	14,000,000	5.5 UJ	5 U	4.6 U	5.5 U	6 U	4.6 U	5.5 U	5 U	7 U	4.8 U	6 UJ	6 UJ	6 U	5 U	4.8 U
Chloroform	--	--	320	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Chloromethane	--	--	110,000	5.5 UJ	5 U	4.6 U	5.5 U	6 U	4.6 U	5.5 U	5 U	7 U	4.8 U	6 UJ	6 UJ	6 U	5 UJ	4.8 UJ
cis-1,2-Dichloroethene	--	--	160,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
cis-1,3-Dichloropropene[1]	--	--	1,800	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Dibromomethane	--	--	24,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Dichlorodifluoromethane	--	--	87,000	5.5 UJ	5 UJ	4.6 UJ	5.5 UJ	6 UJ	4.6 UJ	5.5 UJ	5 UJ	7 U	4.8 U	6 UJ	6 UJ	6 U	5 UJ	4.8 UJ
Ethylbenzene	--	--	5,800	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Hexachlorobutadiene	--	--	1,200	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Isopropylbenzene	--	--	1,900,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
m&p-Xylene	--	--	550,000	5.5 UJ	5 U	4.6 U	5.5 U	6 U	4.6 U	5.5 U	5 U	7 U	4.8 U	6 UJ	6 UJ	6 UJ	5 U	4.8 U
Methyl tert-butyl ether	--	--	47,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Methylene chloride	--	--	57,000	14 UJ	12 U	12 U	14 U	15 U	12 U	14 U	12 U	18 U	12 U	15 UJ	15 UJ	15 UJ	12 U	12 U
n-Butylbenzene	--	--	3,900,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
n-Propylbenzene	--	--	3,800,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Naphthalene	--	--	3,800	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
o-Xylene	--	--	650,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
sec-Butylbenzene	--	--	7,800,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Styrene	--	--	6,000,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
tert-Butylbenzene	--	--	7,800,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 UJ	2.3 U	2.8 UJ	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U

Table 5.19 (Continued)
Tract 21B-Decanting Station: Surface and Subsurface Soil Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-SS07	21B-DS-SB07	21B-DS-SB107	21B-DS-SB07	21B-DS-SS08	21B-DS-SB08	21B-DS-SS09	21B-DS-SB09	21B-DS-SS10	21B-DS-SB10	21B-DS-SS11	21B-DS-SS111	21B-DS-SB11	21B-DS-SS12	21B-DS-SB12
			Sample Date	5/14/2018	5/14/2018		5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018	5/14/2018		5/14/2018	4/10/2018	4/10/2018
			Sample Depth (feet bgs)	0-0.5	4-5	4-5	9-10	0-0.5	4-5	0-0.5	4-5	0-0.5	4-5	0-0.5	0-0.5	4-5	0-0.5	4-5
			Sample Type	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal
Analyte	Surface Soil BTV	Subsurface Soil BTV	Residential RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/kg)																		
Tetrachloroethene	--	--	24,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 U	2.5 U	2.4 U
Toluene	--	--	4,900,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
trans-1,2-Dichloroethene	--	--	1,600,000	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
trans-1,3-Dichloropropene[1]	--	--	1,800	2.8 UJ	2.5 UJ	2.3 UJ	2.8 UJ	3 UJ	2.3 UJ	2.8 UJ	2.5 UJ	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Trichloroethene	--	--	940	2.8 UJ	2.5 U	2.3 U	2.8 U	3 U	2.3 U	2.8 U	2.5 U	3.5 U	2.4 U	3 UJ	3 UJ	3 UJ	2.5 U	2.4 U
Trichlorofluoromethane	--	--	23,000,000	5.5 UJ	5 U	4.6 U	5.5 U	6 U	4.6 U	5.5 U	5 U	7 U	4.8 U	6 UJ	6 UJ	6 U	5 U	4.8 U
Vinyl chloride	--	--	59	5.5 UJ	5 U	4.6 U	5.5 U	6 U	4.6 U	5.5 U	5 U	7 U	4.8 U	6 UJ	6 UJ	6 U	5 U	4.8 U
Explosives (µg/kg)																		
HMX	--	--	3,900,000	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
RDX	--	--	8,300	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
1,3,5-Trinitrobenzene	--	--	2,200,000	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
1,3-Dinitrobenzene	--	--	6,300	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
Tetryl	--	--	160,000	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
Nitrobenzene	--	--	5,100	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
2,4,6-Trinitrotoluene	--	--	21,000	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
2-Amino-4,6-dinitrotoluene	--	--	7,700	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
4-Amino-2,6-dinitrotoluene	--	--	7,700	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
2,6-Dinitrotoluene	--	--	360	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
2,4-Dinitrotoluene	--	--	1,700	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
2-Nitrotoluene	--	--	3,200	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
3-Nitrotoluene	--	--	6,300	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
4-Nitrotoluene	--	--	34,000	55 U	54 U	59 U	54 U	55 U	56 U	58 U	57 U	60 U	55 U	57 U	52 U	53 U	62 U	59 U
Nitroglycerin	--	--	6,300	440 U	430 U	480 U	440 U	440 U	450 U	460 U	450 U	480 U	440 U	450 U	420 U	420 U	490 U	480 U
PETN	--	--	130,000	440 U	430 U	480 U	440 U	440 U	450 U	460 U	450 U	480 U	440 U	450 U	420 U	420 U	490 U	480 U
Metals (mg/kg)																		
Aluminum	23,900	21,600	77,000	25,100	21,000	18,000	20,100	12,500	19,700	17,600	20,100	27,600	18,700	21,100	23,300	19,100	19,100	21,800
Antimony	0.225	0.317	31	0.2 J	0.256 J	0.2 J	0.206 J	0.13 J	0.237 J	0.18 J	0.19 J	0.295 J	0.21 J	0.186 J	0.233 J	0.244 J	0.215	0.236
Arsenic	5.09	15.1	0.68	5.03	7.92 J	4.25 J	6.25	2.92	6.34	3.21	5.02	4.82	4.45	4.59	5.52	4.22	3.78	5.09
Barium	248	409	15,000	190	399	293	219	137	263	204	185	345	527	188	226	308	236	243
Beryllium	1.07	0.965	160	1.08	0.945	0.834	0.922	0.618	0.878	0.784	0.874	1.19	0.875	0.895	1.03	0.840	0.879	1.03
Cadmium	0.275	0.158	71	0.02 J	0.047 J	0.0604 J	0.052 J	0.119	0.072 J	0.0826 J	0.013 U	0.131 J	0.024 U	0.043 J	0.018 J	0.014 J	0.0088 J	0.0578 J
Calcium	--	--	--	4,100	28,900	33,400	11,600	2,360	39,700	2,100	14,300	3,350	36,900	3,090	3,420	47,300	19,600	6,580
Chromium Total[2]	20.2	20.8	120,000	21.2	20.0	17.7	20.6	13.3	19.2	16.9	20.6	22.2	19.1	19.0	20.4	18.2	21.1	19.0
Chromium VI	--	--	0.3	--	--	--	--	--	--	--	--	--	--	0.35 U	0.35 UJ	0.47 U	0.48 U	0.37 U
Cobalt	7.68	10.3	23	8.16	8.20	8.08	6.74	6.32	8.67	6.47	8.24	8.27	6.44	7.56	8.51	7.40	6.64	7.04
Copper	13.6	15.7	3,100	15.5	15.6	13.2	15.9	8.90	12.6	11.2	12.9	14.2	13.4	12.3	13.9	12.3	12.8	13.3
Iron	18,500	19,600	55,000	18,600	18,600	16,500	19,000	10,600	17,400	13,500	18,100	21,400 J	15,700 J	16,300	17,600	16,200 J	18,200	19,700
Lead	16	15.9	400	14.9	12.9	12.9	13.7	38.1	12.5	15.9	14.5	15.7	10.8	12.9	14.2	10.3	11.8	13.1
Magnesium	--	--	--	6,090 J	7,940 J	7,710 J	7,530 J	3,010 J	8,160 J	4,770 J	9,110 J	6,610 J	9,980 J	5,600 J	7,290 J	9,230 J	8,640	7,440
Manganese	484	562	1,800	276	713	543	294	312	454	252	345	326 J	237 J	364	346	280 J	397	257
Mercury	0.0256	0.0294	11	0.012 J	0.019 J	0.00019 J	0.032	0.015 J	0.016 J	0.024 J	0.016 J	0.024 J	0.019 J	0.016 J	0.019 J	0.024 J	0.02 J	0.015 J
Nickel	16.6	24	1,500	16.6	18.5	17.3	16.7	9.42	19.0	12.8	17.4	20.7	15.4	14.8	17.2	16.0	16.7	18.5
Potassium	--	--	--	4,960	4,170	3,720	3,830	3,880	5,200	5,610	4,930	8,000	5,630	5,290	5,950	5,080	5,370	6,220
Selenium	0.823	0.615	390	0.466 J	0.5 J	0.374 J	0.442	0.626	0.45 J	0.560	0.442	0.555 J	0.504 J	0.587	0.620	0.4 J	0.402	0.514
Silver	0.0991	0.104	390	0.0764 J	0.0963 J	0.0817	0.0958	0.0635 J	0.084 J	0.066 J	0.0763	0.1 J	0.107 J	0.0850	0.0902 J	0.0866 J	0.0836	0.116
Sodium	--	--	--	181	1,200	1,280	1,020	190	1,670	343	1,970	176	530	163	182	1,620	1,010	212
Thallium	0.345	0.356	0.78	0.374	0.354	0.314	0.332	0.234	0.333	0.264	0.307	0.363	0.324	0.312	0.352	0.304	0.318	0.325
Vanadium	34.7	50.9	390	36.8	47.6	36.3	44.3	25.5	43.6	31.2	42.1	43.1	35.7	37.0	41.2	38.8	40.2	30.2
Zinc	58.5	50.6	23,000	55.5	49.1	46.4	56.7	36.3	46.4	45.4	46.2	65.6	54.2	49.3	53.1	46.2	48.8	51.5

Notes:

RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.

Shaded results denote an exceedance of the BTV (if available) and the residential RSL

[1] = RSL for total 1,3-dichloropropene used as a surrogate

[2] = RSL for trivalent chromium used as a surrogate

-- = not available or not analyzed

µg/kg = micrograms per kilogram

BTV = background threshold value

ft bgs = feet below ground surface

HMX = cyclotetramethylenetetranitramine

J = value listed was reported below the quantitation limit and is estimated

mg/kg = milligrams per kilogram

PETN = pentaerythritol tetranitrate

RDX = cyclotrimethylenetrinitramine

RSL = regional screening level

U = value listed is non-detect

Table 5.20
Tract 21B-Decanting Station: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-G0102	21B-DS-LGIA-MW01	21B-DS-G0103	21B-DS-LGIA-MW02	21B-DS-G0104	21B-DS-LGIA-MW03	21B-DS-LGIA-MW103	21B-DS-G0063	21B-DS-LGIA-MW04	CHAAP-G0105	21B-DS-LGIA-MW05	21B-DS-LGIA-MW105	21B-DS-G0107
			Sample Date	6/2/2018	6/2/2018	6/2/2018	6/2/2018	8/13/2018	8/13/2018		6/1/2018	6/1/2018	6/13/2018	6/13/2018		6/2/2018
			Sample Depth (feet bgs)	14.2-24.2	32.5-42.5	14.2-24.2	32.5-42.5	UGIA	33-43		3.2-18.2	32-42	14.6-24.6	33-43		14.6-24.6
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Freon 113	--	--	10,000	45,000	180 J	58,000	20,000	6,300	16,000	13,000	7.8	3,000	30,000	16,000	16,000	96 J
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 UJ	0.5 UJ	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	20 U	10 U	10 U	0.5 UJ
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	3.8 J	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	100 U	50 U	50 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	100 U	50 U	50 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.47 J	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	100 U	50 U	50 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	12 U	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	100 U	50 U	50 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	40 U	20 U	20 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 UJ	1 U	1 U	--	1 U	1 U	1 U	1 U	40 U	20 U	20 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	1 U	1 U	--	1 UJ	1 UJ	1 U	1 U	40 U	20 U	20 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Dichlorodifluoromethane	--	--	200	2.8	1 U	32	7.2	--	120 J	120 J	1 U	22	40 J	22 J	25 J	0.81 J
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.37 J	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	--	0.75 U	0.75 U	0.75 U	0.75 U	30 U	15 U	15 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 UJ	2.5 U	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	100 U	50 U	50 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	40 U	20 U	20 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U

Table 5.20 (Continued)
Tract 21B-Decanting Station: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-G0102	21B-DS-LGIA-MW01	21B-DS-G0103	21B-DS-LGIA-MW02	21B-DS-G0104	21B-DS-LGIA-MW03	21B-DS-LGIA-MW103	21B-DS-G0063	21B-DS-LGIA-MW04	CHAAP-G0105	21B-DS-LGIA-MW05	21B-DS-LGIA-MW105	21B-DS-G0107
			Sample Date	6/2/2018	6/2/2018	6/2/2018	6/2/2018	8/13/2018	8/13/2018		6/1/2018	6/1/2018	6/13/2018	6/13/2018		6/2/2018
			Sample Depth (feet bgs)	14.2-24.2	32.5-42.5	14.2-24.2	32.5-42.5	UGIA	33-43		3.2-18.2	32-42	14.6-24.6	33-43		14.6-24.6
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)																
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	20 U	10 U	10 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	40 U	20 U	20 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	40 U	20 U	20 U	1 U
Explosives (µg/L)																
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Metals (µg/L)																
Aluminum	7,110	--	20,000	124	49.7 U	43 U	332	46.4 U	80.6 J	82.1 J	40 U	1,100	177	194	228	1,600
Antimony	--	6	7.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic	14.8	10	0.052	6.3	7	6.3	7.3	5.3	4 U	4 U	2.3 J	4 U	5.1	2.4 J	4 U	3.4 J
Barium	81.5	2,000	3,800	37.5	31.4	146	36.1	45.7	44.9	43.4	33.2	52	60.7	49.2	49.1	56
Beryllium	0.31	4	25	0.2 U	0.2 U	0.2 U	0.042 J	0.2 U	0.038 J	0.035 J	0.2 U	0.09 J	0.037 J	0.2 U	0.036 J	0.12 J
Cadmium	--	5	9.2	0.2 U	0.2 U	0.032 J	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.088 J	0.2 UJ	0.077 J	0.2 U
Calcium	--	--	--	334,000	379,000	270,000	378,000	339,000	370,000	358,000	263,000	353,000	335,000	366,000	366,000	327,000
Chromium Total[2]	--	100	22,000	4 UJ	4 UJ	4 U	4 UJ	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Chromium VI	--	--	35	--	--	--	--	12.5 U	12.5 U	62 U	--	--	12.5 UJ	62 UJ	12.5 UJ	--
Cobalt	5.5	--	6	0.812 J	0.686 J	1.2 J	1.05 J	0.862 J	0.839 J	0.754 J	0.645 J	1.16 J	0.93 J	0.842 J	0.855 J	1.4 J
Copper	--	1,300	800	2 U	2 U	11.4 J	2 U	3.72 UJ	3.2 UJ	3.51 UJ	4.4 UJ	5.25 UJ	3.26 UJ	4.06 UJ	5.2 UJ	2.83 UJ
Iron	10,500	--	14,000	3,950	5,560	2,880	6,400	5,190	6,900	6,750	1,430	8,360	6,950	3,160	3,240	4,620
Lead	4.06	15	15	0.33 J	0.5 U	0.54 J	0.51 J	0.22 J	0.16 J	0.18 J	0.5 U	0.818 J	0.49 J	0.25 J	0.29 J	1.15
Magnesium	--	--	--	62,800	64,900	61,400	66,000	68,700	66,600	64,400	56,200	62,400	68,400	66,600	66,800	63,600
Manganese	1,730	--	430	542	776	1,270	818	968	988	956	299	919	1,800	1,100	1,100	728
Mercury	--	2	0.63	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8.04	--	390	3.23 J	2.88 J	4 J	3.15 J	3.38 J	3.05 J	2.72 J	2.47 J	2.52 J	4.62 J	3.48 J	3.79 J	4.5 J
Potassium	--	--	--	26,000	20,500	28,600	20,500	23,500	17,900	17,200	26,000	18,500	34,100	19,600	19,600	28,100
Selenium	--	50	100	2.38 J	3 U	3 U	3 U	3 UJ	0.31 J	3 UJ	3 U	3 U	3 U	3 U	3 U	3 U
Silver	--	--	94	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	--	--	--	194,000	211,000	181,000	214,000	213,000	212,000	204,000	223,000	208,000	220,000	215,000	213,000	202,000
Thallium	--	2	0.2	0.4 U	0.4 UJ	0.4 UJ	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 UJ
Vanadium	12.5	--	86	2 J	0.66 J	2.6 J	1.7 J	4 U	4 U	4 U	4 U	5.74	4 U	4 U	2.7 J	5.03
Zinc	34	--	6,000	8 U	8 U	6 J	8 U	7.5 J	8 U	4.8 J	8 U	6 J	4.8 J	5.7 J	7.6 J	6.7 J

Table 5.20 (Continued)
Tract 21B-Decanting Station: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-LGIA-MW06	21B-DS-G0106	DS-LGIA-MW07	21B-DS-UGIA-MW08	21B-DS-LGIA-MW09	21B-DS-UGIA-MW10	21B-DS-UGIA-MW11	21B-DS-LGIA-MW12	21B-DS-LGIA-MW13
			Sample Date	6/19/2018	6/2/2018	6/2/2018	8/10/2018	8/10/2018	8/10/2018	8/10/2018	8/13/2018	8/21/2018
			Sample Depth (feet bgs)	33-43	14.6-24.6	35-45	10-20	33-43	9.5-19.5	11.5-21.5	34-44	34.5-44.5
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)												
1,1,1,2-Tetrachloroethane	--	--	0.57	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,1,1-Trichloroethane	--	200	8,000	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	0.076	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Freon 113	--	--	10,000	54,000	0.32 J	11,000	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.73 J	5.1
1,1,2-Trichloroethane	--	5	0.28	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,1-Dichloroethane	--	--	2.8	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,1-Dichloroethene	--	7	280	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,1-Dichloropropene	--	--	--	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2,3-Trichlorobenzene	--	--	7	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2,3-Trichloropropane	--	--	0.00075	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2,4-Trichlorobenzene	--	70	1.2	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2,4-Trimethylbenzene	--	--	56	40 U	0.5 UJ	0.5 UJ	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2-Dichlorobenzene	--	600	300	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2-Dichloroethane	--	5	0.17	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,2-Dichloropropane	--	5	0.85	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,3,5-Trimethylbenzene	--	--	60	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,3-Dichloropropane	--	--	370	40 U	0.5 U	0.5 U	--	--	--	--	--	--
1,4-Dichlorobenzene	--	75	0.48	40 U	0.5 U	0.5 U	--	--	--	--	--	--
2,2-Dichloropropane	--	--	--	40 U	0.5 U	0.5 U	--	--	--	--	--	--
2-Butanone	--	--	5,600	200 U	2.5 U	2.5 U	--	--	--	--	--	--
2-Chlorotoluene	--	--	240	40 U	0.5 U	0.5 U	--	--	--	--	--	--
2-Hexanone	--	--	38	200 U	2.5 U	2.5 U	--	--	--	--	--	--
4-Chlorotoluene	--	--	250	40 U	0.5 U	0.5 U	--	--	--	--	--	--
4-Isopropyltoluene	--	--	--	40 U	0.5 U	0.5 U	--	--	--	--	--	--
4-Methyl-2-pentanone	--	--	6,300	200 U	2.5 U	2.5 U	--	--	--	--	--	--
Acetone	--	--	14,000	200 U	2.5 U	2.5 U	--	--	--	--	--	--
Benzene	--	5	0.46	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Bromobenzene	--	--	62	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Bromoform	--	80	3.3	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Bromomethane	--	--	7.5	80 U	1 U	1 UJ	--	--	--	--	--	--
Carbon disulfide	--	--	810	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Carbon tetrachloride	--	5	0.46	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Chlorobenzene	--	100	78	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Bromochloromethane	--	--	83	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Chlorodibromomethane	--	80	0.87	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Chloroethane	--	--	21,000	80 U	1 U	1 U	--	--	--	--	--	--
Chloroform	--	80	0.22	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Chloromethane	--	--	190	80 U	1 U	1 U	--	--	--	--	--	--
cis-1,2-Dichloroethene	--	70	36	40 U	0.5 U	0.5 U	--	--	--	--	--	--
cis-1,3-Dichloropropene[1]	--	--	0.47	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Dibromomethane	--	--	8.3	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Bromodichloromethane	--	80	0.13	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Dichlorodifluoromethane	--	--	200	80 U	1 U	16	--	--	--	--	--	--
Ethylbenzene	--	700	1.5	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Ethylene Dibromide	--	0.05	0.0075	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Hexachlorobutadiene	--	--	0.14	60 U	0.75 U	0.75 U	--	--	--	--	--	--
Isopropylbenzene	--	--	450	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Methyl tert-butyl ether	--	--	14	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Methylene chloride	--	5	11	200 U	2.5 U	2.5 UJ	--	--	--	--	--	--
m&p-Xylene	--	--	190	80 U	1 U	1 U	--	--	--	--	--	--
Naphthalene	--	--	0.12	40 U	0.5 U	0.5 U	--	--	--	--	--	--
n-Butylbenzene	--	--	1,000	40 U	0.5 U	0.5 U	--	--	--	--	--	--
n-Propylbenzene	--	--	660	40 U	0.5 U	0.5 U	--	--	--	--	--	--
o-Xylene	--	--	190	40 U	0.5 U	0.5 U	--	--	--	--	--	--
sec-Butylbenzene	--	--	2,000	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Styrene	--	100	1,200	40 U	0.5 U	0.5 U	--	--	--	--	--	--
tert-Butylbenzene	--	--	690	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Tetrachloroethene	--	5	11	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Toluene	--	1,000	1,100	40 U	0.5 U	0.5 U	--	--	--	--	--	--
trans-1,2-Dichloroethene	--	100	360	40 U	0.5 U	0.5 U	--	--	--	--	--	--

Table 5.20 (Continued)
Tract 21B-Decanting Station: Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21B-DS-LGIA-MW06	21B-DS-G0106	DS-LGIA-MW07	21B-DS-UGIA-MW08	21B-DS-LGIA-MW09	21B-DS-UGIA-MW10	21B-DS-UGIA-MW11	21B-DS-LGIA-MW12	21B-DS-LGIA-MW13
			Sample Date	6/19/2018	6/2/2018	6/2/2018	8/10/2018	8/10/2018	8/10/2018	8/10/2018	8/13/2018	8/21/2018
			Sample Depth (feet bgs)	33-43	14.6-24.6	35-45	10-20	33-43	9.5-19.5	11.5-21.5	34-44	34.5-44.5
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)												
trans-1,3-Dichloropropene[1]	--	--	0.47	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Trichloroethene	--	5	0.49	40 U	0.5 U	0.5 U	--	--	--	--	--	--
Trichlorofluoromethane	--	--	5,200	80 U	1 U	1 U	--	--	--	--	--	--
Vinyl chloride	--	2	0.019	80 U	1 U	1 U	--	--	--	--	--	--
Explosives (µg/L)												
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
Tetryl	--	--	39	0.12 UJ	0.12 U	0.12 U	--	--	--	--	--	--
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	--	--	--	--	--	--
Nitroglycerin	--	--	2	2 U	2 U	2 U	--	--	--	--	--	--
PETN	--	--	19	2 U	2 U	2 U	--	--	--	--	--	--
Metals (µg/L)												
Aluminum	7,110	--	20,000	959	196	230	--	--	--	--	--	--
Antimony	--	6	7.8	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--
Arsenic	14.8	10	0.052	2.6 J	4 J	12	--	--	--	--	--	--
Barium	81.5	2,000	3,800	98.4	38.9	30	--	--	--	--	--	--
Beryllium	0.31	4	25	0.07 J	0.2 U	0.2 U	--	--	--	--	--	--
Cadmium	--	5	9.2	0.2 U	0.054 J	0.2 U	--	--	--	--	--	--
Calcium	--	--	--	346,000	309,000	361,000	--	--	--	--	--	--
Chromium Total[2]	--	100	22,000	4 U	4 UJ	4 UJ	--	--	--	--	--	--
Chromium VI	--	--	35	12.5 U	--	--	--	--	--	--	--	--
Cobalt	5.5	--	6	0.864 J	0.73 J	0.761 J	--	--	--	--	--	--
Copper	--	1,300	800	3.83 J	2 U	2.12 UJ	--	--	--	--	--	--
Iron	10,500	--	14,000	4,900	3,810	4,690	--	--	--	--	--	--
Lead	4.06	15	15	2.48	0.15 J	0.821 J	--	--	--	--	--	--
Magnesium	--	--	--	65,500	56,900	64,800	--	--	--	--	--	--
Manganese	1,730	--	430	1,120	486	969	--	--	--	--	--	--
Mercury	--	2	0.63	0.019 J	0.1 U	0.1 U	--	--	--	--	--	--
Nickel	8.04	--	390	1.55 U	2.78 J	3.06 J	--	--	--	--	--	--
Potassium	--	--	--	18,800	24,200	19,600	--	--	--	--	--	--
Selenium	--	50	100	3 U	3 U	3 U	--	--	--	--	--	--
Silver	--	--	94	0.4 U	0.4 U	0.4 U	--	--	--	--	--	--
Sodium	--	--	--	201,000	189,000	203,000	--	--	--	--	--	--
Thallium	--	2	0.2	0.4 U	0.4 UJ	0.4 UJ	--	--	--	--	--	--
Vanadium	12.5	--	86	5.48	1.2 J	1.7 J	--	--	--	--	--	--
Zinc	34	--	6,000	6.1 J	8 U	8 U	--	--	--	--	--	--

Notes:

Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).

[1] RSL for total 1,3-dichloropropene used as a surrogate

[2] RSL for trivalent chromium used for total chromium

-- = not available or not analyzed

µg/L = micrograms per liter

BTV = background threshold value

bgs = below ground surface

HMX = cyclotetramethylenetetranitramine

J = value listed was reported below the quantitation limit and is estimated

MCL = maximum contaminant level

PETN = pentaerythritol tetranitrate

RDX = cyclotrimethylenetrinitramine

RSL = regional screening level

U = value listed is non-detect

UGIA = Upper Grand Island Aquifer

Table 5.21
Tract 21C: DPT Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21C-UGIA-DPT01	21C-LGIA-DPT02	21C-UGIA-DPT03	21C-LGIA-DPT04	21C-UGIA-DPT05	21C-LGIA-DPT06	21C-LGIA-DPT106	21C-UGIA-DPT07	21C-LGIA-DPT08	21C-UGIA-DPT09	21C-UGIA-DPT109
			Sample Date	3/17/2018	3/17/2018	3/17/2018	3/17/2018	3/17/2018	3/17/2018		3/17/2018	3/17/2018	3/18/2018	
			Screen Interval (feet bgs)	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38		14.5-18	34.5-38	14.5-18	
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Duplicate
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)														
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	1,700 J	51 U	380 J	13,000	0.5 U	0.5 U	0.81 U	1,800 J	2,800 J	32	30
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ
Dichlorodifluoromethane	--	--	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.21 (Continued)
Tract 21C: DPT Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21C-UGIA-DPT01	21C-LGIA-DPT02	21C-UGIA-DPT03	21C-LGIA-DPT04	21C-UGIA-DPT05	21C-LGIA-DPT06	21C-LGIA-DPT106	21C-UGIA-DPT07	21C-LGIA-DPT08	21C-UGIA-DPT09	21C-UGIA-DPT109
			Sample Date	3/17/2018	3/17/2018	3/17/2018	3/17/2018	3/17/2018	3/17/2018		3/17/2018	3/17/2018	3/18/2018	
			Screen Interval (feet bgs)	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38		14.5-18	34.5-38	14.5-18	
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Duplicate
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.5 U	0.34 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Explosives (µg/L)														
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Table 5.21 (Continued)
Tract 21C: DPT Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21C-LGIA-DPT10	21C-UGIA-DPT11	21C-LGIA-DPT12	21C-UGIA-DPT13	21C-LGIA-DPT14	21C-UGIA-DPT15	21C-LGIA-DPT16	21C-UGIA-DPT17	21C-LGIA-DPT18	21C-UGIA-DPT19	21C-LGIA-DPT20
			Sample Date	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018
			Screen Interval (feet bgs)	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (µg/L)														
1,1,1,2-Tetrachloroethane	--	--	0.57	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
1,1,1-Trichloroethane	--	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	--	--	10,000	8.6 J	580	4,800 J	23	43 J	0.5 J	0.5 U	260	0.5 U	140	3,300 J
1,1,2-Trichloroethane	--	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	--	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	56	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	--	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	--	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	--	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	--	--	14,000	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	4.3 U	2.5 U	2.5 U
Benzene	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	--	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	--	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	--	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	--	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	--	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	--	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	--	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	80	0.13	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
Dichlorodifluoromethane	--	--	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	--	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	--	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 5.21 (Continued)
Tract 21C: DPT Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

			Sample Location	21C-LGIA-DPT10	21C-UGIA-DPT11	21C-LGIA-DPT12	21C-UGIA-DPT13	21C-LGIA-DPT14	21C-UGIA-DPT15	21C-LGIA-DPT16	21C-UGIA-DPT17	21C-LGIA-DPT18	21C-UGIA-DPT19	21C-LGIA-DPT20
			Sample Date	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018	3/18/2018
			Screen Interval (feet bgs)	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38	14.5-18	34.5-38
			Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Analyte	Groundwater BTV	MCL	Tap Water RSL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Methyl tert-butyl ether	--	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	--	5	11	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m&p-Xylene	--	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	--	--	0.12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	--	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	--	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	--	1,000	1,100	0.5 U	0.5 U	0.53 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	--	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	--	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	--	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Explosives (µg/L)														
HMX	--	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	--	0.97	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	1.9	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
Shaded results denote an exceedance of the BTV (if available) and the tap water RSL (cancer risk = 1E-06, non-cancer hazard quotient = 1.0).
[1] = RSL for total 1,3-dichloropropene used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level
U = value listed is non-detect

Table 5.22
Tract 21C: Monitoring Well Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21C-UGIA-MW01	21C-LGIA-MW02	21C-UGIA-MW03	21C-LGIA-MW04	21C-UGIA-MW05	21C-LGIA-MW06	21C-LGIA-MW106	21C-UGIA-MW07	21C-LGIA-MW08	21C-UGIA-MW09	21C-LGIA-MW10
		Sample Date	5/21/2018	5/21/2018	5/21/2018	5/21/2018	5/21/2018	5/23/2018		5/22/2018	5/22/2018	5/23/2018	5/23/2018
		Screen Interval (feet bgs)	11-21	32-42	10.5-20.5	34-44	10-20	34.5-44.5		11.5-21.5	35-45	11-21	35-45
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Volatile Organic Compounds (µg/L)													
1,1,1,2-Tetrachloroethane	--	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	8,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	--	0.076	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Freon 113	--	10,000	210 J	58 J	550 J	8,500	120	4,100	4,000	740	3,000	1.2	460
1,1,2-Trichloroethane	5	0.28	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	2.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	7	280	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	0.00075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	70	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	56	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	1 UJ	0.5 UJ	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	0.2	0.00033	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	600	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	370	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	75	0.48	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	5,600	2.5 U	2.5 U	2.5 U	2.5 U	18	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	--	240	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	38	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U
4-Chlorotoluene	--	250	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
4-Isopropyltoluene	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	--	6,300	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U
Acetone	--	14,000	3.7 U	2.5 U	3.6 U	4.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U
Benzene	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	62	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Bromoform	80	3.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	7.5	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	2 U	1 U	1 UJ	1 UJ
Carbon disulfide	--	810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	5	0.46	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	80	0.87	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	21,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
Chloroform	80	0.22	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	36	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene[1]	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	8.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	80	0.13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	200	0.47 J	2.7	11 J	88	1.9 J	51	55	5.8	41	1 U	9.4
Ethylbenzene	700	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	0.05	0.0075	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	0.14	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	1.5 U	0.75 U	0.75 U	0.75 U
Isopropylbenzene	--	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	--	14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Methylene chloride	5	11	4.6 U	2.8 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.4 J	2.5 U	2.5 U
m&p-Xylene	--	190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U

Table 5.22 (Continued)
Tract 21C: Monitoring Well Groundwater Analytical Data Summary
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

		Sample Location	21C-UGIA-MW01	21C-LGIA-MW02	21C-UGIA-MW03	21C-LGIA-MW04	21C-UGIA-MW05	21C-LGIA-MW06	21C-LGIA-MW106	21C-UGIA-MW07	21C-LGIA-MW08	21C-UGIA-MW09	21C-LGIA-MW10
		Sample Date	5/21/2018	5/21/2018	5/21/2018	5/21/2018	5/21/2018	5/23/2018		5/22/2018	5/22/2018	5/23/2018	5/23/2018
		Screen Interval (feet bgs)	11-21	32-42	10.5-20.5	34-44	10-20	34.5-44.5		11.5-21.5	35-45	11-21	35-45
		Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal
Analyte	**MCL**	**Tap Water RSL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Naphthalene	--	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	1,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	2,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Styrene	100	1,200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	690	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	5	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Toluene	1,000	1,100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	100	360	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene[1]	--	0.47	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	5,200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
Vinyl chloride	2	0.019	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
Explosives (µg/L)													
HMX	--	1,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
RDX	--	0.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3,5-Trinitrobenzene	--	590	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	0.14	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	39	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	0.049	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.24	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	0.31	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	4.3	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	1.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
PETN	--	19	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
[1] RSL for total 1,3-dichloropropene used as a surrogate
-- = not available or not analyzed
µg/L = micrograms per liter
BTV = background threshold value
bgs = below ground surface
HMX = cyclotetramethylenetetranitramine
J = value listed was reported below the quantitation limit and is estimated
MCL = maximum contaminant level
PETN = pentaerythritol tetranitrate
RDX = cyclotrimethylenetrinitramine
RSL = regional screening level (cancer risk = 1E-06, non-cancer hazard quotient = 1.0)
U = analyte not detected, listed value is the reporting limit

Table 6.1
Physical and Chemical Properties for Site Contaminants
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Solubility in Water (mg/L)	Molecular Weight (g/mol)	Density (g/cm3)	Henry's Law Constant (atm-m3/mol)	Vapor Pressure (mmHg)	K_{oc} (L/kg)	log K_{ow}	K_d (L/kg)
Volatile Organic Compounds								
Acetone	Miscible	5.8E+01	7.8E+01	3.5E+05	2.3E+02	2.4E+00	-2.4E-01	NA
Bis(2-ethylhexyl)phthalate	2.7E-01	3.9E+02	9.8E-01	2.7E-07	1.4E-07	8.7E+01 - 5.1E+05*	7.6E+00	NA
2-Butanone (Methyl Ethyl Ketone)	2.2E+05	7.2E+01	8.0E-01	5.7E-05	9.1E+01	4.5E+00	2.9E-01	NA
cis-1,2-Dichloroethene	3.5E+03	9.7E+01	1.3E+00	1.0E-02	2.7E+02	4.9E+01	1.9E+00	NA
Carbon disulfide	2.2E+03	7.6E+01	1.3E+00	1.4E+02	3.6E+02	2.2E+01	1.9E+00	NA
Chloromethane	5.0E+03	5.0E+01	9.1E-01	1.0E-02	6.8E+01	1.3E+01	9.1E-01	NA
Dichlorodifluoromethane	2.8E+02	1.2E+02	1.4E+00	3.4E-01	4.9E+03	7.5E+01	2.2E+02	NA
Dichloromethane (Methylene Chloride)	1.3E+04	8.5E+01	1.3E+00	0.0E+00	4.4E+02	8.0 - 48*	1.3E+00	NA
Ethylbenzene	1.7E+02	1.1E+02	8.6E-01	7.9E+03	9.6E+00	4.5E+02	3.2E+00	NA
4-Isopropyltoluene	2.3E+01	1.3E+02	8.6E-01	1.1E-02	1.5E+00	1.1E+03	4.1E+00	NA
Naphthalene	2.4E-04	1.3E+02	1.2E+00	4.4E-04	8.7E-02	1.1E+02 - 9.3E+03*	1.9E+03	NA
Trichlorofluoromethane	1.1E+03	1.4E+02	1.5E+00	1.0E-01	8.0E+02	1.6E+02	2.5E+00	NA
Freon 113	1.7E+02	1.9E+02	1.6E+00	5.3E-01	3.6E+02	5.5E+02	1.4E+03	NA
1,2,4-Trimethylbenzene	5.7E+01	1.2E+02	8.8E-01	1.0E-02	2.1E+00	5.4E+02	3.8E+00	NA
Toluene	5.3E+02	9.2E+01	8.6E-01	6.0E-03	2.8E+00	2.3E+02	2.7E+00	NA
Xylenes	1.1E+02	1.1E+02	8.6E-01	6.6E-03	8.0E+00	3.8E+02	3.2E+00	NA
Polynuclear Aromatic Hydrocarbons								
Acenaphthene	3.9E+00	1.5E+02	1.2E+00	1.8E-04	2.2E-03	2.5E+03 - 2.1E+05*	3.9E+00	NA
Benzo(a)anthracene	9.4E-03	2.3E+02	1.3E+00	1.2E-05	2.1E-07	1.8E+05	5.8E+00	NA
Benzo(b)fluoranthene	1.5E-03	2.5E+02	NA	6.6E-07	5.0E-07	6.0E+05	5.8E+00	NA
Benzo(k)fluoranthene	8.0E-04	2.5E+02	NA	5.8E-07	9.7E-10	5.9E+05	6.1E+00	NA
Benzo(g,h,i)perylene	2.6E-04	2.8E+02	1.3E+00	3.3E-07	1.0E-10	6.3E+06	6.6E+02	NA
Benzo(a)pyrene	1.6E-03	2.5E+02	NA	4.6E-07	5.5E-09	5.9E+05	6.1E+00	NA
Biphenyl	7.5E+00	1.5E+02	1.0E+00	3.1E-04	1.0E-02	8.7E+02 - 3.3E+03*	4.0E+00	NA
Chrysene	2.0E-03	2.3E+02	1.3E+00	5.2E-06	6.2E-09	1.8E+05	5.8E+00	NA
Dibenzofuran	3.1E+00	1.7E+02	1.1E+00	2.1E-04	2.5E-03	4.2E+03	4.1E+00	4.31
Fluoranthene	2.6E-01	2.0E+02	1.3E+00	8.9E-06	1.0E-02	5.5E+04	5.2E+00	NA
Indeno(1,2,3-c,d)pyrene	1.9E-04	2.8E+02	NA	3.5E-07	1.3E-10	2.0E+06	6.7E+00	NA
2-Methylnaphthalene	2.5E+01	1.4E+02	1.0E+00	5.2E-04	6.0E-02	2.5E+03	3.9E+00	NA
Phenanthrene	1.1E+00	1.8E+02	1.0E+00	4.2E-05	1.2E-04	9.2E+03 - 2.5E+04*	4.5E+00	NA

Table 6.1 (Continued)
Physical and Chemical Properties for Site Contaminants
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Solubility in Water (mg/L)	Molecular Weight (g/mol)	Density (g/cm3)	Henry's Law Constant (atm-m3/mol)	Vapor Pressure (mmHg)	K_{oc} (L/kg)	log K_{ow}	K_d (L/kg)
Pyrene	1.4E-01	2.0E+02	1.3E+00	1.2E-05	4.5E-06	6.2E+04 - 9.0E+04*	4.9E+00	2.4E-03
Explosives								
2-Amino-4,6-dinitrotoluene (2-Am-DNT)	NA	2.0E+02	NA	NA	NA	NA	NA	NA
4-Amino-2,6-dinitrotoluene (4-Am-DNT)	NA	3.6E+02	NA	NA	NA	NA	NA	NA
Cyclotetramethylenetetranitramine (HMX)	6.6E+00	3.0E+02	1.8E+00	8.7E-10	3.3E-14	3.0E+01 - 2.9E+02*	1.7E-01	8.6E-20
Cyclotrimethylenetrinitramine (RDX)	6.0E+01	2.2E+02	1.8E+00	2.0E-11	4.0E-09	1.8E+00	7.4E+00	NA
2,4-Dinitrotoluene (2,4-DNT)	2.7E+02	1.8E+02	1.3E+00	5.4E-08	1.4E-04	1.7E+00	2.0E+00	NA
2,6-Dinitrotoluene (2,6-DNT)	1.8E+02	1.8E+02	1.3E+00	7.5E-07	5.7E-04	2.0E+00	2.1E+00	NA
Nitrobenzene	2.1E+03	1.2E+02	1.2E+00	2.4E-05	2.5E+01	2.3E+02	1.9E+00	NA
Nitroglycerin	1.4E+03	2.3E+02	1.6E+00	8.7E-08	4.0E-04	1.2E+02	1.6E+00	NA
2-Nitrotoluene	0.0E+00	1.4E+02	1.2E+00	1.3E-05	1.0E-01	3.7E+02	2.3E+00	NA
Tetryl	7.4E+01	2.9E+02	1.6E+00	2.7E-09	1.2E-07	2.1E+03	1.6E+00	NA
1,3,5-Trintorobenzene (TNB)	2.8E+02	2.1E+01	1.5E+00	6.5E-09	6.0E-06	1.7E+03	1.2E+00	NA
2,4,6-Trinitrotoluene (TNT)	1.2E+02	2.3E+02	1.7E+00	2.1E-08	8.0E-06	2.8E+03	1.6E+00	NA
Metals								
Aluminum	0.0E+00	2.7E+01	2.7E+00	NA	0.0E+00	NA	NA	NA
Antimony	0.0E+00	1.2E+02	6.7E+00	NA	0.0E+00	NA	NA	NA
Arsenic	0.0E+00	7.5E+01	4.9E+00	NA	0.0E+00	NA	NA	2.9E+00
Barium	Reacts	1.4E+02	3.6E+00	NA	NA	NA	NA	4.1E+00
Beryllium	0.0E+00	9.0E+00	1.9E+00	NA	0.0E+00	NA	NA	NA
Cadmium	0.0E+00	1.1E+02	8.6E+00	NA	0.0E+00	NA	NA	NA
Chromium Total	NA	5.2E+01	7.2E+00	NA	NA	NA	NA	1.9E+01
Chromium VI	1.7E+06	5.2E+01	NA	NA	NA	NA	NA	1.9E+01
Cobalt	NA	5.9E+01	8.9E+00	NA	0.0E+00	NA	NA	4.5E+01
Copper	NA	6.4E+01	9.0E+00	NA	0.0E+00	NA	NA	3.5E+01
Iron	NA	5.6E+01	7.9E+00	NA	0.0E+00	NA	NA	2.5E+01
Lead	0.0E+00	2.1E+02	1.1E+01	NA	0.0E+00	NA	NA	9.0E+02
Manganese	0.0E+00	5.5E+01	7.2E+00	NA	0.0E+00	NA	NA	NA
Mercury	6.0E-02	2.0E+02	1.4E+01	8.6E+03	2.0E+03	NA	6.2E+01	5.2E+01
Nickel	0.0E+00	5.8E+01	8.9E+00	NA	0.0E+00	NA	NA	NA
Selenium	NA	7.9E+01	4.8E+00	NA	1.4E+00	NA	NA	5.0E+00

Table 6.1 (Continued)
Physical and Chemical Properties for Site Contaminants
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Solubility in Water (mg/L)	Molecular Weight (g/mol)	Density (g/cm3)	Henry's Law Constant (atm-m3/mol)	Vapor Pressure (mmHg)	K_{oc} (L/kg)	log K_{ow}	K_d (L/kg)
Silver	NA	1.1E+01	1.1E+01	NA	0.0E+00	NA	NA	8.3E+00
Thallium	0.0E+00	2.0E+02	1.1E+00	NA	6.0E-07	NA	NA	NA
Vanadium	0.0E+00	5.1E+01	6.1E+00	NA	NA	NA	NA	NA
Zinc	Reacts	6.5E+01	7.1E+00	NA	NA	NA	NA	NA

Notes:

Values are from the EPA Regional Screening Level, Chemical Specific Parameters Table or National Institutes of Health PubChem database.

atm-m^3/mol = atmospheres per cubic meter per mole

EPA = U.S. Environmental Protection Agency

g/cm^3 = grams per cubic centimeter

g/mol = grams per mole

K_d = partition (distribution) coefficient

K_{oc} = organic carbon partitioning coefficient

K_{ow} = octanol water partition coefficient

L/kg = liters per kilogram

mg/L = milligrams per liter

mmHg = millimeters of mercury

NA = not applicable or not available

* = range of values in different soil types

Table 6.2
Screening Comparison for Soil-to-Groundwater Migration, Tract 19B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Total Soil BTV	Soil-to-Groundwater SSL	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency
Explosives (mg/kg)					
RDX	--	0.0074	1.2	19B-SS03	1/20
HMX	--	26	0.25	19B-SS03	1/20
Metals (mg/kg)					
Aluminum	23,900	600,000	24,600	19B-SS06	20/20
Antimony	0.225	7	0.27	19B-SS03	20/20
Arsenic	5.09	5.8	14.5	19B-SB07	20/20
Barium	248	3,200	487	19B-SB02	20/20
Beryllium	1.07	380	1.12	19B-SS05	20/20
Cadmium	0.275	13.8	0.182 J	19B-SB02	9/20
Calcium	--	--	73,000 J	19B-SS10	20/20
Chromium Total	20.2	3,600,000	19.8 J	19B-SB10	20/20
Cobalt	7.68	5.4	16	19B-SB02	20/20
Copper	13.6	920	17.1	19B-SB07	20/20
Iron	18,500	7,000	25,800 J	19B-SB07	20/20
Lead	16	280	18.1	19B-SB07	20/20
Magnesium	--	--	14,900 J	19B-SS07	20/20
Manganese	484	560	1,460	19B-SB02	20/20
Nickel	16.6	520	20.7	19B-SB07	20/20
Potassium	--	--	8,750 J	19B-SS05	20/20
Selenium	0.823	10.4	0.735	19B-SS04	15/20
Silver	0.0991	16	0.126 J	19B-SB10	19/20
Sodium	--	--	1,540	19B-SS07	20/20
Thallium	0.345	2.8	0.379	19B-SB07	20/20
Vanadium	34.7	1,720	56.9	19B-SS07	20/20
Zinc	58.5	7,400	58.8 J	19B-SB10	20/20
Mercury	0.0256	2	0.03 J	19B-SB07	14/20

Notes:
SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each SSL.
Shaded results denote an exceedance of the BTV (if available) and the SSL.
Only chemicals that were detected in Tract 19B soil samples are included in this table.
-- = not listed/not available
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
mg/kg = milligrams per kilogram
RDX = cyclotrimethylenetrinitramine
SSL = soil screening level

Table 6.3
Screening Comparison for Soil-to-Groundwater Migration, Tract 19C
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Total Soil BTV	Soil-to-Groundwater SSL	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency
Polynuclear Aromatic Hydrocarbons (mg/kg)					
Anthracene	--	1,160	0.0037 J	19C-SS08I	1/76
Benzo[a]anthracene	--	0.22	0.023	19C-SS08I	21/76
Benzo[a]pyrene	--	4.8	0.016 J	19C-SS08I	4/76
Benzo[b]fluoranthene	--	6	0.024	19C-SS08I	2/76
Benzo[ghi]perylene	--	260	0.015 J	19C-SS04E	6/76
Benzo[k]fluoranthene	--	58	0.007 J	19C-SS08I	1/76
Chrysene	--	180	0.017 J	19C-SS08I	1/76
Dibenz[ah]anthracene	--	1.92	0.021 J	19C-SS04E	8/76
Fluoranthene	41.0	1,780	0.038	19C-SS08I	9/76
Indeno(1,2,3-c,d)pyrene	--	19.6	0.021 J	19C-SS04E	3/76
Phenanthrene	--	260	0.018 J	19C-SS08I	5/76
Pyrene	--	260	0.037 J	19C-SS08I	1/76
Explosives (mg/kg)					
2,4,6-Trinitrotoluene	--	0.3	2.46	BUGD-049	3/85
2-Amino-4,6-dinitrotoluene	--	0.03	0.755	BGSL131	5/82
4-Amino-2,6-dinitrotoluene	--	0.03	0.857	BGSL134	4/80
RDX	--	0.0074	2.80	19C-SS04E	10/91
HMX	--	26	2.30	19C-SS04E	30/85
Nitrobenzene	--	0.0184	0.092 J	19C-SS04I	2/87
Metals (mg/kg)					
Aluminum	264,000	600,000	26,500	19C-SS03G	76/78
Antimony	0.333	7	0.343	19C-SS02D	76/78
Arsenic	13.6	5.8	35.2 J	19C-SS02D	85/85
Barium	375	3,200	1,050 J	19C-SS106G	76/78
Beryllium	1.14	380	1.22	19C-SS03G	76/78
Cadmium	0.31	13.8	0.242 J	19C-SS05B	70/85
Calcium	--	--	141,000	19C-SS05C	78/78
Chromium	24.2	3,600,000	22.9	19C-SS11D	80/85
Cobalt	11.2	5.4	15.5	19C-SS10F	80/82
Copper	17.1	920	17.000	19C-SS05I	76/78
Iron	19,100	7,000	34,700 J	19C-SB04D	80/82
Lead	16.4	280	26	BUGD-038	85/85
Magnesium	--	--	15,100	19C-SS09I	76/78
Manganese	542	560	1,850 J	19C-SS06D	84/86
Nickel	24.1	520	28.4	19C-SS08E	77/78
Potassium	--	--	8,290	19C-SS11D	76/78
Selenium	0.824	10.4	0.717	19C-SS11F	50/78
Silver	0.114	16	0.103 J	19C-SS11D	76/82
Sodium	--	--	1,480	19C-SS06B	78/78
Thallium	0.405	2.8	0.59 J	19C-SS02D	76/76
Vanadium	50	1,720	81.1	19C-SS10D	76/78
Zinc	57	7,400	60.4	19C-SS11D	78/78
Mercury	0.0287	2	0.0427	BUGD-038	76/78

Notes:
SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.
Shaded results denote an exceedance of the BTV (if available) and the SSL.
Only chemicals that were detected in Tract 19C soil samples are included in this table.
-- = not listed/not available
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
mg/kg = milligrams per kilogram
RDX = cyclotrimethylenetrinitramine
SSL = soil screening level

Table 6.4
Screening Comparison for Soil-to-Groundwater Migration, Tract 20B
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Total Soil BTV	Soil-to-Groundwater SSL	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency
Polynuclear Aromatic Hydrocarbons (mg/kg)					
Benzo(ghi)perylene	--	260	0.0037 J	20B-SS03	3/18
Fluoranthene	--	1,780	0.0024 J	20B-SB01-4	1/18
Indeno(1,2,3-C,D)pyrene	--	19.6	0.0031 J	20B-SS03	3/18
Phenanthrene	--	260	0.0036 J	20B-SB04-8	1/18
Pyrene	--	260	0.0026 J	20B-SB01-4	1/18
Explosives (mg/kg)					
2,4,6-Trinitrotoluene	--	0.3	0.471	SFSB03, 0 - 2	5/37
2-Amino-4,6-dinitrotoluene	--	0.03	0.971	SFSB03, 0 - 2	5/33
4-Amino-2,6-dinitrotoluene	--	0.03	0.952	SFSB03, 0 - 2	4/33
RDX	--	0.0074	47	SFSB03, 5 - 7	37/63
HMX	--	26	76	SFSB03, 0 - 2	20/37
Tetryl	--	7.4	4.18	SFSL10, 0 - 1	1/37
Metals (mg/kg)					
Aluminum	26,400	600,000	27,800	20B-SB04-4	26/28
Antimony	0.333	7	0.494	20B-SS03	18/28
Arsenic	13.6	5.8	47.4	20B-SB02-8	49/49
Barium	375	3,200	1250	SFSB03, 8 - 10	26/28
Beryllium	1.14	380	1.31	SLFL030, 0 - 1	27/28
Cadmium	0.31	13.8	18.8	SFSL10, 0 - 1	24/39
Calcium	--	--	130,000	SFSL03, 0 - 1.5	28/28
Chromium, Total	24.2	3,600,000	35	SLFLST003, 5	34/39
Chromium VI	--	0.0134	0.62 J	20B-SS09	12/20
Cobalt	11.2	5.4	11.6	20B-SB04-8	26/28
Copper	17.1	920	47.6	20B-SS06	26/28
Cyanide	--	40	1.06	SFSB03, 0 - 2	1/7
Iron	19100	7,000	36,300	20B-SB02-8	26/28
Lead	16.4	280	51.6	20B-SS03	39/39
Magnesium	--	--	15,000	SFSL03, 0 - 1.5	26/28
Manganese	542	560	609	20B-SB02-8	26/28
Nickel	24.1	520	24.8	20B-SB06-4	26/28
Potassium	--	--	7,500	SFSB03, 0 - 2	26/28
Selenium	0.824	10.4	2.55	SFSL03, 0 - 1.5	22/28
Silver	0.114	16	0.456	20B-SS03	18/36
Sodium	--	--	1,590	SFSB03, 8 - 10	28/28
Thallium	0.405	2.8	0.461	20B-SB04-4	23/25
Titanium	--	--	246	SFSB03, 5 - 7	8/8
Vanadium	50	1,720	76.9	20B-SB02-8	26/28
Zinc	57	7,400	88.7	20B-SS06	28/28
Mercury	0.0287	2	2.1	SFSL02, 0 - 1	24/28

Notes:

SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.

Shaded results denote an exceedance of the BTV (if available) and the SSL.

Only chemicals that were detected in Tract 20B soil samples are included in this table.

-- = not listed/not available

BTV = background threshold value

HMX = cyclotetramethylenetetranitramine

mg/kg = milligrams per kilogram

RDX = cyclotrimethylenetrinitramine

SSL = soil screening level

Table 6.5
Screening Comparison for Soil-to-Groundwater Migration, Tract 21B - Burning Pit Area
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Total Soil BTV	Soil-to-Groundwater SSL	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency
Volatile Organic Compounds (mg/kg)					
Freon 113	--	520	0.014	PSRGST002	1/1
Toluene	--	15.2	0.056	PSRGST003	5/11
Xylenes	--	198	0.0079	PSRGST003	4/11
Polynuclear Aromatic Hydrocarbons (mg/kg)					
2-Methylnaphthalene	--	3.8	0.18	PSRGST003	1/7
Benzo(a)pyrene	--	4.8	0.0147	PRSB-20	24/70
Benzo(ghi)perylene	--	260	0.0213	PRSB-20	18/70
Benzo(k)fluoranthene	--	58	0.0135	PRSB-20	18/70
Benzoic acid	--	302	3.4	PSRGST006	1/7
Di-n-butyl phthalate	--	--	2.54	PSRGST003	2/7
Fluoranthene	--	1,780	0.0236	PRSB-09	2/70
Hexachlorobenzene	--	0.252	0.19	PSRGST002	2/7
Indeno(1,2,3-c,d)pyrene	--	19.6	0.135	PRSB-11	11/70
Naphthalene	--	0.0077	0.116	PRSB-06	2/70
p-Benzoquinone	--	--	0.013	PRSB-04	4/4
Phenanthrene	--	260	0.779	PRST09	28/70
Pyrene	--	260	0.0581	PRSB-20	3/70
Explosives (mg/kg)					
2-Nitrotoluene	--	0.006	0.382	PRST09	1/96
HMX	--	26	1.98	PSRGST002	8/101
RDX	--	0.0074	5	PSRGST002	13/101
Metals (mg/kg)					
Aluminum	26,400	600,000	30,200	21B-BPA-SS05	53/55
Antimony	0.333	7	0.396 J	21B-BPA-SB01-4	42/55
Arsenic	13.6	5.8	27	PRST09	112/112
Barium	375	3,200	878	21B-BPA-SB08-4	53/55
Beryllium	1.14	380	2.03	PSRGST006	108/112
Cadmium	0.31	13.8	1.69	PSRGST002	51/112
Calcium	--	--	120,000	PSRGST003	53/55
Chromium (Total)	24.2	3,600,000	32.1	PSRGST006	110/112
Cobalt	11.2	5.4	25.7	PSRGST003	53/55
Copper	17.1	920	222	PSRGST002	53/55
Iron	19,100	7,000	31,000	PSRGST003	53/55
Lead	16.4	280	160	PSRGST003	112/112
Magnesium	--	--	12,000	PRST10	53/55
Manganese	542	560	879 J	21B-BPA-SB10-5	53/55
Nickel	24.1	520	27.3	21B-BPA-SB10-5	53/55
Potassium	--	--	8,600	21B-BPA-SS05	53/55
Selenium	0.824	10.4	0.712	PRST09	41/55
Silver	0.114	16	1.51	PSRGST003	45/112
Sodium	--	--	3,300	21B-BPA-SB21-3	53/55
Thallium	0.405	2.8	0.431	21B-BPA-SS07	44/48
Titanium	--	--	189	PRST09	6/6
Vanadium	50	1,720	59.8	21B-BPA-SB04-4	53/55
Zinc	57	7,400	458	PSRGST002	53/55
Mercury	0.0287	2	0.315	PRST09	45/55

Notes:

SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.

Shaded results denote an exceedance of the BTV (if available) and the SSL.

Only chemicals that were detected in Tract 21B - Burning Pit Area soil samples are included in this table.

-- = not listed/not available

BTV = background threshold value

HMX = cyclotetramethylenetetranitramine

mg/kg = milligrams per kilogram

RDX = cyclotrimethylenetrinitramine

SSL = soil screening level

Table 6.6
Screening Comparison for Soil-to-Groundwater Migration, Tract 21B - Backstop Berm
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Total Soil BTV	Soil-to-Groundwater SSL	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency
Explosives (mg/kg)					
Nitroglycerine	--	0.017	0.29 J	21B-BB-SB03	1/12
Metals (mg/kg)					
Aluminum	26,400	600,000	27,400	21B-BB-SS06	12/12
Antimony	0	7	0.635	21B-BB-SB03	12/12
Arsenic	13.6	5.8	10.3 J	21B-BB-SB06	12/12
Barium	375	3,200	436 J	21B-BB-SB06	12/12
Beryllium	1.14	380	1.17	21B-BB-SS05	12/12
Cadmium	0.31	13.8	0.216 J	21B-BB-SB03	12/12
Calcium	--	--	43,200	21B-BB-SB06	12/12
Chromium	24.2	3,600,000	22.7	21B-BB-SS06	12/12
Cobalt	11.2	5.4	8.89	21B-BB-SS05	12/12
Copper	17.1	920	15.9	21B-BB-SS06	12/12
Iron	19,100	7,000	21,300	21B-BB-SS05	12/12
Lead	16.4	280	62.6 J	21B-BB-SS101	12/12
Magnesium	--	--	11,800 J	21B-BB-SS06	12/12
Manganese	542	560	414	21B-BB-SB02	12/12
Nickel	24.1	520	22.2	21B-BB-SS06	12/12
Potassium	--	--	10,200	21B-BB-SS06	12/12
Selenium	0.824	10.4	0.746	21B-BB-SS05	12/12
Silver	0.114	16	0.118	21B-BB-SS02	12/12
Sodium	--	--	3,010	21B-BB-SB04	12/12
Thallium	0.405	2.8	0.457 J	21B-BB-SS06	12/12
Vanadium	50	1,720	55	21B-BB-SS06	12/12
Zinc	57	7,400	62.7	21B-BB-SS05	12/12
Mercury	0.0287	2	0.044	21B-BB-SB05	12/12

Notes:

SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each SSL.

Shaded results denote an exceedance of the BTV (if available) and the SSL.

Only chemicals that were detected in Tract 21B - Backstop Berm soil samples are included in this table.

-- = not listed/not available
mg/kg = milligrams per kilogram
BTV = background threshold value
SSL = soil screening level

Table 6.7
Screening Comparison for Soil-to-Groundwater Migration, Tract 21B - Decanting Station
Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Chemical	Total Soil BTV	Soil-to-Groundwater SSL	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency
Volatile Organic Compounds (mg/kg)					
Freon 113	--	520	0.012	PSRG-1, 1 - 2	2/29
Acetone	--	58	0.02	21B-DS-SS05	4/33
Carbon disulfide	--	4.8	0.0012 J	21B-DS-SB02-10	3/33
Toluene	--	15.2	0.13	PSRGSB001, 7 - 8	4/33
Bis(2-ethylhexyl)phthalate	--	28	0.55	PSRGSB001, 2 - 3	1/6
Explosives (mg/kg)					
HMX	--	26	0.19	21B-DS-SS06	3/37
Metals (mg/kg)					
Aluminum	21,600	600,000	29500	21B-DS-SB06-5	35/45
Antimony	0.225	7	0.295 J	21B-DS-SS10	30/45
Arsenic	15.1	5.8	7.92 J	21B-DS-SB07-5	45/45
Barium	409	3,200	646	21B-DS-SB01-5	36/45
Beryllium	0.965	380	2.01	PSRGST001, 5.5	45/45
Cadmium	0.158	13.8	1.44	PSRGST001, 5.5	32/45
Calcium	--	--	187000	21B-DS-SB01-5	35/45
Chromium	20.8	3,600,000	29.1	21B-DS-SB06-5	35/45
Cobalt	10.3	5.4	26	PSRGST001, 5.5	34/45
Copper	15.7	920	21.5	21B-DS-SB06-5	34/45
Iron	19,600	7,000	27,400	21B-DS-SB06-5	35/45
Lead	15.9	280	38.1	21B-DS-SS08	45/45
Magnesium	--	--	10,400 J	21B-DS-SB06-5	35/45
Manganese	562	560	803 J	21B-DS-SB04-5	35/45
Nickel	24	520	27.5	PSRGST001, 5.5	35/45
Potassium	--	--	8,000	21B-DS-SS10	35/45
Selenium	0.615	10.4	0.823	21B-DS-SB01-5	32/45
Silver	0.104	16	1.14	PSRGSB001, 7 - 8	32/45
Sodium	--	--	2,610	21B-DS-SB05-5	35/45
Thallium	0.356	2.8	0.492	21B-DS-SB04-5	30/30
Vanadium	50.9	1,720	60	21B-DS-SB06-5	34/45
Zinc	50.6	7,400	87.8	21B-DS-SB06-5	35/45
Mercury	0.0294	2	0.032	21B-DS-SB07-10	30/45

Notes:
SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each soil-to-groundwater value.
Shaded results denote an exceedance of the BTV (if available) and the SSL.
Only chemicals that were detected in Tract 21B - Decanting Station soil samples are included in this table.
-- = not listed/not available
BTV = background threshold value
HMX = cyclotetramethylenetetranitramine
mg/kg = milligrams per kilogram
SSL = soil screening level

This page was intentionally left blank.

FIGURES

This page was intentionally left blank.

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 1.1
Site Location
Cornhusker Army Ammunition Plant

Legend

Site Location

Cornhusker Army Ammunition Plant (CHAAP)

Grand Island

Cornhusker Army Ammunition Plant

Omaha

Lincoln

N

0 5 10 20
Miles

General Location

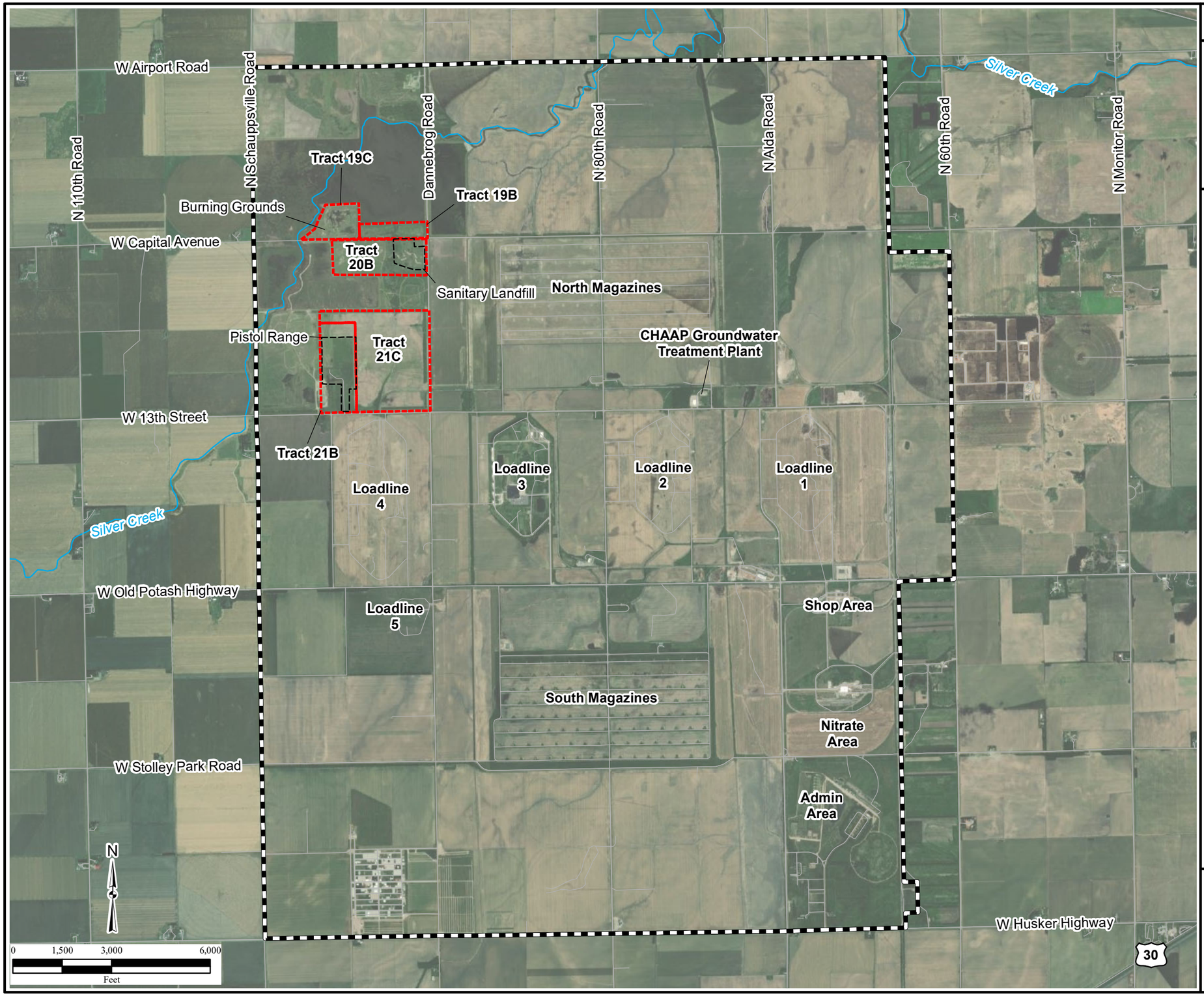


\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(1-01)Site_Location.mxd
2/18/2021 JG
Source: HGL, ATI, USACE, NDOR
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 1.2
Tract Locations
Cornhusker Army Ammunition Plant



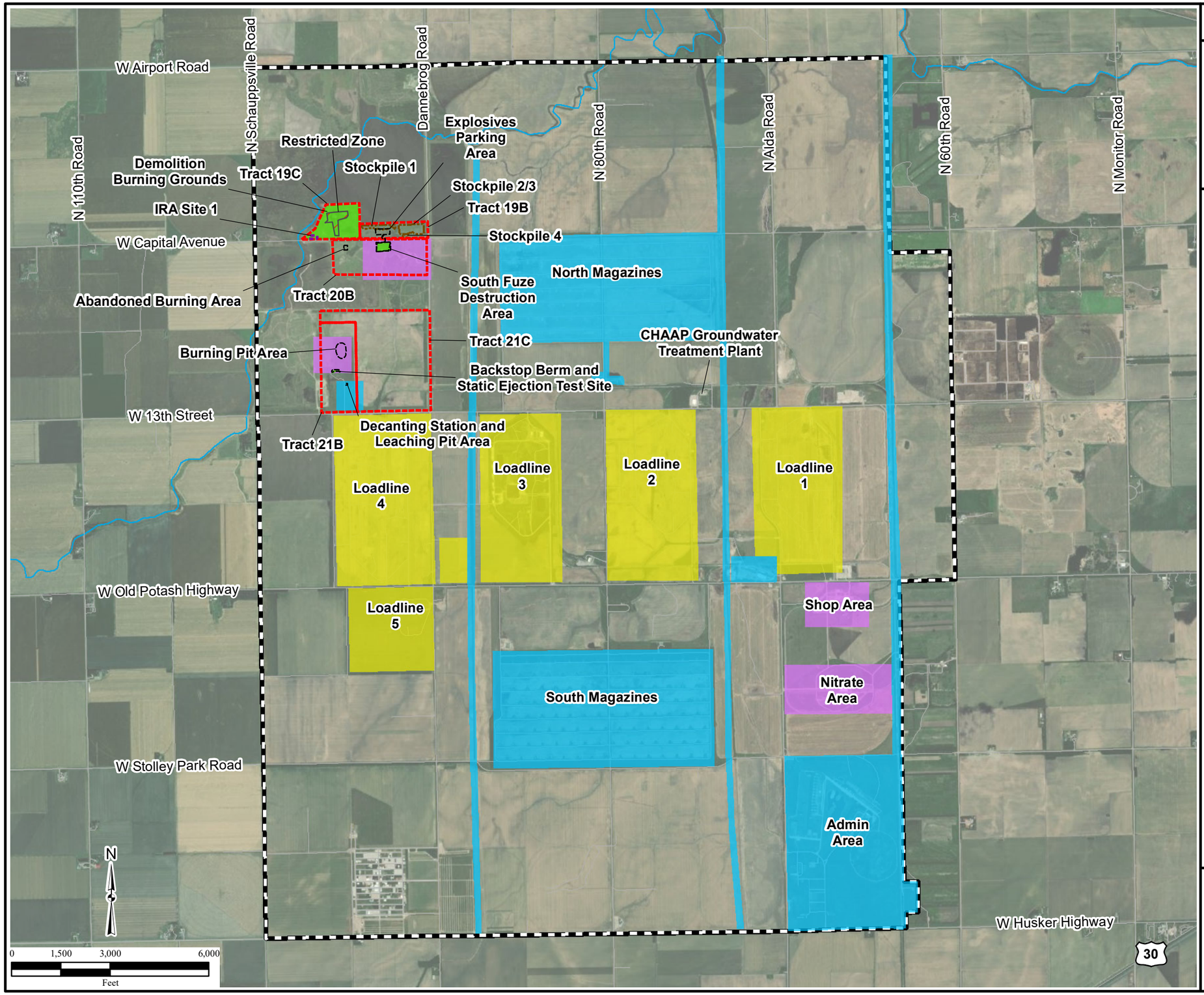
Legend

- Road
- Silver Creek
- Site Boundary
- Tract Boundary
- Cornhusker Army Ammunition Plant (CHAAP)

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(1-02)Tract_Locations.mxd
6/14/2021 JG
Source: HGL, ATI, USACE, NDOR
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 2.1
Tract and Site Locations



Legend

- Road
- Silver Creek
- IRA Site 1
- Restricted Zone
- Site Boundary
- Soil Stockpile
- OU2
- OU3
- OU4
- OU5
- Tract Boundary
- Cornhusker Army Ammunition Plant (CHAAP)

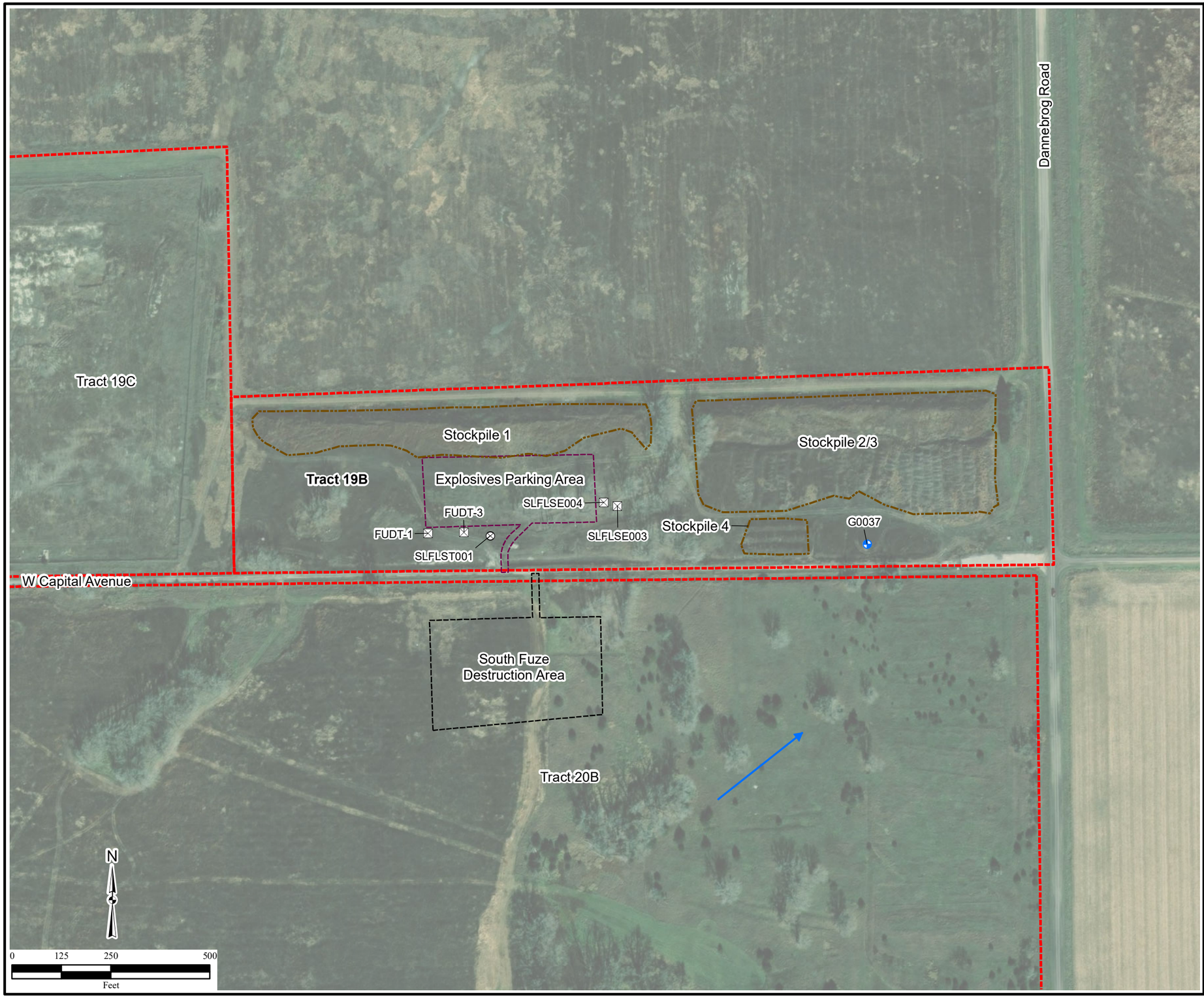
Notes:
OU1, groundwater plumes, not shown on figure (occurs outside figure extent).

IRA=Interim Removal Action
OU=operable unit
RZ=Restricted Zone

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-01)Tract_Layout.mxd
6/7/2021 JG
Source: HGL, ATI, USACE, NDOR
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 2.2
Tract 19B
Historical Sample Locations



Legend

- Existing Monitoring Well (UGIA)
- Historical Surface Soil Sample
- Historical Trench Sample
- Groundwater Flow Direction
- Soil Stockpile
- Explosives Parking Area
- South Fuze Destruction Area
- Tract Boundary

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).

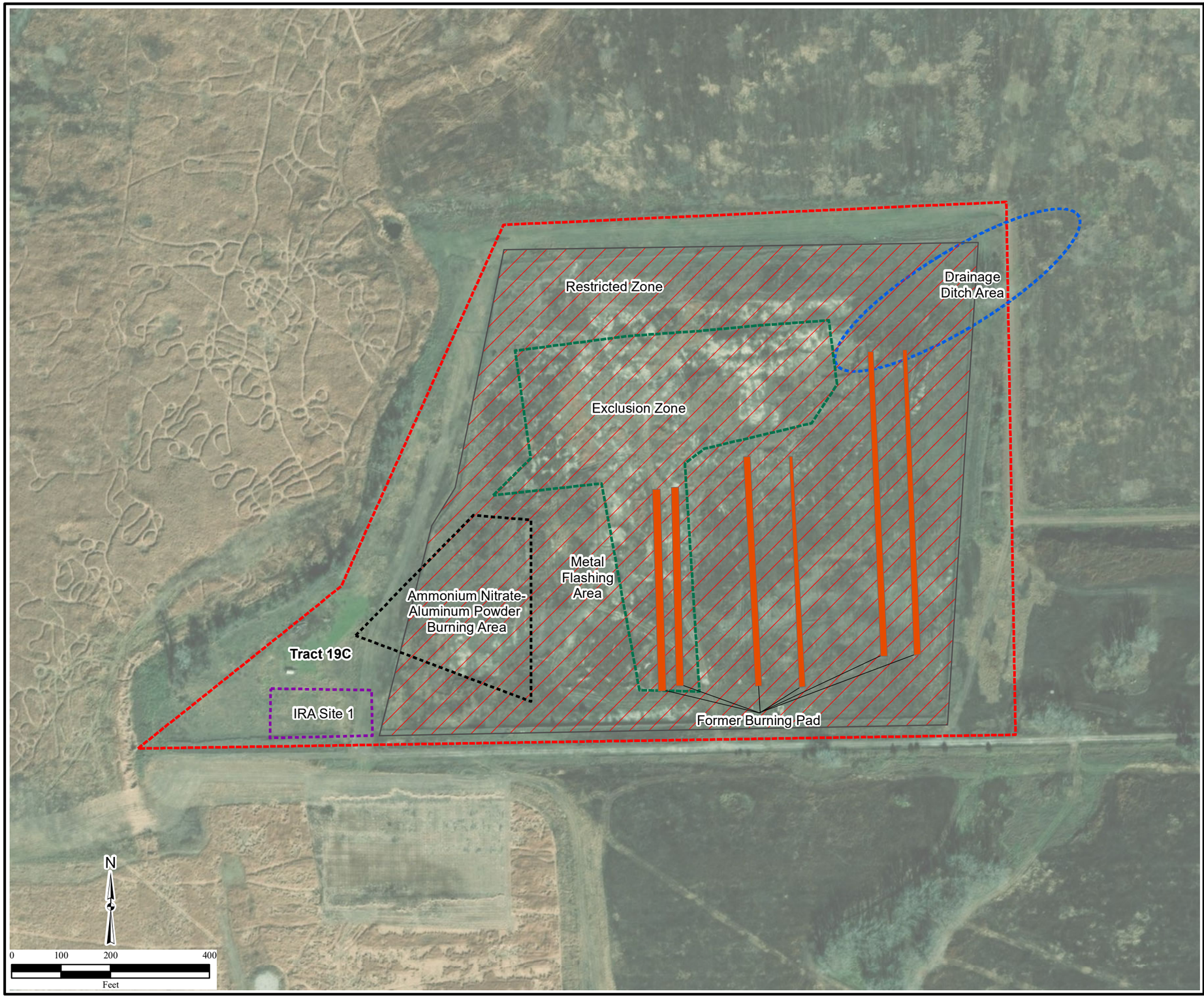
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-02)Tract19B_Sample_Locs.mxd
2/19/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 2.3
Tract 19C
Historical Locations



Legend

- Former Burning Pad
- IRA Site 1
- Ammonium Nitrate/Aluminum Powder Burning Area
- Drainage Ditch Area
- Exclusion Zone
- Restricted Zone
- Tract Boundary

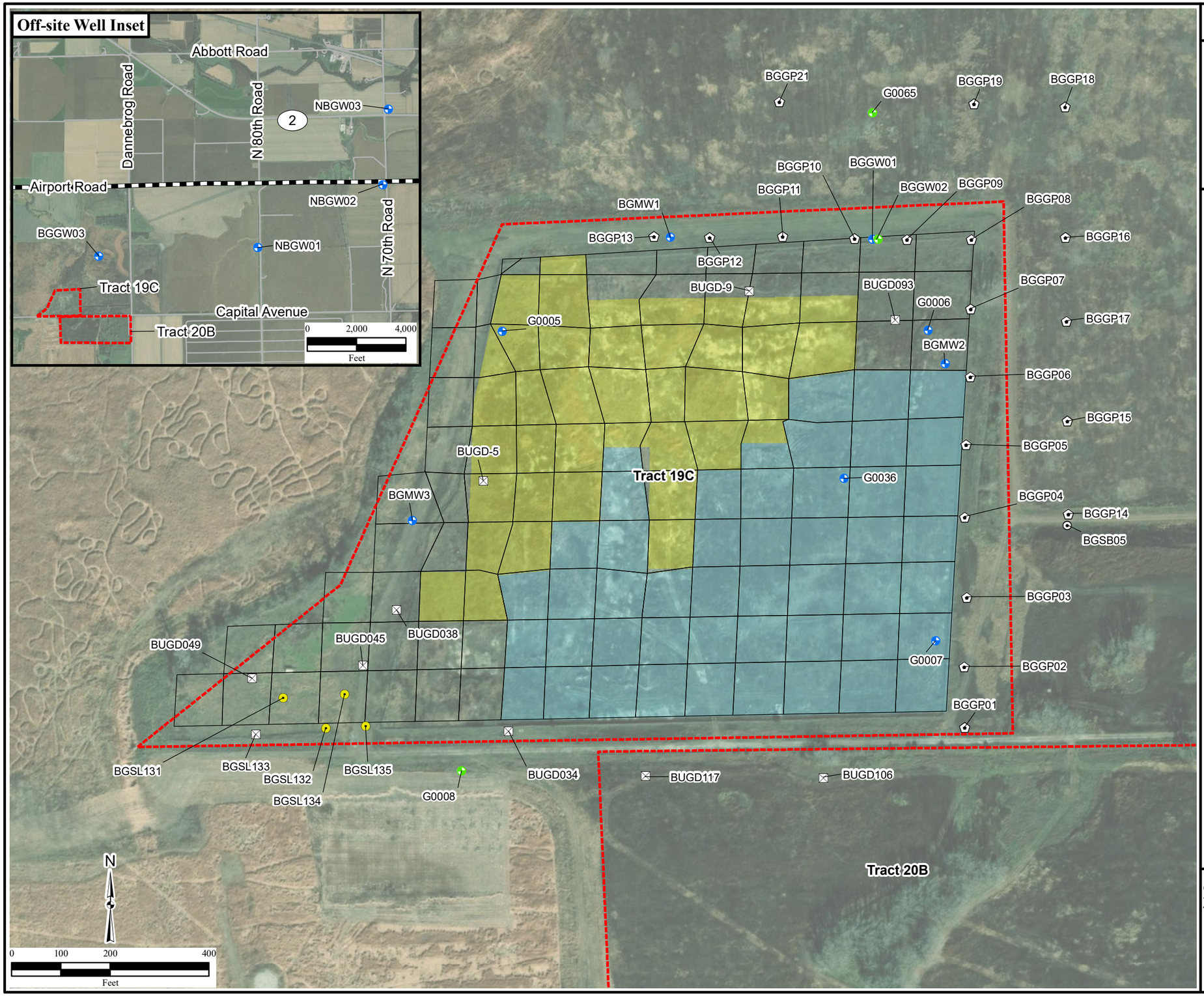
Note:
IRA=interim removal action

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-03)Tract19C_Historical_Locs.mxd
2/18/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 2.4
Tract 19C
Historical Sample Locations



Legend

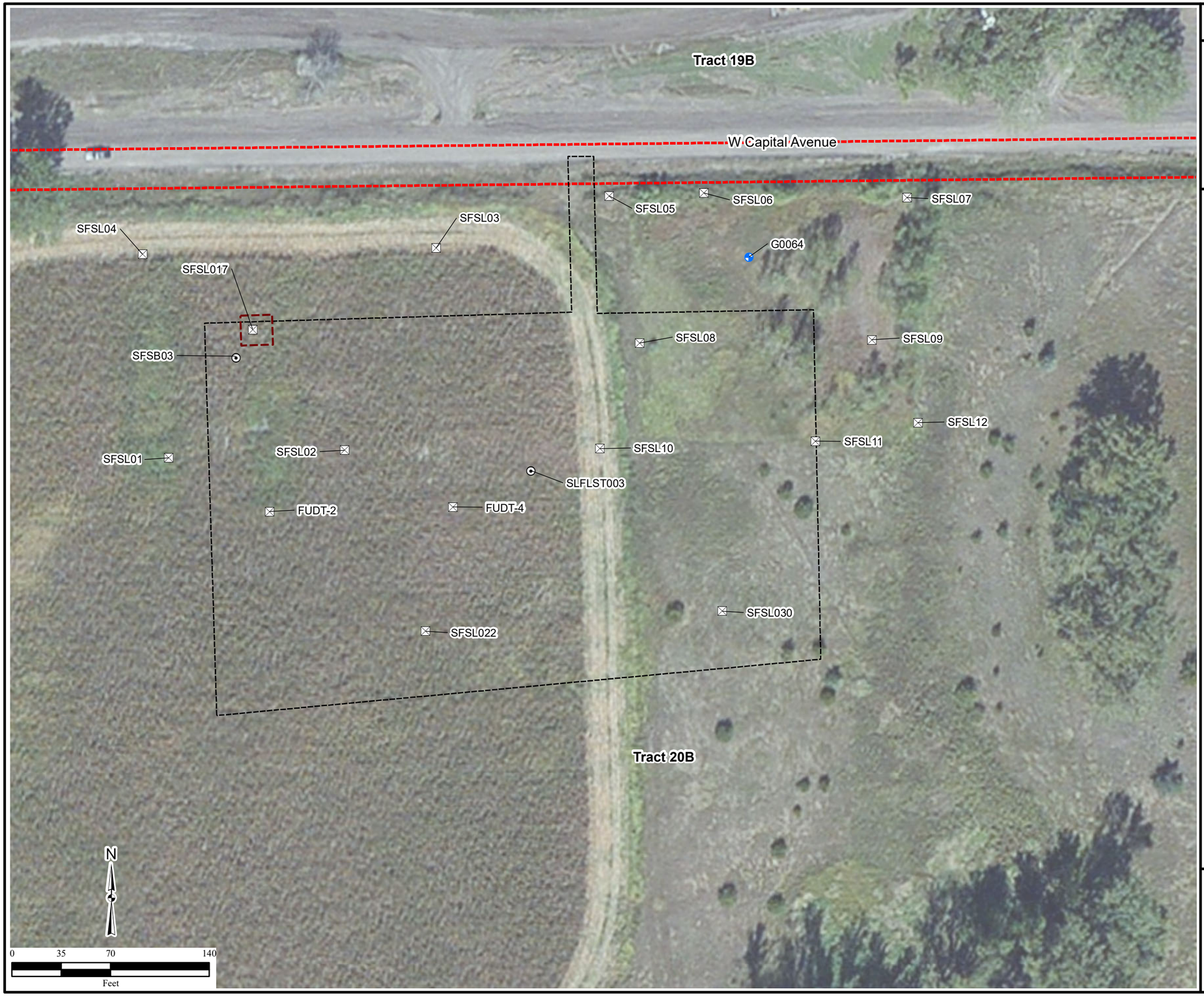
- Monitoring Well (MGIA)
- Monitoring Well (UGIA)
- Excavation Confirmation Sample
- 1995 Geoprobe Groundwater Sample
- Historical Soil Boring
- Historical Surface Soil Sample
- Excavation Area Grid
- Excavated During NTCRA
- Previously Excavated Area
- Tract Boundary
- Cornhusker Army Ammunition Plant (CHAAP)

Notes:
MGIA=Middle Grand Island Aquifer
NTCRA=Non-Time Critical Removal Action
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-04)Tract19C_Sample_Locs.mxd
2/18/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 2.5
Tract 20B
South Fuze Destruction Area
Historical Sample Locations



Legend

- Existing Monitoring Well (UGIA)
- Historical Soil Boring or Trench Sample
- Historical Surface Soil Sample
- Tract Boundary
- 2000 Excavation Footprint (Approximate)
- South Fuze Destruction Area

Notes:
The location of the South Fuze Destructor Area and the associated sample locations were georeferenced from Exhibit 4-93 of a 1996 ICF Kaiser Map and should be considered approximate.
The footprint of the 2000 excavation is unavailable. The excavation included only sample locations SFSL017. The footprint shown is approximate.

UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-05)Tract20B_FDA_Sample_Locs.mxd
3/2/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 2.6
Tract 20B
South Fuze Destruction Area
Past Intrusive Results



Legend

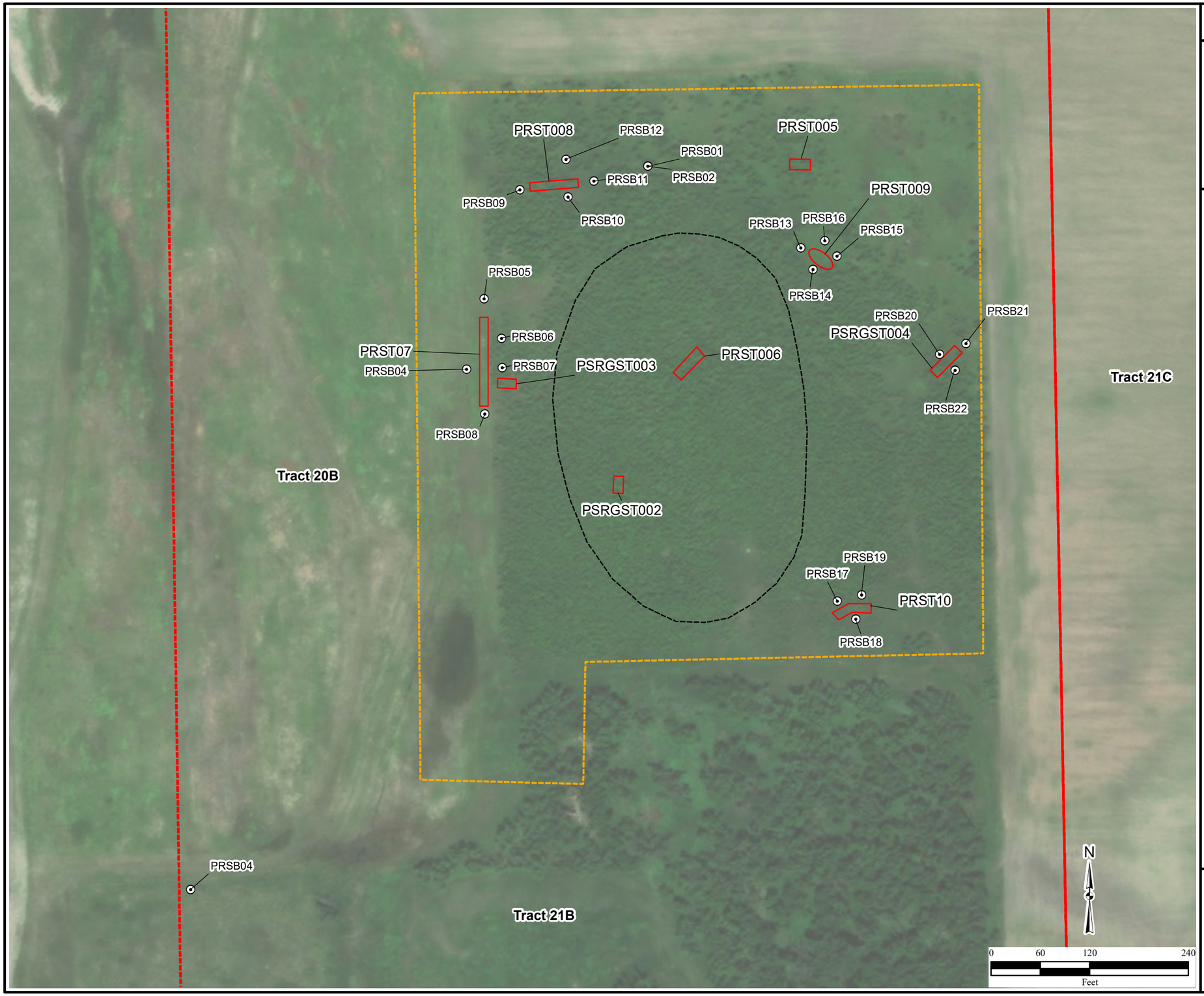
- Munitions Related Debris
- Non-Munitions Related Debris
- SFDA High Anomaly Density Area
- SFDA Intermediate Anomaly Density Area
- SFDA 2012 Investigation Boundary
- MRS Boundary

Notes:
MRS=munitions response site
SFDA=South Fuze Destruction Area

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-06)SFDA_MD_2012.mxd
6/8/2021 TH
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 2.7
Tract 21B Burning Pit Area
Historical Soil Sample Locations



Legend

- Historical Soil Boring
- Tract Boundary
- Former Burning Pit Area
- Test Trench Excavation (Trench ID: PRST0X) (1993, 1996, 2001)
- 1995 Geophysical Survey Area

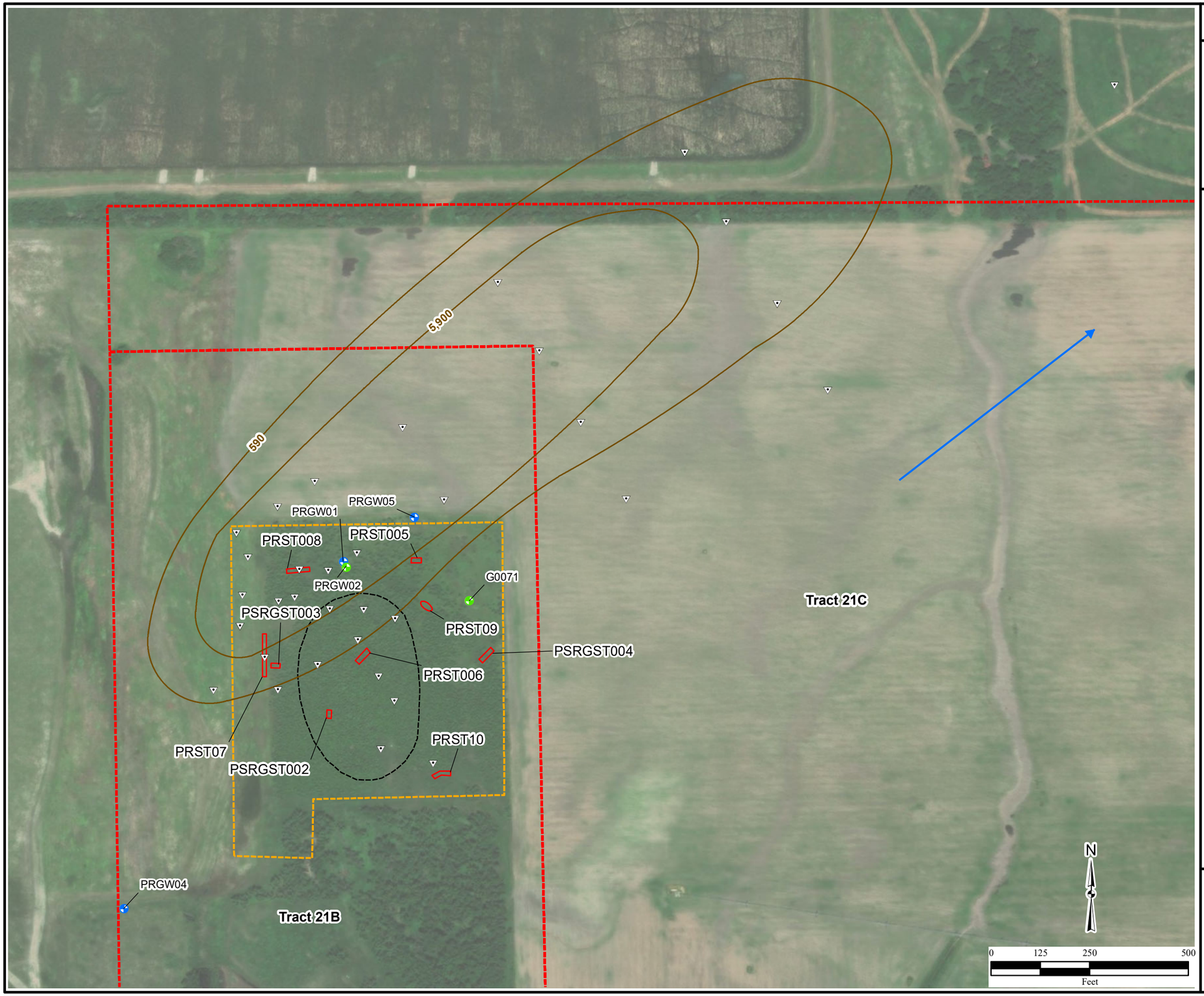
Notes:
The location of the South Fuze Destructor Area and the associated sample locations were georeferenced from Exhibit 4-93 of a 1996 ICF Kaiser Map and should be considered approximate.
The footprint of the 2000 excavation is unavailable. The excavation included only sample locations SFSL017. The footprint shown is approximate.

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-07)Tract21B_BP_Soil_Samples.mxd
6/7/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 2.8
Tract 21B Burning Pit Area Historical Groundwater Sample Locations



Legend

- Historical Monitoring Well (UGIA)
- Historical Monitoring Well (MGIA)
- Historical DPT Groundwater Freon Sample
- 590 — Freon Contamination From 2005 Burning Grounds Groundwater Sampling Event (µg/L)
- Groundwater Flow Direction
- Tract Boundary
- Former Burning Pit Area
- Test Trench Excavation (Trench ID:PRST0X) (1993, 1996, 2001)
- 1995 Geophysical Survey Area

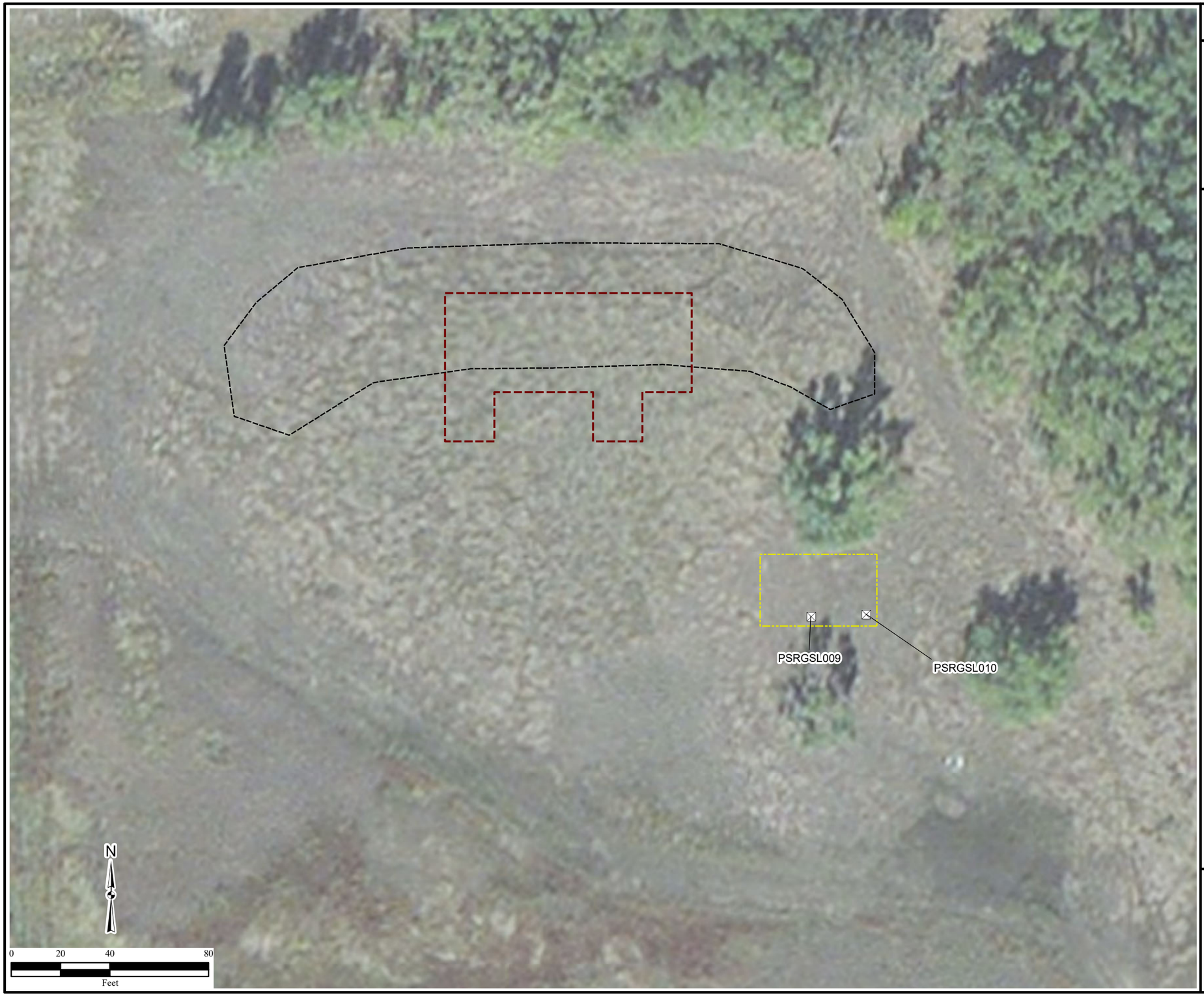
Notes:
µg/L=micrograms per liter
DPT=direct-push technology
MGIA=Middle Grand Island Aquifer
UGIA=Upper Grand Island Aquifer

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(2-08)Tract21B_BP_GW_Samples.mxd
6/7/2021 JG
Source: HGL, ATI, USACE ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 2.9
Tract 21B Backstop Berm
Historical Sample Locations



Legend

- ☒ Historical Surface Soil Sample
- Static Ejection Test Site (Approximate)
- 2003 Excavation Footprint (Approximate)
- Former Backstop Berm

Notes:
The excavation was completed in 2003 to a depth ranging from 6 to 18 inches bgs.

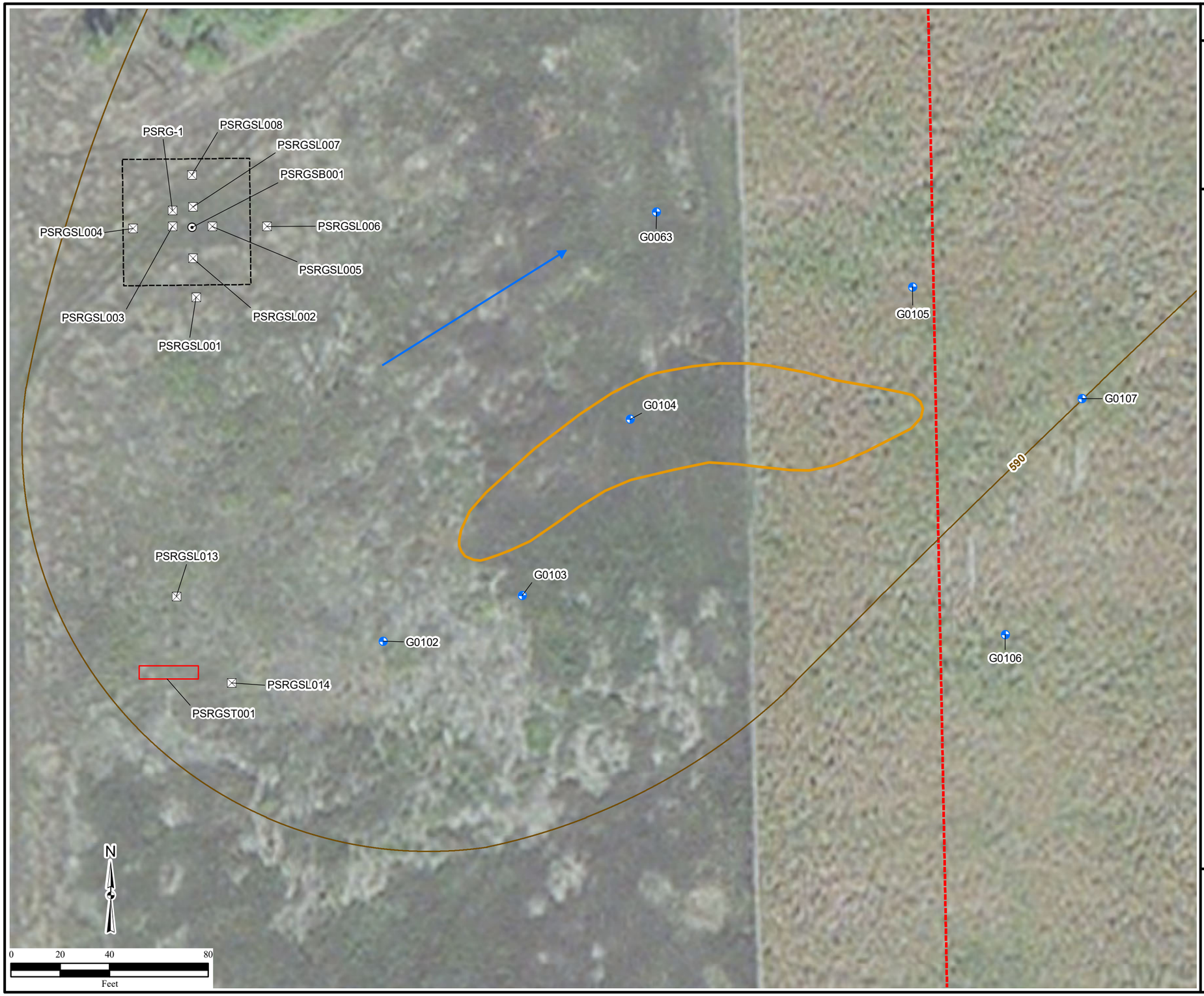
bgs=below ground surface

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-09)Tract21B_BB_Sample_Locs.mxd
6/7/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 2.10
Tract 21B Decanting Station
Historical Sample Locations



Legend

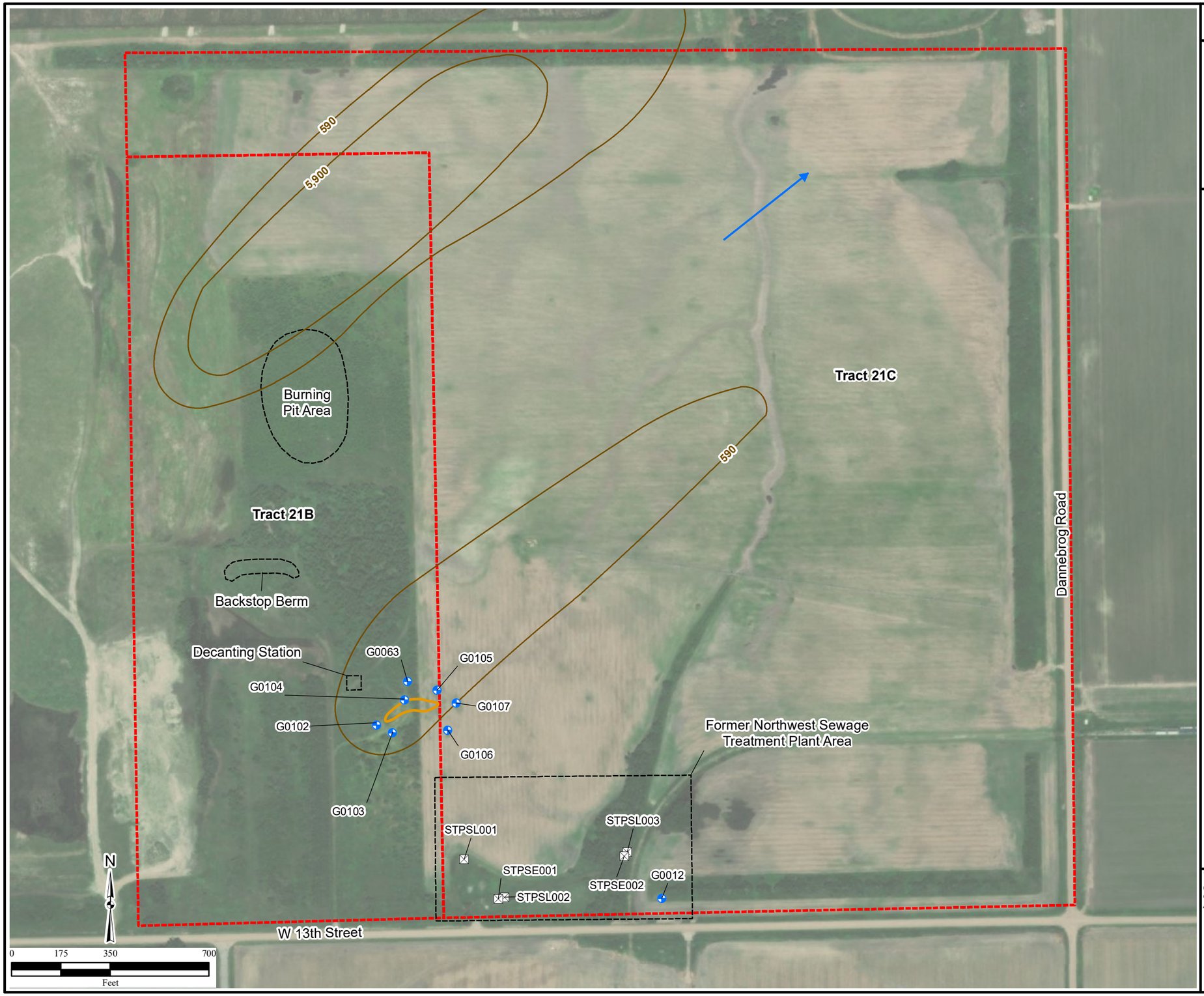
- Existing Monitoring Well (UGIA)
- Historical Soil Boring
- Historical Surface Soil Sample
- 590 — Freon Contamination From 2005 Burning Grounds Groundwater Sampling Event (µg/L)
- Groundwater Flow Direction
- Tract Boundary
- Approximate RDX 20 µg/L Plume Boundary in 2010
- Test Trench Excavation (Approximate)
- Decanting Station

Notes:
µg/L=micrograms per liter
DPT=direct-push technology
RDX=cyclotrimethylenetrinitramine
UGIA=Upper Grand Island Aquifer

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-10)Tract21B_DS_Sample_Locs.mxd
6/7/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 2.11
Tract 21C
Historical Sample Locations



Legend

- Existing Monitoring Well (UGIA)
- Historical Surface Soil Sample
- 590 — Freon Contamination From 2005 Burning Grounds Groundwater Sampling Event (µg/L)
- Groundwater Flow Direction
- Approximate RDX 20 µg/L Plume Boundary in 2010
- Site Boundary
- Tract Boundary

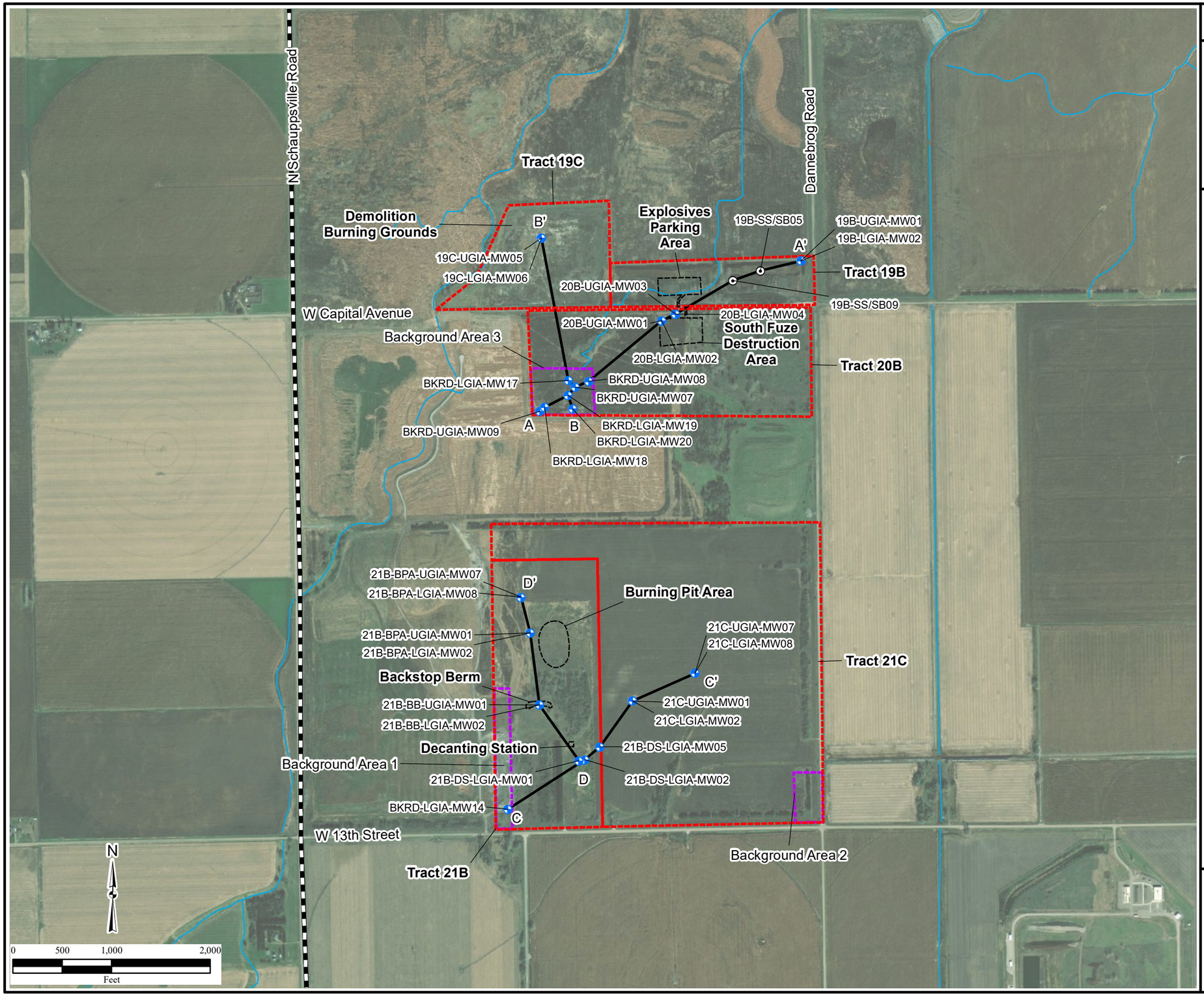
Notes:
µg/L=micrograms per liter
RDX=cyclotrimethylenetrinitramine
UGIA=Upper Grand Island Aquifer

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(2-11)Tract21C_Sample_Locs.mxd
6/7/2021 JG
Source: HGL, ATI, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 3.1
Geological and Hydrogeological Cross Section Locations



Legend

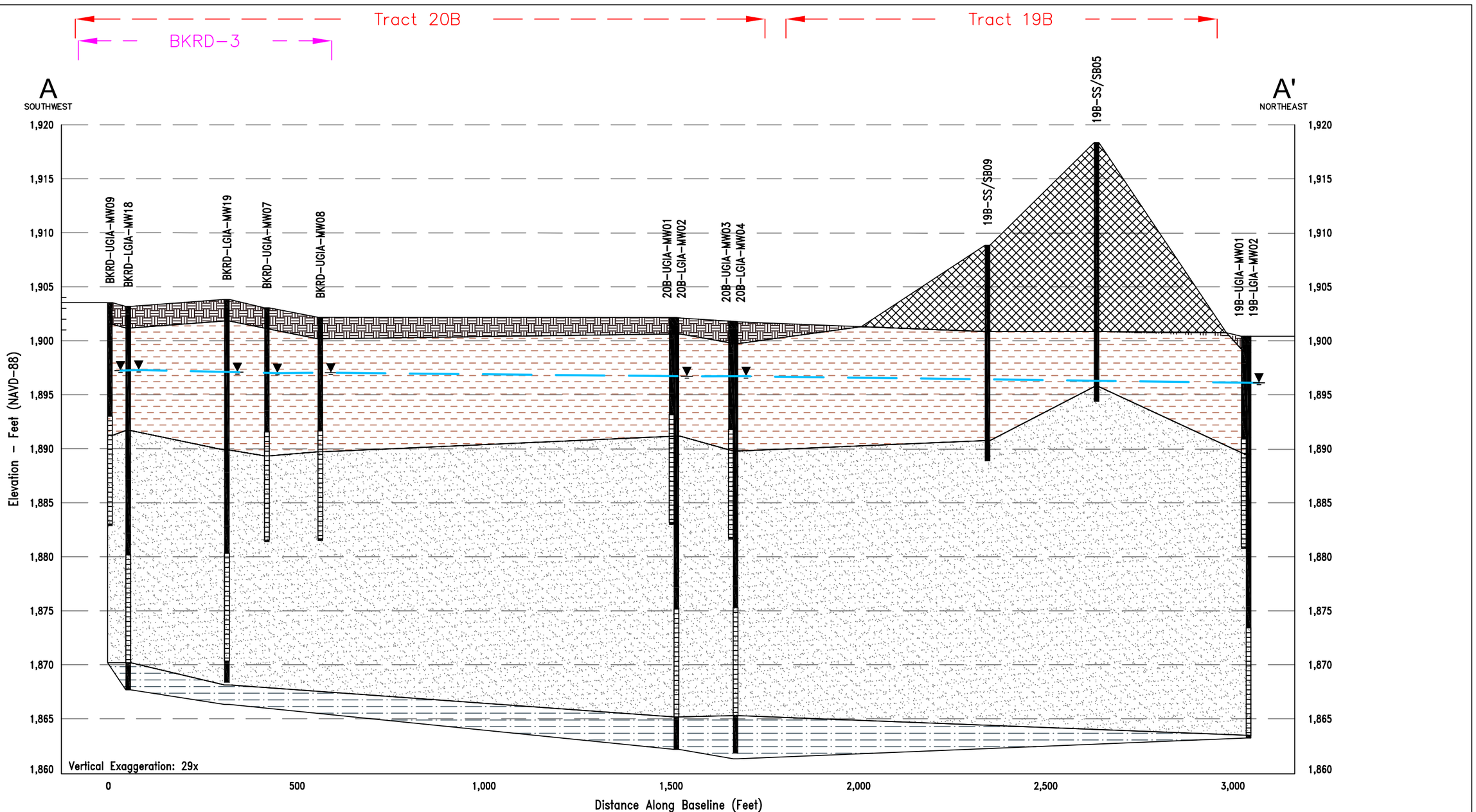
- Soil Sample
- Monitoring Well
- A — A' Geological and Hydrogeological Cross Section
- Road
- Surface Water Course
- Site Boundary
- Background Sample Area
- Tract Boundary
- Cornhusker Army Ammunition Plant (CHAAP)

Notes:
Only the monitoring wells and soil borings used to generate the cross sections are shown.

SS/SB=Surface soil/subsurface soil

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(3-01)Cross_Section_Locs.mxd
3/2/2021 JG
Source: HGL, ATI, USACE, NDOR ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC



LEGEND

- Approximate Depth To Water
- Potentiometric Surface (March 2018)
- Background Area Extent
- Tract Extent
- Well Screen
- Borehole

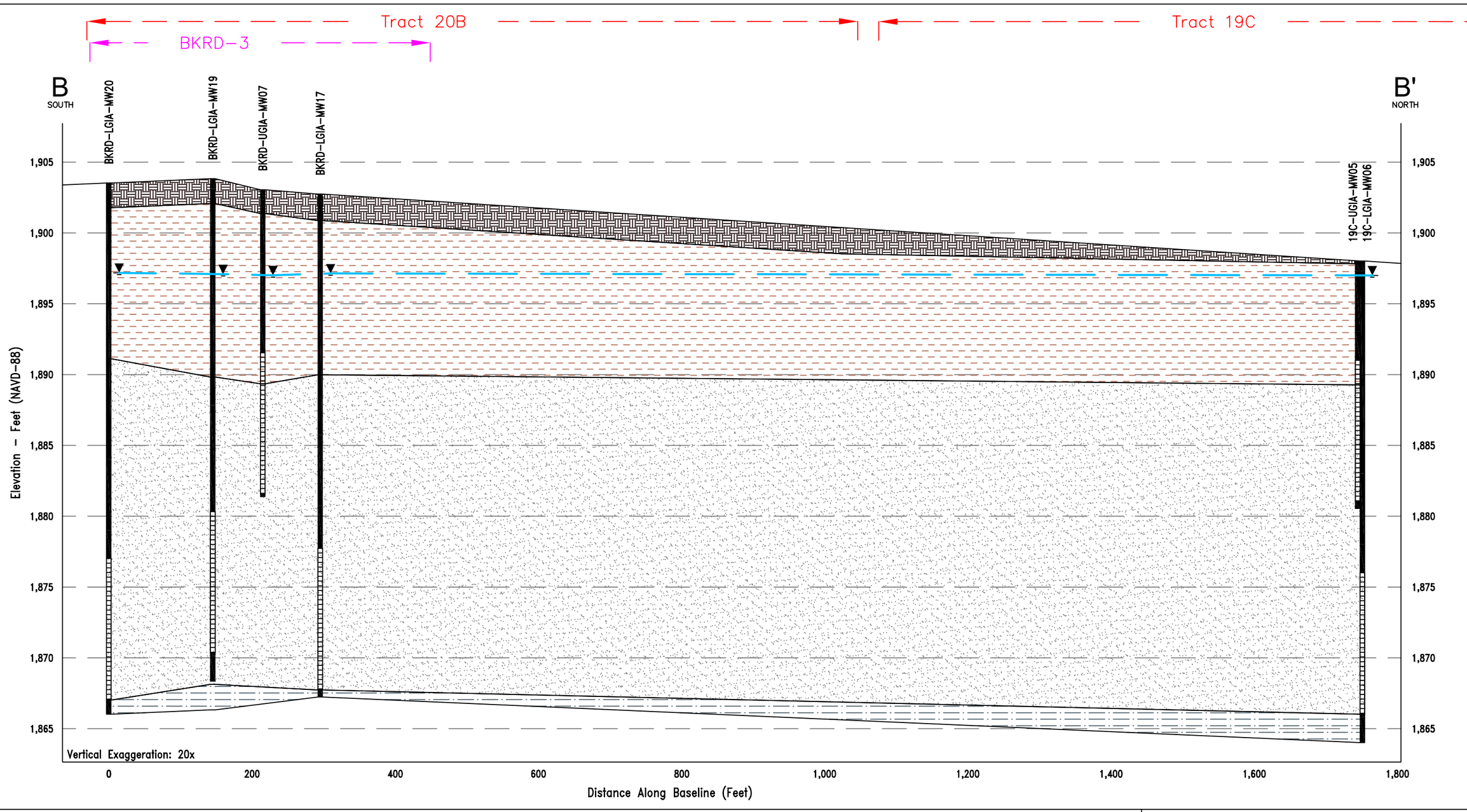
BKRD	Background Area
LGIA	Lower Grand Island Aquifer
UGIA	Upper Grand Island Aquifer
MW	Monitoring Well
SS/SB	Surface Soil / Soil Boring
NAVD-88	North American Vertical Datum of 1988

- Stockpiled Soil
- Topsoil
- Silty Clay
- Alluvial Sand and Gravel (Grand Island Formation)
- Lean Clay (Fullerton Formation)

Figure 3-2
Geological and Hydrogeological Cross-Section, A-A'

DATE MODIFIED:	CREATED BY:
2/9/2021	S. Cameron

ati INC
HGL HydroGeoLogic, Inc



LEGEND

- Approximate Depth To Water
- Potentiometric Surface (March 2018)
- Background Area Extent
- Tract Extent
- Well Screen
- Borehole

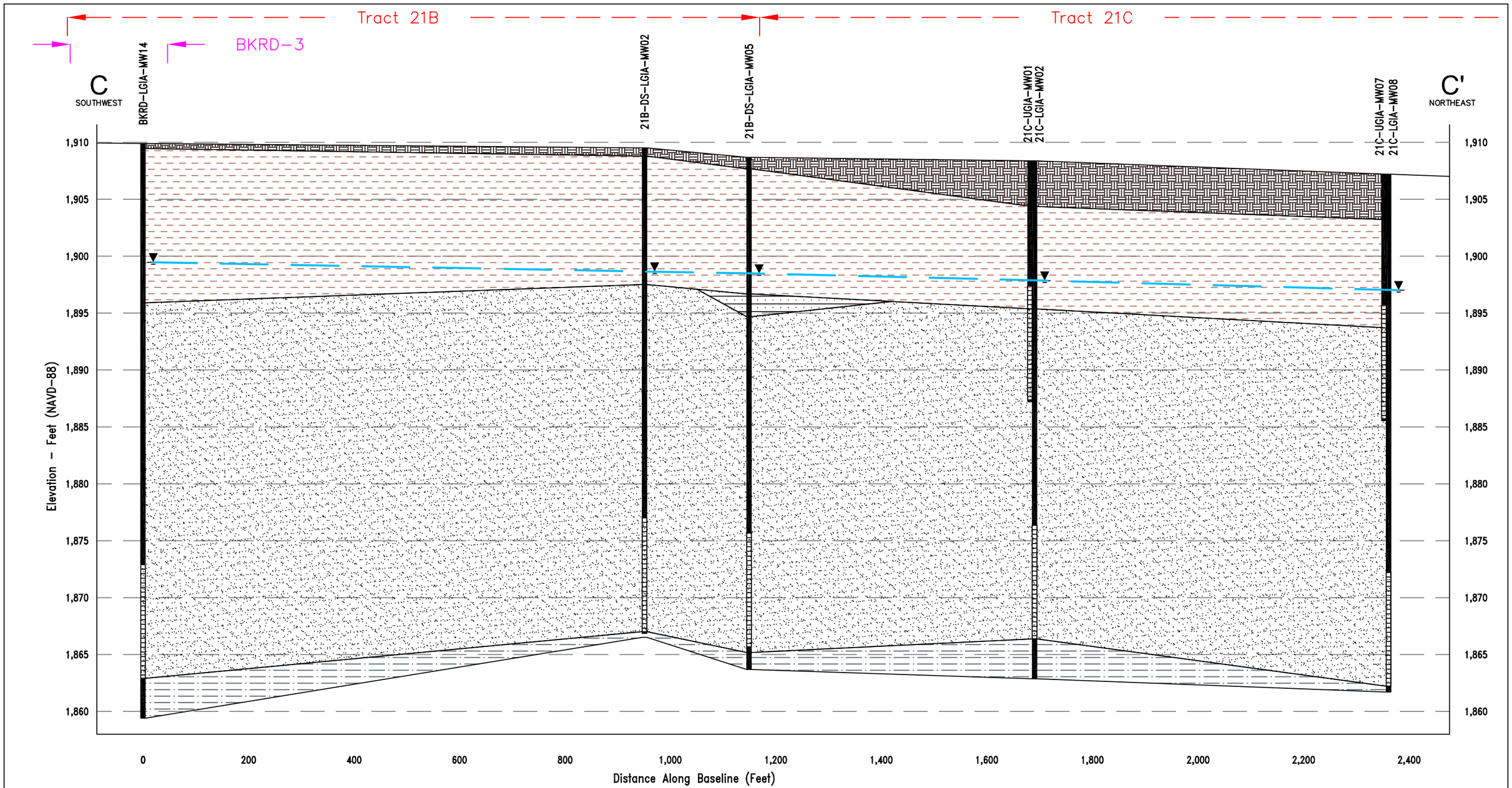
BKRD	Background Area
LGIA	Lower Grand Island Aquifer
UGIA	Upper Grand Island Aquifer
MW	Monitoring Well
NAVD-88	North American Vertical Datum of 1988

- Topsoil
- Silty Clay
- Alluvial Sand and Gravel (Grand Island Formation)
- Lean Clay (Fullerton Formation)

Figure 3-3
Geological and Hydrogeological Cross-Section, B-B'

DATE MODIFIED:	CREATED BY:
2/9/2021	S. Cameron

ati INC
HGL HydroGeoLogic, Inc



LEGEND

- Approximate Depth To Water
- Potentiometric Surface (March 2018)
- Background Area Extent
- Tract Extent
- Well Screen
- Borehole

BKRD	Background Area
LGIA	Lower Grand Island Aquifer
UGIA	Upper Grand Island Aquifer
MW	Monitoring Well
NAVD-88	North American Vertical Datum of 1988

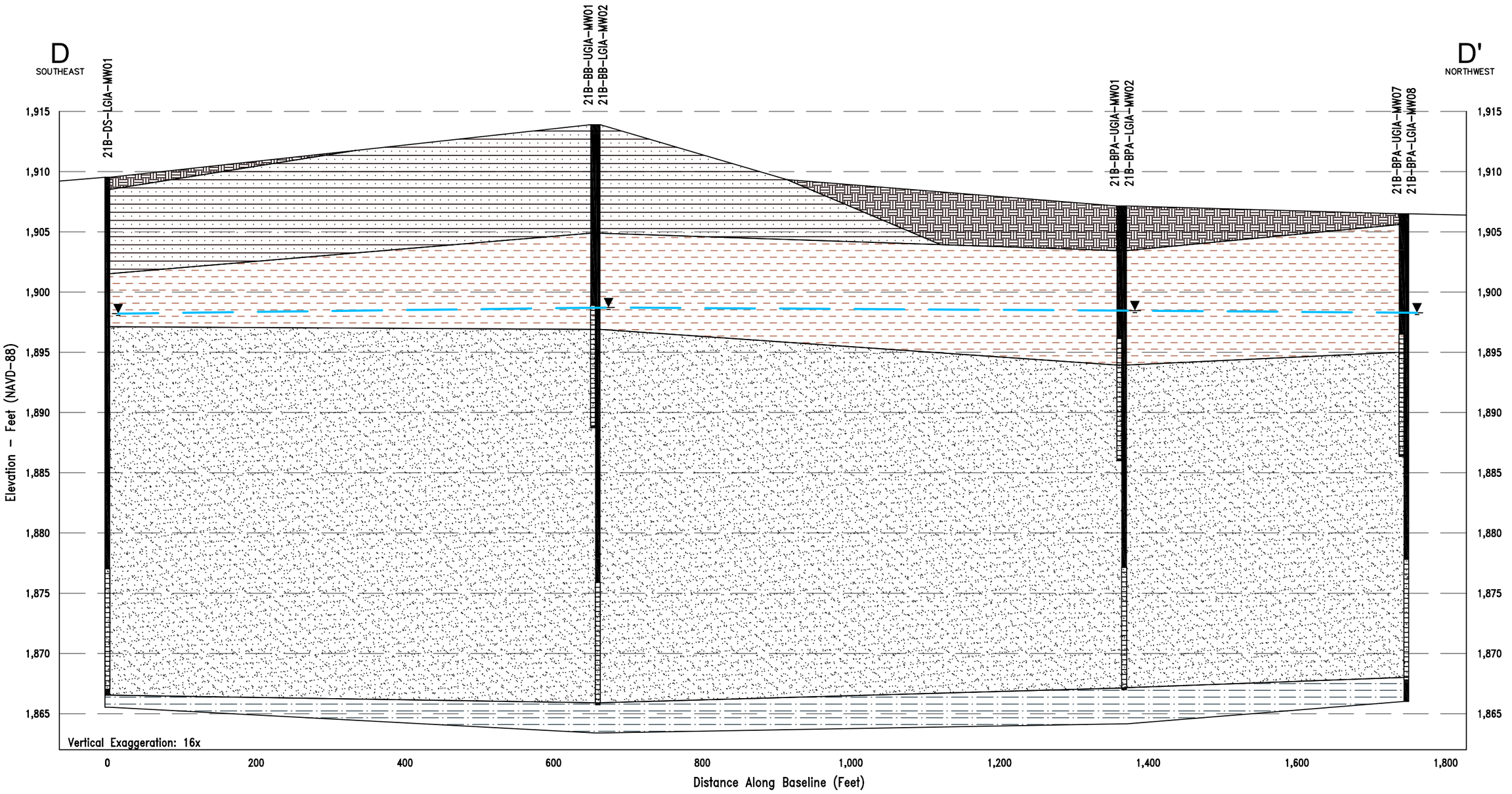
- Topsoil
- Clayey Silt
- Silty Clay
- Alluvial Sand and Gravel (Grand Island Formation)
- Lean Clay (Fullerton Formation)

Figure 3-4
Geological and Hydrogeological Cross-Section, C-C'

DATE MODIFIED:	CREATED BY:
2/9/2021	S. Cameron

ati INC
HGL HydroGeoLogic, Inc

Tract 21B



LEGEND

- Approximate Depth To Water
- Potentiometric Surface (March 2018)
- Tract Extent
- Well Screen
- Borehole

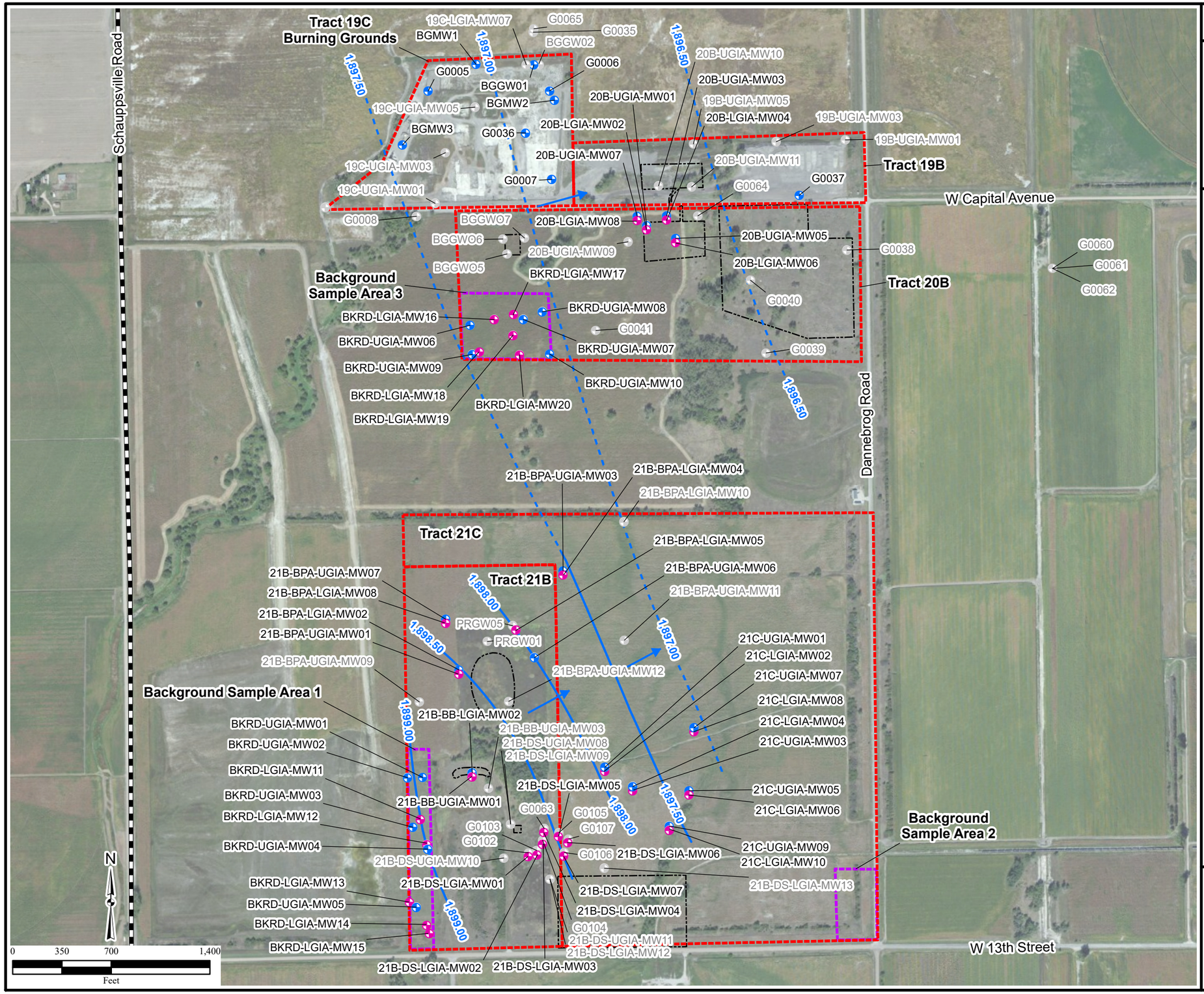
LGIA	Lower Grand Island Aquifer
UGIA	Upper Grand Island Aquifer
MW	Monitoring Well
NAVD-88	North American Vertical Datum of 1988

- Topsoil
- Clayey Silt
- Silty Clay
- Alluvial Sand and Gravel (Grand Island Formation)
- Lean Clay (Fullerton Formation)

Figure 3-5
Geological and Hydrogeological Cross-Section, D-D'

DATE MODIFIED:	CREATED BY:
2/9/2021	S. Cameron

ati INC
HGL HydroGeoLogic, Inc



Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 3.6
Groundwater Elevations and Potentiometric Surface Map
May 2018

Legend

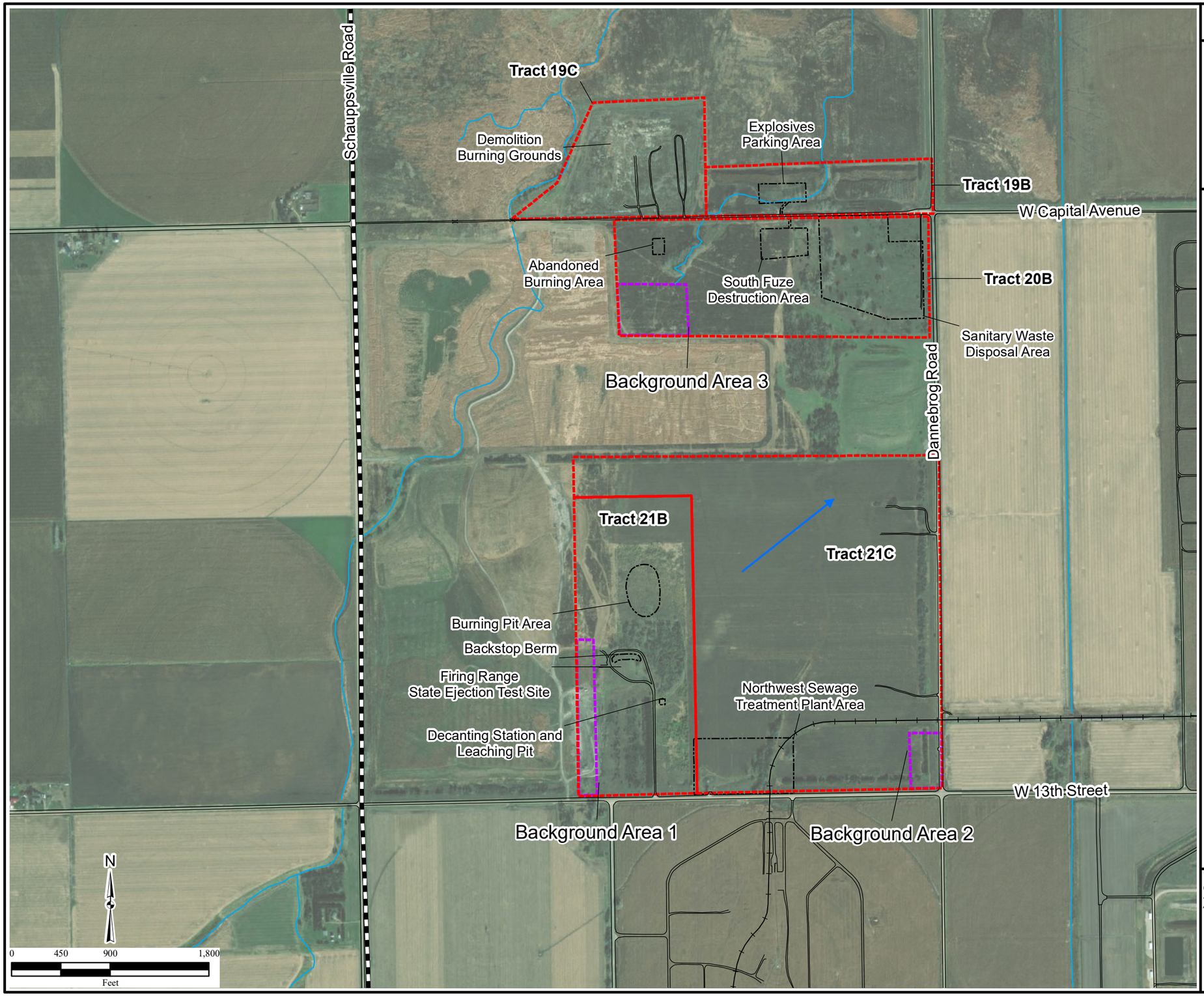
- Monitoring Well (UGIA)
- Monitoring Well (LGIA)
- Monitoring Well*
- 20B-UGIA-MW05 — Well Identification / Groundwater Elevation (ft NAVD 88)
- 1,899.00 — Groundwater Elevation (ft NAVD 88) / Groundwater Elevation Contour (dashed where inferred)
- Groundwater Flow Direction
- Site Boundary
- Background Sample Area
- Tract Boundary
- Cornhusker Army Ammunition Plant (CHAAP)

Notes:
*=indicates that associated water level elevations were disregarded due to either top of casing elevations of inadequate precision or water level measurement beyond the timeframe considered representative of "static" hydrologic conditions
ft=feet
LGIA=Lower Grand Island Aquifer
MGIA=Middle Grand Island Aquifer
NAVD 88=North American Vertical Datum of 1988
UGIA=Upper Grand Island Aquifer

\\srv-gst-01\hglgis\CHAAP_MSIW\RI\(3-06)CHAAP_Pot-Surf_May2018.mxd
5/28/2021 CNL
Source: HGL, ICF Kaiser ArcGIS Online Imagery

ati-HGL
B(a) Joint Venture, LLC

Figure 4.1
Background Sample Areas



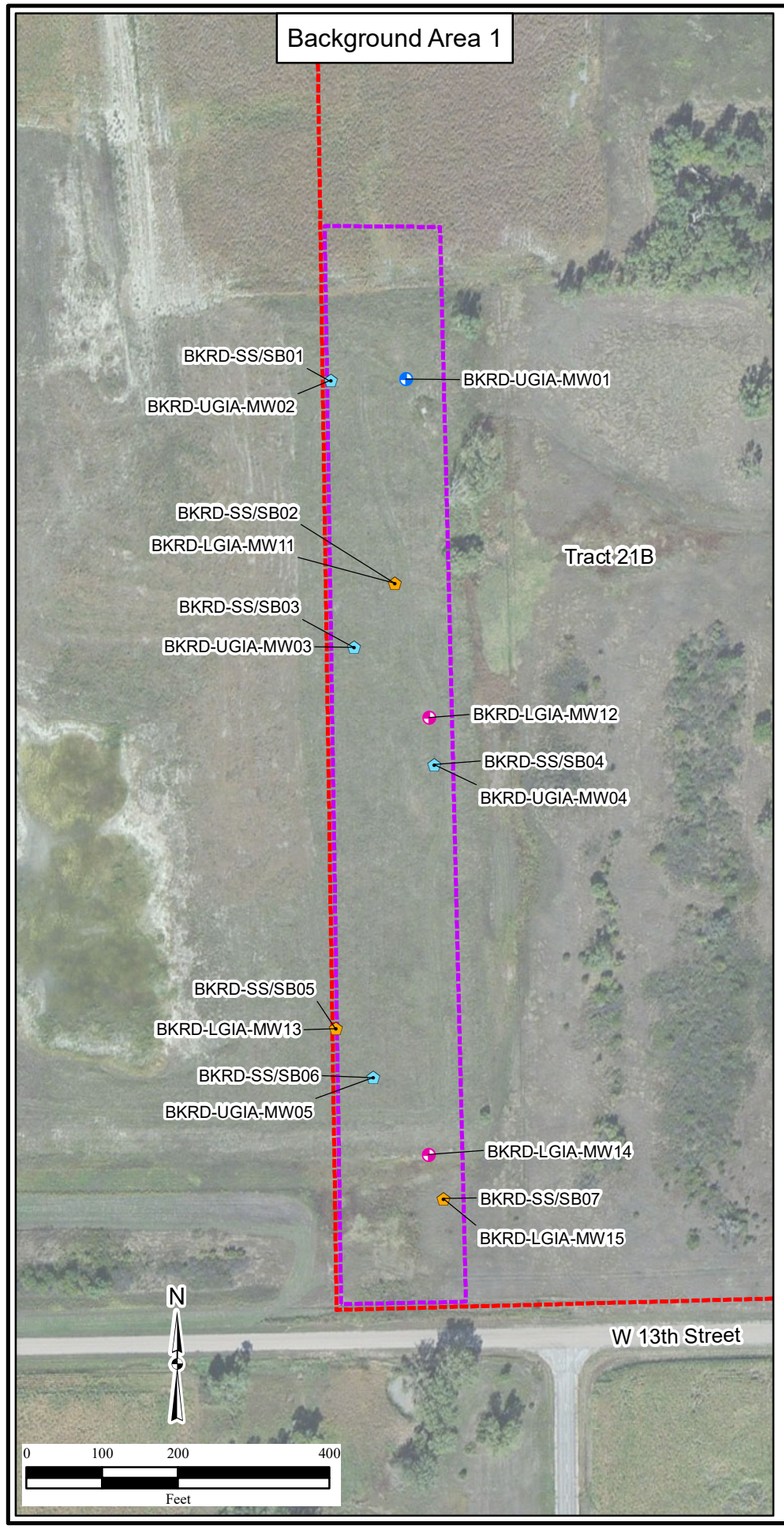
Legend

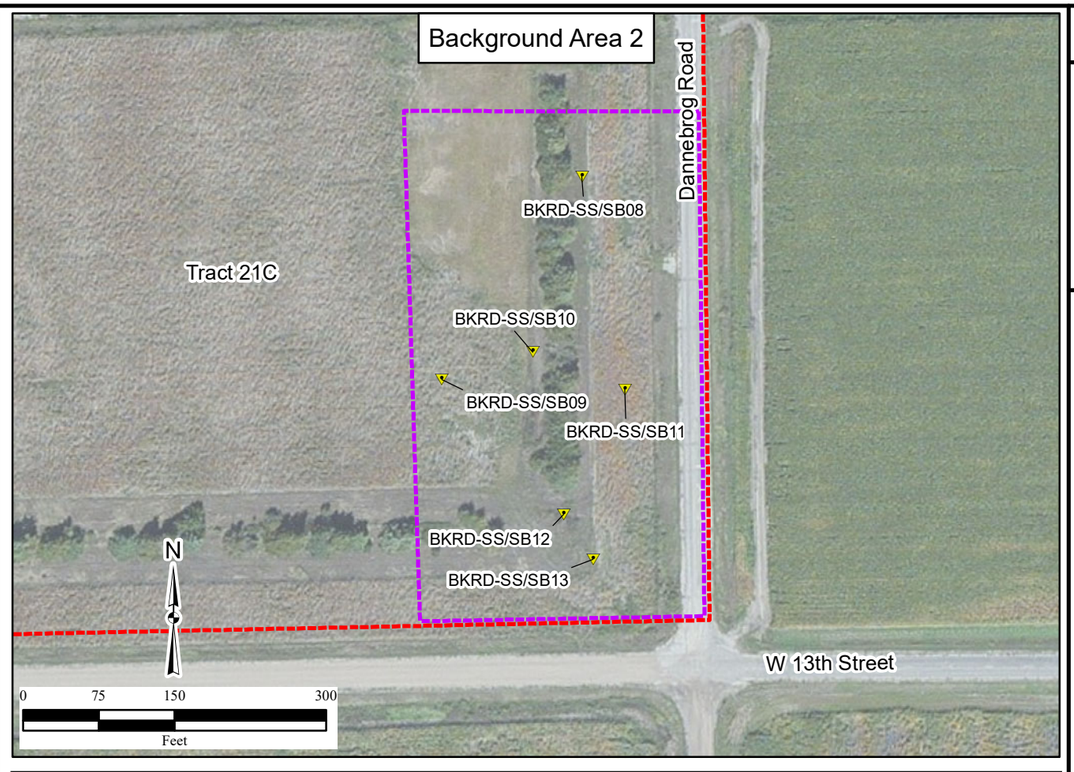
- Former Load Line 4 Road
- Former Railroad
- Surface Water Course
- Groundwater Flow Direction
- Site Boundary
- Background Sample Area
- Tract Boundary
- Cornhusker Army Ammunition Plant (CHAAP)

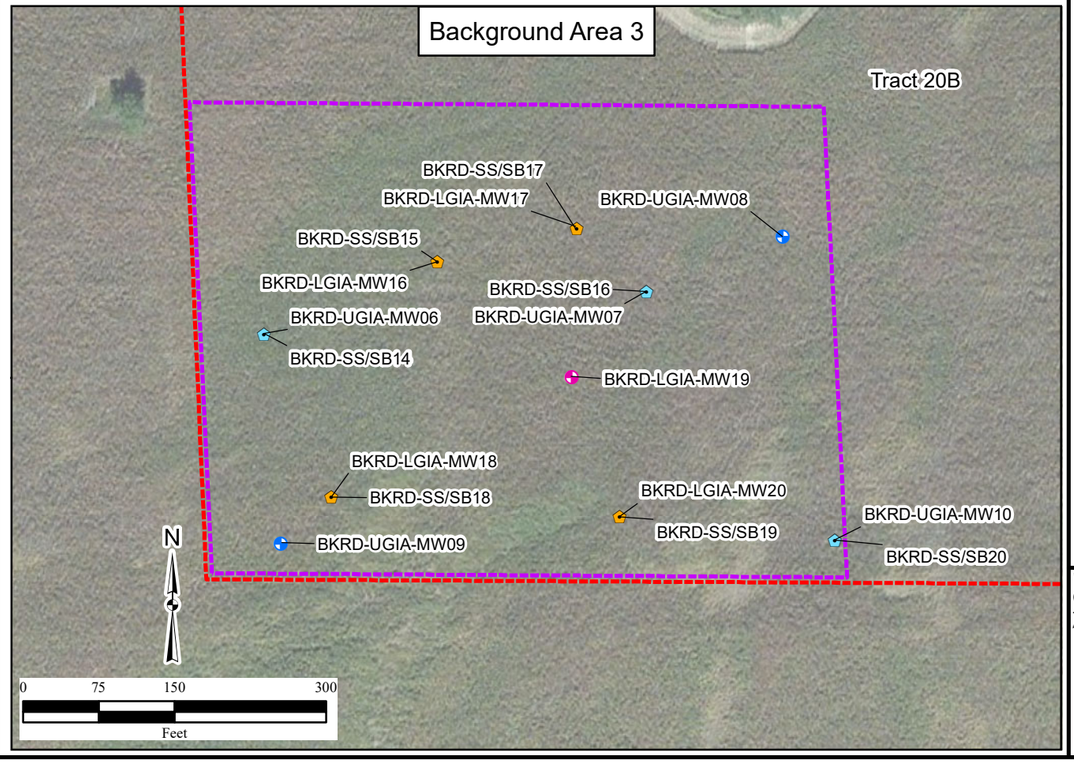
\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-01)Background_Sample_Areas.mxd
3/5/2021 JM
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 4.2
Background Sample Locations







Legend

- Background Monitoring Well (UGIA)
- Background Monitoring Well (LGIA)
- Background SS/SB Sample
- Background Monitoring Well (UGIA) and Soil Sample
- Background Monitoring Well (LGIA) and Soil Sample
- Tract Boundary
- Background Sample Area

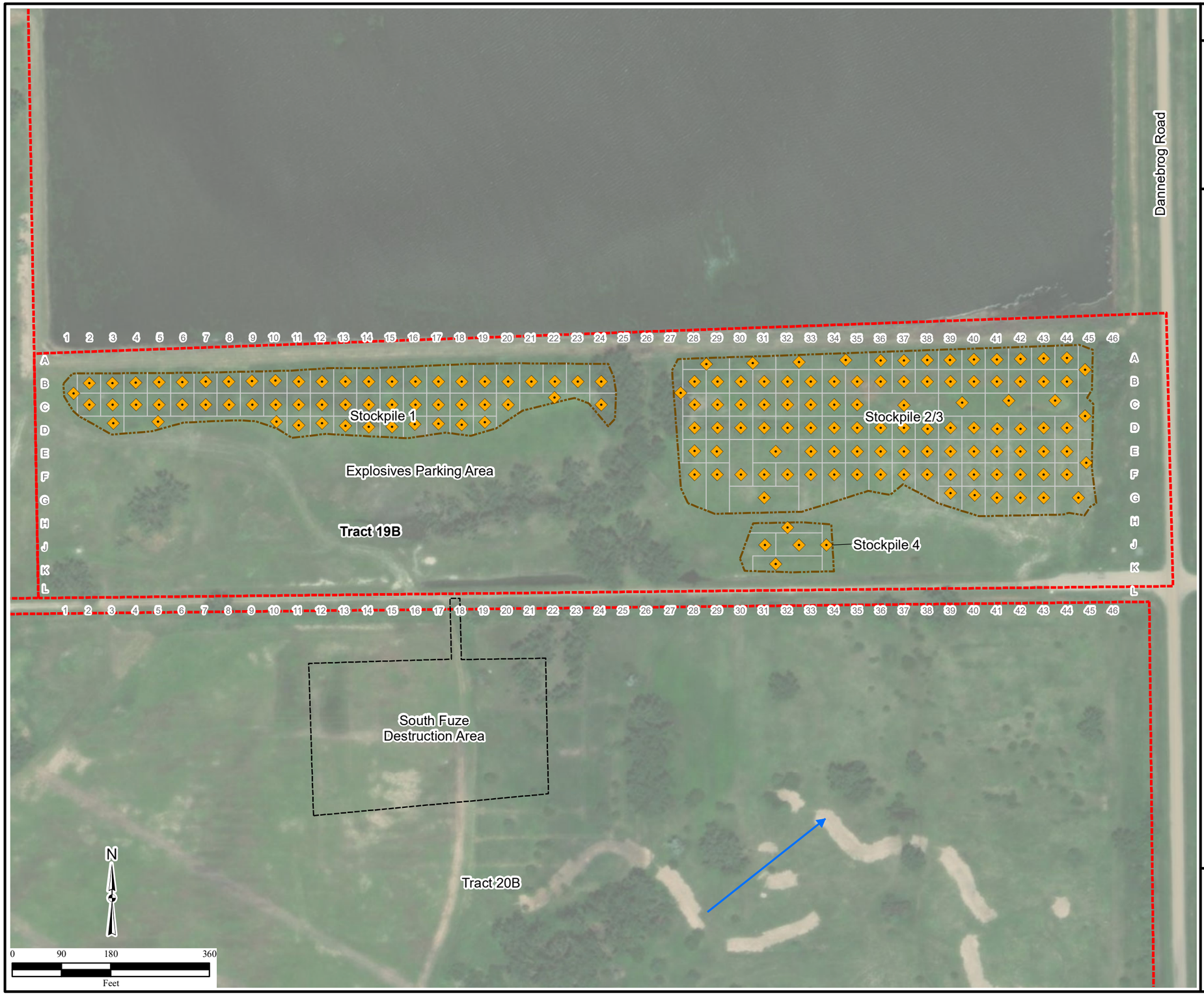
Notes:
LGIA=Lower Grand Island Aquifer
SS/SB=Surface soil / subsurface soil
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-02)Background_Sample_Locs.mxd
3/5/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.3
Tract 19B
Stockpile Soil Sample Locations



Legend

- Composite Soil Sample
- Groundwater Flow Direction
- 3B — Tract 19B Sampling Grid
- Soil Stockpile
- South Fuze Destruction Area
- Tract Boundary

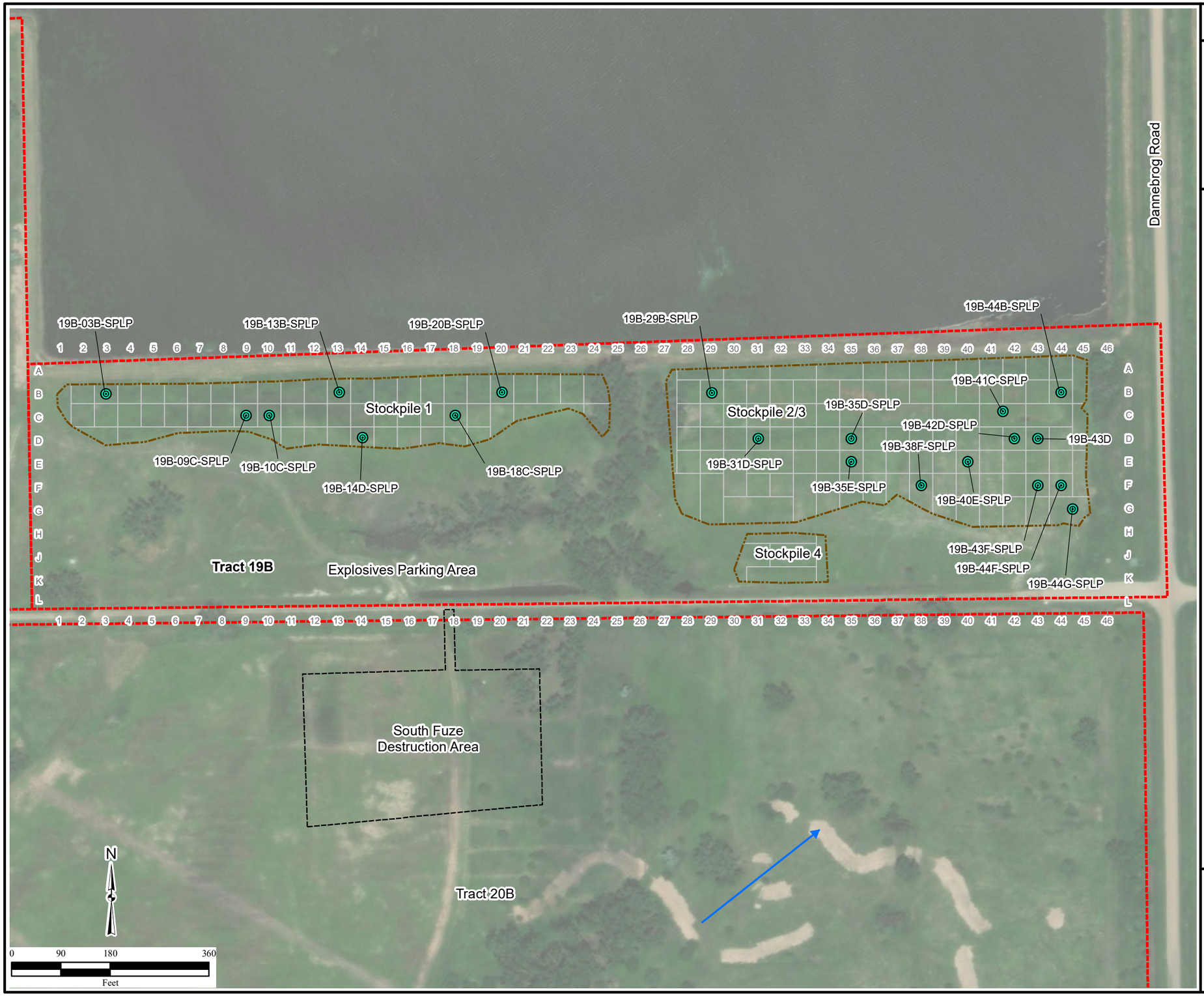
Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).

Sample names specify the Tract (19B) and sample origin (SP for Stockpile), followed by the column number and row letter of the grid from which the sample was collected

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-03)Tract19B_Stockpile_Samples.mxd
6/8/2021 JM
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 4.4
Tract 19B
Stockpile SPLP
Soil Sample Locations



Legend

- SPLP Sample
- Groundwater Flow Direction
- 3B — Tract 19B Sampling Grid
- Soil Stockpile
- South Fuze Destruction Area
- Tract Boundary

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).

Sample names specify the Tract (19B), the column number and row letter of the grid from which the sample was collected, followed by the sample type (SPLP)

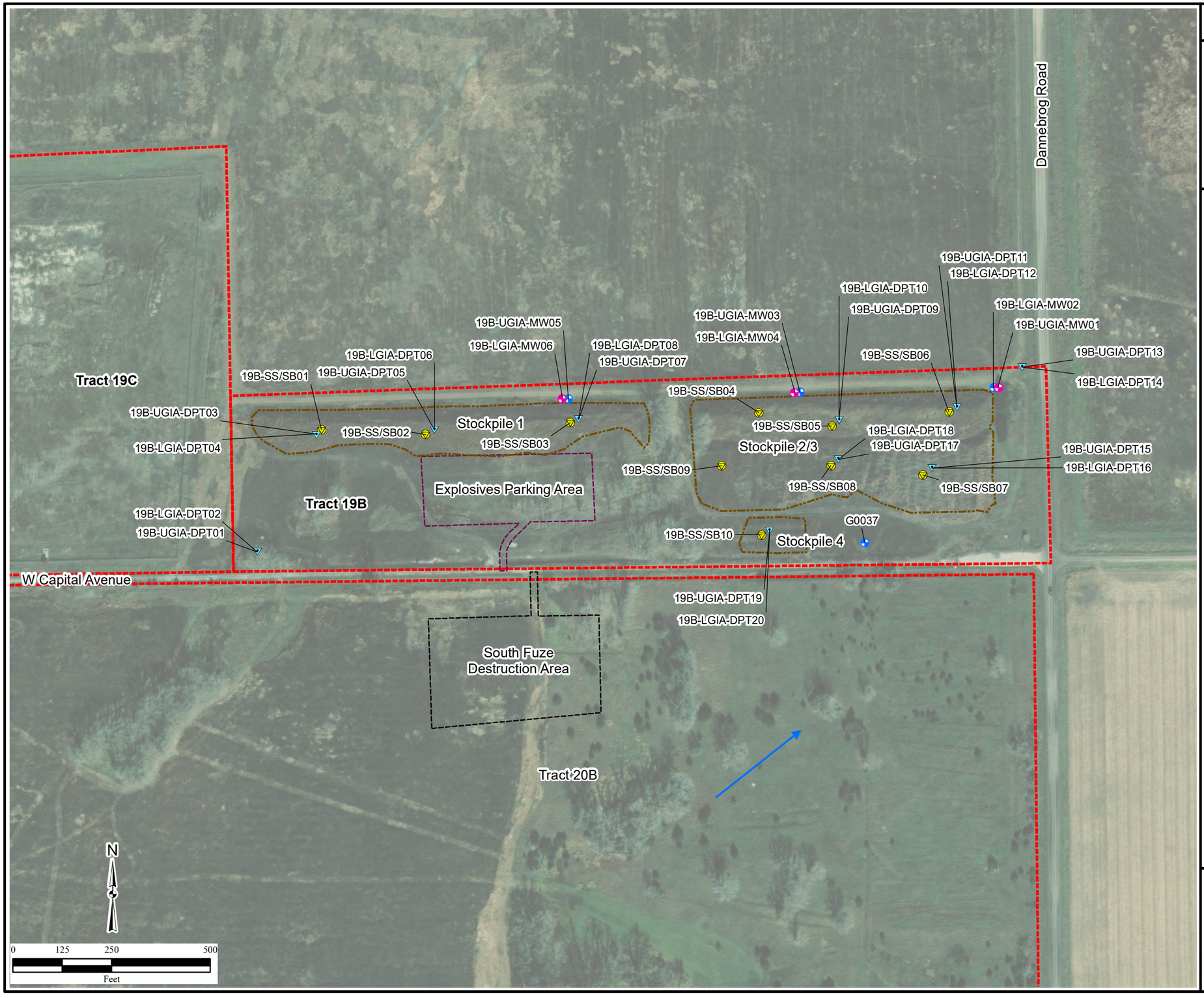
SPLP=Synthetic Precipitation Leaching Procedure

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-04)Tract19B_SPLP_Soil_Locations.mxd
6/8/2021 JM
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.5
Tract 19B
Soil and Groundwater Sample Locations



Legend

- SS/SB Soil Sample
- DPT Groundwater Sample (UGIA and LGIA)
- Monitoring Well (UGIA)
- Monitoring Well (LGIA)
- Groundwater Flow Direction
- Soil Stockpile
- Explosives Parking Area
- South Fuze Destruction Area
- Tract Boundary

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).

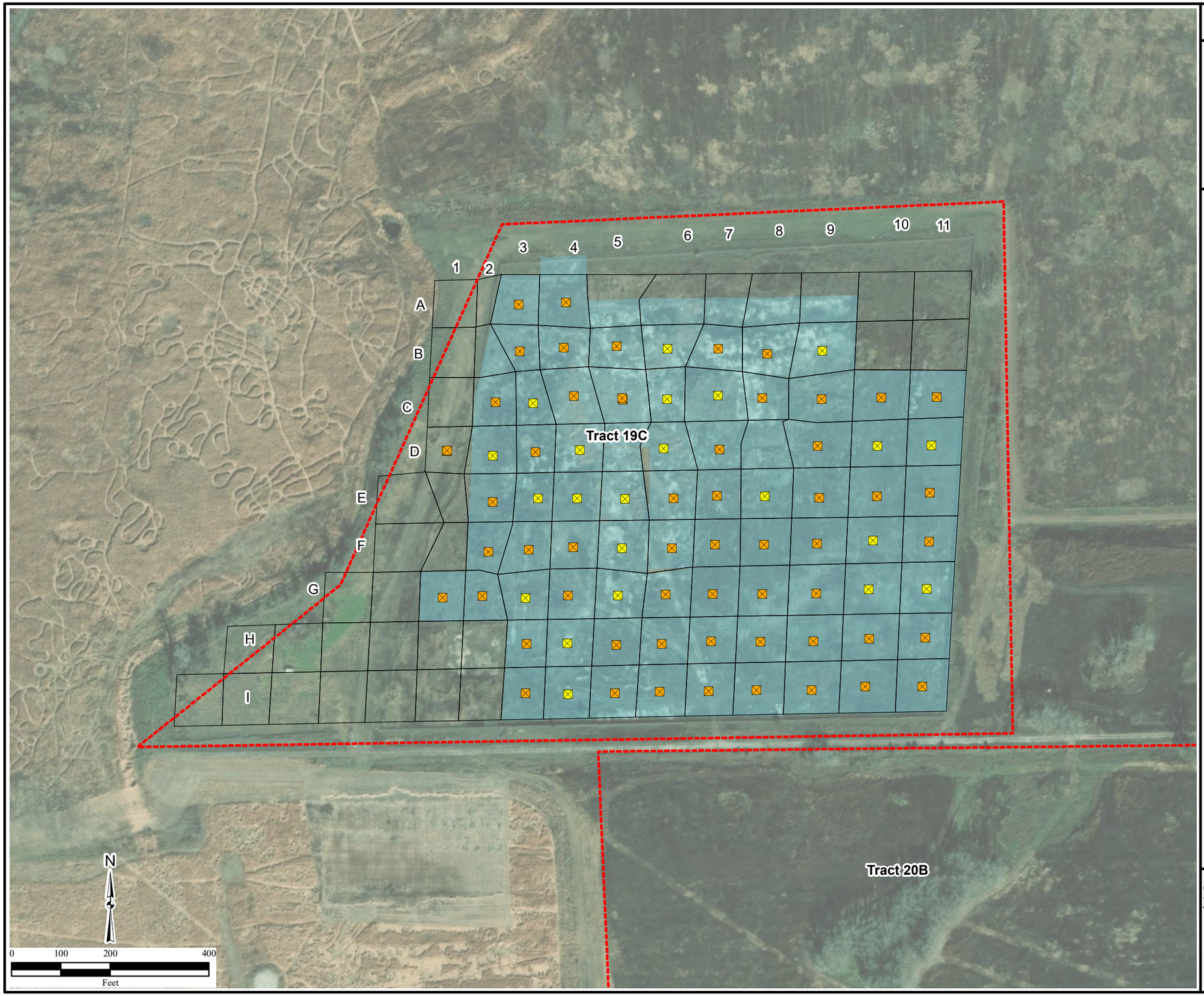
DPT=direct-push technology
LGIA=Lower Grand Island Aquifer
SS/SB=Surface soil/subsurface soil
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-05)Tract19B_Sample_Locs.mxd
3/5/2021 JM
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.6
Tract 19C
Soil Sample Locations



Legend

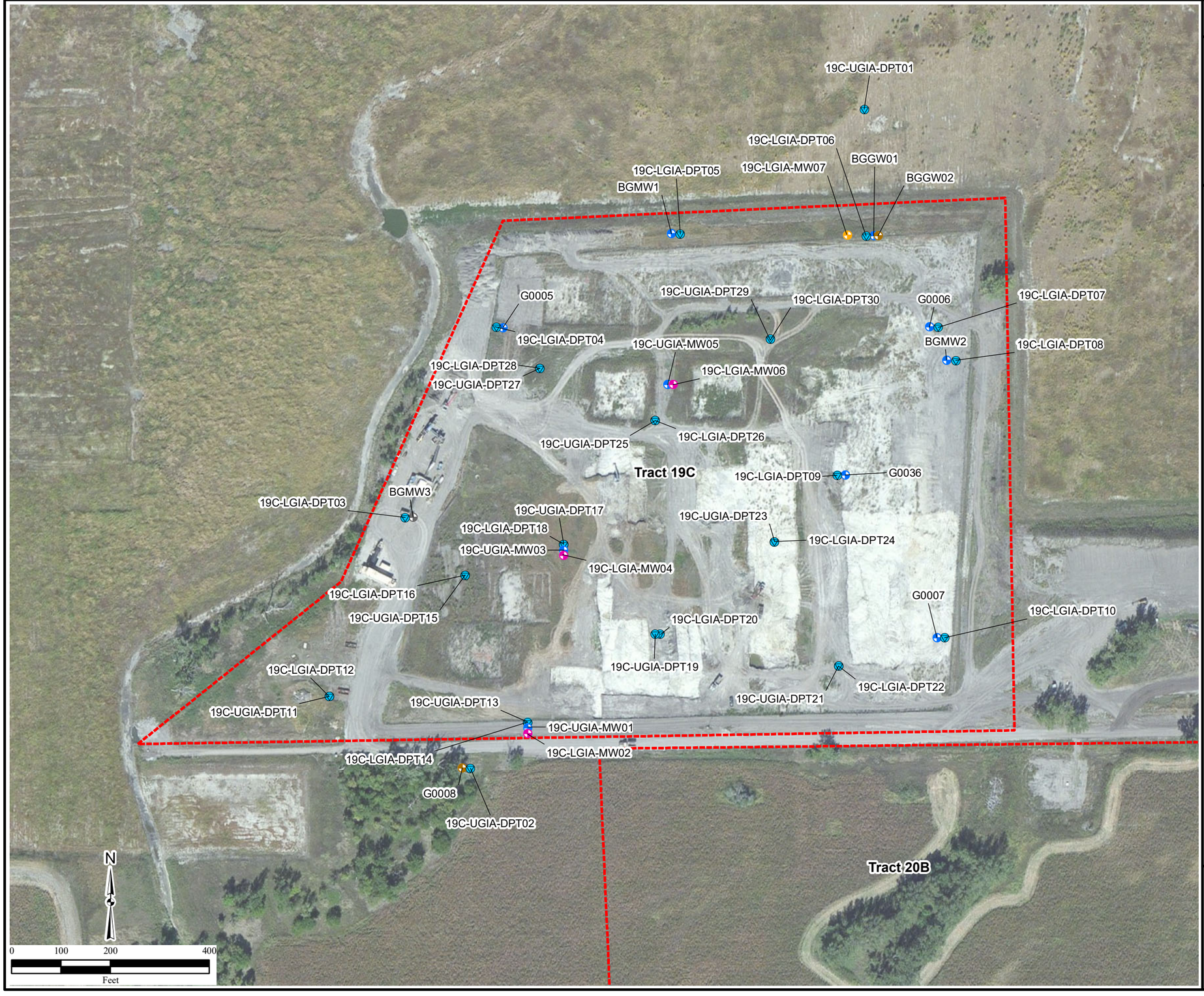
- Grid Surface Soil Sample
- Grid Surface and Subsurface Soil Sample
- Previously Excavated Area
- Tract Boundary

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-06)Tract19C_Grid_Samples.mxd
3/5/2021 JM
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.7
Tract 19C
Groundwater
Sample Locations



Legend

- 2018 DPT Groundwater Sample (UGIA and/or LGIA)
- Monitoring Well (LGIA)
- Monitoring Well (MGIA)
- Monitoring Well (UGIA)
- Tract Boundary

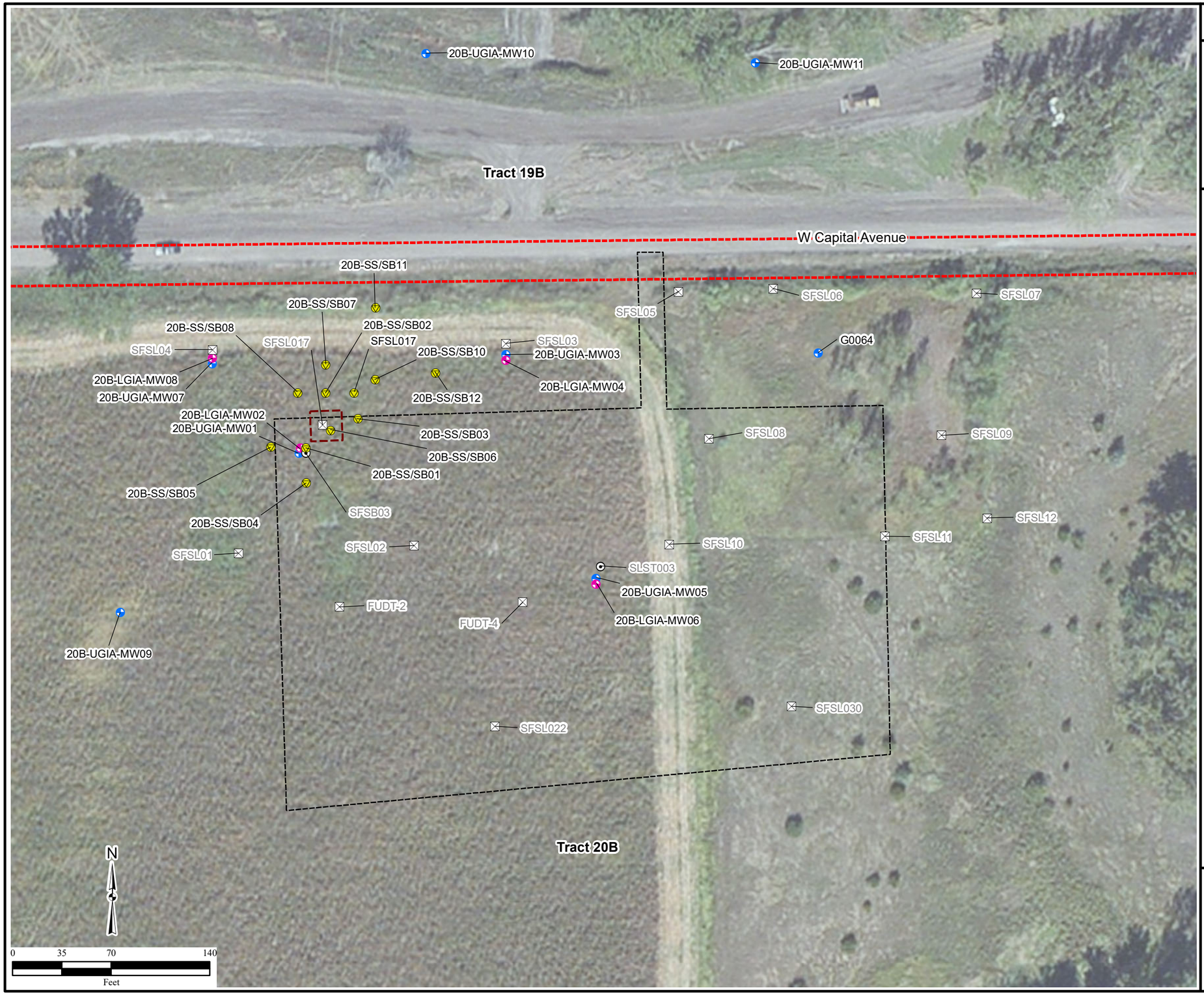
Notes:
DPT=direct-push technology
LGIA=Lower Grand Island Aquifer
MGIA=Middle Grand Island Aquifer
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSW\RI
(4-07)Tract19C_GW_Samples_Locs.mxd
3/5/2021 JM
Source: HGL, ICF Kaiser
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.8
Tract 20B
Soil and Groundwater Sample Locations



Legend

- SS/SB Soil Sample
- Monitoring Well (LGIA)
- Monitoring Well (UGIA)
- Historical Soil Boring or Trench Sample
- Historical Surface Soil Sample
- Tract Boundary
- 2000 Excavation Footprint (Approximate)
- South Fuze Destruction Area

Notes:
The location of the South Fuze Destruction Area and the associated sample locations were georeferenced from Exhibit 4-93 of a 1996 ICF Kaiser Map and should be considered approximate.
The footprint of the 2000 excavation is unavailable. The excavation included only sample locations SFSL017. The footprint shown is approximate.

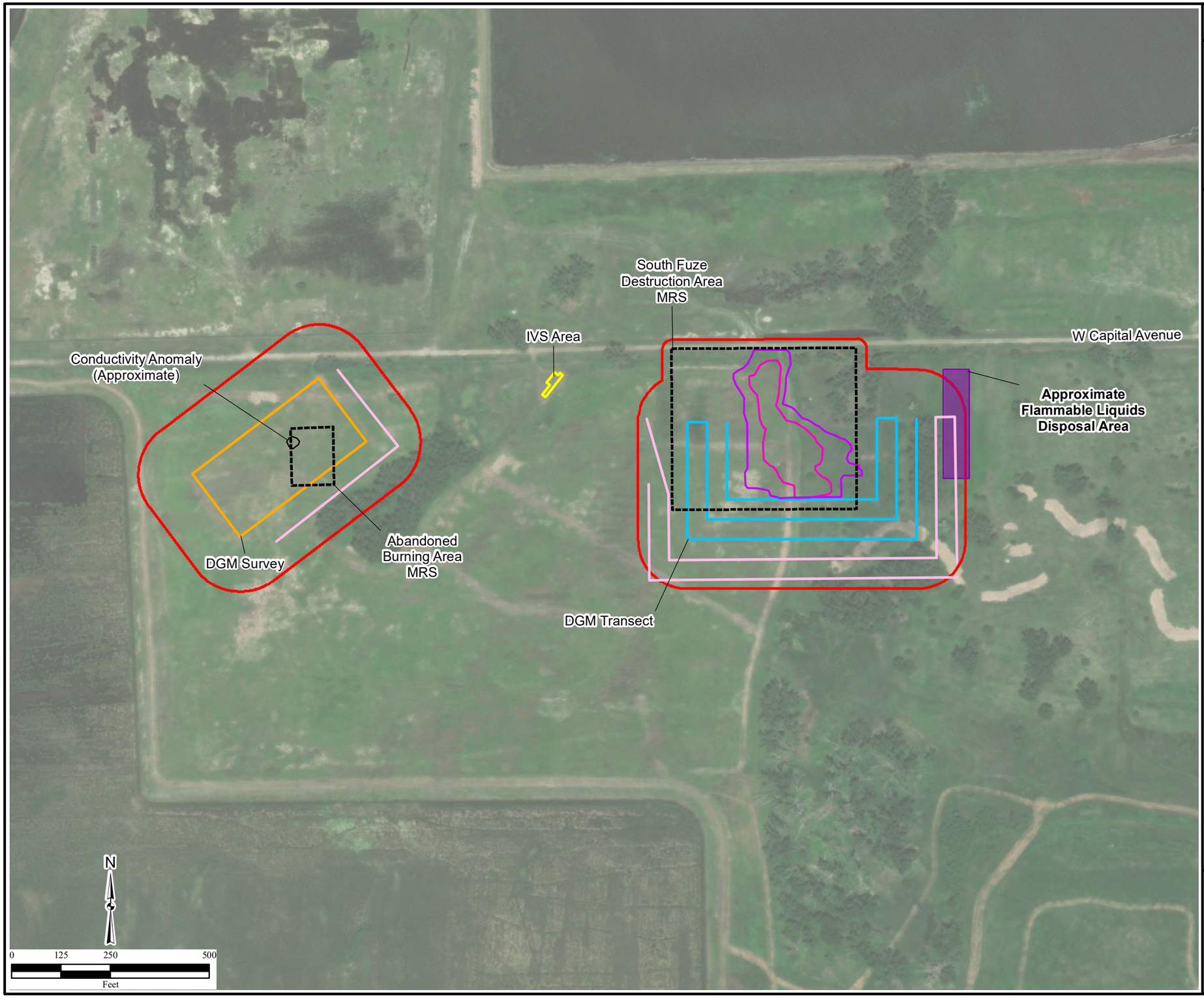
LGIA=Lower Grand Island Aquifer
SS/SB=Surface soil/subsurface soil
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-08)Tract20B_Sample_Locs.mxd
3/5/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.9
Tract 20B
Demolition and Burning Grounds
Munitions Response Area



Legend

- SFDA Planned Transects
- Delineation Transects
- MRS Boundary
- SFDA High Anomaly Density Area
- SFDA Intermediate Anomaly Density Area
- IVS Area
- ABA Full-Coverage Survey Boundary
- ABA Conductivity Anomaly (Approximate)
- Approximate Flammable Liquids Storage Area
- ESP Boundary

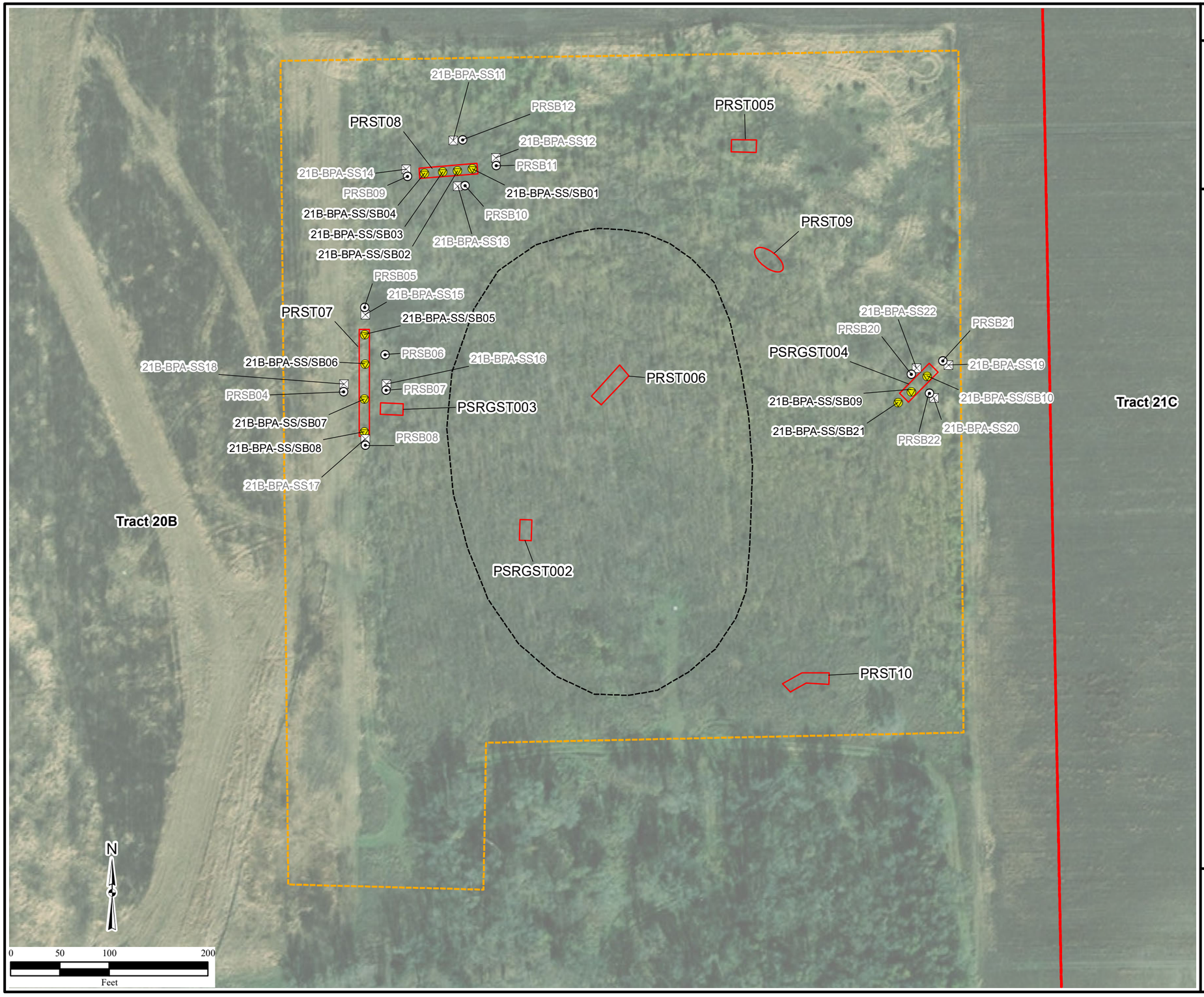
Notes:
ABA=Abandoned Burn Area
DGM=Digital Geophysical Mapping
ESP=Explosive Site Plan
IVS=Instrument Verification Strip
MRS=munitions response site
SFDA=South Fuze Destruction Area

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-09)Demo-Burning_Grounds_MRA.mxd
6/14/2021 TH
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
B(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.10
Tract 21B Burning Pit Area
Soil Sample Locations



Legend

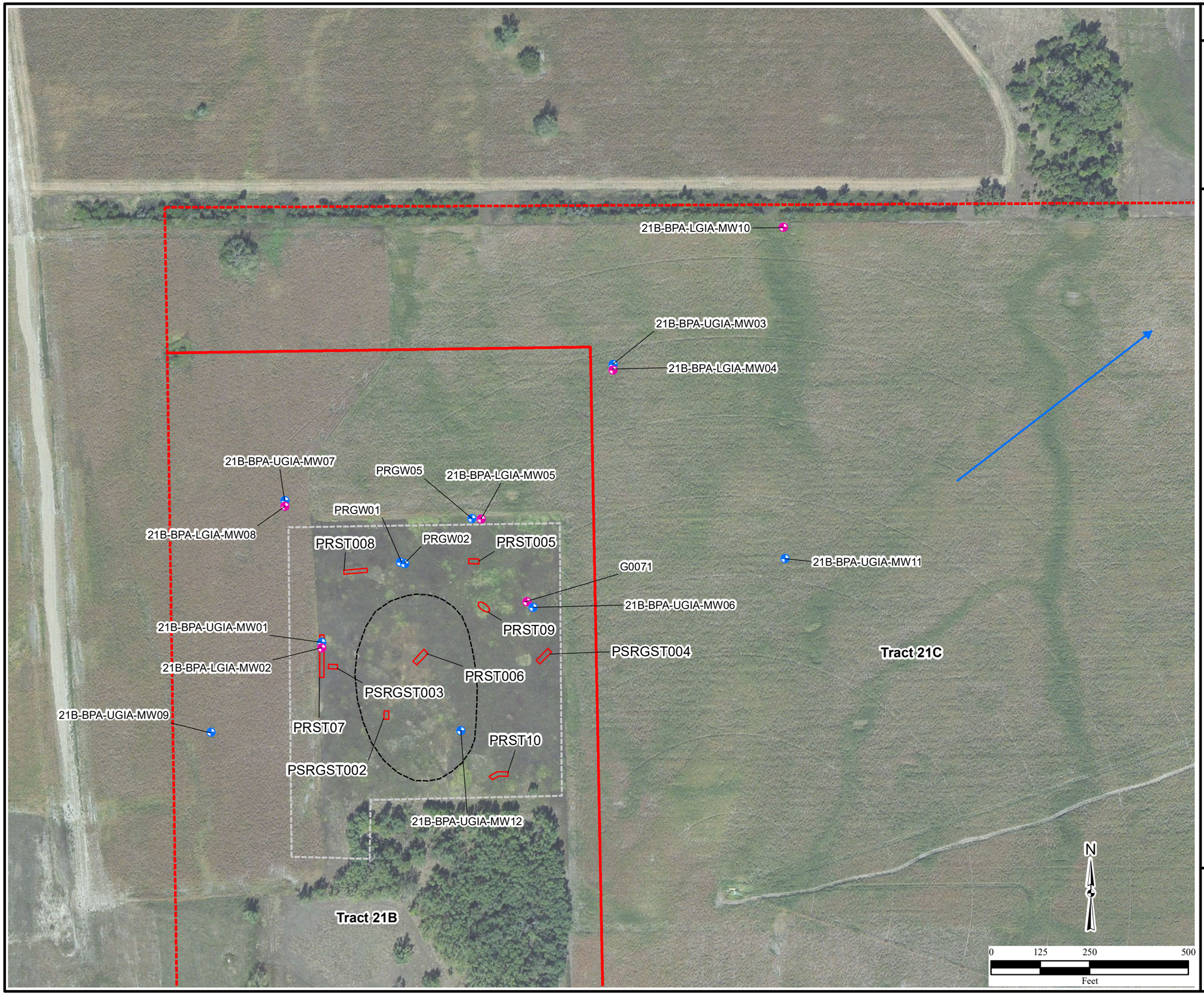
- SS/SB Soil Sample
- Surface Soil Sample
- Historical Soil Boring
- Tract Boundary
- Former Burning Pit Area
- Test Trench Excavation (1993, 1996, 2001)
- 1995 Geophysical Survey Area

Note:
SS/SB=Surface soil/subsurface soil

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-10)Tract21B_BP_Soil_Samples.mxd
3/5/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 4.11
Tract 21B Burning Pit Area
Monitoring Well Locations



Legend

- Monitoring Well (UGIA)
- Monitoring Well (LGIA)
- Groundwater Flow Direction
- Tract Boundary
- Former Burning Pit Area
- Test Trench Excavation (1993, 1996, 2001)
- 1995 Geophysical Survey Area

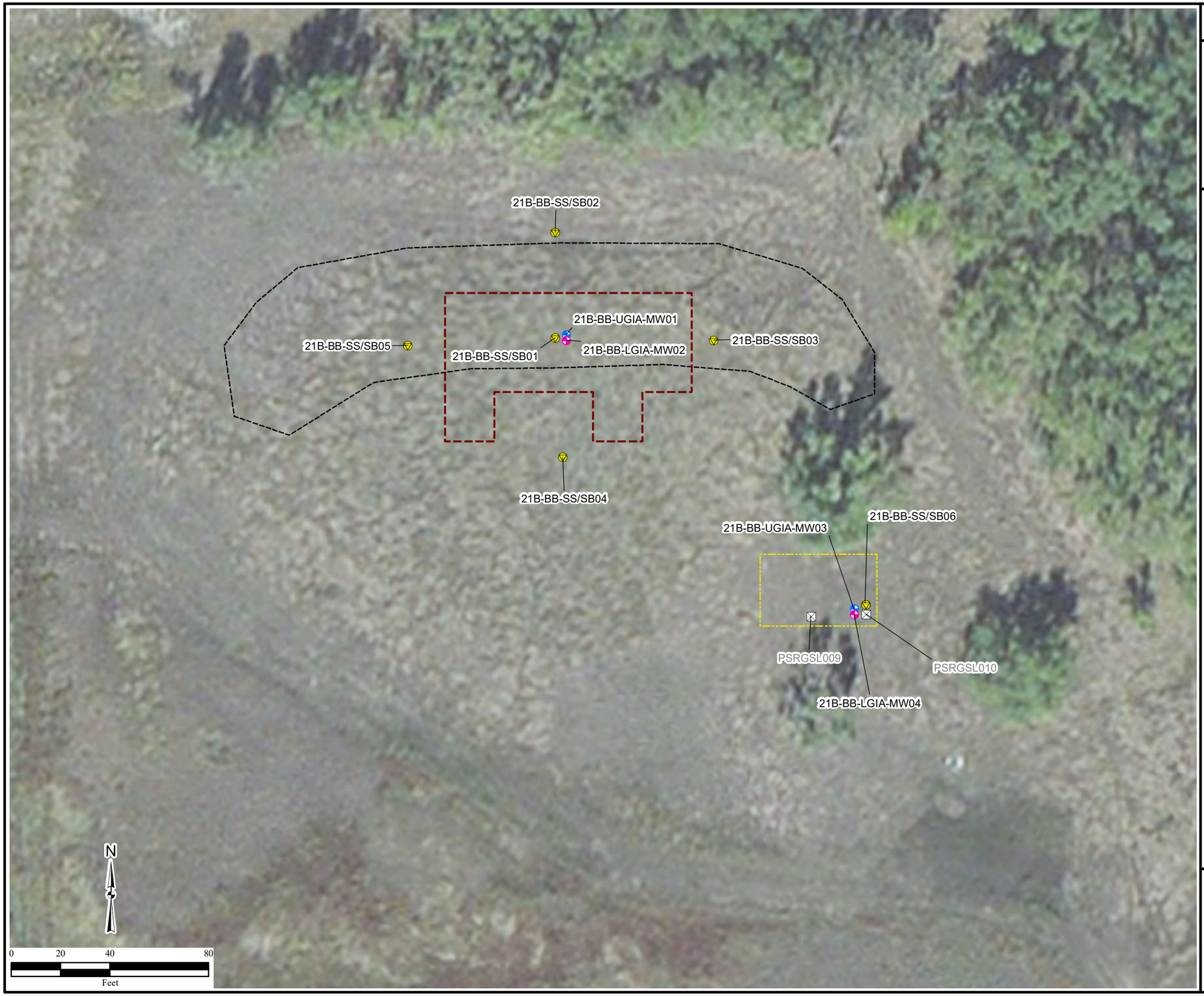
Notes:
LGIA=Lower Grand Island Aquifer
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-11)Tract21B-BPA_MW_Locs.mxd
2/18/2021 JM
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.12
Tract 21B Backstop
Berm Soil and
Groundwater Sample Locations



Legend

- Monitoring Well (UGIA)
- Monitoring Well (LGIA)
- SS/SB Soil Sample
- Historical Surface Soil Sample
- Static Ejection Test Site (Approximate)
- 2003 Excavation Footprint (Approximate)
- Former Backstop Berm

Notes:
The excavation was completed in 2003 to a depth ranging from 6 to 18 inches bgs.

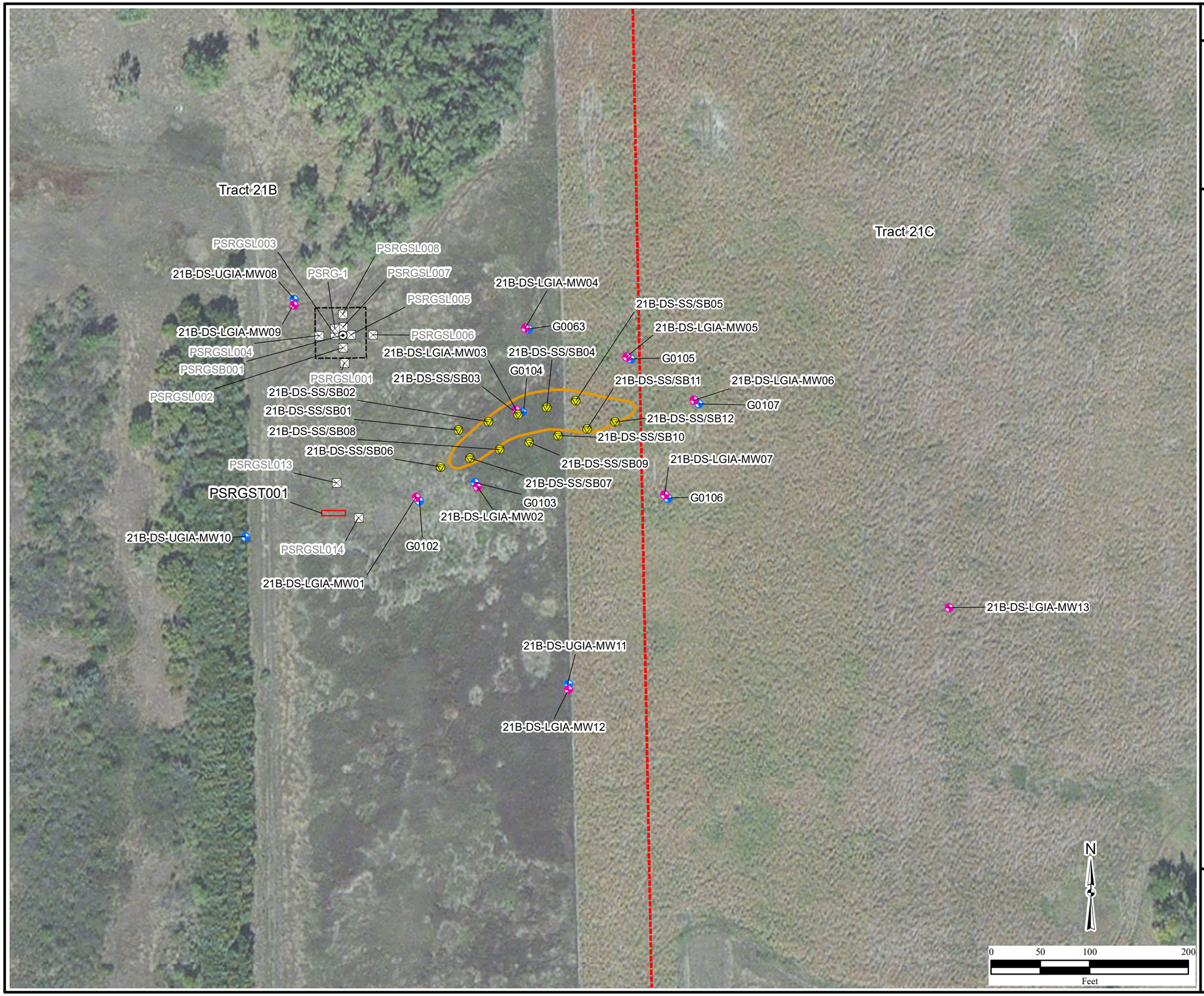
bgs=below ground surface
LGIA=Lower Grand Island Aquifer
SS/SB=Surface soil/subsurface soil
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-12)Tract21B-BB_2018_GW_Results.mxd
3/8/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.13
Tract 21B Decanting Station Soil and Groundwater Sample Locations



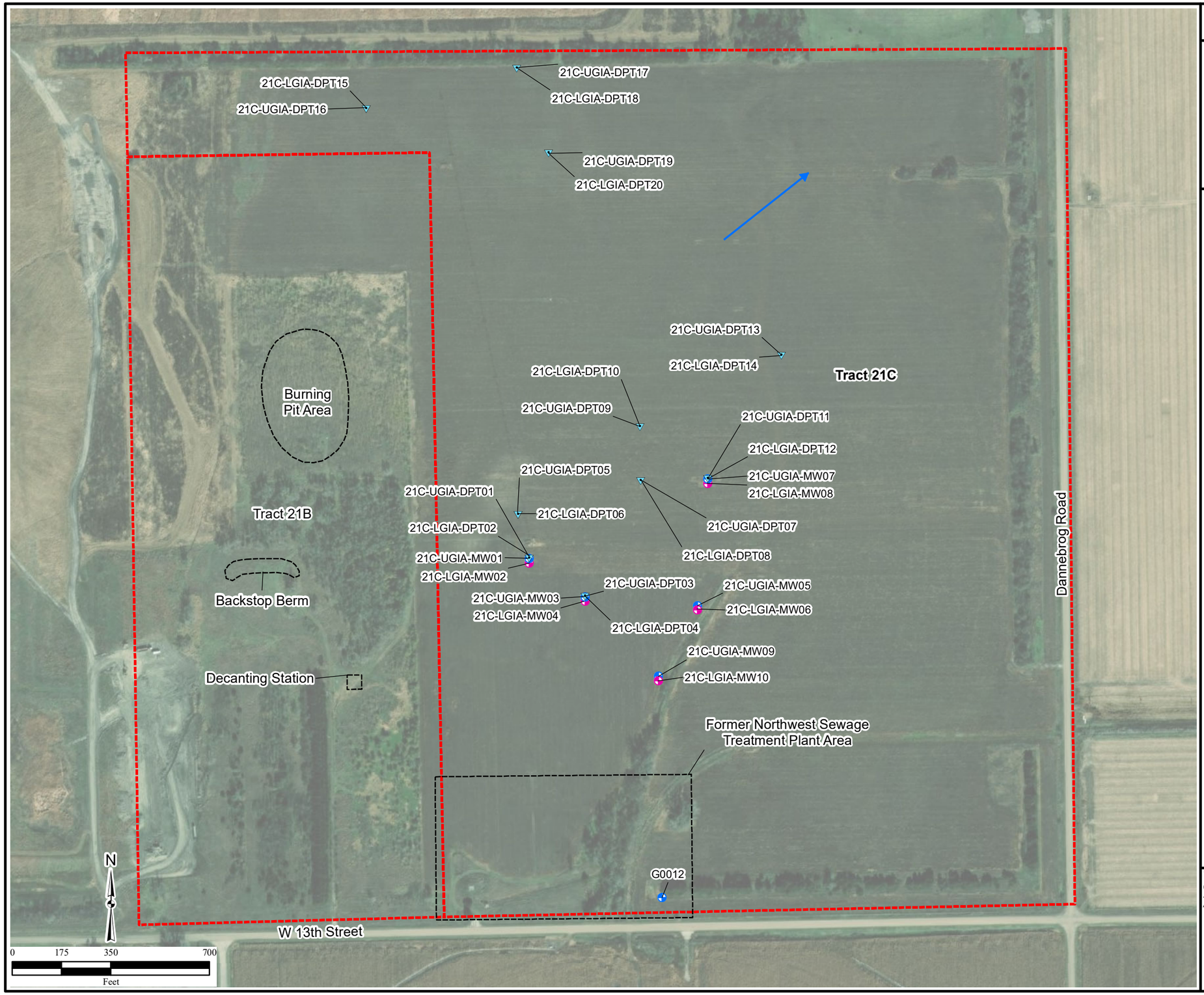
Legend

- Monitoring Well (UGIA)
- Monitoring Well (LGIA)
- SS/SB Soil Sample
- Historical Soil Boring
- Historical Surface Soil Sample
- Tract Boundary
- Historical/Remediated RDX 20 ug/L Plume Boundary
- Test Trench Excavation (Approximate)
- Decanting Station

Notes:
µg/L=micrograms per liter
LGIA=Lower Grand Island Aquifer
RDX=cyclotrimethylenetrinitramine
SS/SB=Surface soil/subsurface soil
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(4-13)Tract21B-DS_Sample_Locs.mxd
3/8/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
B(a) Joint Venture, LLC



Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 4.14
Tract 21C
Groundwater
Sample Locations

Legend

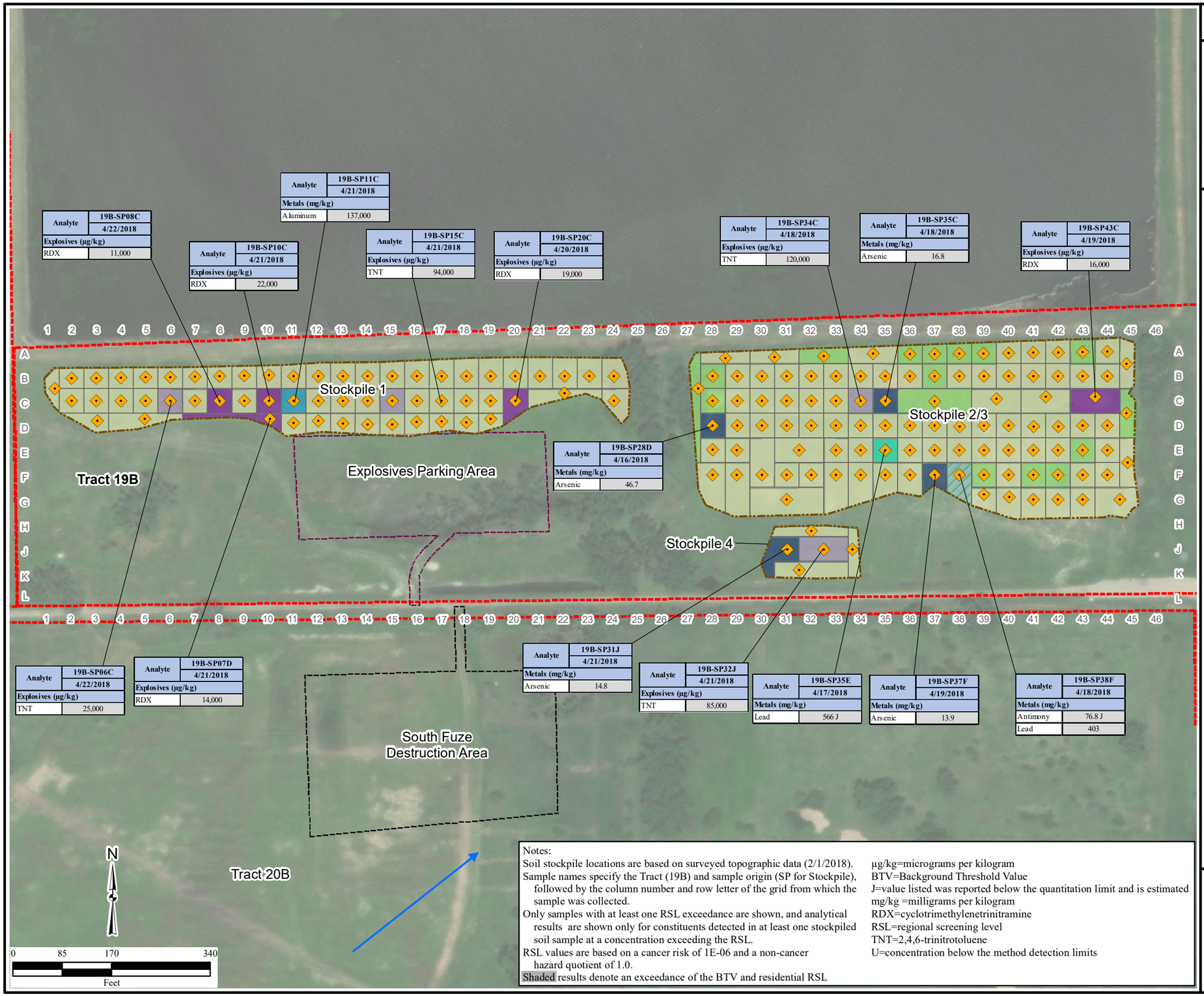
- Monitoring Well (UGIA)
- Monitoring Well (LGIA)
- DPT Groundwater Sample (UGIA and LGIA)
- Groundwater Flow Direction
- Site Boundary
- Tract Boundary

Notes:
DPT=direct-push technology
LGIA=Lower Grand Island Aquifer
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(4-14)Tract21C_Sample_Locs.mxd
3/8/2021 JG
Source: HGL, ATI, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 5.1
Tract 19B
Stockpiled Soil Sample Exceedances



Analyte	19B-SP08C 4/22/2018
Explosives (µg/kg)	
RDX	11,000

Analyte	19B-SP11C 4/21/2018
Metals (mg/kg)	
Aluminum	137,000

Analyte	19B-SP10C 4/21/2018
Explosives (µg/kg)	
RDX	22,000

Analyte	19B-SP15C 4/21/2018
Explosives (µg/kg)	
TNT	94,000

Analyte	19B-SP20C 4/20/2018
Explosives (µg/kg)	
RDX	19,000

Analyte	19B-SP34C 4/18/2018
Explosives (µg/kg)	
TNT	120,000

Analyte	19B-SP35C 4/18/2018
Metals (mg/kg)	
Arsenic	16.8

Analyte	19B-SP43C 4/19/2018
Explosives (µg/kg)	
RDX	16,000

Analyte	19B-SP28D 4/16/2018
Metals (mg/kg)	
Arsenic	46.7

Analyte	19B-SP06C 4/22/2018
Explosives (µg/kg)	
TNT	25,000

Analyte	19B-SP07D 4/21/2018
Explosives (µg/kg)	
RDX	14,000

Analyte	19B-SP31J 4/21/2018
Metals (mg/kg)	
Arsenic	14.8

Analyte	19B-SP32J 4/21/2018
Explosives (µg/kg)	
TNT	85,000

Analyte	19B-SP35E 4/17/2018
Metals (mg/kg)	
Lead	566 J

Analyte	19B-SP37F 4/19/2018
Metals (mg/kg)	
Arsenic	13.9

Analyte	19B-SP38F 4/18/2018
Metals (mg/kg)	
Antimony	76.8 J
Lead	403

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).
Sample names specify the Tract (19B) and sample origin (SP for Stockpile), followed by the column number and row letter of the grid from which the sample was collected.
Only samples with at least one RSL exceedance are shown, and analytical results are shown only for constituents detected in at least one stockpiled soil sample at a concentration exceeding the RSL.
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the BTV and residential RSL

µg/kg=micrograms per kilogram
BTV=Background Threshold Value
J=value listed was reported below the quantitation limit and is estimated
mg/kg =milligrams per kilogram
RDX=cyclotrimethylenetrinitramine
RSL=regional screening level
TNT=2,4,6-trinitrotoluene
U=concentration below the method detection limits

Legend

- Composite Soil Sample
- Groundwater Flow Direction
- 1B Tract 19B Sampling Grid
- Composite Stockpile Soil Sample No Screening Value Exceedances
- Composite Stockpile Soil Sample SSL Exceedance

Composite Stockpile Soil Sample RSL Exceedances:

- RDX Exceeds Residential RSL
- TNT Exceeds Residential RSL
- Aluminum Exceeds BTV and Residential RSL
- Arsenic Exceeds BTV and Residential RSL
- Lead Exceeds BTV and Residential RSL
- Antimony and Lead Exceeds BTV and Residential RSL
- Soil Stockpile
- Explosives Parking Area
- South Fuze Destruction Area
- Tract Boundary

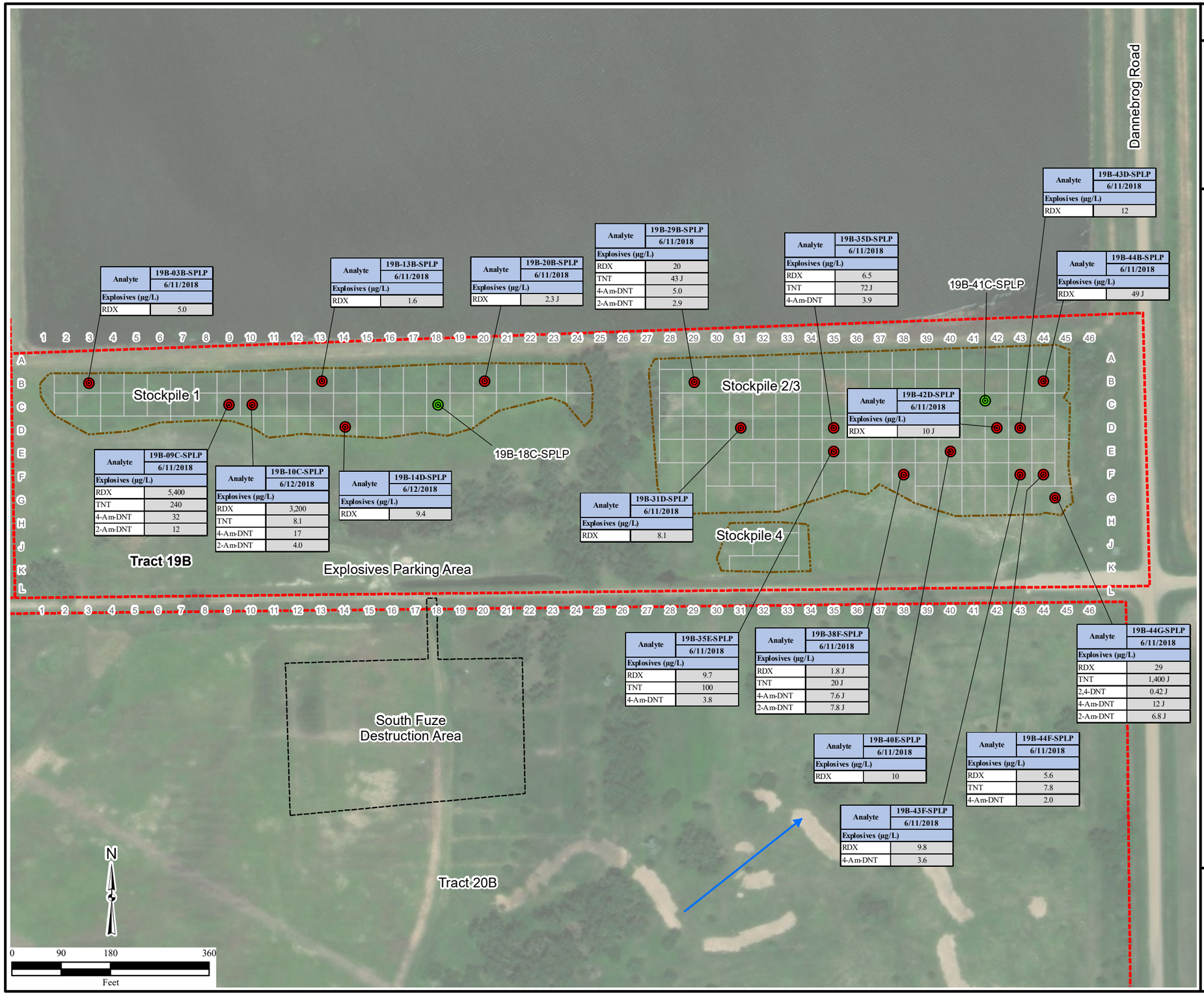
Analyte	Background Threshold Value Total Soil	Residential RSL
Explosives (µg/kg)		
RDX	--	6,100
TNT	--	21,000
Metals (mg/kg)		
Aluminum	21,600	77,000
Antimony	0.333	31
Arsenic	13.6	0.68
Lead	16.4	400

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI\ (5-01)Tract19B_Stockpile_Soil_Results.mxd 6/8/2021 JG
Source: HGL, ATI, USACE ArcGIS Online Imagery

ati-HGL B(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.2
Tract 19B
SPLP Soil Sample Exceedances



Analyte	19B-03B-SPLP 6/11/2018
Explosives (µg/L)	
RDX	5.0

Analyte	19B-09C-SPLP 6/11/2018
Explosives (µg/L)	
RDX	5,400
TNT	240
4-Am-DNT	32
2-Am-DNT	12

Analyte	19B-10C-SPLP 6/12/2018
Explosives (µg/L)	
RDX	3,200
TNT	8.1
4-Am-DNT	17
2-Am-DNT	4.0

Analyte	19B-13B-SPLP 6/11/2018
Explosives (µg/L)	
RDX	1.6

Analyte	19B-14D-SPLP 6/12/2018
Explosives (µg/L)	
RDX	9.4

Analyte	19B-20B-SPLP 6/11/2018
Explosives (µg/L)	
RDX	2.3 J

Analyte	19B-29B-SPLP 6/11/2018
Explosives (µg/L)	
RDX	20
TNT	43 J
4-Am-DNT	5.0
2-Am-DNT	2.9

Analyte	19B-31D-SPLP 6/11/2018
Explosives (µg/L)	
RDX	8.1

Analyte	19B-35D-SPLP 6/11/2018
Explosives (µg/L)	
RDX	6.5
TNT	72 J
4-Am-DNT	3.9

Analyte	19B-42D-SPLP 6/11/2018
Explosives (µg/L)	
RDX	10 J

Analyte	19B-43D-SPLP 6/11/2018
Explosives (µg/L)	
RDX	12

Analyte	19B-44B-SPLP 6/11/2018
Explosives (µg/L)	
RDX	49 J

Analyte	19B-35E-SPLP 6/11/2018
Explosives (µg/L)	
RDX	9.7
TNT	100
4-Am-DNT	3.8

Analyte	19B-38F-SPLP 6/11/2018
Explosives (µg/L)	
RDX	1.8 J
TNT	20 J
4-Am-DNT	7.6 J
2-Am-DNT	7.8 J

Analyte	19B-40E-SPLP 6/11/2018
Explosives (µg/L)	
RDX	10

Analyte	19B-43F-SPLP 6/11/2018
Explosives (µg/L)	
RDX	9.8
4-Am-DNT	3.6

Analyte	19B-44F-SPLP 6/11/2018
Explosives (µg/L)	
RDX	5.6
TNT	7.8
4-Am-DNT	2.0

Analyte	19B-44G-SPLP 6/11/2018
Explosives (µg/L)	
RDX	29
TNT	1,400 J
2,4-DNT	0.42 J
4-Am-DNT	12 J
2-Am-DNT	6.8 J

Legend

- SPLP Sample with RSL Exceedance
- SPLP Sample with No RSL Exceedances
- Groundwater Flow Direction
- 3B — Tract 19B Sampling Grid
- Soil Stockpile
- South Fuze Destruction Area
- Tract Boundary

Analyte	Tap Water RSL
Explosives (µg/L)	
RDX	0.97
TNT	2.5
2,4-DNT	0.24
4-Am-DNT	1.9
2-Am-DNT	1.9

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).
Shaded results denote an exceedance of the Tapwater RSL.

µg/L=micrograms per liter
DNT=Dinitrotoluene
J=value listed was reported below the quantitation limit and is estimated
RDX=cyclotrimethylenetrinitramine
RSL=regional screening level
SPLP=Synthetic Precipitation Leaching Procedure
TNT=2,4,6-Trinitrotoluene

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-02)Tract19B_SPLP_Soil_Results.mxd
6/8/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.3
Tract 19B
Native Soil Sample Exceedances

Sample	Sample Interval (Feet Below Top of Stockpile)
19B-SS01	6-8
19B-SB01	16-18
19B-SS02	10.5-12.5
19B-SB02	16.5-18.5
19B-SS03	10-12
19B-SB03	21-23
19B-SS04	15-17
19B-SB04	23.5-25.5
19B-SS05	17-19
19B-SB05	20-22
19B-SS06	14-16
19B-SB06	22-24
19B-SS07	2-4
19B-SB07	8-10
19B-SS08	2-4
19B-SB08	12-14
19B-SS09	8-10



Analyte	19B-SS01 7/23/2018
Metals (mg/kg)	
Arsenic	7.45

Analyte	19B-SS05 7/23/2018
Metals (mg/kg)	
Arsenic	7.12

Analyte	19B-SS08 7/23/2018
Metals (mg/kg)	
Arsenic	5.97

Analyte	19B-SS09 4/21/2018
Metals (mg/kg)	
Arsenic	7.25

Analyte	19B-SS10 7/23/2018
Metals (mg/kg)	
Arsenic	10.6

Analyte	19B-SS07 7/23/2018
Metals (mg/kg)	
Arsenic	11.6

Legend

- 2018 Native Soil Sample with RSL and BTV Exceedance
- 2018 Native Soil Sample with No RSL Exceedance
- Groundwater Flow Direction
- 3B — Tract 19B Sampling Grid
- Composite Stockpile Soil Sample No Screening Value Exceedances
- Composite Stockpile Soil Sample SSL Exceedance
- Composite Stockpile Soil Sample RSL Exceedance
- Soil Stockpile
- Explosives Parking Area
- South Fuze Destruction Area
- Tract Boundary

Analyte	Background Threshold Value Surface Soil	Residential RSL
Metals (mg/kg)		
Arsenic	5.09	0.68

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).
Only samples with at least one RSL and BTV exceedance are shown, and all soil samples were analyzed for explosives and metals.
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Shaded results denote an exceedance of the BTV and residential RSL.

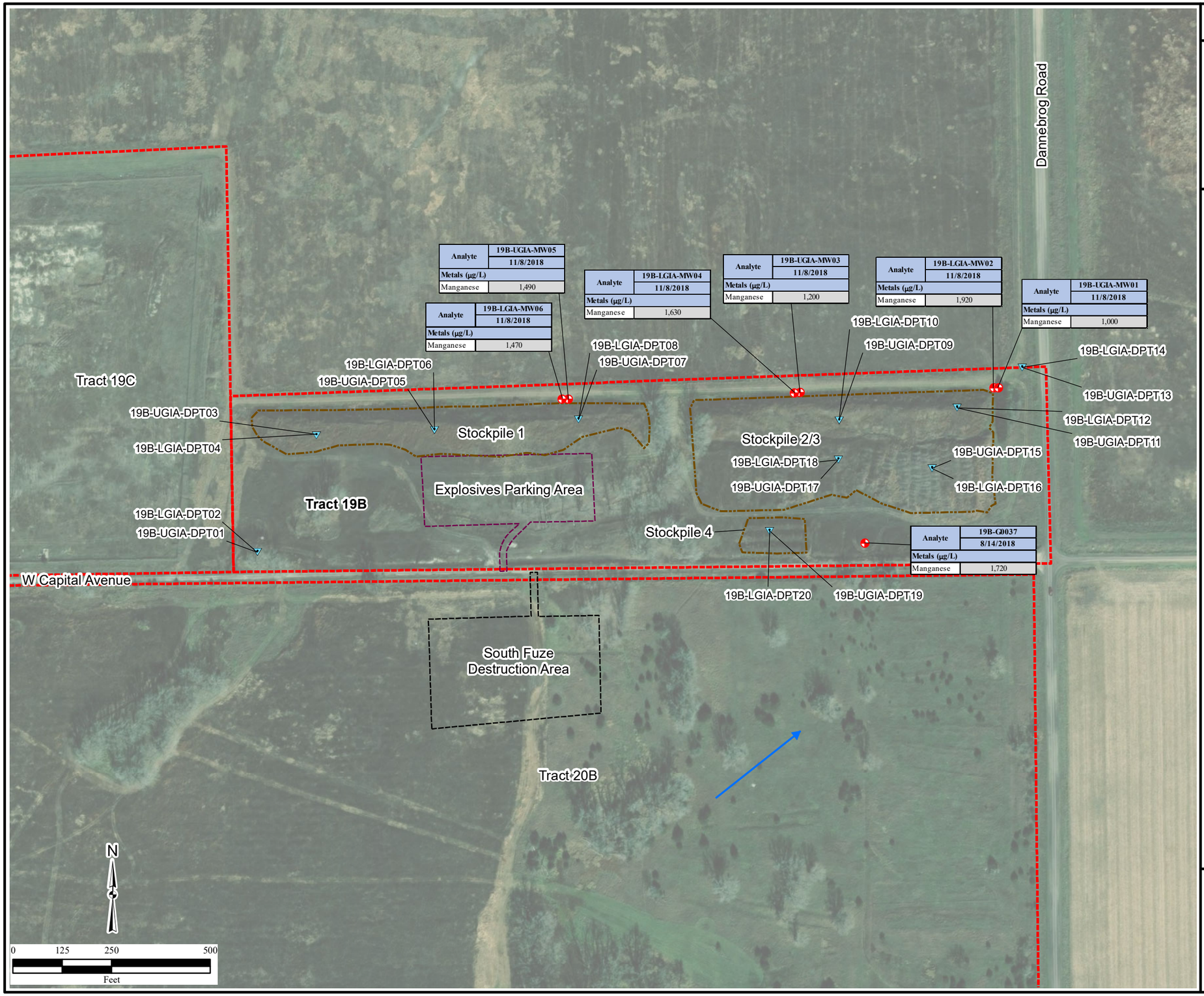
BTV=Background Threshold Value
mg/kg =milligrams per kilogram
RSL=regional screening level
SS/SB=Surface soil/subsurface soil
SSL=soil screening level

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-03)Tract19B_Soil_Results.mxd
6/14/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.4
Tract 19B
Groundwater Sample Exceedances



Analyte	19B-UGIA-MW05
	11/8/2018
Metals (µg/L)	
Manganese	1,490

Analyte	19B-LGIA-MW04
	11/8/2018
Metals (µg/L)	
Manganese	1,630

Analyte	19B-LGIA-MW06
	11/8/2018
Metals (µg/L)	
Manganese	1,470

Analyte	19B-UGIA-MW03
	11/8/2018
Metals (µg/L)	
Manganese	1,200

Analyte	19B-LGIA-MW02
	11/8/2018
Metals (µg/L)	
Manganese	1,920

Analyte	19B-UGIA-MW01
	11/8/2018
Metals (µg/L)	
Manganese	1,000

Analyte	19B-G0037
	8/14/2018
Metals (µg/L)	
Manganese	1,720

Legend

- DPT Groundwater Sample (UGIA and LGIA)
- Monitoring Well with RSL Exceedance
- Monitoring Well with No RSL Exceedances
- Groundwater Flow Direction
- Soil Stockpile
- Explosives Parking Area
- South Fuze Destruction Area
- Tract Boundary

Analyte	Background Threshold Value	Tap Water RSL
	Groundwater	
Metals (µg/L)		
Manganese	1,730	430

Notes:
Soil stockpile locations are based on surveyed topographic data (2/1/2018).
Only RSL exceedances are shown. Because manganese was identified as a sitewide contaminant in the background study, the BTV is not used to screen individual results. All results are compared to the RSL only.
Shaded results denote an exceedance of the Tap Water RSL.

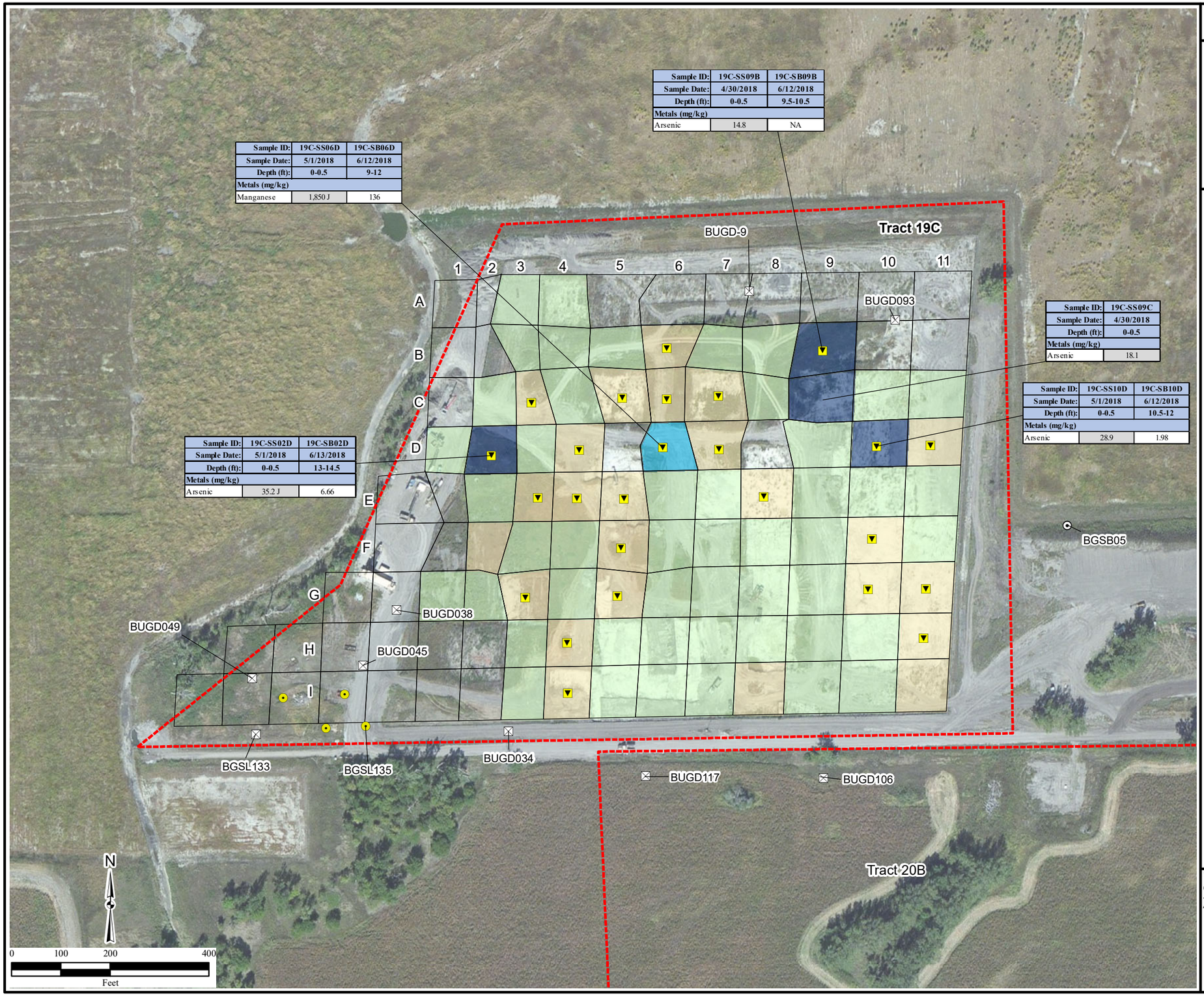
µg/L=micrograms per liter
BTV=Background Threshold Value
DPT=direct-push technology
LGIA=Lower Grand Island Aquifer
UGIA=Upper Grand Island Aquifer
RSL=Regional Screening Level

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(5-04)Tract19B_Sample_Results.mxd
2/26/2021 JG
Source: HGL, ATI, USACE ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.5
Tract 19C
Soil Sample Exceedances



Sample ID:	19C-SS09B	19C-SB09B
Sample Date:	4/30/2018	6/12/2018
Depth (ft):	0-0.5	9.5-10.5
Metals (mg/kg)		
Arsenic	14.8	NA

Sample ID:	19C-SS06D	19C-SB06D
Sample Date:	5/1/2018	6/12/2018
Depth (ft):	0-0.5	9-12
Metals (mg/kg)		
Manganese	1,850 J	136

Sample ID:	19C-SS09C
Sample Date:	4/30/2018
Depth (ft):	0-0.5
Metals (mg/kg)	
Arsenic	18.1

Sample ID:	19C-SS10D	19C-SB10D
Sample Date:	5/1/2018	6/12/2018
Depth (ft):	0-0.5	10.5-12
Metals (mg/kg)		
Arsenic	28.9	1.98

Sample ID:	19C-SS02D	19C-SB02D
Sample Date:	5/1/2018	6/13/2018
Depth (ft):	0-0.5	13-14.5
Metals (mg/kg)		
Arsenic	35.2 J	6.66

Legend

- Subsurface Soil Sample
- Historical Excavation Confirmation Sample
- Historical Soil Boring
- Historical Surface Soil Sample
- Excavation Area Grid

Grid Shading Convention:

- No Surface Soil Exceedances
- Soil-to-Groundwater SSL Exceedance in Surface Soil
- BTV and Residential RSL Exceedance in Surface Soil (Arsenic)
- BTV and Residential RSL Exceedance in Surface Soil (Manganese)
- Tract Boundary

Analyte	Background Threshold Value	Residential RSL
	Total Soil	
Metals (mg/kg)		
Arsenic	13.6	0.68
Manganese	542.0	1,800

Notes:
Sample location nomenclature combines the Tract (19C) and sample origin (SS/SB), followed by the column number and row letter of the grid from which the sample was collected.
Only samples with at least one RSL exceedance are shown, and analytical results are shown only for constituents detected in at least one soil sample at a concentration exceeding the RSL.

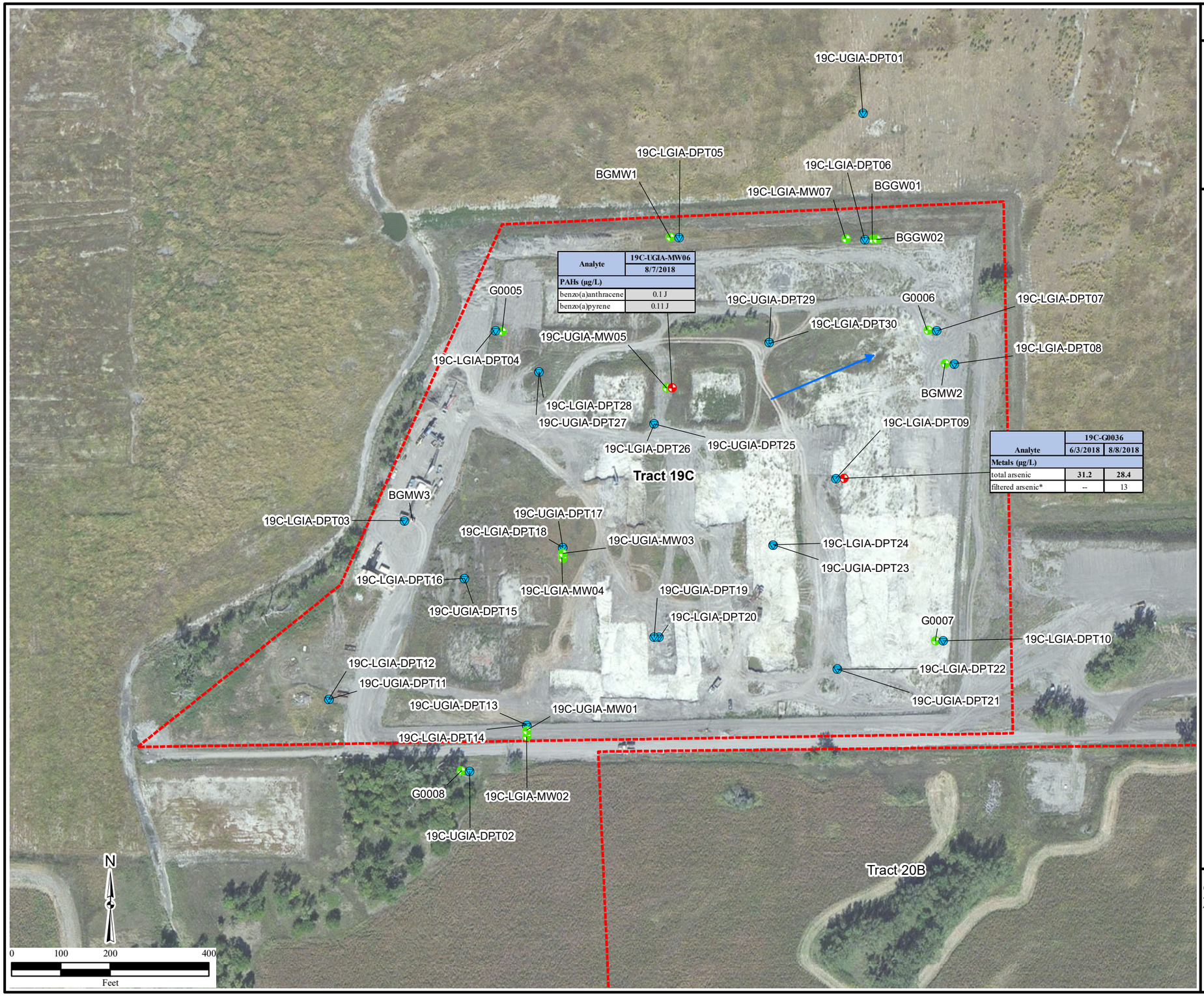
RSL and SSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0. A dilution attenuation factor of 20 was applied to each SSL.
Shaded results denote an exceedance of the residential RSL.

BTV =background threshold value
ft=feet
mg/kg=milligrams per kilogram
NA=not analyzed
RSL=regional screening level
SS/SB=Surface soil/subsurface soil

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(5-05)Tract19C_Soil_Results.mxd
3/3/2021 JM
Source: HGL, ICF Kaiser
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Figure 5.6
Tract 19C
Groundwater Sample Exceedances



Analyte	19C-UGIA-MW06
	8/7/2018
PAHs (µg/L)	
benzo(a)anthracene	0.1 J
benzo(a)pyrene	0.11 J

Analyte	19C-G0036	
	6/3/2018	8/8/2018
Metals (µg/L)		
total arsenic	**31.2**	**28.4**
filtered arsenic*	--	13

Legend

- 2018 DPT Groundwater Sample (UGIA and/or LGIA)
- Monitoring Well with RSL, MCL, or BTV Exceedance
- Monitoring Well with No Exceedances
- Groundwater Flow Direction
- Tract Boundary

Analyte	Groundwater BTV	MCL	Tap Water RSL
PAHs (µg/L)			
benzo(a)anthracene	--	--	0.03
benzo(a)pyrene	--	0.2	0.025
Metals (µg/L)			
arsenic	14.8	10	0.052

Notes:
The screening of DPT groundwater data is not shown.

Arsenic BTV exceedances at G0005, UGIA-MW01, and UGIA-MW03 were not identified as statistical outliers or hot spots of contamination in the background study and are not shown.

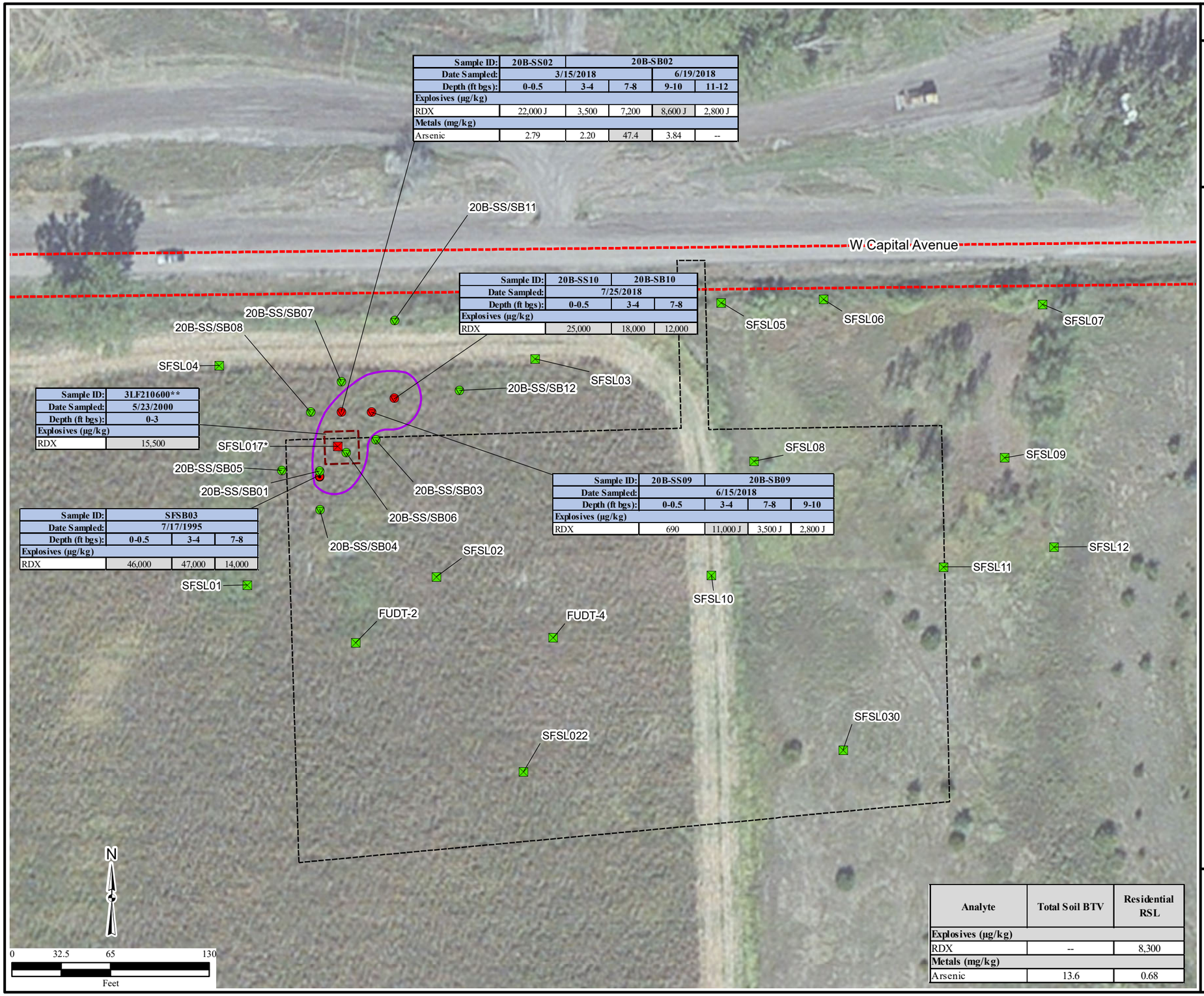
Shaded values denote an exceedance of the BTV and the Tap Water RSL.
Bold results denote an exceedance of the BTV and the MCL.
All groundwater samples were analyzed for VOCs, PAHs, explosives, and metals. Only BTV and MCL or tap water RSL exceedances are shown.

*=The filtered sample collected from 19C-0036 on 8/8/2018 was field filtered prior to analysis to evaluate potential turbidity effects.
--=field filtered sample was not collected
µg/L=micrograms per liter
BTV=background threshold value
DPT=direct-push technology
J=value listed was reported below the quantitation limit and is estimated.
LGIA=Lower Grand Island Aquifer
MCL=maximum contaminant level
PAH=polynuclear aromatic hydrocarbon
RSL=regional screening level
UGIA=Upper Grand Island Aquifer
VOCs=volatile organic compounds

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI\ (5-06)Tract19C_DPT-GW_Samples_Results_v2.mxd
3/3/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Figure 5.7
Tract 20B
Soil Sample
Exceedances



Sample ID:	20B-SS02	20B-SB02			
Date Sampled:	3/15/2018			6/19/2018	
Depth (ft bgs):	0-0.5	3-4	7-8	9-10	11-12
Explosives (µg/kg)					
RDX	22,000 J	3,500	7,200	8,600 J	2,800 J
Metals (mg/kg)					
Arsenic	2.79	2.20	47.4	3.84	--

Sample ID:	20B-SS10	20B-SB10	
Date Sampled:	7/25/2018		
Depth (ft bgs):	0-0.5	3-4	7-8
Explosives (µg/kg)			
RDX	25,000	18,000	12,000

Sample ID:	3LF210600**
Date Sampled:	5/23/2000
Depth (ft bgs):	0-3
Explosives (µg/kg)	
RDX	15,500

Sample ID:	20B-SS09	20B-SB09		
Date Sampled:	6/15/2018			
Depth (ft bgs):	0-0.5	3-4	7-8	9-10
Explosives (µg/kg)				
RDX	690	11,000 J	3,500 J	2,800 J

Sample ID:	SFSB03		
Date Sampled:	7/17/1995		
Depth (ft bgs):	0-0.5	3-4	7-8
Explosives (µg/kg)			
RDX	46,000	47,000	14,000

Analyte	Total Soil BTV	Residential RSL
Explosives (µg/kg)		
RDX	--	8,300
Metals (mg/kg)		
Arsenic	13.6	0.68

Legend

- 2018 Surface/Subsurface Soil Sample with RSL and BTV Exceedance
- 2018 Surface/Subsurface Soil Sample with No RSL Exceedances
- Historical Surface Soil Sample with RSL and BTV Exceedance
- Historical Surface Soil Sample with No RSL Exceedances
- Historical Soil Boring with RSL and BTV Exceedance
- RDX Isocontour (8,300 µg/kg)
- Tract Boundary
- 2000 Excavation Footprint (Approximate)
- South Fuze Destruction Area

Notes:
The location of the South Fuze Destructor Area and the associated sample locations were georeferenced from Exhibit 4-93 of a 1996 ICF Kaiser Map and should be considered approximate.
All soil samples were initially analyzed for PAHs, explosives, and metals. Analytical results are shown only for constituents detected in at least one soil sample at a concentration exceeding the RSL.
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0.
Sample depths are in ft bgs.
Shaded values denote an exceedance of the BTV and residential soil RSL.

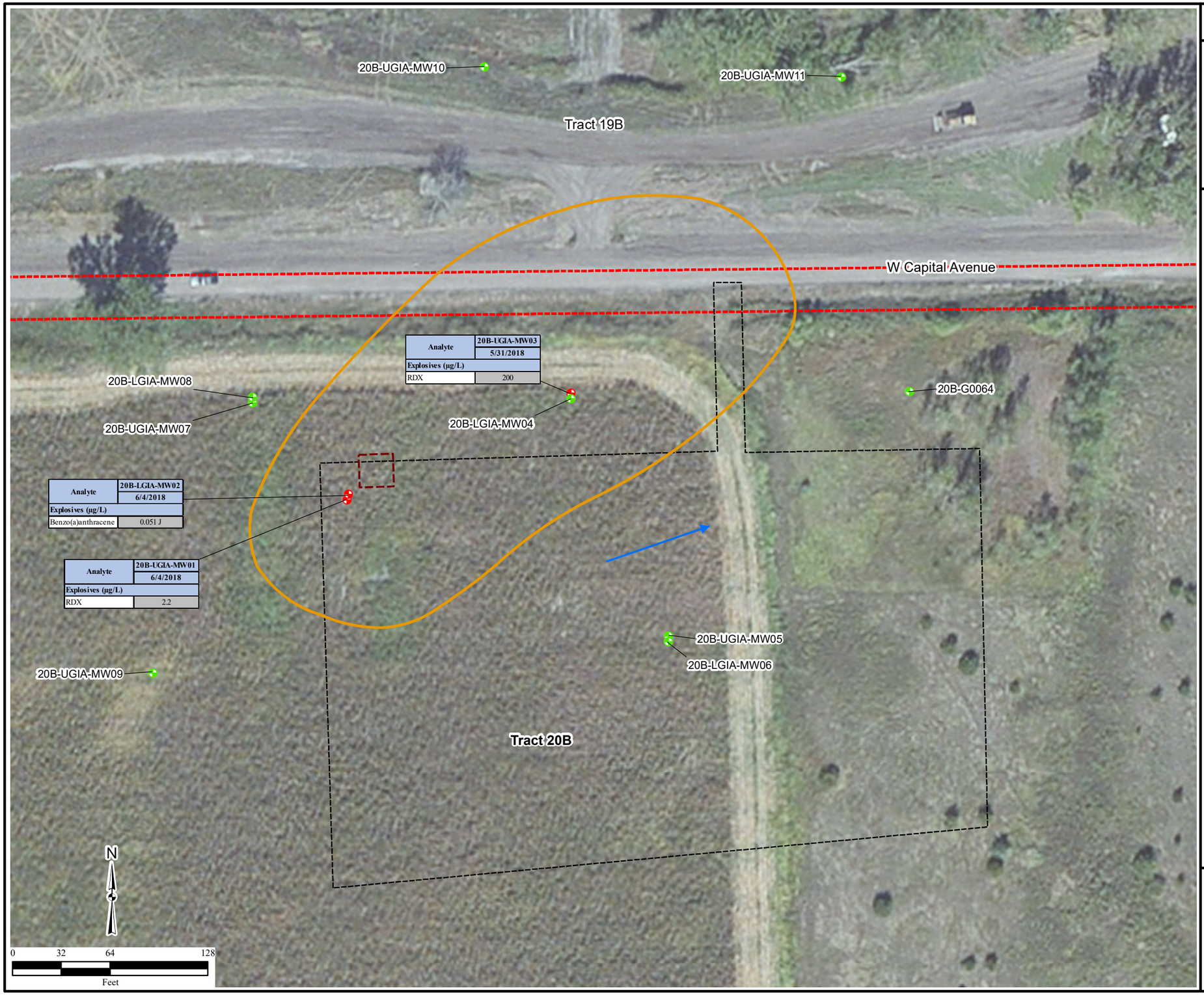
*=SFSL017 sample results are not applicable as this location was removed by the 2000 excavation. The footprint of the 2000 excavation is unavailable. The footprint shown is approximate.
**=Sample 3LF210600 was collected as a confirmation sample from the 2000 excavation. An exact location or sample depth is not provided in the available documentation.
µg/kg=micrograms per kilogram
ft bgs=below ground surface
BTV=background threshold value
DPT=direct-push technology
J=value listed was reported below the quantitation limit and is estimated.
mg/kg=milligrams per kilogram
RDX=cyclotrimethylenetrinitramine
RSL=regional screening level
SS/SB=Surface soil/subsurface soil

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI\ (5-07)Tract20B_Soil_Sample_Results-v2.mxd 2/25/2021 JM
Source: HGL, ATI, USACE ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.8
Tract 20B
Groundwater Sample Exceedances



Analyte	20B-UGIA-MW03
	5/31/2018
Explosives (µg/L)	
RDX	200

Analyte	20B-LGIA-MW02
	6/4/2018
Explosives (µg/L)	
Benzo(a)anthracene	0.051 J

Analyte	20B-UGIA-MW01
	6/4/2018
Explosives (µg/L)	
RDX	2.2

Legend

- Monitoring Well with RSL Exceedance
- Monitoring Well with No RSL Exceedances
- RDX 0.97 µg/L Isoconcentration Contour (UGIA)
- Groundwater Flow Direction
- Tract Boundary
- 2000 Excavation Footprint (Approximate)
- South Fuze Destruction Area

Analyte	TapWater RSL
Explosives (µg/L)	
RDX	0.97
PAHs (µg/L)	
Benzo(a)anthracene	0.03

Notes:
The location of the South Fuze Destruction Area and the associated sample locations were georeferenced from Exhibit 4-93 of a 1996 ICF Kaiser Map and should be considered approximate.
The footprint of the 2000 excavation is unavailable. The excavation included only sample locations SFSL017. The footprint shown is approximate.

Shaded values denote an exceedance of the tapwater RSL.

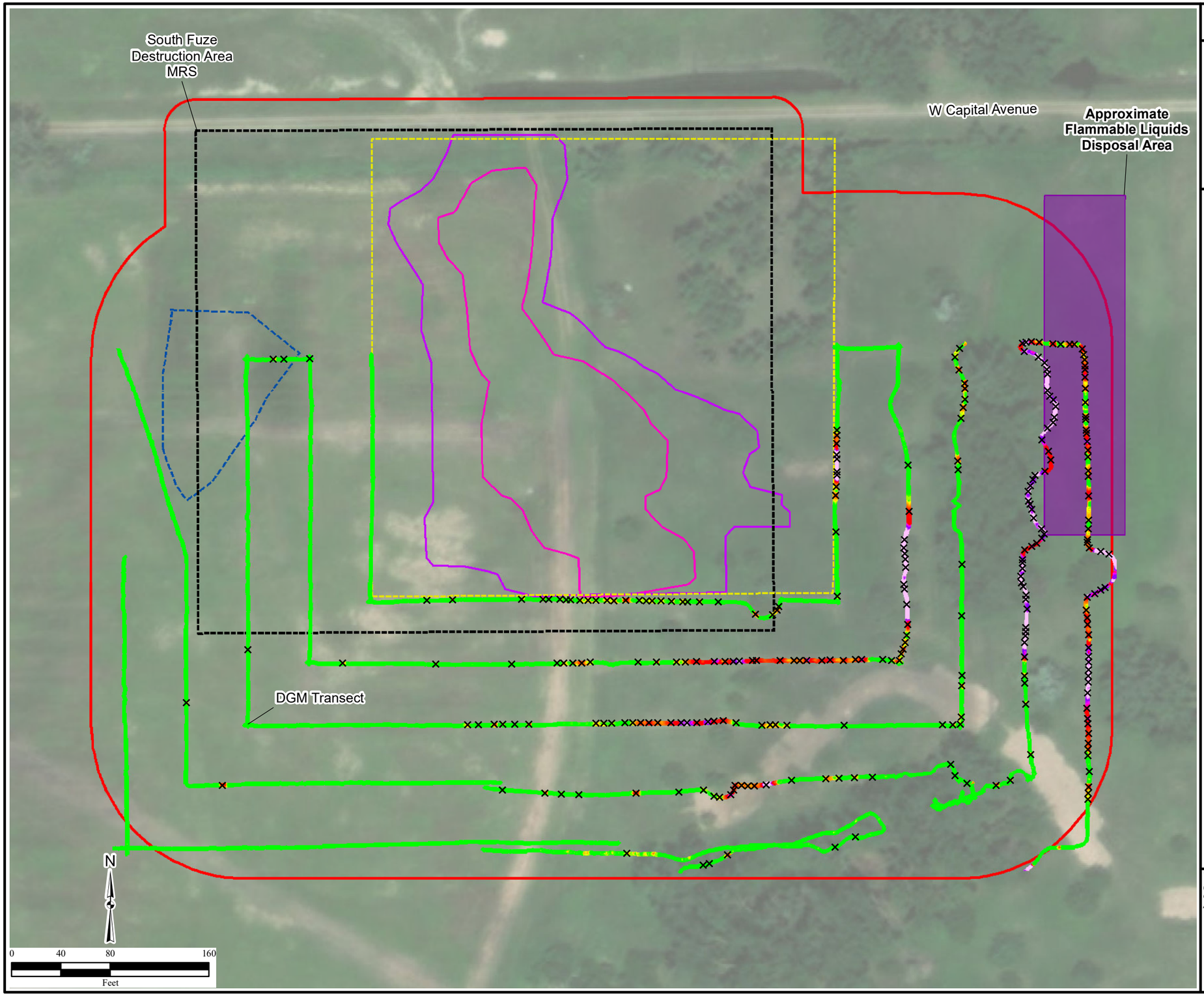
µg/L=micrograms per liter
LGIA=Lower Grand Island Aquifer
RDX=cyclotrimethylenetrinitramine
RSL=regional screening level
UGIA=Upper Grand Island Aquifer

\\Srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-08)Tract20B_GW_Results.mxd
4/2/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.9
Tract 20B South Fuze Destruction Area MRS DGM Survey



Legend

- Anomaly Location
- Standing Water (approximate)
- MRS Boundary
- SFDA High Anomaly Density Area
- SFDA Intermediate Anomaly Density Area
- SFDA 2012 Investigation Boundary
- Approximate Flammable Liquids Storage Area
- ESP Boundary

Notes:
DGM=Digital Geophysical Mapping
ESP=Explosive Site Plan
MRS=munitions response site
SFDA=South Fuze Destruction Area

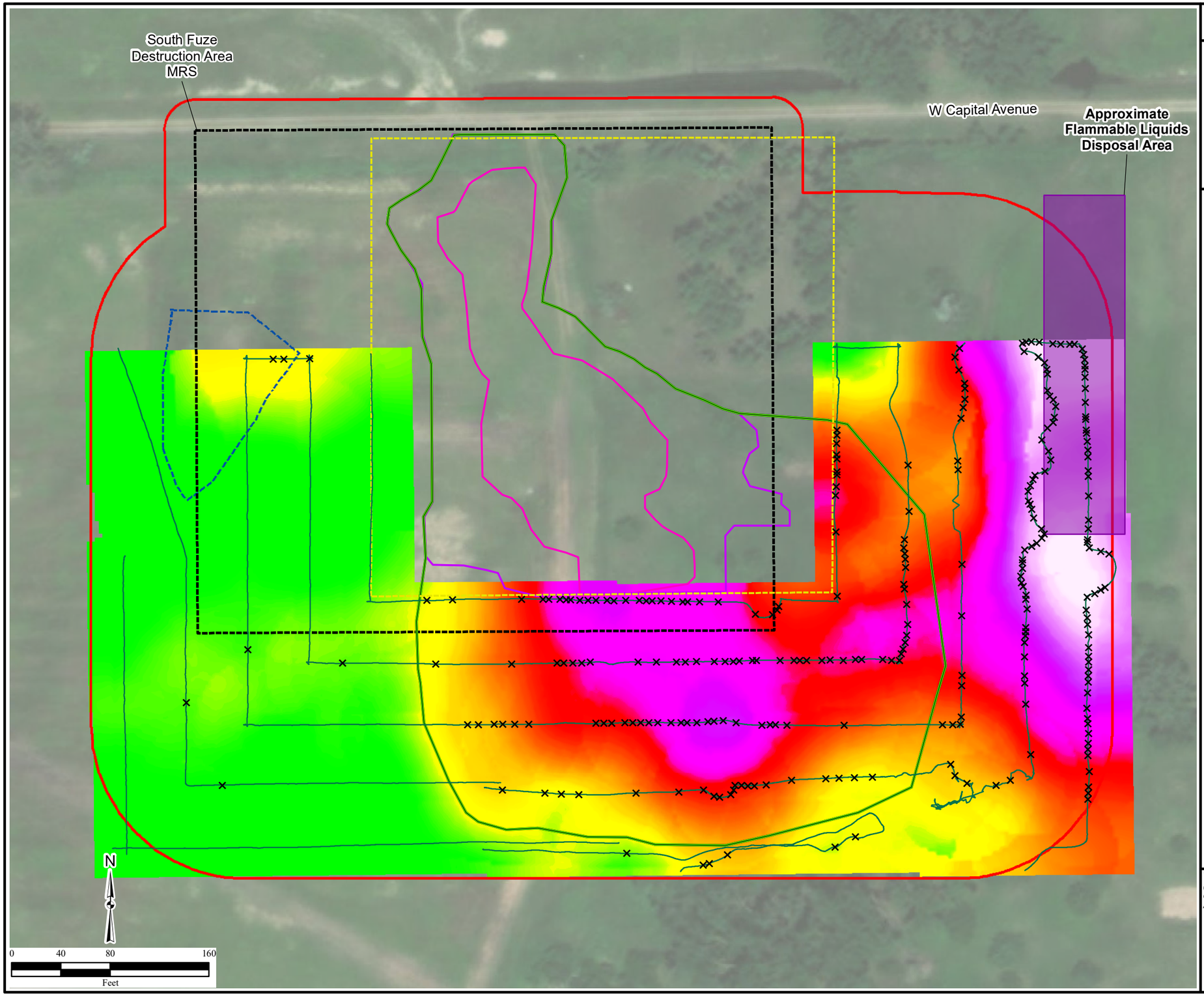
-4 2 7 12 20 27 34 42 49 57 64 71 79 86 93

EM61-MK2A
Ch2 mV

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-09)SFDA_DGM_Survey_.mxd
6/8/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 5.10
Tract 20B South Fuze Destruction Area
MRS Anomaly Density



Legend

- Anomaly Location
- DGM Path
- SFDA Continuation High Anomaly Density Area
- Standing Water (approximate)
- MRS Boundary
- SFDA High Anomaly Density Area
- SFDA Intermediate Anomaly Density Area
- SFDA 2012 Investigation Boundary
- Approximate Flammable Liquids Storage Area
- ESP Boundary

Notes:
DGM=Digital Geophysical Mapping
ESP=Explosive Site Plan
MRS=munitions response site
SFDA=South Fuze Destruction Area

0102 306 510 714 918 1122 1380 1639 1898

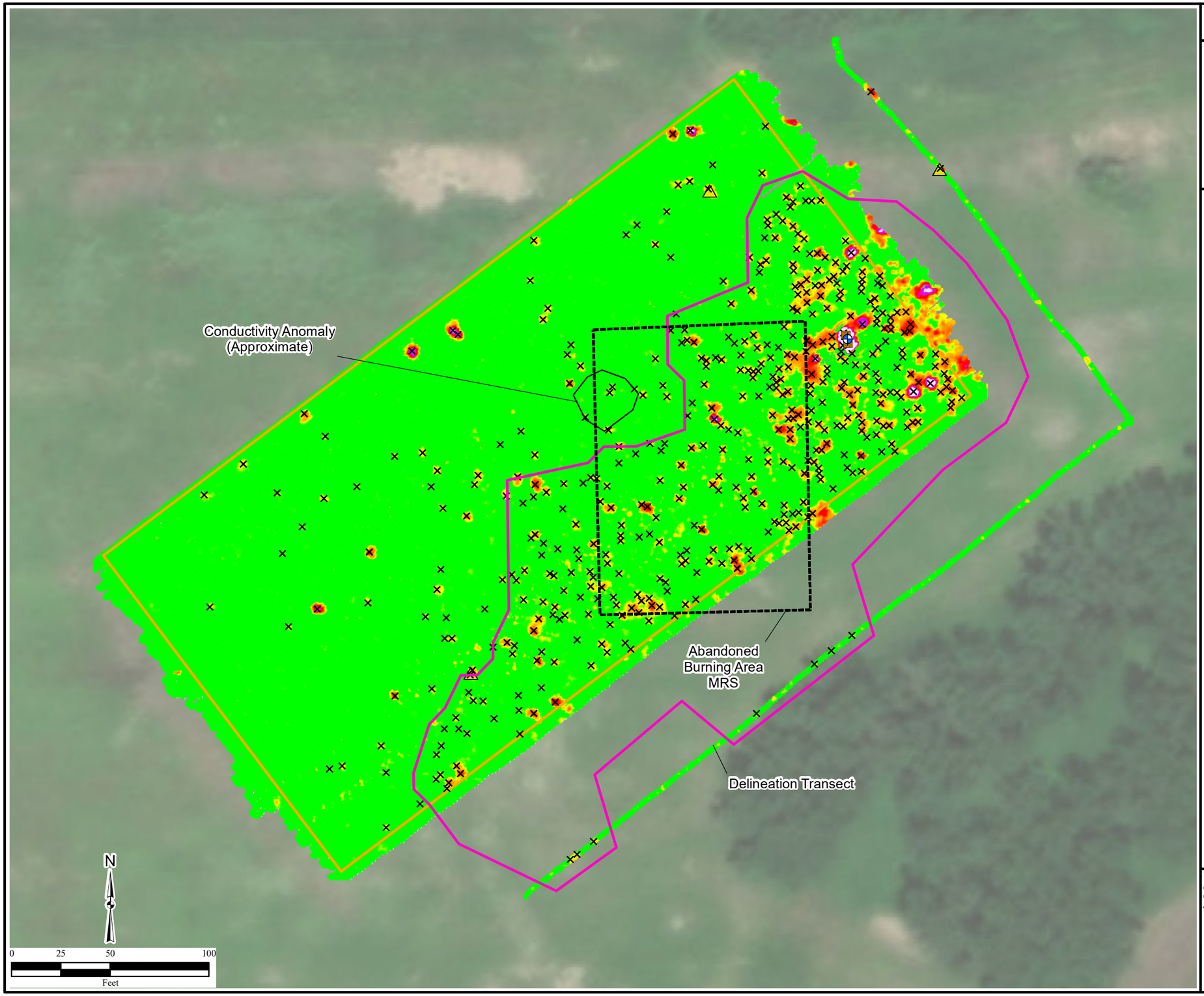
Anomalies per Acre
APA

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-10)SFDA.mxd
6/8/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.11
Tract 20B
Abandoned Burning Area
MRS DGM Survey



Legend

- Anomaly Location
- Seed
- Monitoring Well
- Fence Post
- ABA Full-Coverage Survey Boundary
- ABA Conductivity Anomaly (Approximate)
- ABA High Anomaly Density Area
- MRS Boundary

Notes:
ABA=Abandoned Burn Area
DGM=Digital Geophysical Mapping
ESP=Explosive Site Plan
MRS=munitions response site

-4 2 7 12 20 27 34 42 49 57 64 71 79 86 93

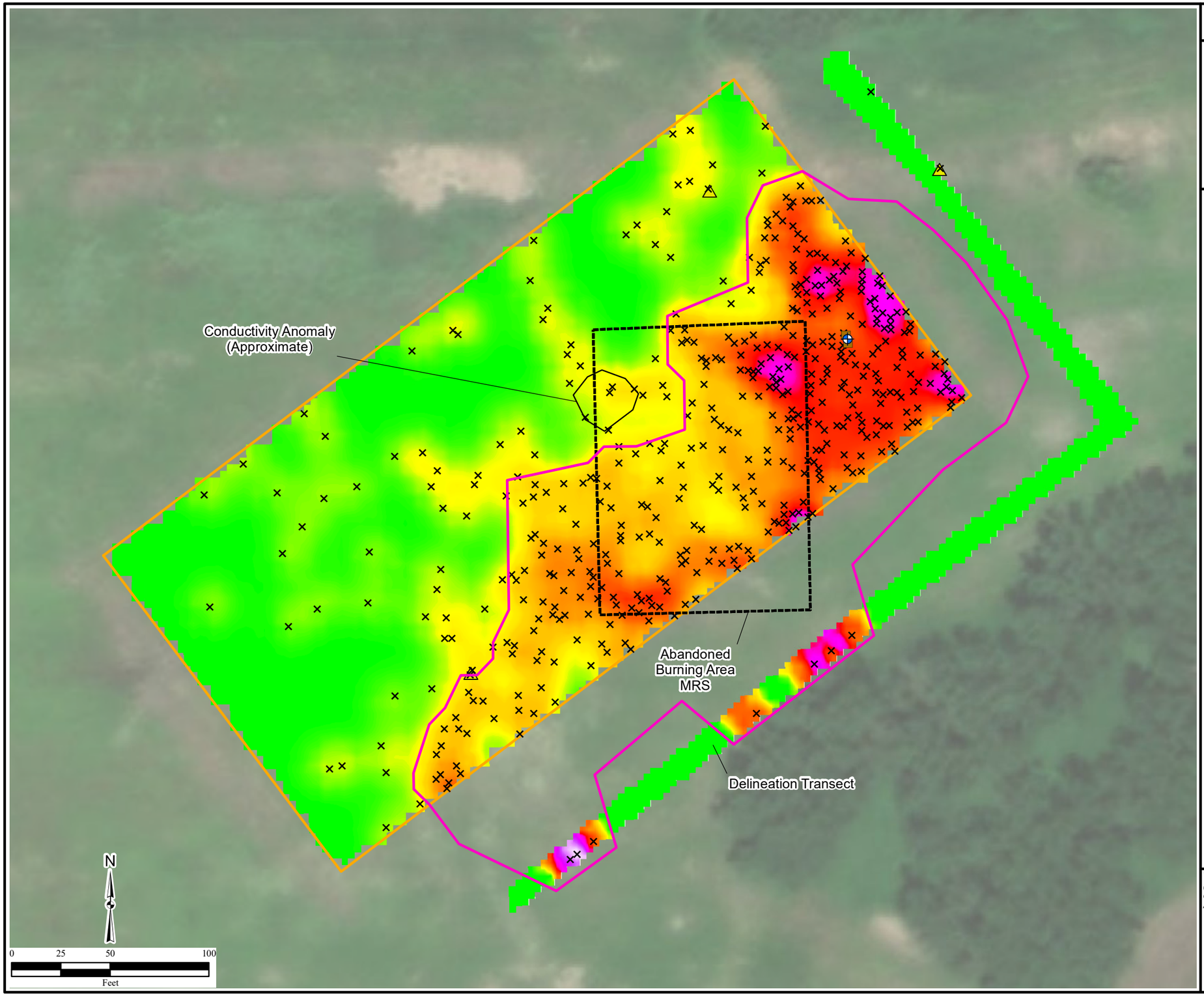
EM61-MK2A
Ch2 mV

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-11)ABA.mxd
6/9/2021 JG
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.12
Tract 20B
Abandoned Burning Area
MRS DGM Density



Legend

- Anomaly Location
- Seed
- Monitoring Well
- Fence Post
- ABA Full-Coverage Survey Boundary
- ABA Conductivity Anomaly (Approximate)
- ABA High Anomaly Density Area
- MRS Boundary

Notes:
ABA=Abandoned Burn Area
DGM=Digital Geophysical Mapping
ESP=Explosive Site Plan
MRS=munitions response site

0 102 306 510 714 918 1122 1380 1639 1898

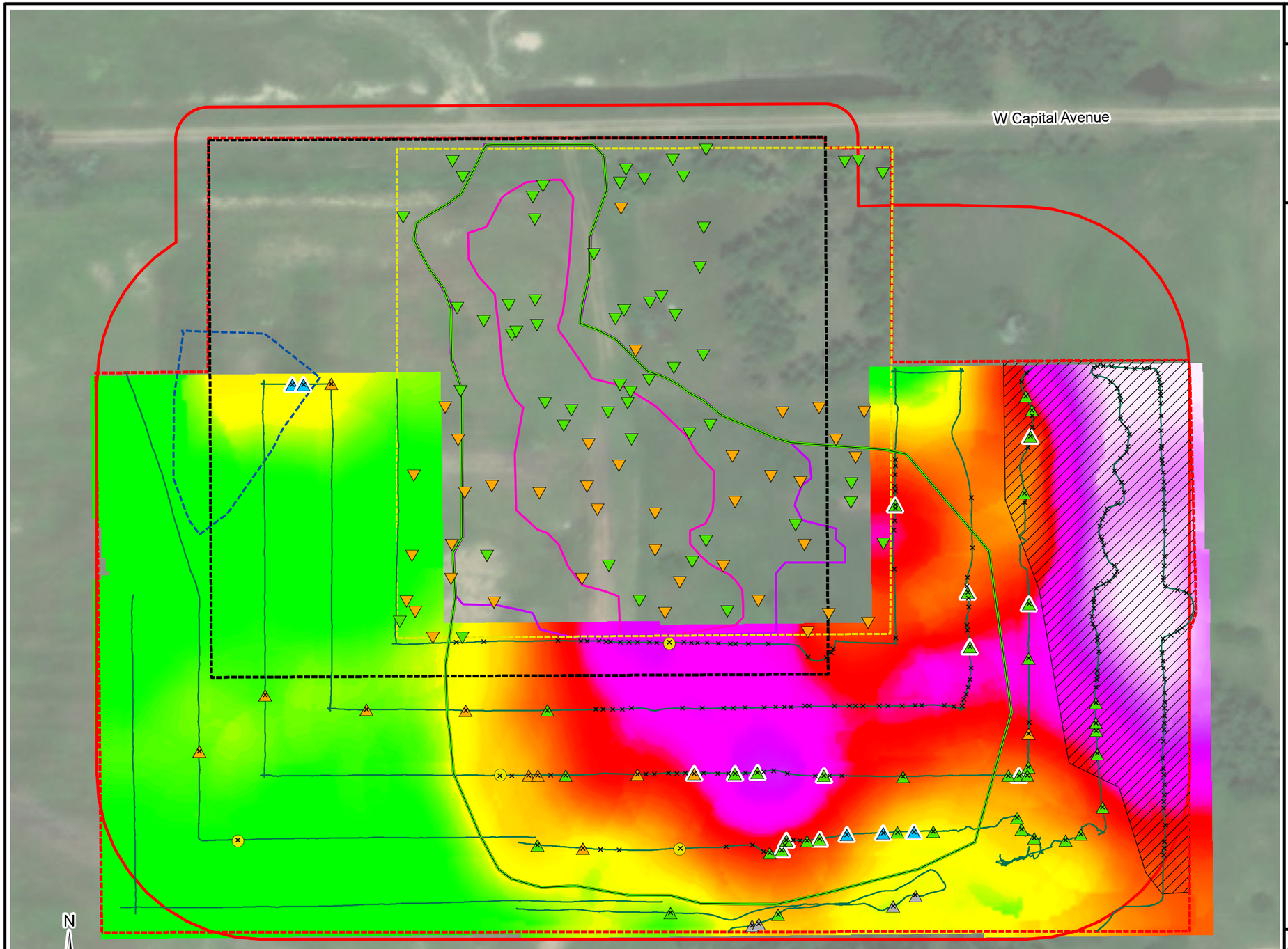
Anomalies per Acre
APA

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-12)ABA_Density.mxd
6/9/2021 TH
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.13
Tract 20B
South Fuze Destruction Area MRS
Intrusive Investigation Results



Legend

- Anomaly Location
- Seed

Intrusive Result:

Current	Previous	
▲	▼	MD
▲	▼	NMRD
▲		NC
▲		Water

- Unresolved Target (White Halo)
- DGM Path
- SFDA 2012 Investigation Boundary
- SFDA Continuation High Anomaly Density Area
- Standing Water (approximate)
- SFDA High Anomaly Density Area
- SFDA Intermediate Anomaly Density Area
- High Anomaly Density Area Associated with the Flammable Liquids Disposal Area
- SFDA Investigation Area
- MRS Boundary
- ESP Boundary

0 102 306 510 714 918 1122 1380 1639 1898

Anomalies per Acre

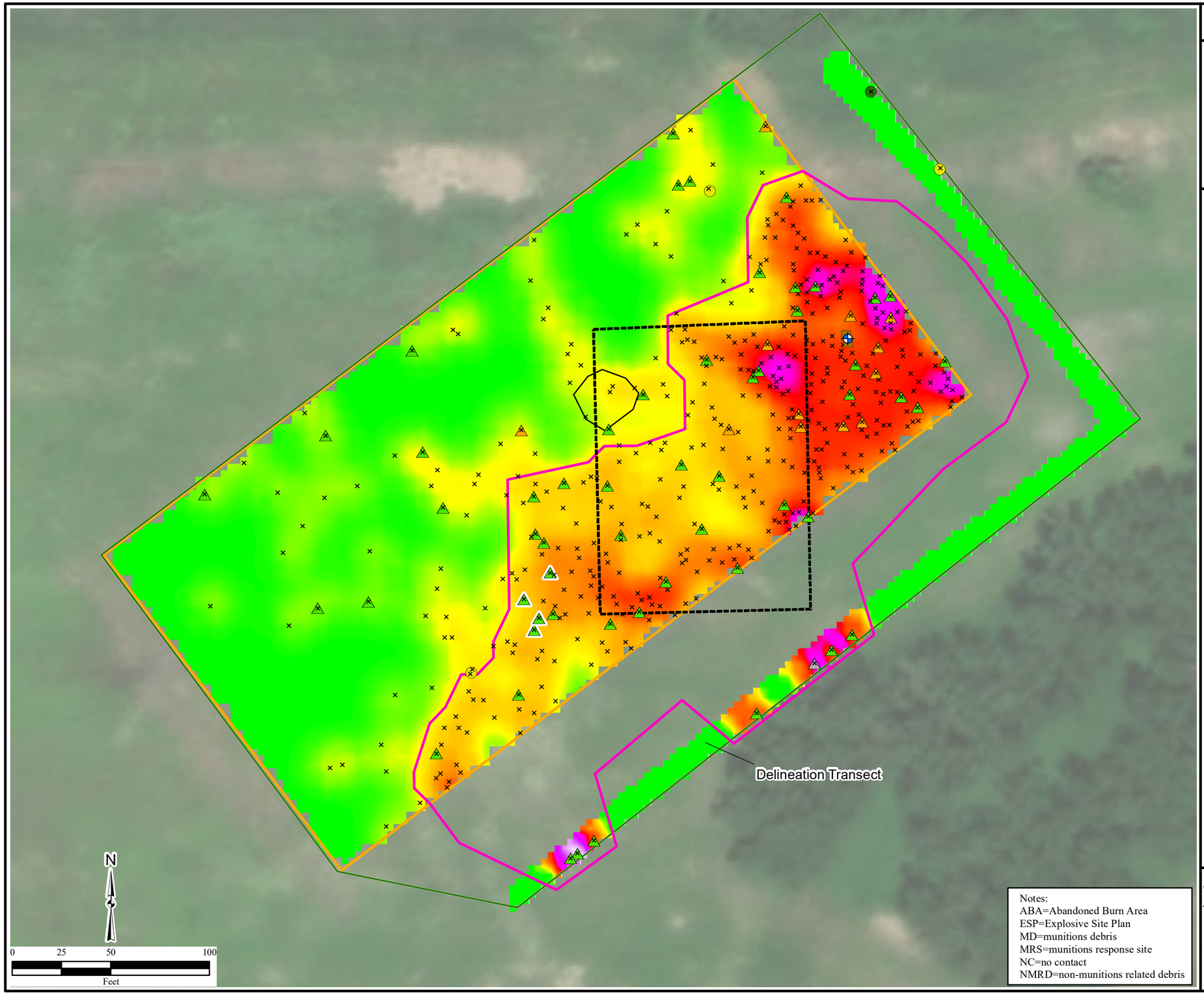
Notes:
DGM=Digital Geophysical Mapping
ESP=Explosive Site Plan
MRS=munitions response site
MD=munitions debris
NC=no contact
NMRD=non-munitions related debris

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-13)SFDA.mxd
7/27/2021 TH
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.14
Tract 20B
Abandoned Burning Area MRS
Intrusive Investigation Results



Legend

- Anomaly Location
- Seed
- Monitoring Well
- Fence Post

Intrusive Result:

Current

- MD
- NMRD
- NC
- Utility

- Unresolved Target (White Halo)
- ABA Full-Coverage Survey Boundary
- ABA Conductivity Anomaly (Approximate)
- ABA High Anomaly Density Area
- ABA Investigation Area
- MRS Boundary

0 102 306 510 714 918 1122 1380 1639 1898

Anomalies per Acre
APA

Notes:
ABA=Abandoned Burn Area
ESP=Explosive Site Plan
MD=munitions debris
MRS=munitions response site
NC=no contact
NMRD=non-munitions related debris

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-14)ABA.mxd
7/27/2021 TH
Source: HGL, ICF Kaiser
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.15
Tract 21B Burning Pit Area
Soil Sample Exceedances

Sample ID:	21B-BPA-SS01	21B-BPA-SB01	
Date Sampled:	5/15/2018		
Depth (ft bgs):	0-0.5	3-4	7-8
Metals (mg/kg)			
Arsenic	3.62 J	17.8 J	8.01 J

Sample ID:	PRST09		
Date Sampled:	7/9/1995		
Depth (ft bgs):	1	3	3.5
Metals (mg/kg)			
Arsenic	3.69	8.34	27

Sample ID:	PRSB15		
Date Sampled:	9/19/1995		
Depth (ft bgs):	0	2	4
Metals (mg/kg)			
Arsenic	4.37	17	10.8

Sample ID:	21B-BPA-SS04	21B-BPA-SB04	
Date Sampled:	5/15/2018		
Depth (ft bgs):	0-0.5	3-4	7-8
Metals (mg/kg)			
Arsenic	4.26 J	3.98 J	17.8 J

Sample ID:	PSRGST003	
Date Sampled:	7/12/1992	
Depth (ft bgs):	1	3.5
Metals (mg/kg)		
Cobalt	25.7	16.3

Sample ID:	PRSB17		
Date Sampled:	9/19/1995		
Depth (ft bgs):	0	2	4
Metals (mg/kg)			
Arsenic	8.67	21	4.45

Sample ID:	PRSB18		
Date Sampled:	9/19/1995		
Depth (ft bgs):	0	2	4
Metals (mg/kg)			
Arsenic	3.61	17	7.8

Tract 21B

Tract 21C

N

0 50 100 200
Feet

Legend

- Subsurface Soil Sample with RSL and BTV Exceedance
- Subsurface Soil Sample with No RSL Exceedances
- Historical Soil Boring with RSL and BTV Exceedance
- Historical Soil Boring with No RSL Exceedances
- Surface Soil Sample with No RSL Exceedances
- Tract Boundary
- Former Burning Pit Area
- Test Trench Excavation (1993, 1996, 2001)
- 1995 Geophysical Survey Area

Analyte	Total Soil BTV	Residential RSL
Metals (mg/kg)		
Arsenic	13.6	0.68
Cobalt	11.2	23

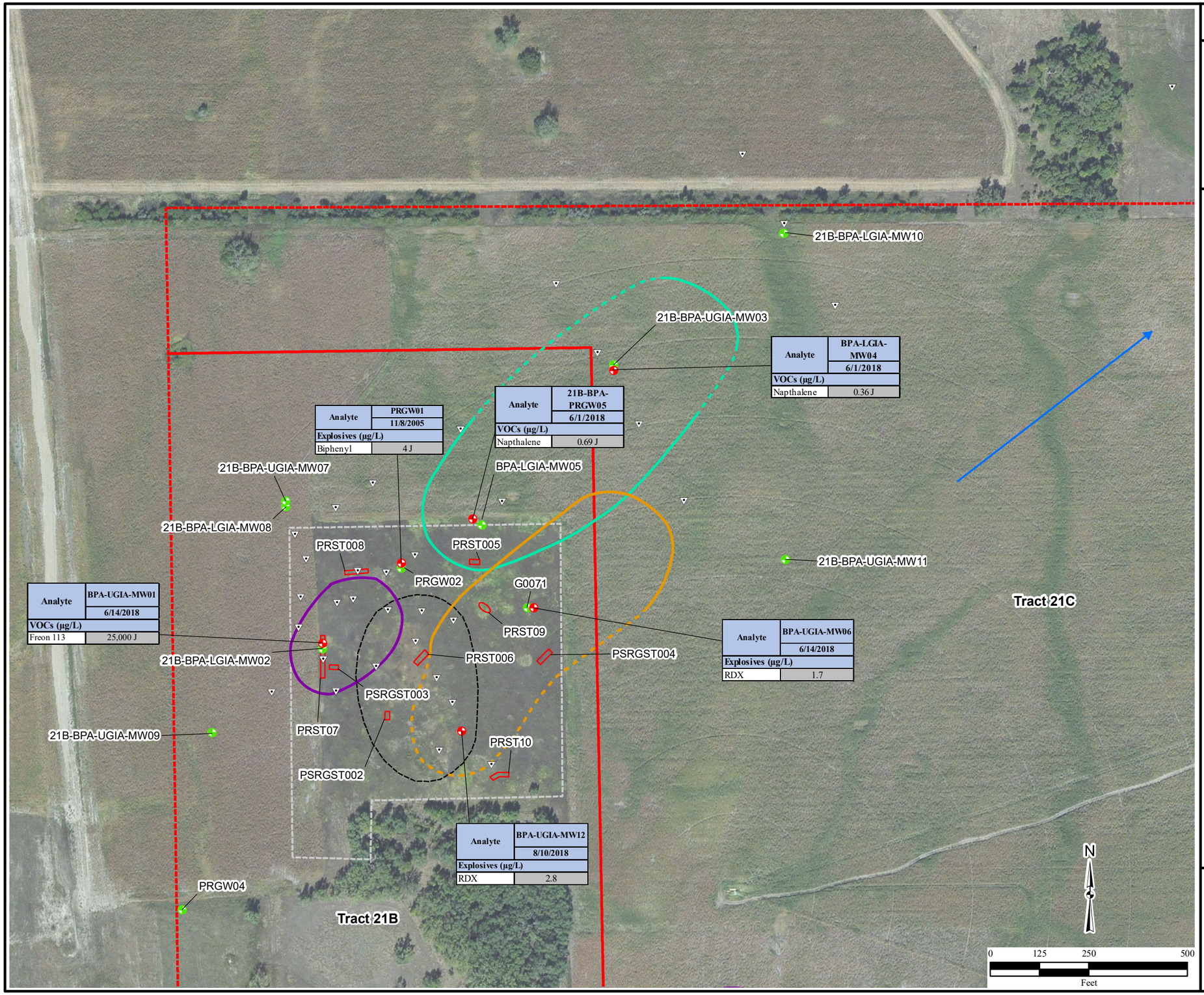
Notes:
All soil samples were analyzed for explosives and metals. Only constituents exceeding the BTV and RSL in at least one soil sample are shown.
RSL values are based on a cancer risk of 1E-06 and a non-cancer hazard quotient of 1.0
Shaded results denote an exceedance of the BTV and the residential RSL.

BTV=background threshold value
DPT=direct-push technology
J=value listed was reported below the quantitation limit and is estimated
mg/kg=milligrams per kilogram
RSL=regional screening level
SS/SB=Surface soil/subsurface soil

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI\ (5-15)Tract21B_BP_Soil_Sample_Results.mxd
6/9/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC

Figure 5.16
Tract 21B Burning Pit Area
Groundwater Sample Exceedances



Analyte	BPA-LGIA-MW04
	6/1/2018
VOCs (µg/L)	
Napthalene	0.36 J

Analyte	21B-BPA-PRGW05
	6/1/2018
VOCs (µg/L)	
Napthalene	0.69 J

Analyte	PRGW01
	11/8/2005
Explosives (µg/L)	
Biphenyl	4 J

Analyte	BPA-UGIA-MW01
	6/14/2018
VOCs (µg/L)	
Freon 113	25,000 J

Analyte	BPA-UGIA-MW06
	6/14/2018
Explosives (µg/L)	
RDX	1.7

Analyte	BPA-UGIA-MW12
	8/10/2018
Explosives (µg/L)	
RDX	2.8

Legend

- Monitoring Well with RSL Exceedance
- Monitoring Well with No RSL Exceedances
- Historical DPT Groundwater Freon Sample
- 2018 Freon-113 Isoconcentration Contour (UGIA, 10,000 µg/L)
- 2018 Naphthalene Isoconcentration Contour (dashed where inferred, UGIA/LGIA,0.17 µg/L)
- 2018 RDX Isoconcentration Contour (dashed where inferred, UGIA, 0.97 µg/L)
- Groundwater Flow Direction
- Tract Boundary
- Former Burning Pit Area
- Test Trench Excavation (1993, 1996, 2001)
- 1995 Geophysical Survey Area

Analyte	Tap Water RSL
VOCs (µg/L)	
Freon 113	10,000
Napthalene	0.12
Explosives (µg/L)	
RDX	0.97
SVOCs (µg/L)	
Biphenyl	0.83

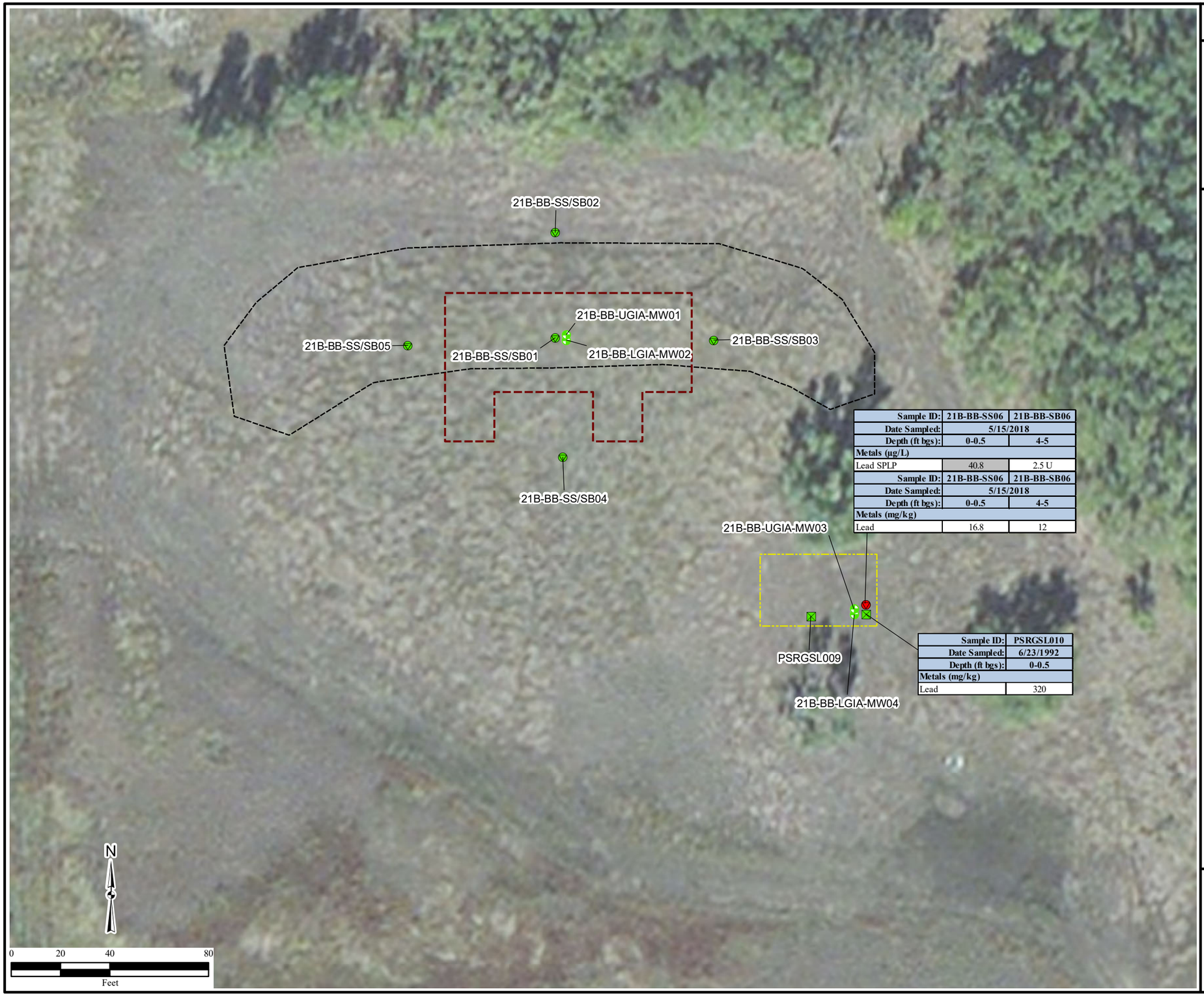
Notes:
Only tap water RSL exceedances are shown.
Shaded values denote an exceedance of the tapwater RSL.

µg/L=micrograms per liter
DPT=direct-push technology
J=value listed was reported below the quantitation limit and is estimated
LGIA=Lower Grand Island Aquifer
RDX=cyclotrimethylenetrinitramine
RSL=regional screening level
SVOC=semivolatile organic compounds
UGIA=Upper Grand Island Aquifer
VOCs=volatile organic compounds

\\srv-gst-01\HGLGIS\CHAAP_MSIWRI\ (5-16)Tract21B-BPA_GW_Results.mxd
6/9/2021 JG
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Figure 5.17
Tract 21B Backstop Berm
Soil and Groundwater
Sample Exceedances



Sample ID:	21B-BB-SS06	21B-BB-SB06
Date Sampled:	5/15/2018	
Depth (ft bgs):	0-0.5	4-5
Metals (µg/L)		
Lead SPLP	40.8	2.5 U

Sample ID:	21B-BB-SS06	21B-BB-SB06
Date Sampled:	5/15/2018	
Depth (ft bgs):	0-0.5	4-5
Metals (mg/kg)		
Lead	16.8	12

Sample ID:	PSRGSL010
Date Sampled:	6/23/1992
Depth (ft bgs):	0-0.5
Metals (mg/kg)	
Lead	320

Legend

- 2018 DPT Soil Sample with RSL Exceedance
- 2018 DPT Soil Sample with No RSL Exceedances
- Monitoring Well with No RSL Exceedances
- Historical Surface Soil Sample with No RSL Exceedances
- Static Ejection Test Site (Approximate)
- 2003 Excavation Footprint (Approximate)
- Former Backstop Berm

Analyte	Residential Soil RSL (mg/kg)	Tapwater RSL (µg/L)
Metals		
Lead	400	15

Notes:
Shaded results indicate an exceedance of the applicable RSL.
The excavation was completed in 2003 to a depth ranging from 6 to 18 inches bgs.

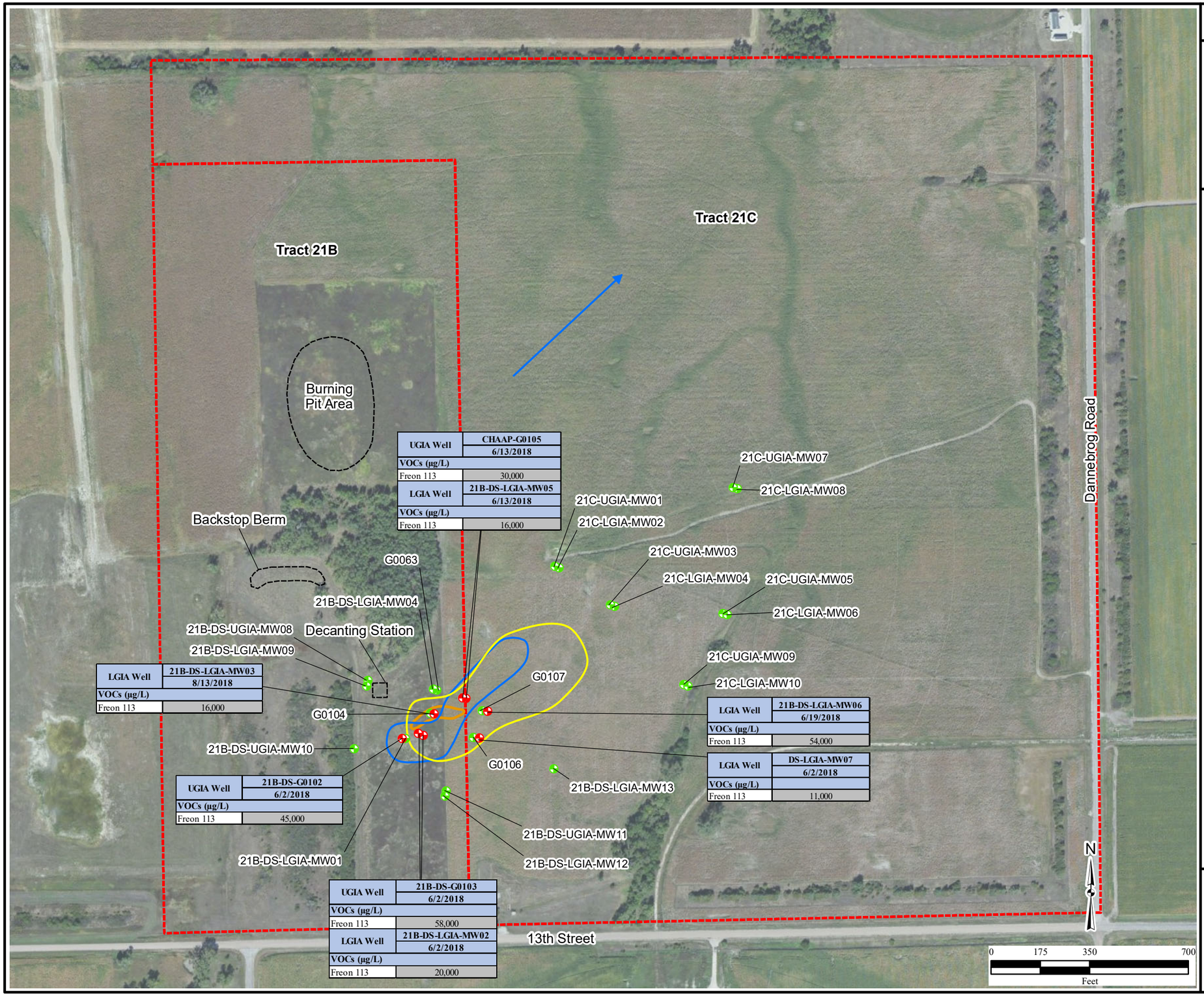
µg/L=micrograms per liter
bgs=below ground surface
DPT=direct-push technology
LGIA=Lower Grand Island Aquifer
mg/kg=milligrams per kilogram
UGIA=Upper Grand Island Aquifer
RSL=regional screening level
SPLP=Synthetic Precipitation Leaching Procedure
SS/SB=Surface soil/subsurface soil

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(5-17)Tract21B-BB_GW_Locations.mxd
6/9/2021 JM
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.18
Tract 21B Decanting Station and Tract 21C Groundwater Sample Exceedances



UGIA Well	CHAAP-G0105
	6/13/2018
VOCs (µg/L)	
Freon 113	30,000

LGIA Well	21B-DS-LGIA-MW05
	6/13/2018
VOCs (µg/L)	
Freon 113	16,000

LGIA Well	21B-DS-LGIA-MW03
	8/13/2018
VOCs (µg/L)	
Freon 113	16,000

LGIA Well	21B-DS-LGIA-MW06
	6/19/2018
VOCs (µg/L)	
Freon 113	54,000

LGIA Well	DS-LGIA-MW07
	6/2/2018
VOCs (µg/L)	
Freon 113	11,000

UGIA Well	21B-DS-G0102
	6/2/2018
VOCs (µg/L)	
Freon 113	45,000

UGIA Well	21B-DS-G0103
	6/2/2018
VOCs (µg/L)	
Freon 113	58,000

LGIA Well	21B-DS-LGIA-MW02
	6/2/2018
VOCs (µg/L)	
Freon 113	20,000

Legend

- Monitoring Well with RSL Exceedance
- Monitoring Well with no RSL Exceedances
- Groundwater Flow Direction
- 2018 Freon-113 Isoconcentration Contour (UGIA, 10,000 µg/L)
- 2018 Freon-113 Isoconcentration Contour (LGIA, 10,000 µg/L)
- Historical/Remediated RDX 20 ug/L Plume Boundary
- Site Boundary
- Tract Boundary

Analyte	Tap Water RSL
VOCs (µg/L)	
Freon 113	10,000

Notes:
For conciseness and legibility, soil sample IDs are not shown.
Shaded values denote an exceedance of the tapwater RSL.

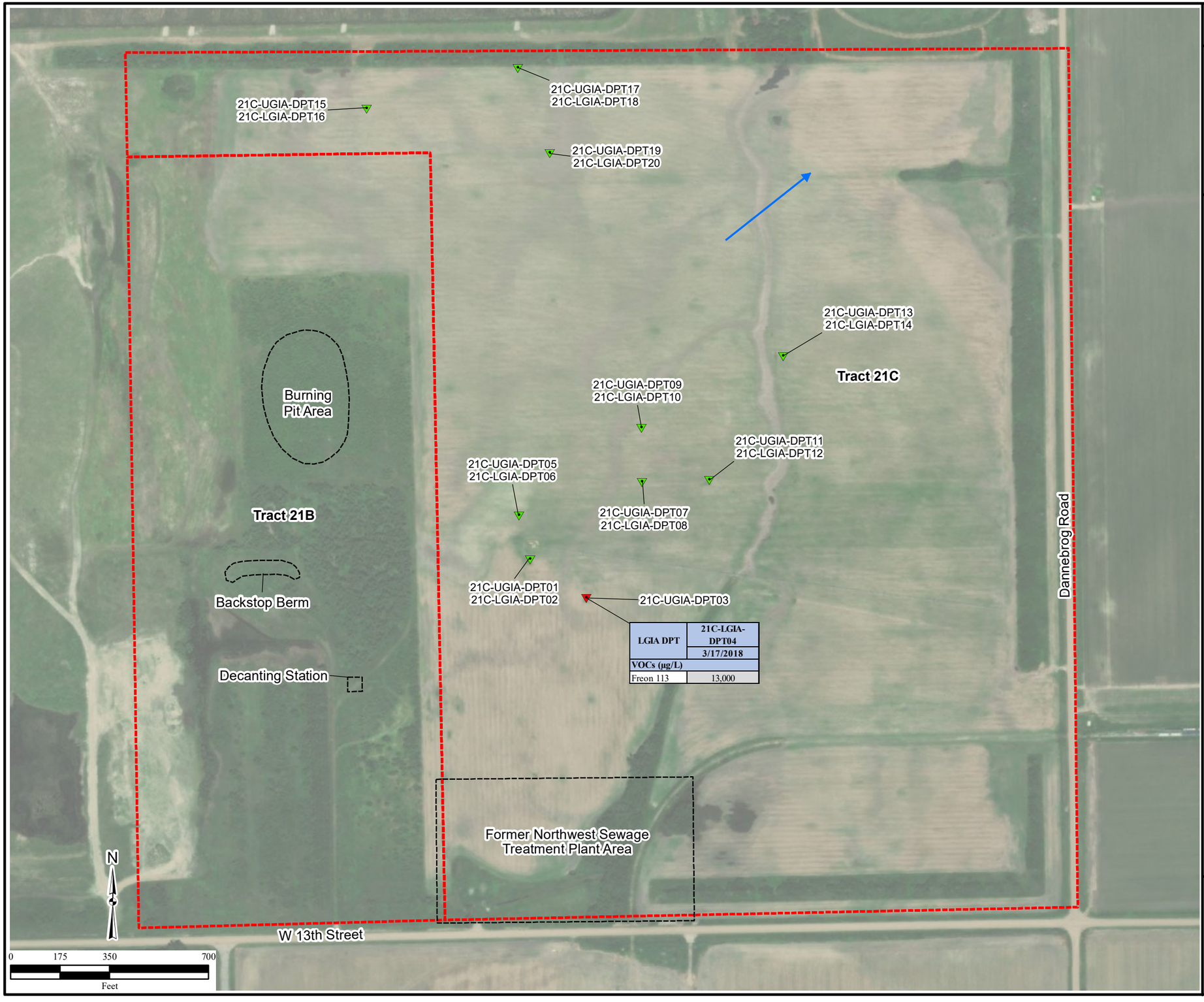
µg/L=micrograms per liter
DPT=direct-push technology
J=value listed was reported below the quantitation limit and is estimated
LGIA=Lower Grand Island Aquifer
RDX=cyclotrimethylenetrinitramine
RSL=regional screening level
UGIA=Upper Grand Island Aquifer

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI
(5-18)Tract21B_21C_DS_GW_Sample_Results.mxd
6/9/2021 JM
Source: HGL, ATI, USACE
ArcGIS Online Imagery (Clarity)

ati-HGL
8(a) Joint Venture, LLC

Remedial Investigation, Cornhusker Army Ammunition Plant
Grand Island, Nebraska

Figure 5.19
Tract 21C DPT Groundwater Sample Exceedances



LGIA DPT	21C-LGIA-DPT04
	3/17/2018
VOCs (µg/L)	
Freon 113	13,000

Legend

- DPT Groundwater Sample with RSL Exceedance
- DPT Groundwater Sample with No RSL Exceedances
- Groundwater Flow Direction
- Site Boundary
- Tract Boundary

Analyte	Tap Water RSL
VOCs (µg/L)	
Freon 113	10,000

Notes:
Green symbols indicate that neither the UGIA nor the LGIA samples contained RSL exceedances. Red symbols indicate that tap water RSLs were exceeded in samples from the UGIA and/or the LGIA.
Sample depths for DPT groundwater samples are provided in Table 5.21.
Shaded results denote an exceedance of the tap water RSL.

µg/L=micrograms per liter
DPT=direct-push technology
LGIA=Lower Grand Island Aquifer
RSL=regional screening level
UGIA=Upper Grand Island Aquifer
VOCs=volatile organic compounds

\\srv-gst-01\HGLGIS\CHAAP_MSIW\RI\(5-19)Tract21C_DPT_GW_Results.mxd
6/9/2021 JM
Source: HGL, ATI, ICF Kaiser ArcGIS Online Imagery

ati-HGL
8(a) Joint Venture, LLC