# Finding of Suitability to Transfer

# (FOST)

## Newport Chemical Depot

## FOST 2 Parcels

## Vermillion County, Indiana

## July 2012

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# 1.0 PURPOSE

The purpose of this Finding of Suitability to Transfer (FOST) is to document the environmental suitability of certain parcels or property at Newport Chemical Depot (NECD) for transfer to the Newport Chemical Depot Reuse Authority (Ne CDRA) consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h) and Department of Defense (DOD) policy. In addition, the FOST includes the CERCLA Notice, Covenant, and Access Provisions and other Deed Provisions and the Environmental Protection Provisions (EPPs) necessary to protect human health or the environment after such transfer.

# 2.0 PROPERTY DESCRIPTION

The property to be transferred consists of Community Environmental Response Facilitation Act (CERFA) parcels not transferred under the previous FOST except an approximately 5 acre parcel around the former building 401A. All the CERFA Category 1 to 4 parcels were transferred under an earlier FOST. The remaining parcels have been studied and remediated when necessary. These parcels are now ready for transfer. The property to be transferred consists of 481.52 acres, which includes 44 buildings. NECD was previously used for production of explosives 1,3,5-Trinitro-1,3,5-triazine (RDX) and 2,4,6-Trinitrotoluene (TNT), the production of heavy water, as well as the production and storage of chemical weapons. VX nerve agent (O-ethyl-S-(2-diisopropylaminoethyl) Methyl Phosphonothiolate) was manufactured and stored at NECD. NECD's most recent mission is the safe storage and disposal of chemical weapons. The property is intended to be transferred for a combination of agricultural, industrial, and public recreation purposes and is consistent with the intended reuse of the property as set forth in the NCDRA's Reuse Plan, dated December 2009. A site map of the property showing the parcels to be transferred is attached (Enclosure 1).

# 3.0 ENVIRONMENTAL DOCUMENTATION

A determination of the environmental condition of the property was made based upon the: U.S. Army BRAC [Base Realignment and Closure] 2005, Environmental Condition of Property Report, Newport Chemical Depot, Newport, Indiana, October 2008; and the Environmental Condition of Property Update Report, Newport Chemical Depot, Newport, Indiana, October 2010; Chemical Plant Area Technical Memorandum, December 2010; as well as the U.S. Army BRAC 2005, Site Inspection Report, Newport Chemical Depot, Newport, Indiana, November 2009, Environmental Condition of Property Report Update for FOST 2, April 2012; Supplemental SI Field Activities Report, March 2012; NECD Chemical Plant Technical Memorandum, April 2011; Final Exit Strategy Report, February 2012, Newport Chemical Depot Voluntary Corrective Action Agreement,

2012 The information provided is a result of a complete search of agency files during the development of these environmental surveys.

A complete list of documents providing information on environmental conditions of the property is attached (Enclosure 2).

# 4.0 ENVIRONMENTAL CONDITION OF PROPERTY

The DOD Environmental Condition of Property (ECP) categories for the property are as follows:

ECP Category 2: _1.6_____ acres

ECP Category 3: ____0___ acres (Enclosure 3).

ECP Category 4: ___479.92_____ acres (Enclosure 3).

A summary of the ECP categories for specific buildings, parcels, or operable units and the ECP category definitions is provided in Table 1 – Description of Property (Enclosure 3).

## 4.1. ENVIRONMENTAL REMEDIATION SITES

There were 57 (40 SWMUs and 9 remediation sites and eight areas of concern) remediation sites located on the property to be transferred under this FOST (FOST 2). The RCRA Permit was allowed to expire in January 2011, but by agreement the Army complied with the terms of the RCRA Permit for the all SWMUs and Areas of Concern (AOC) until the Voluntary Corrective Action Agreement was signed on May 7, 2012. The following tables identify the sites and their disposition.

**Installation Restoration Program (IRP) Sites FOST 2**

| Site Description | SWMU Number | Per RCRA Permit | Per VCAA or Concurrence from IDEM |
|---|---|---|---|
| Small Arms Range | N/A | N/A | NFA |
| RDX-MA | NAAP-3 | N/A | LTM |
| Batteries North of Railroad Bed | N/A | N/A | NFA |
| Drums South of North Patrol Road | N/A | N/A | NFA |
| TNT-BG | NAAP-50 | N/A | NFA |
| TNT Production Line # 1, N&P Building (a) and F&P Building (b) | NAAP-37 | N/A | NFA |
| TNT Production Line # 2, and identical units as NAAP-37 | NAAP-38 | N/A | NFA |
| TNT Production Line # 3, and identical units as NAAP-37 | NAAP-39 | NFA | NFA |
| TNT Production Line | NAAP-40 | NFA | NFA |

| Site Description | SWMU Number | Per RCRA Permit | Per VCAA or Concurrence from IDEM |
|---|---|---|---|
| # 4, and identical units as NAAP-37 | | | |
| TNT Production Line # 5, and identical units as NAAP-37 | NAAP-41 | NFA | NFA |
| TNT Wastewater Collection and Handling Area # 1 | NAAP-42 | NFA | NFA |
| TNT Wastewater Collection and Handling Area # 2 | NAAP-43 | NFA | N/A |
| TNT Wastewater Collection and Handling Area # 3 | NAAP-44 | NFA | N/A |
| TNT Wastewater Collection and Handling Area # 4 | NAAP-45 | NFA | N/A |
| TNT Wastewater Collection and Handling Area # 5 | NAAP-46 | NFA | N/A |
| TNT Wastewater Facility | NAAP-47 | NFA | N/A |
| Pollution Control Center (PCC) | NAAP-48 | NFA | N/A |
| TNT Laboratory Drain | NAAP-59 | NFA | N/A |
| Little Raccoon Creek Buried Debris | N/A | N/A | NFA |
| Decontaminated Waste Burial Ground (DWBG) | NAAP-23 to NAAP-26 | N/A | LTM |
| Construction Debris Dump (CDD) | NAAP-025 | N/A | NFA |
| Asbestos Burial Area East of the MCD | N/A | N/A | NFA |
| Chemical Plant Agent Free Area Basins 30031 and 30025 | NAAP-6, NAAP-7 | N/A | NFA |
| Chemical Plant Agent Area | NAAP-4, NAAP-8, NAAP-9 | NFA | N/A |
| Chemical Plant Pre-agent Mfg. Facility | NAAP-5 | NFA | N/A |
| Chemical Plant Agent Area | NAAP-10 to NAAP-12, NAAP-67 | NFA | N/A |
| Chemical Plant Agent Mfg. Facility | NAAP-13 to NAAP-22 | NFA | N/A |
| Building 716A Vehicle Maintenance Shop | N/A | N/A | NFA |
| Building 726C Pesticide Storage | N/A | N/A | NFA |

| Site Description | SWMU Number | Per RCRA Permit | Per VCAA or Concurrence from IDEM |
|---|---|---|---|
| Building | | | |
| Newport Chemical Depot Demil Facility | | All RCRA permitted and less than 90 day storage areas clean closed | NFA |

IDEM – Indiana Department of Environmental Management
NFA – No further action
RCRA – Resource Conservation and Recovery Act
SWMU – Solid Waste Management Unit
NAAP – Newport Army Ammunition Plant (former designation for the NECD)
MCD – Memorial Chapel RDX Dump
BG – burning ground
MA – manufacturing area

N/A – not applicable

## Areas of Concern (AOC) at NECD FOST 2

| AOC Name | AOC | Per RCRA Permit | Per VCAA or Concurrence from IDEM |
|---|---|---|---|
| Open Ditch Near the RDX Purification Process (see 4.1.2 RDX-MA) | AOC A | NFA | N/A |
| Tanks and containers in Building 143 (see 4.1.1 Chemical Plant) | AOC D | NFA | NFA |
| Truck Transfer Stations (TNT Aboveground Storage Tanks) | AOC E | NFA | N/A |
| Building O159 4.1.10 Chemical Plant | AOC J | NFA | NFA |
| Drainage Ditches Around the Chemical Plant Area (see 4.1.13 Chemical Plant) | AOC M | N/A | NFA |
| Little Raccoon Creek | AOC N | N/A | NFA |
| 101 PSA Valve Pit (part of the Chemical Plant see 4.1.13) | AOC O | N/A | NFA |
| Sodium Hydroxide Tank – Chemical Plant | AOC P | N/A | NFA |

A summary of the environmental remediation sites on the property to be transferred is as follows:

### 4.1.1 Small Arms Range (SAR) Berms

The Small Arms Range (SAR) is located in the north-central portion of the installation and is 0.81 acres. The operational start date of this range was January 1, 1946. The range has been used for small arms munitions training and qualification since 1946.

The Site Inspection (SI) Addendum field investigation activities were conducted at the SAR in July 2010. Five test trenches were dug through the soil in each of the two berm areas to a depth of 2 feet below land surface (BLS). Bullet fragments were found in the trenches of both berms. Three soil samples were collected from each trench; two along the opposite sidewalls and one from the trench floor. Each sample was analyzed for lead only using a portable XRF analyzer. Four samples

containing lead were sent to an offsite laboratory for confirmatory analysis to include lead, antimony, arsenic, copper, tin, zinc, and iron. Reduction-oxidation (redox) potential and pH analysis also were conducted.

Soil remediation for the SAR was completed in May of 2011. The remediation included the excavation of contaminated soil on site mixing of the soil with a stabilizing agent and offsite disposal of the stabilized soil.

All environmental soil remediation activities on the SAR have been completed. The property was not remediated to levels suitable for unrestricted use. The deed will include the land use restriction for industrial use only**.** See the Voluntary Corrective Action Agreement for additional information.

### 4.1.2 RDX Manufacturing Area (RDX-MA)

The RDX-MA is designated as SWMU NAAP-3. This site contains AOC A, Open Ditch near the RDX Purification Process. The RDX-MA comprises approximately 269 acres and is in the north-central portion of NECD. The complex was constructed in 1942 to manufacture explosives for use by the U.S. and allied militaries during WWII. Manufacture of explosives was conducted in 5 production lines composed of 80 manufacturing buildings and several additional support structures. Production of RDX occurred from October 1942 through September 1946, after which NECD was placed on standby status. Production once again commenced in August 1951 when 2 mothballed production lines comprising 59 buildings were rehabilitated. RDX production was suspended in March 1957 and NECD was placed on nonproduction status. In March 1977, the entire 269 acre RDX-MA complex was declared surplus and the buildings subsequently were burned. However, concrete building foundations, sewer ditches, and underground piping were left in place. This area has served as pasture for cattle grazing under a local lease agreement. The grazing season for this area typically is from July 1 to November 30.

***Soil***—Based on the results of the baseline human health risk assessment presented in the Phase III RCRA Facility Investigation (RFI), RDX was identified as the chemical of concern (COC) in soil. A Final Corrective Measures Study (CMS) for the RDX-MA was completed in July 2002. The Final CMS proposed composting to treat soils contaminated with RDX. The target clean level for the RDX-MA Corrective Measure Implementation (CMI) was established to be protective of the maintenance worker. CMI activities (i.e., remediation of RDX-contaminated soil by composting) have been completed. A total of 6,669 cubic yards of loose soil was excavated from the RDX-MA and transported to the TNT-BG for composting inside temporary buildings. The composted soil was returned to the RDX-MA to backfill the excavations.

***Groundwater***—For the RFI groundwater investigation, the RDX-MA was divided into the North RDX-MA, where the former Recrystallizer Building was located, and the South RDX-MA, where the former Wax House was located. The results of the groundwater investigation indicate that volatile organic compounds (VOCs) and explosives are present in groundwater near the former Recrystallizer Building and Boiler House. Groundwater contamination has not migrated north of the intermittent creek and contamination in down gradient wells decreased from 1991 to 1998. Metals were present at 1991 levels during the 1997-98 sampling. In the human health risk assessment, hypothetical exposure of residents to groundwater in the shallow unsaturated zone was

responsible for risks exceeding regulatory targets. Groundwater cancer risks exceeded the target of $1 \times 10^{-4}$ and noncancerous hazard indices (HIs) exceeded the target of 1 for both the north and south exposure units. Groundwater modeling results indicate that there are no unacceptable human health or ecological risks from exposures to constituents discharging from groundwater to surface water. Based on these findings, the Army recommended no further investigation at the RDX-MA other than implementation of LUCs to prevent residential land use and groundwater use, and semi-annual groundwater monitoring. A long-term monitoring plan, including groundwater and surface water monitoring at both the North and South RDX-MA, was approved by IDEM in 2005.

In 2011 under slab sampling of 20 locations under existing concrete slabs at the RDX-MA was conducted. Two soil samples were collected beneath the slabs of each filter house and one soil sample was collected from beneath the slabs of each boil house. Concentrations of RDX detected at three locations were above the residential screening criterion for migration to groundwater. Concentrations detected were well below the direct contact residential and industrial screening criteria.

Long term monitoring consisting of sampling two groundwater wells sampled once per year for RDX and two surface water samples collected is still conducted at the RDX-MA. This monitoring will be continued under the Environmental Service Cooperative Agreement, but periodically reviewed by the Army and IDEM.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions: No residential or groundwater use. See VCAA for additional information.

### 4.1.3 Batteries North of the Railroad Bed

A Site Inspection (SI) was conducted at NECD and a report on the SI was issued in November 2009. Part of the SI was a Visual Site Inspection (VSI). During the VSI, batteries were found north of the railroad bed. They appeared to be vehicle or large equipment batteries. This site was investigated to determine if metals from the battery acid were released to the environment. The batteries were removed and a soil sample was collected from the surface soil and analyzed for metals. Nine metals above background concentrations (cadmium, calcium, copper, magnesium, mercury, potassium, selenium, tin, and zinc) were detected; the mercury concentration exceeded the human health screening value by almost two orders of magnitude.

The batteries north of the railroad bed site was approximately 27 by 36 feet (0.02 acres). In April 2011 soil was excavated from an approximately 118-square-foot area to 2 feet below land surface. The mercury concentration in the remaining soil slightly exceeded the IDEM closure level but was well below the direct contact soil closure level. IDEM agreed no restrictions would be required for this site. The approved reuse plan also indicates the property will be business and technology reuse.

All environmental remediation activities on the property have been completed. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.4 Drums South of the North Patrol Road

During the VSI, a variety of drums were found south of North Patrol Road. It is unknown what the drums originally contained. SI sampling was conducted at the site to determine if contaminants have been released to the environment. Eight surface soil samples and eight subsurface soil samples were collected. Soil samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), explosives, VX-related products, and metals. Eleven VOCs (including benzene, toluene, ethyl benzene, and xylenes [BTEX]), 19 SVOCs (predominantly poly-nuclear aromatic hydrocarbons [PAHs]), and 17 metals above background were detected. VOC concentrations were below the reporting limits (RLs) of the analytical method or several orders of magnitude below screening criteria. Maximum concentrations of PAHs were detected at the southernmost drum location; five PAHs were detected at concentrations exceeding human health screening levels at this location. Concentrations of these PAHs decreased with depth; however, the concentration of benzo(a)pyrene exceeded human health screening values in both surface and subsurface soil at one location. Benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and phenanthrene were detected at concentrations exceeding human health screening criteria only in the surface soil at the same location. Background upper tolerance limits (UTLs) are not available for 6 of the 17 metals. Arsenic, iron, and manganese each were detected above the background concentrations and the human health screening levels only in one soil sample. The arsenic and iron concentrations are near the background UTL. The manganese concentration is near the screening level. Concentrations of arsenic, manganese, and iron appear to be more representative of background rather than site-related activities. Based on concentrations that exceed screening levels, further evaluation of PAHs in soil at the southernmost drum location is recommended.

This area encompasses approximately 1.23 acres. A soil removal action was conducted in August 2011. Confirmation samples were collected from each sidewall and the floor. Semivolatile organic chemical (SVOC) constituents were detected in the floor sample and the one sidewall sample at concentrations below the IDEM industrial and residential closure level. IDEM concurred with the recommendation of no further action in the VCAA for this site.

All environmental remediation activities on the property have been completed. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.5 TNT Burning Ground (TNT-BG)

The TNT-BG is designated as SWMU NAAP-50. The former burning ground for TNT-contaminated debris is in the southwestern portion of the installation. The TNT-BG encompasses approximately 12.5 acres. The entire TNT-BG is enclosed by a chain-linked fence and is accessed by a locked gate on the north side of the SWMU.

Three burial trenches reportedly were used within the fenced TNT-BG to dispose of burned explosives residues, beginning in approximately 1973. The burial trenches reportedly included two trenches parallel to the west fence and one trench parallel to the south fence. The dimensions of the trenches parallel to the west fence were approximately 10 by 140 feet and 10 to 85 feet with a depth

of approximately 7 feet. The trench parallel to the south fence was 25 by 175 feet with a depth of approximately 7 feet. The burial trench information was based on discussions with site personnel, review of records, aerial photographs, and 1988 geophysical surveying and soil boring data. The 1988 data were collected during an RI of the TNT-BG.

Materials disposed of at the TNT-BG typically were stacked on wooden pallets on one of the two burn pads (the western pad was used more often) and subsequently set afire. After burning, the residue was bulldozed into a nearby trench for burial. Various reports indicate that burning may have been conducted occasionally in the trenches. Pallets stacked at the bottom were covered with the explosives-contaminated wastes, and oil or gasoline was added to start the burning, if necessary. As in any open burning operation, complete combustion was not always achieved.

The trenches reportedly were excavated by a bulldozer to depths of 5 to 7 feet below land surface (BLS), with width equal to the width of the bulldozer blade (assumed to be approximately 8 feet). The trenches were opened progressively, as needed, beginning with the westernmost trench, and a segment was seldom open longer than 1 month before being backfilled. Reportedly, the trenches were not used after approximately 1975.

Since 1980, four burns were conducted at the TNT-BG. The burns all were conducted directly on the ground surface. One burn was conducted in 1983 at two areas at SWMU NAAP-50 and three burns were conducted at one general area in 1986.

A Corrective Measures Study (CMS) completed in 1995 at the TNT-BG proposed onsite composting as the recommended corrective measure alternative. The target cleanup levels for the COCs in soil (TNT, 2,4-dinitrotoluene [2,4-DNT], trinitrobenzene, RDX, 2-amino-4,6-dinitrotoluene [2-A-4,6-DNT], and pentaerythritol tetranitrate [PETN]) were established to be protective of off-post groundwater receptors. A composting Treatability Study was conducted from July 16 to August 25, 1998. Based on the results and recommendations of the Treatability Study, a conceptual design was prepared for the full-scale bioremediation of the explosives-contaminated soil from the TNT-BG. The decision document indicating that onsite composting would be the selected remedy at the TNT-BG was executed in August 2001. A Temporary Authorization Request (TAR) and Class 3 Resource Conservation and Recovery Act (RCRA) permit modification to allow for onsite treatment of soil were submitted to IDEM in April 2002. IDEM granted temporary authorization on April 30, 2002, and the RCRA permit modification designating the TNT-BG as a Corrective Action Management Unit (CAMU) was approved on February 5, 2003.

Corrective Measure Implementation (CMI) activities (i.e., remediation of explosives-contaminated soil by composting) were conducted at the SWMU and all former structures (e.g., the burn cage) have been removed. Approximately 6,989 cubic yards of loose soil were remediated to meet the target cleanup levels. In addition, groundwater that collected in the soil excavations during the CMI was treated onsite using a carbon filtration unit before discharge to a tributary of Buck Creek.

The TNT-BG was divided into three groundwater exposure units: TNT-BG North, TNT-BG Central, and TNT-BG Southeast. Results from the Facility-wide RFI indicate site-related contamination in the TNT-BG North exposure unit, although at concentrations near reporting limits (RLs) for SVOCs and metals. Contamination within the TNT-BG Central exposure unit was

detected immediately down gradient from the three burial trenches within the fence line of this SWMU. Contaminants detected previously during the RI in BG-03, the well down gradient nearest the trenches, were confirmed at slightly lower concentrations than in 1991. Data for the wells in the TNT-BG Southeast exposure unit indicate lower concentrations of contamination than up gradient wells nearer the trenches, essentially defining the down gradient extent of contamination in the shallow saturated zone. In the human health risk assessment, hypothetical exposure of residents to groundwater in the shallow unsaturated zone is responsible for risks exceeding regulatory targets. Groundwater cancer risks exceeded the target for TNT-BG Central and TNT-BG Southeast exposure units and non-cancer HIs exceeded the target at all three exposure units. LUCs to prevent residential land use at the SWMU and groundwater monitoring in conjunction with the CMI were recommended by the Army. Groundwater monitoring activities are addressed in the TNT-BG Groundwater Technical Memoranda. 2,4-DNT was the primary COC and long-term groundwater monitoring of the SWMU indicates that 2,4-DNT concentrations have decreased considerably since 1997.

The Long-term monitoring exit strategy (April 2012) recommended groundwater monitoring be discontinued at the TNT-BG. IDEM concurred with this recommendation and groundwater monitoring at this location has been discontinued since the February 2012 sampling event.

The property was not remediated to levels suitable for unrestricted use. SWMU NAAP-50 is included in the NECD LUCIP. LUCs have been implemented; the LUCs at the TNT-BG include no residential or groundwater use. A summary of the environmental remediation sites is provide in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.6 TNT Manufacturing Area (TNT-MA)

The TNT-MA consists of SWMUs NAAP-37 through NAAP-47 and SWMUs 48 (Pollution Control Center) and 59 (TNT Lab Drain). The TNT MA occupies approximately 115 acres. This site was in operation from 1973 to 1974 and consists of TNT Production Lines 1, 2, 3, 4, and 5; Nitration & Purification (N&P) Building and Finishing & Packaging (F&P) Building (SWMU NAAP-37, 38, 39, 40, and 41) ; TNT Wastewater and Handling Areas #1, #2, #3, #4, and #5 (SWMU NAAP-42, 43, 44, 45, and 46); and the TNT Wastewater Treatment Facility[1] (NAAP-47). Media of concern included the soil and groundwater. Ground elevation is nearly flat. During operation, a toluene spill occurred once, and was reportedly cleaned up. Elevated concentrations of toluene have not been detected during groundwater monitoring at the TNT-MA.

In December 1991, an SI report was completed. According to the SI report, no analytes (excluding total metals) exceeded the health-based comparison values and there were no analytes selected as COCs in the soil. Low concentrations of explosives compounds, below health based comparison values, were detected in groundwater during the SI. It has been concluded, however, that no significant impact from past operations at this site have occurred.

[1] The TNT Wastewater Treatment Facility included: three wastewater pipelines, a yellow water neutralization tank, two yellow water storage tanks, a soda ash mix tank, four pink water evaporation storage tanks, a pink water neutralized wastewater evaporation system, a red water storage tank, a red water sump tank, seven red water destruction circulation tanks, seven red water destruction heat exchangers, seven red water scrubber columns, seven red water destruction fly ash separators, seven red water destruction incinerator kiln drums, and three spill/leak rainwater collection sumps.

The following releases two potential releases of hazardous substances occurred within the TNT Manufacturing area:

A tank truck that was being used to hold red water at the TNT Manufacturing Area (Study Section 5) overflowed, spilling red water onto the ground. The location of the spill was identified as being between the former N&P Building and the settling basin.
A toluene spill also occurred in 1973 at the TNT-Manufacturing Area (Buildings 9511 and 9512).

Both potential releases were investigated as part of the 2009 Site Investigation report. Constituent sampling at both locations were either below the residential criteria of the health risk screening criteria. No further action was recommended for both of these locations.

The explosive part of the facility was cleaned by hot gas decontamination, which was concluded in January 1999 by the Tennessee Valley Authority (TVA). The liquidation project was concluded in November 1999 by Earth Tech. No contaminated process equipment remains. In January 2006, IDEM issued the RCRA permit renewal including this site as NFA.

In 2010 additional under slab sampling of buildings associated with the production of TNT for explosives was conducted. This property was not remediated to levels suitable for unrestricted use. The deed will include a no residential land use restriction on the portion of the TNT-MA north of South Boulevard and east of West Road. See the VCAA and Final Sampling and Investigation Report (SAIC May 2011) for additional information

#### 4.1.6.1 Pollution Control Center (PCC)

The PCC (SWMU NAAP-48) was an Industrial Wastewater Treatment Plant[2] at the TNT-MA and was in operation from 1971 to 1974. This unit neutralized weak acid waste streams and produced calcium sulfate, or gypsum. The PCC consisted of the process sewer line, No. 4 pumping station, equalization basins, neutralization tanks, gypsum clarifiers, gypsum sludge tank, gypsum sludge pits and pipelines from TNT acid production area. This site, as part of the TNT-MA, is NFA, see the VCAA for additional information.

The property was not remediated to levels suitable for unrestricted use. The deed will include the a land use restriction of no residential use. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

#### 4.1.6.2 TNT Laboratory Drain and Acid Production Area

The TNT Laboratory Drain consists of laboratory sinks and floor drains that empty into the process sewer (SWMU NAAP-48a

[2] The PCC included: a process sewer line, No. 4 Pumping Station, two equalization basins, three neutralization tanks two gypsum clarifiers, three neutralization tanks, two gypsum clarifiers, a gypsum sludge tank, two gypsum sludge pits, and pipelines from TNT Acid Production Area.

The TNT Acid Production Area is within the TNT-MA. The SWMUs associated with the TNT Acid Production area are SWMUs NAAP-56 through NAAP-63 (these SWMUs were transferred in FOST 1), which are drains connected to a process sewer system that flows to SWMU NAAP-48, the PCC. These sites were in operation from 1971 to 1974 and include an Acid Tank Farm Drain, a Sulfur and Ammonia Unloading Area Drain, a Utilities and Shop Area Drain, TNT Laboratory Drains, TNT Acid Laboratory Drains, NAC and Denitration (DN) Drains, AOP Facility Drains, and SAR Drains. In January 2006, IDEM issued the RCRA permit renewal including this site as NFA.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions ***no residential use.*** **See VCAA for additional information.** A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.7 Little Raccoon Creek Buried Debris

During the VSI conducted as part of the SI, buried debris (e.g., crushed drums, pipes, metal scrap, and hoses) was observed along the east Little Raccoon Creek Bank along the Decontaminated Waste Burial Ground (DWBG) as well as in the area north of the Construction Debris Dump (CDD) and west of the Scrap Yard. In addition, a benzene odor and evidence of potential asbestos were reported west of the Scrap Yard during an archaeological reconnaissance. SI sampling was conducted to determine if a release occurred to the environment. Eleven VOCs (including BTEX), 12 SVOCs (primarily PAHs), 1,3,5-trinitrobenzene (TNB), methylphosphonic acid, and 18 metals above background concentrations were detected well below the screening levels. Eight of the 11 VOCs were detected at concentrations below the analytical method RLs. Neither benzene nor any other VOC was detected where the benzene odor was reported. PAH concentrations were limited to the surface soil at the northernmost sampling locations. Pentachlorophenol (PCP) (a non-PAH SVOC) was detected at a concentration above the screening value at one of the northern sampling locations. 1,3,5-TNB and methylphosphonic acid were detected at concentrations several orders of magnitude below screening criteria. Three metals above background concentrations (arsenic, chromium, and lead) were detected at concentrations exceeding human health screening levels. Metals concentrations above screening criteria are limited to the northernmost sampling locations. The preponderance of detected organic compounds, as well as the screening criteria exceedences, were along the creek bank adjacent to the DWBG. NFA was recommended for the area west of the Scrap Yard to IDEM and accepted.

Supplemental investigation was conducted on this 11.29 acre area in 2011 to further evaluate soil at the northern end of the Little Raccoon Creek Bank along the DWBG. Five Geoprobe soil borings were drilled in the northern end of the Little Raccoon Creek bank along the DWBG. Two soil samples from each boring were collected for SVOCs, metals, VX-related products, and explosives analysis to determine the nature and extent of contamination at the northern end of the Little Raccoon Creek bank. Four SVOCs, 6 explosives, 1 VX-related product and 21 metals above background concentrations were detected. Three metals (arsenic, chromium, and lead) were detected at concentrations exceeding the IDEM industrial closure level but not eh closure level for direct contact. Arsenic concentrations above background do not exceed the direct contact industrial closure level. Chromium and lead concentrations exceeded industrial closure levels in only two of

the 5 sampled locations in the bank area near the DWBG and decrease with depth to levels below the industrial closure levels.

At the request of IDEM, lead and mercury concentrations above background were evaluated for impact to the Indiana bat. There is little to no unacceptable risk to Indiana bats from elevated lead or mercury concentrations.

Although SVOCs, explosives, and MPA were detected, concentrations are not widespread. Arsenic, chromium, and lead were detected at concentrations exceeding the background Upper Tolerance Limit (UTL) and IDEM industrial closure levels, but not the closure levels for direct contact; the exceedances of the industrial closure levels were not widespread. Due to concentrations above residential level (nitrobenzene and metals) a LUC was recommended for the Little Raccoon Creek Bank along the DWBG including the creek and 100 feet along either side of the creek.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions no agricultural, residential use or intrusive activities. See the VCAA for additional information. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.8 Decontamination Waste Burial Ground (DWBG)

The DWBG is on approximately16.09 acres, south of Little Raccoon Creek in the eastern portion of NECD and approximately 0.25 miles south of the Chemical Plant. The DWBG contains at least four specific burial sites and three additional areas, including burn cages, Pit A, and an area reportedly containing a 300-gallon buried tank (SWMU NAAP-54). These individual features account for the several SWMUs associated with the general DWBG area. The DWBG was reported to be active on a sporadic basis; documented use of the area was indicated in 1963, 1968, and 1974.

Of the SWMUs identified at the DWBG, the four burial sites are the best documented. The burial sites, which are identified as Burial Areas 1 through 4 (SWMUs NAAP-23 through NAAP-26, respectively), are composed of a series of trenches within which various production wastes and structural debris were deposited. The following discussion provides a brief overview of the known configuration and contents of each of the four areas.

Burial Area 1 is in the southern portion of the DWBG and includes six known trenches. The five northernmost trenches were used in 1968 to dispose of decontaminated wastes associated with the production of agent VX. These wastes included pipes, valves, gas masks, gloves, drums, and sample bottles. Other wastes, including weapons components, also may be present. The sixth, southernmost trench was used to dispose of drums, containing polymerized urea from the decomposed agent VX stabilizer dicyclohexyl carbodiimide. These drum, however, reportedly were removed in the early 1970s and shipped to Edgewood Arsenal in Aberdeen Proving Ground, Maryland.

Burial Area 2 consists of two east-west burial trenches east of the burning cages. Posted signs at the foot of the trenches, dated June 1974, state that asbestos from lines 1 and 2 of the TNT-MA are

buried in these trenches. In addition, nitrobody-contaminated gaskets reportedly were buried in Burial Area 2. No records were available concerning the volume of waste in this unit.

Burial Area 3 is east of Burial Area 2 and consists of one north-south oriented trench that was used in 1974 to dispose of "sulfur wastes" that originated from the TNT-MA. No additional specifics concerning the waste were reported.

Burial Area 4 is in the northeastern corner of the DWBG and consists of one large trench. The waste reportedly placed into this area contained residue of the 1966/67 binary program (including VX production) that was destroyed through deflagration. In addition, asbestos waste from the heavy water production facility also reportedly was disposed of in this trench in 1963.

The remaining features identified within the DWBG are not well-documented. The two burning cages at the center of the site were known to have been used to burn administrative wastes prior to 1970; subsequent usage, if any, is not documented. In addition, Pit A (SWMU NAAP-26A), which was identified in an historical aerial photographic interpretation survey, never was identified clearly as a disposal area. The final unit, the 300-gallon chemical tank (SWMU NAAP-54), never has been located, but it is reported to have been filled with phosphorus compounds, including potentially pyrophoric solids, that sometimes clogged the process equipment. The tank was reported to have been buried somewhere in the western portion of the site in approximately March 1961. Previous geophysical survey results indicate that a substantial amount of scrap metal, concrete rubble, compressed gas cylinders, and other debris were buried in this general area of the DWBG. SAIC conducted an interview with a former employee involved with the tank burial to further refine the tank's location. In December 2003, a supplemental geophysical survey was conducted and five potential anomalies were found in the surveyed area. Historical information and interpretation of the electromagnetic (EM) data refined the potential tank location to two of the anomalies, both of which are in the western portion of the DWBG. An investigation to determine the location of the tank was conducted. The tank could not be located and IDEM concurred due diligence had been exercised and the SWMU status could be changed to no further action required.

The western portion of the DWBG was identified as having surface soil contaminated with mercury. Mercury was identified as a COC for ecological receptors. No human health COCs were identified for future industrial land use at the DWBG.

A Corrective Measures Study (CMS) for soil at the DWBG was completed in May 2003. The CMS considered the corrective measure objectives and the physical site conditions and constraints (i.e., presence of surface and subsurface debris) in order to develop corrective measure alternatives for the DWBG. Following a detailed analysis of the corrective measure alternatives, the CMS proposed limited actions as the recommended corrective action measure alternative. A decision document for the preferred corrective measure alternative (i.e., limited actions) for the DWBG was reviewed and accepted by IDEM on June 27, 2003. As a result a 1-foot-thick soil barrier, which is an engineering control to prevent ecological receptors from being exposed to the contaminated soil, was placed at the DWBG. Clearing for barrier placement began in September 2003 and final seeding occurred in May 2004 and the barrier was completed in summer 2004

Trichloroethene (TCE) at concentrations above its Maximum Contaminant Level (MCL) was detected in groundwater on the west side of the DWBG area. A model was developed, which showed that source treatment would stabilize the plume within five years and would be more protective of human health and the environment than long term monitoring. In order to stabilize the plume 36 injection wells will be installed, the source material will be treated and groundwater will be monitored for five years. The injection study has lowered the concentrations of TCE, but groundwater monitoring at four wells and two surface locations will continue.

The DWBG site was not remediated to levels suitable for unrestricted use. The LUCs were finalized and submitted to the IDEM in October 2005. The deed will include the following land use restrictions including no intrusive activities, and no residential, agricultural, and groundwater use. See the NECD LUCIP for additional information. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.9 Asbestos Burial Area East of the Memorial Chapel RDX Dump (MCD)

A suspected burial area was identified east of the MCD (7.1 acres). SI sampling was conducted at the site to determine if contaminants have been released to the environment as a result of buried asbestos and construction debris. Five subsurface soil samples were collected and analyzed for VOCs, SVOCs, explosives, VX-related products, and metals. BTEX and four metals above background concentrations were detected in the subsurface soil samples. BTEX concentrations were below the RLs of the analytical method. Three of the four metals above background are essential nutrients. Lead was above the background UTL in only one soil sample and did not exceed the human health screening value. No further investigation is recommended for the Asbestos Burial Area East of the Memorial Chapel Dump since SVOCs, explosives, and VX-related products were not detected; concentrations of VOCs and metals above background did not exceed human health screening criteria; and no evidence of contamination was noted during the SI sampling. Due to the possible presence of asbestos and other debris at this location, a land use control (LUC) restricting intrusive activity has been implemented. See VCAA for additional information.

In 2012 a project to remove surface debris including asbestos and metals was implemented at this location under the Indiana solid waste rules. Any visible asbestos or metal in the area was removed.

### 4.1.10 Chemical Plant

The Chemical Plant is approximately 26 acres and is located in the eastern portion of NECD. The former Dana Plant was chosen as the site for the Chemical Plant in July 1959. The Dana Plant was used for heavy water production from 1943 until 1946 and from 1952 until 1957. The Chemical Plant was used to produce VX chemical agent from 1961 until 1968. As of 1965, chemical facility capacity totaled 621,704 square feet for the industrial area and 69,973 square feet for the administrative area. The following sections contain a general history of the use of the Chemical Plant. In addition, subsections are included that provide greater detail regarding the historical use and previous investigations at each Installation Restoration Program (IRP) site associated with the

Chemical Plant. Chemical plant-wide soil and groundwater sampling activities are presented in the Chemical Plant Area Technical Memorandum, December 2010.

The area associated with the Chemical Plant has been sub-divided into several IRP sites, including the Chemical Plant Agent-Free Area, Chemical Plant Pre-Agent Manufacturing Facility, Chemical Plant Agent Area, and Chemical Agent Manufacturing Facility. All of these IRP sites are within the Chemical Plant and will, therefore, be discussed in this section.

The Chemical Plant Agent-Free Area includes the following Solid Waste Management Units (SWMUs):

- SWMU NAAP-6: Basin 30031
- SWMU NAAP-7: Basin 30025
- SWMU NAAP-8: Deep Well Surge Tank (removed)
- SWMU NAAP-9: Deep Injection Well (abandoned)
- Area of Concern (AOC)-M: Drainage Ditches around the Chemical Plant.

The Chemical Plant Pre-Agent Manufacturing Facility (NAAP-015) includes the following SWMU:

- SWMU NAAP-5: Waste Surge Tank FA-12.

The Chemical Plant Agent Area (NAAP-016) includes the following SWMUs:

- SWMU NAAP-4: Detoxification Holding Basin
- SWMU NAAP-10: Basin 30007 (transferred under FOST 1)
- SWMU NAAP-11: Basin 30008 (transferred under FOST 1)
- SWMU NAAP-12: Basin 30009 (transferred under FOST1)
- SWMU NAAP-67: Chemical Plant Coal Ash Basin (CPAB) (transferred under FOST 1)

The Chemical Plant Agent Manufacturing Facility and VX Storage Tank Farm (NAAP-017) contain the following SWMUs:

- SWMU NAAP-13: Bulk Storage Tank FA-303A
- SWMU NAAP-14: Bulk Storage Tank FA-303B
- SWMU NAAP-15: Bulk Storage Tank FA-351
- SWMU NAAP-16: Bulk Storage Tank FA-352
- SWMU NAAP-17: Bulk Storage Tank FA-353
- SWMU NAAP-18: Bulk Storage Tank FA-354
- SWMU NAAP-19: Bulk Storage Tank FA-355
- SWMU NAAP-20: Bulk Storage Tank FA-356
- SWMU NAAP-21: Chemical Plant Scrubber Towers
- SWMU NAAP-22: Agent VX Storage Site (Building 144) and Toxic Sump.
- AOC D: Tanks and Containers Inside Building 143 in the VX Production Facility
- Building 143: VX Production Facility

Building 145: Munitions Assembly Building.

AOC O, the 101 Permitted Storage Area (PSA) Valve pit is located in the southeast portion of the chemical plant area. The valve pit had been used to control water valves during heavy water production. Sampling of the valve pit did not indicate any VX-related products were present. AOC O is no further action, see the VCAA for additional information.

***RCRA Facility Investigation –*** Sampling completed for the RFI and analysis of environmental media (i.e., soil, groundwater, sediment, and surface water) underlying the former Chemical Plant area at NECD was conducted between 1997 and 2010. The results of multiple investigations at the identified SWMUs within the Chemical Plant have identified site-related chemical (VOCs, SVOCs, and VX-related products) concentrations that were generally below residential risk-based screening criteria.

Several SWMU areas within the Chemical Plant have been previously identified for NFA or LUCs only. SWMUs NAAP-21 and NAAP-22 were recommended for NFA and a determination of NFA was granted for Waste Surge Tank FA-412 in the 2005 NECD RCRA permit. SWMUs NAAP-10, NAAP-11, NAAP-12, and NAAP-67 are included in a NECD NFA Memorandum with IDEM concurrence and also are included in the NECD Land Use Control Implementation Plan (LUCIP). LUCs, including no residential, agricultural, or groundwater use are being implemented. Results of and conclusions from the 1997-2010 investigations are summarized below.

***Soil Results***—VOCs and SVOCs detected in the Chemical Plant soil consisted predominantly of chlorinated hydrocarbons, BTEX, PAHs, and phthalates that were variably distributed across the Chemical Plant area and consistent with its historical use as an industrial facility. Discrete VOCs and SVOCs detected in the soil at concentrations exceeding the NECD residential screening criteria consisted of isolated trichloroethene (TCE), chlorobenzene, and 1,2-dichlorobenzene (1,2-DCB) in subsurface soil south of SWMU NAAP-6, and benzo(a)pyrene in surface soil north of SWMUs NAAP-6 and NAAP-7 and west of Building 144. None of the detected VOCs or SVOCs exceeded the industrial screening criteria. Explosives compounds were not detected in the Chemical Plant soil with the exception of an isolated concentration of cyclo-1,3,5,7-tetramethylene-2,4,6,8-tetranitramine (HMX) in the subsurface soil north of SWMU NAAP-6. The distributions of VOCs and SVOCs in the site soil are consistent with the industrial nature of the site activity and do not delineate areas of actionable contamination. The majority of the VOC and SVOC concentrations exceeding the NECD screening values were detected during the 1997 sampling program and have potentially been removed during the plant demolition and/or been subject to natural attenuation during the intervening years.

VX-related products consisting predominantly of MPA were detected in the surface and subsurface soil in the area of SWMUs NAAP-4, NAAP-6, and NAAP-7 during the 1997 and 2004 sampling programs. Detected MPA concentrations may have been partially mitigated during the demolition and removal of the SWMU structures and the basin filling. Discrete fluoroacetic acid concentrations exceeding only the residential screening level were detected in surface soil at the southeast corner of Building 144, and in the area of the NAAP 13 through NAAP-20 bulk storage tanks.

Inorganic constituents in the surface and subsurface soil exceeded background concentrations but were below the screening criteria for industrial soil with the exception of arsenic and one lead result

from SWMU NAAP-67. In general, arsenic concentrations were below site-specific and/or regional background levels (i.e., all less than 18 milligrams per kilogram (mg/kg)).

The results of the soil investigations are consistent with the Chemical Plant's usage as an industrial facility, do not indicate unacceptable risk for future industrial land use, and are not consistent with any consequential releases of VX-related chemicals. Therefore, NFA for soil other than a restriction on future residential and agricultural land use at the Chemical Plant is recommended.

***Groundwater Results***—Organic compounds detected in groundwater underlying the former Chemical Plant consisted of chlorinated solvents and hydrocarbons, phthalate, and amine compounds. Concentrations of tetrachloroethlene (PCE), TCE, 1,2-dichloroethylene (1,2-DCE), and vinyl chloride reported in 1998 indicate a degrading chlorinated solvent plume located west and southwest of former SWMUs NAAP-6 and NAAP-7 (detected in wells CP-01, CP-02, CP-10, CP-11, and CP-12). Vinyl chloride concentrations in well CP-01, although showing a declining trend, have persisted since 1998. Concentrations of TCE and vinyl chloride have exceeded the NECD residential and industrial screening criteria in wells CP-01, CP-02, and CP-12. Bis-2(ethylhexyl)phthalate (B2EHP) and chlorobenzene concentrations slightly exceeded industrial screening criteria, but they were detected infrequently and results do not suggest the presence of a plume of these contaminants. Consistent with the observed soil results, explosives compounds were not detected in the Chemical Plant groundwater with the exception of an isolated concentration of 1,3-DNB in well CP-14 located north of SWMU NAAP-6.

VX-related products were detected in groundwater extending from SWMUs NAAP-6 and NAAP-7 to well CP-11 and overlapping the area of chlorinated solvent detections in the northwest corner of the former plant area. Concentrations of Methylphosphonic Acid (MPA) (GW-SWMU6-02, GW-SWMU6-03, GW-SWMU6-04, and GW-SWMU6-05), and fluoroacetic acid (GW-SWMU6-02) have variably exceeded the screening criteria in groundwater. VX-related products were detected in groundwater associated with the former VX manufacturing facility at Building 144 and the munitions assembly facility at Building 143 during an April 2009 sampling event. Concentrations of MPA (CP-15, CP-17, CP-18, CP-20, CP-22, and CP-23) and Isopropyl Methylphosphonic Acid (IMPA) (CP-17) that exceeded the screening criteria during the April 2009 sampling were not detected during previous or subsequent sampling with the exception of one MPA detection below all criteria in CP-15. The April 2009 detected VX compounds are likely attributable to the analytical laboratory based on the non-reproducible detections and the nonpoint source pattern of concentration distribution.

Inorganic constituents in groundwater underlying the Chemical Plant were assessed from monitoring well sampling conducted in 1998 and limited Hydropunch® sampling conducted in 2001 (GW-CPRB-01). Metals concentrations in groundwater underlying the North Chemical Plant were below the screening levels for industrial groundwater. Isolated arsenic and lead concentrations associated with the Chemical Plant Agent Area (locations CP-07 and GW-CPRB-01) in the South Chemical Plant exceeded screening levels for industrial groundwater.

The combination of environmental investigations conducted at the NECD Chemical Plant between 1997 and 2010 indicates that overall the facility has exhibited sporadically detected contamination by low concentrations of VOCs, PAHs, VX-related products, and metals in soil; evidence of a

degraded chlorinated solvent plume in groundwater west of SWMU NAAP-6; limited detections of VX-related products in a groundwater beneath SWMUs NAAP-6 and NAAP-7; and unverified (not reproduced before or since April 2009 sampling) contamination by VX-related products in groundwater associated with Buildings 143/144. No further groundwater sampling is recommended; however, monitored natural attenuation/modeling assessment is recommended based on the consistent detection of VOCs above screening criteria and VX-related compounds in the groundwater underlying the Chemical Plant SWMU areas during multiple periods of groundwater monitoring.

The following sections summarize each area within the Chemical Plant.

#### 4.1.10.1. Chemical Plant Agent-Free Area

This site is located in the eastern portion of NECD, within the Chemical Plant. The area includes the non-agent production areas of the VX production facility. The site was in operation from 1961 to 1968 and consists of Basin 30031 (SWMU NAAP-6), Basin 30025 (SWMU-7), a Deep Well Surge Tank (SWMU NAAP-8), a Deep Injection Well (SWMU-NAAP-9) and Drainage Ditches Around the Chemical Plant Area (AOC M).

Only treated waste from the production of agent VX was permitted to be discharged. After the wastes were detoxified in two basins within the plant (SWMUs NAAP-6 and NAAP-7), the wastewaters were pumped through filters to the Deep Well Surge Tank (SWMU NAAP-8). The filtrate stored in the surge tank was pumped to a Class I deep injection well (SWMU NAAP-9). This well officially was deactivated on March 1971 and capped in December 1985.

Wastewater was pumped from the holding basin to Waste Surge Tank FA-412 prior to discharge into the primary settling basin 30031 (SWMU NAAP-6), where the suspended solids were allowed to settle. The primary settling basin measured 290 by 43 feet and was 7 feet deep. After the suspended solids were removed, the wastewater was filtered and injected into the subsurface through the deep well. Wastes from decontaminated spills also were placed in SWMU NAAP-6, and often contained sodium ethyl methylphosphonate and sodium diisopropyl-amino ethyl sulfone. The solids from SWMU NAAP-6 were moved to basin 30025 (SWMU NAAP-7) and allowed to dry. The basin measured 290 by 43 feet and was 2 feet deep. The dried solids were removed to the Night Soil Pits (NSPs) (SWMUs NAAP-1 and NAAP-2). Sampling of sediments in basins 30031 and 30025 in 1991 indicated the presence of elevated concentrations of 1,2-dichlorobenzene (1,2-DCB), 1,4-dichlorobenzene (1,4-DCB), and VX-related products (ethyl methylphosphonic acid [EMPA], methylphosphonic acid [MPA], ethyl 2-diisopropylaminoethyl ethyl methylphosphonate [QB], triethyl phosphate [TEPO], and diethyl methylphosphonate [TRO]). The deep injection well, SWMU NAAP-9 was officially deactivated in March 1971 and capped according to EPA standards in December 1985. The closure required displacement of all fluids currently in the well, filling the well with abandonment mud, and capping with concrete. SWMU NAAP-8, tank number FA 411B, was removed in August 1999.

In 2008, 2009, 2010, soil and groundwater samples were collected for VOCs, SVOCs, and VX-related products. Based on the results of this investigation, SWMUs 6, 7, 8, and 9 and AOC M are no further action.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions of no agricultural, residential or groundwater use. See Chemical Plant Technical Memorandum, Long Term Monitoring Exit Strategy and VCAA **for** additional information summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

#### 4.1.10.2 Chemical Plant Pre-Agent Manufacturing Facility—

This site is a 15-acre fenced area in the Chemical Plant area in the eastern portion of the installation. The site was in operation from 1961 to 1968. Waste Surge Tank FA-412 (SWMU NAAP-5) was a 97,000-gallon capacity hold tank. From the holding basin, the wastewater was pumped to Waste Surge Tank FA-412 prior to discharge into the primary settling basin, where the suspended solids were allowed to precipitate. Waste Surge Tank FA-412 also was utilized as a recirculation tank for isolation and deposition of specific solutes in an aqueous solution. Initial waste deposited into the Deep Well was collected from Waste Surge Tank FA-412, which received liquid waste from all process areas (Steps 0, I, II, and III). On December 19, 2000, the Waste Surge Tank and all associated equipment were removed and destroyed. As of 2005, all remaining equipment in this area was in poor condition and severe corrosion was evident. According to the 2005 NECD RCRA permit, a determination of NFA was granted to this site.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions of no agricultural, residential or groundwater use. See Chemical Plant Technical Memorandum, Long Term Monitoring Exit Strategy and VCAA for additional information summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

#### 4.1.10.3 Chemical Plant Agent Area

The Chemical Plant Agent Area was the site of the final phase in VX production (Step III). The site contains the Detoxification Holding Basin (SWMU NAAP-4) and Chemical Plant Retention Basins 30007 (SWMU NAAP-10), 30008 (SWMU NAAP-11), and 30009 (SWMU NAAP-12).

The basin 30007, 30008, and 30009 area was transferred under the earlier FOST.

The NECD Report of the Destruction of SWMU NAAP-4 was issued in November 2001.

In 2008, 2009, 2010, soil and groundwater samples were collected for VOCs, SVOCs, and VX-related products. Based on the results of this investigation, SWMU4 is no further action.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions of no agricultural, residential or groundwater use**.** See Chemical Plant Technical Memorandum, Long Term Monitoring Exit Strategy and VCAA for additional information summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

Chemical Plant Coal Ash Basin— The Chemical Plant Coal Ash Basin (CPAB) (SWMU NAAP-67) was transferred under the earlier FOST

### 4.1.10.4 . Chemical Plant Agent Manufacturing Facility

The Chemical Plant Agent Manufacturing Facility is located within the Chemical Plant area in the eastern portion of the installation. The site consists of the VX Storage Tank Farm (SWMUs 13 to 20), the former Agent VX Storage Site (Building 144) and Toxic Sump (SWMU 22), the Chemical Plant Scrubber Towers (SWMU 21) , and the tanks and containers in Building 143 (AOC D).

The VX Storage Tank Farm consists of SWMUs NAAP-13 through NAAP-20 (Bulk Storage Tanks FA-303A, 303B, 351, 352, 353, 354, 355, and 356, respectively). The tanks were used from initial production of VX agent from 1961 to 1969 when they were emptied. The VX Storage Tank Farm was located in the southwestern portion of the Chemical Plant Area, directly east of Building 144 and approximately 200 feet from a Chemical Plant dilution pond and 500 feet from Little Raccoon Creek. The tank farm consisted of eight aboveground cylindrical tanks with a combined capacity of 360,000 gallons. The tanks were situated within diked spill protection reservoirs. The bulk storage containers have been removed, decontaminated, demilitarized, and stored as scrap to be sold or otherwise disposed of.

The Chemical Plant Scrubber Towers are SWMU NAAP-21 and were destroyed in July 2004.

The tanks and containers in Building 143 are designated as AOC D. These were removed by the Tennessee Valley Authority (TVA) under the Chemical Weapons Treaty (CWT) requirements between 2006 and 2008 and are no further action.

The former VX Storage Area (Building 144) is SWMU NAAP-22. VX agent was stored inside Building 144 in carbon steel ton containers (TCs) from 1977 until 2002 when they were moved for security reasons. Building 144 and equipment in it were removed by TVA under CWT requirements between 2006 and 2008.

Currently, all buildings associated with the Chemical Plant Agent Manufacturing Facility have been demolished and the resulting debris has been removed and appropriately disposed. All basins utilized in catchment and retention of waste effluent produced as a result of VX production have been backfilled and are covered with soil.

In 2008, 2009, 2010, soil and groundwater samples were collected for VOCs, SVOCs, and VX-related products. Based on the results of this investigation, SWMUs 13 to 22 and AOC D are no further action.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions of no agricultural, residential or groundwater use**.** See Chemical Plant Technical Memorandum, Long Term Monitoring Exit Strategy and VCAA **for** additional information summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.11 Newport Chemical Agent Disposal Facility (NECDF)

The NECDF (20.67 acres) successfully neutralized 1,269 tons of VX that had been stored at NECD since 1968. The neutralization was completed August 8, 2008. The closure of the facility was carried out in four stages: 1) initial cleanup and removal of agent processing system, 2) final decontamination and dismantling of all other areas and equipment used in the neutralization of VX agent, 3) demolition of the facility, and 4) administrative closeout. At the end of the third phase the Army requested that IDEM terminate the RCRA permit for the facility.

The agent neutralization was conducted under the RCRA generator elementary neutralization rules and no RCRA permit was required for the activity. The Army and IDEM agreed that buildings included in the neutralization of agent, the Utility Building (UB) and Process Auxiliary Building (PAB), would be decontaminated to Army 3X status and the building components would be disposed in a permitted landfill. Two RCRA-permitted storage areas, the Toxic Maintenance Storage and PAB storage tank area were located in the UB and PAB. The Intermodal Container Storage Area, used to manage intermodal containers prior to shipment off-site was also clean closed, but the concrete was not removed.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions of no agricultural, residential or groundwater use. See VCAA **for** additional information summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.12 Building 726C

Pesticides and herbicides are no longer stored in Building 726C (0.01 acres) although they were stored in the building in the past for an unknown period of time. According to the 1977 Installation Pest Management Program Survey, rinse water from pesticide containers and portable pesticide dispersal equipment was washed down the drain or poured on the ground at the site where the rinsing occurred. The report provided no indication of the exact location of these activities. Pesticide formulation is known to have occurred outside the building. Building 726C is surrounded by gravel on all sides and, thus, no bare soil indicative of mixing activities was noted. This site was investigated to determine if pesticides and/or herbicides were released to the environment.

Five pesticides (4,4'-DDE, alpha-chlordane, chlordane, gamma-chlordane, and heptachlor) were detected in the composite surface soil sample at Building 726C. Chlordane was detected at a concentration (40,000 µg/kg) exceeding the human health screening value (9,600 µg/kg). Herbicides were not detected.

Pesticides and herbicides previously were stored in Building 726C. In addition, pesticide formulation is known to have occurred outside the building. SI sampling was conducted to determine whether pesticides or herbicides have been released to the environment. One composite sample composed of four surface soil samples was collected. Five pesticides were detected. Chlordane was detected at a concentration exceeding the human health screening value.

In 2011 approximately 45 cubic yards of soil were removed from the contaminated area. Confirmation soils were collected from the excavation sidewalls and floor and analyzed for pesticides and VOCs. Although pesticides and VOCs were detected in the confirmation samples, the detected concentrations were below the IDEM industrial closure levels.

The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions no agricultural or residential use. See VCAA **and supplemental SI Field Activities Report** for additional information. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

### 4.1.13 Building 716A

B716A has been used for vehicle maintenance since 1942. Although floor cracks appear to be sealed, floor drains and floor integrity may have been compromised in the past. This parcel has an area of 0.16 acres.

SI sampling was conducted to determine whether chemical constituents had been released to the environment as a result of previous maintenance activities. Five subsurface soil samples were collected and analyzed for VOCs, SVOCs and metals. VOC samples were below the reporting limits. The benzo(a)pyrene concentration slightly exceeded the IDEM residential closure level. In addition, a gasoline odor was noted during the sampling at that location. Concentrations of antimony, lead, arsenic and manganese exceeded the IDEM residential closure level.

The gasoline odor may have been associated with a 1000-gallon UST used to store gasoline that was removed in 1990. Additional soil removal in the vicinity of the UST was conducted in 1993 and a report of site investigation for risk-based corrective action was submitted in 1998 to US EPA. EPA approved the submittal and the site was no further action.

In 2011, based on the SI results, further action was recommended for soil south of B716A due to the lead exceedance of the IDEM industrial closure level. Approximately 27 cubic yards of soil were removed and disposed. Confirmation samples were collected from the floor and sidewall. Concentrations of benzo(a)pyrene, naphthalene, and 1,3,5 trimethylbenzene in the soil remaining at the side were above the IDEM residential closure levels.

The building 716A site was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions including no residential or agricultural use. See the Supplemental SI Field Activities Report and VCAA for additional information. A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

## 4.2 STORAGE, RELEASE, OR DISPOSAL OF HAZARDOUS SUBSTANCES

Hazardous substances were stored for one year or more and released or disposed of on the property in excess of reportable quantities specified in 40 CFR Part 373. All hazardous substance storage operations have been terminated on the property. Hazardous substances were released in excess of the 40 CFR 373 reportable quantities at the following sites:

- A tank truck that was being used to hold red water at the TNT Manufacturing Area (Study Section 5) overflowed, spilling red water onto the ground. The location of the spill was identified as being between the former N&P Building and the settling basin.

- A toluene spill also occurred in 1973 at the TNT-Manufacturing Area (Buildings 9511 and 9512).

The release or disposal of these hazardous substances was remediated at the time of the release or as part of the Installation Restoration Program (IRP). See Section 4.1 Environmental Remediation Sites for additional information. A summary of the buildings or areas in which hazardous substance activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 4). The CERCLA 120(h)(3) Notice, Description, and Covenant at Enclosure 7 will be included in the Deed.

## 4.3 PETROLEUM AND PETROLEUM PRODUCTS

### 4.3.1 Underground and Above-Ground Storage Tanks (UST/AST)

**Current UST/AST Sites** - There are no underground and/or no above-ground petroleum storage tanks (UST/AST) on the FOST 2 Areas of property.

**Former UST/AST Sites** - There were seven underground and four above-ground petroleum storage tanks (UST/AST) on the FOST 2 property that have been removed or closed in place.

Two USTs were located at Building 144. One of the tanks had leaked and the other had not. Both tanks were successfully removed and the contaminated soil at the leaking tank was remediated.

Three USTs adjacent to building 716A were removed in 1990 and replaced with a single dual-compartment 20,000 gallon UST. One UST removed in 1990 required additional soil removal and was remediated under risk-based corrective action requirements approved by EPA region 5 in 1998. The dual-compartment UST was removed in September 2011 and is no further action based on IDEM review.

One 500-gallon diesel underground storage tank was located at the chemical demilitarization entry control facility, P-3013 and removed in January 2011. IDEM has acknowledged no further action on this UST removal.

Two 10,000-gallon above ground diesel fuel storage tanks were located in the NECDF. No releases were reported from either AST. Both ASTs are empty and piping has been disconnected.

Two 500,000-gallon aboveground fuel oil ASTs were located on the south east side of the TNT Manufacturing Area. These ASTS were emptied and removed in the 1990s. Based on personnel interviews for the SI, the underground piping for the two 500,000-gallon fuel oil tanks associated with the TNT acid area was not drained when the tanks were removed in 1997. This site was investigated to determine if a release occurred from the underground piping at this location.

Subsequent to the SI sampling, documentation was received regarding a spill that occurred on March 12, 1992. One hundred and fifty gallons of fuel oil leaked due to a corroded spot on an underground pipe. The spill occurred in the area west of the tanks between the tanks and 14th

Street. One hundred gallons of oil product were pumped from the site and visibly contaminated soil was removed. AOC E was located immediately west of the storage tank dikes.

SI sampling was conducted at the location of the former fuel oil tanks, including in the area of the 1992 spill, to determine if contaminants have been released to the environment. A petroleum odor has been reported in the vicinity and the odor was detected during the SI sampling. Five subsurface soil samples were collected and analyzed for VOCs and SVOCs.

Eleven VOCs (including BTEX constituents) and phenanthrene were detected. The majority of VOCs were detected in one sample; only one VOC was detected in each of the other soil samples. Although a petroleum odor was noted and low-level VOCs and one PAH were detected, concentrations were all well below human health screening criteria. These indications of a very minor release in a limited area do not warrant further investigation; however, for housekeeping purposes, removal of the piping may be considered.

The property was not remediated to levels suitable for unrestricted use. This area occupies approximately 1.64 acres. The deed will include the following land use restrictions: no residential use**.** See the VCAA and Supplemental Field Activities report for additional information**.**

### 4.3.2 Non-UST/AST Storage, Release, or Disposal of Petroleum Products

There was non-UST/AST storage of petroleum products in excess of 55 gallons for one year or more on the property. The petroleum was used for the following types of activities: Oil filled electrical transformers, hydraulic oil in equipment, day tanks of diesel fuel at emergency generators, waste oil drums, vehicle maintenance operations, industrial operations, and small quantities of other petroleum products were stored and used at the facility.

Petroleum product release or disposal in excess of 55 gallons occurred at the following buildings or areas:

1. Minor oil spills were reported at the TNT-MA. Oil spills occurred from the pump at the Water Supply Building (Building 4123). Oil spills also were reported at TNT Lines 1 and 2 (Buildings 9531 and 9532). These were investigated as part of the TNT MA investigation.
2. A release of 50 to 100 gallons of fuel from a standby diesel generator occurred in 2003 at the Newport Chemical Demilitarization Facility (NECDF), P-3013. The release was contained within secondary containment within the underground storage tank vault. The UST was removed in 2011 and is NFA.
3. On January 16, 1980, an oil spill occurred at the #2 fuel oil storage tank on the southeast corner of the Chemical Plant boiler house. Approximately 450 gallons overflowed from one of the tanks onto the ground adjacent to the tanks. The oil pooled under the tanks and then flowed approximately 100 feet westward through the ditch at the fence line along the south side of the boiler house. A smaller quantity of oil flowed southward and into a sump approximately 20 feet from the spill site.
4. Oil/water separators (OWSs) were discovered during construction of the NECDF in Study

Section 8. Three unlined basins and a Former Locomotive House also were in this location. Petroleum-contaminated soil was removed before construction was completed in 2003. The area was sampled and IDEM recommended no further action.

A summary of the non-UST/AST petroleum activities is provided in Table 3 – Notification of Petroleum Products Storage, Release, or Disposal (Enclosure 4).

## 4.4 POLYCHLORINATED BIPHENYLS (PCB)

According to a 2004 PCB equipment survey, there is no evidence of current use of PCBs or PCB-contaminated equipment on the property. However, in October 1994, a 55-gallon drum containing transformer oil ruptured while personnel were attempting to move the drum onto a pallet in Building 729A. The concentration of PCBs in the oil was between 50 ppm and 500 ppm. Approximately five gallons of oil spilled onto the floor. The floor was concrete with an epoxy coating and was impervious. The spill was cleaned up and confirmation samples showed that the cleanup operations were sufficient to comply with 40 CFR Part 761.

PCB contamination was also detected at the former cooling tower in the TNT area (TNT-CTS). PCBs were the only COC in the sump water at the TNT-CTS. The site was remediated using the self-implementing cleanup requirements in 40 Code of Federal Regulations 761.61. The water was treated using a granular activated carbon (GAC) filter system. Approximately 428,600 gallons of water were treated. Wood debris was removed from the sump. Sludge remaining in the bottom of the sump was consolidated and sampled. Approximately 480 cubic yards of wood debris and 30 cubic yards of sludge were removed from the sump and disposed of at an appropriate landfill. The concrete walls and floor of the sump were cleaned to concentrations less than 50 ppm of PCBs. The soil beneath the sump was sampled and was not contaminated. The walls of the sump were broken up and buried in the sump excavation and the excavation was back filled to grade with clean soil.

No PCB notice is required as the remediation was conducted to no restriction required standards.

The PCBs were remediated at the time of the release or as part of the installation restoration program. See Cooling Tower PCB removal report for additional information

## 4.5 ASBESTOS

An asbestos survey was completed in 1992. A substantial amount of asbestos was removed and a subsequent survey was conducted in 2003. The 2003 survey found non-friable asbestos-containing material (ACM) in most of the buildings on the facility. For the most part the structures in the FOST 2 areas have been demolished.

Based on the results of the 2003 survey, there are no existing buildings with asbestos in them in the FOST 2 transfer area. There are demolished buildings in the RDX-MA that may contain asbestos. The ACM includes: sheeting, siding, coatings, insulation, mastic, Galbestos, roofing, floor tile, and shingles.

The deed will include an asbestos warning and covenant (Enclosure 7).

## 4.6 LEAD-BASED PAINT (LBP)

The majority of all facilities and buildings at NECD are presumed to contain lead-based paint (LBP) because they were constructed before 1978. In addition, some facilities constructed immediately after the ban also may contain LBP because inventories of such paints that were in the supply network were likely to have been used up at these facilities. No comprehensive sampling and analysis has been conducted for LBP.

The property was not used for residential purposes and the transferee does not intend to use the property for residential purposes in the future. The deed will include a lead-based paint warning and covenant (Enclosure 7).

## 4.7 RADIOLOGICAL MATERIALS

NECD does not hold any current Nuclear Regulatory Commission (NRC) licenses. However, NECD contractors held NRC licenses in the past and radioactive commodities licensed by the Army Materiel Command (AMC) were possessed on the installation. No evidence has been identified to date of the existence of unsealed radioactive materials on NECD.

An investigation of NRC license documents failed to reveal use of any cesium-137 or other radioactive materials by U.S. Army Corps of Engineers (USACE), although such use is plausible given that instruments containing sealed radiation sources are commonly used in soil moisture density testers, lead paint analyzers, and in laboratories in gas chromatographs. Based on telephone interviews with the NECD Radiation Safety Officer, sealed cesium-137 radiation sources were used within the VX Production Facility for three fill lines (M55 Rocket, M23 Land Mine, and M121A1/M256 Projectile) to verify compliance with applicable fill requirements for these munitions. It also was confirmed that cesium-137 sources were not used in the TNT or RDX facilities.

Documentation from 1968 notes that "The four Cesium 137 radioisotope sources were transferred to Mr. Robert Dean, Edgewood Arsenal. The Byproduct Licenses issued to Food Machinery Corporation (FMC), NAAP, have been cancelled." (Inter-Office memorandum, Subject: Munitions Control Section Activities for the Month of August, 1968 dated September 6, 1968). Other documentation from 1968 confirms this information (Inter-Office memorandum, Subject: Monthly Report for August, 1968 Production Department, dated September 9, 1968). These sources were possessed under the authority of Atomic Energy Commission (AEC) Byproduct Material License 13-07499-01 and were assessed on June 27, 1967, and confirmed to not exhibit leakage.

NRC Byproduct Material License 13-24726-02 was issued to Mason & Hanger Corporation pursuant to applications dated June 23, 1986 and January 8, 1992 to authorize possession of radioactive materials (americium-241 and nickel-63) contained within sealed sources in Army Chemical Agent Monitors and Improved Chemical Agent Monitors. The last inspection of activities conducted under this license was in 1992. This license was terminated on May 22, 2002 because duplicate licensing applied, as the items involved also were authorized by centralized Army

Byproduct Material License 19-30563-01 issued by NRC Region I to the U.S. Army Soldier and Biological Chemical Command (SBCCOM), Aberdeen Proving Ground, Maryland.

Leak testing of sealed sources is mandated by Federal (and Army) regulations at the time of source manufacture and at 3- or 6-month intervals throughout their operational lives. This testing is to confirm that the sources are of the appropriate initial quality and do not degrade over time such that they present a potential contamination hazard. Routine periodic license compliance inspections performed by NRC and its predecessor, AEC, include reviews of leak test results to ensure that required testing has been performed and that sealed sources are not leaking. In addition, the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) and its predecessor agency, the U.S. Army Environmental Hygiene Agency (USAEHA), have routinely performed radiological surveys of Army activities possessing radioactive material for at least 40 years. Reviews of leak testing records are also an integral part of these radiation safety program evaluations.

Any sources determined to be leaking would be removed from service, investigated to find the reason for the leak, assessed to determine whether the leaking source resulted in contamination, and decontaminated as appropriate. The incident would be documented and formal notice of the incident would be provided through command channels to regulatory agencies such as NRC/AEC and EPA. Licenses (and DA permits and authorizations for items not subject to licensing by NRC/AEC) are not terminated until appropriate surveys have confirmed that all contamination has been remediated to applicable standards.

Given the requirements for leak testing of sealed sources, the relative rarity of leakage as evidenced by the FMC leak test confirming that sources were not leaking in 1967, and the absence of historical documentation to indicate that any sources leaked, it is highly unlikely that the sealed sources utilized at NECD resulted in contamination of the facility.

Activities of DOE and its predecessor agencies (Manhattan Engineer District [MED], AEC, and Energy Research and Development Administration [ERDA]) have not generally been subject to regulation by NRC or the associated licensing requirements. In addition, operations involving radium-226 and accelerator produced radionuclides were not subject to the authority of NRC until 2005 and 11(e)(2) byproduct materials (i.e., uranium mill tailings) were not subject to control by NRC until 1978. As such, NRC historical information would not be expected to include these types of activities. The Army controlled operations that were not subject to regulation by NRC were regulated using Department of the Army Radiation Permits (DARPs) and Department of the Army Radiation Authorizations (DARAs) issued pursuant to Army Regulation (AR) 385-11 and AMC Regulation 385-25.

Available evidence involving the use of radioactive materials at NECD was evaluated as part of the ECP preparation. Based on the Historical Radiological Site Assessment, radioactive materials possessed at NECD are known to include sealed sources containing cesium 137, nickel-63 and americium-241. There is no record to indicate that any such sealed sources exhibited leakage exceeding the regulatory threshold that could reasonably contribute to the potential for radiological contamination of the facility. X-ray devices used at NECD would not result in residual radioactivity. All sources have been removed from the property prior to transfer.

The following buildings were used for radiological activities: sealed cesium-137 radiation sources were used within the VX Production Facility for three fill lines (M55 Rocket, M23 Land Mine, and M121A1/M256 Projectile) to verify compliance with applicable fill requirements for these munitions. It also was confirmed that cesium-137 sources were not used in the TNT or RDX facilities. There is no evidence of any release of radiological materials at these buildings. A radiological field survey was conducted by TVA at those sites having radiological activities and the survey concluded these areas are suitable for unrestricted use.

### 4.8 RADON

NECD conducted radon surveys in various buildings on the property in 1990, 1992, 2004, and 2005. Radon was not detected at above the EPA residential action level of 4 picocuries per liter (pCi/L) in these buildings. One of the surveys was completed as part of the Environmental Baseline Survey completed in 2004.

### 4.9 MUNITIONS AND EXPLOSIVES OF CONCERN (MEC)

Based on a review of existing records and available information, there is no evidence that Munitions and Explosives of Concern (MEC) are present on the portions of property included in this FOST 2. The areas to be transferred include the TNT Burning Ground (TNT-BG) which may contain MEC have been investigated and have LUCs in place. MEC has not been detected on any of the property to be transferred under this FOST during several rounds of inspection. The term "MEC" means military munitions that may pose unique explosives safety risks, including: (A) unexploded ordnance (UXO), as defined in 10 U.S.C. §101(e)(5); (B) discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (C) munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard.

### 4.10 OTHER PROPERTY CONDITIONS

There are no other hazardous conditions on the property that present an unacceptable risk to human health and the environment.

## 5 ADJACENT PROPERTY CONDITIONS

The FOST 2 sites may be adjacent to one or more of the sites at NECD that were transferred with LUCs under the first FOST. The presence of these hazards on adjacent property does not present an unacceptable risk to human health and the environment because these sites have LUCs in place, were cleaned up under the IRP, and the manufacturing and storage of explosives and chemical weapons in these areas has been discontinued.

## 6 ENVIRONMENTAL REMEDIATION AGREEMENTS

The following environmental orders/agreements are applicable to the property:

RCRA Hazardous Waste Permit, issued on January 5, 2006 (IDEM Hazardous Waste Management Permit; EPA identification number IN1210022272). The permit was allowed to expire and replaced with a Voluntary Corrective Action Agreement (VCAA) dated May 7, 2012, between IDEM and the Army. All remediation activities on the property are complete or in place and operating properly and successfully (See Section 4.1 Environmental Remediation Sites). The deed will include a provision reserving the Army's right to conduct further remediation activities (Enclosure 7).

## 7 REGULATORY/PUBLIC COORDINATION

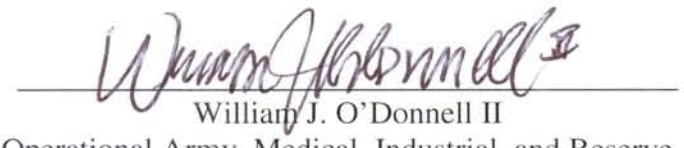
The U.S. EPA Region 5, the Indiana Department of Environmental Management (IDEM), and the public were notified of the initiation of this FOST. Regulatory/public comments received during the public comment period will be reviewed and incorporated, as appropriate. A copy of the regulatory/public comments and the Army Response will be included at Enclosures 10 & 11.

## 8 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

The environmental impacts associated with the proposed transfer of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis are documented in the Environmental Assessment, Newport Chemical Depot, TetraTech, 2011 and a Record of Environmental Consideration, 11 July 2012. The NEPA analysis identified the following encumbrances: asbestos-containing material, easements and rights-of-way, groundwater use prohibition, historic resources, land use restrictions, lead-based paint, remedial activities, and wetlands.

## 9 FINDING OF SUITABILITY TO TRANSFER

Based on the above information, I conclude that all removal or remedial actions necessary to protect human health and the environment have been taken and the property is transferable under CERCLA Section 120(h)(3). In addition, all Department of Defense requirements to reach a finding of suitability to transfer have been met, subject to the terms and conditions set forth in the attached Environmental Protection Provisions that shall be included in the deed for the property. The deed will also include the CERCLA 120(h)(3) Notice, Covenant, and Access Provisions and Other Deed Provisions . Finally, the hazardous substance notification (Table 2) shall be included in the deed as required under the CERCLA Section 120(h) and DOD FOST Guidance.



William J. O'Donnell II
Chief, Operational Army, Medical, Industrial, and Reserve Branch
Base Realignment and Closure Division

Enclosures

Encl 1 -- Site Map of Property
Encl 2 -- Environmental Documentation
Encl 3 -- Table 1 -- Description of Property
Encl 4 -- Table 2 -- Notification of Hazardous Substance Storage, Release, or Disposal
Encl 5 -- Table 3 -- Notification of Petroleum Product Storage, Release, or Disposal
Encl 6 – Table 4 -- Notification of Munitions and Explosives of Concern (if applicable)
Encl 7 – CERCLA Notice, Covenant, and Access Provisions and Other Deed Provisions
Encl 8 -- Environmental Protection Provisions
Encl 9 -- Statement of MEC Removal (if applicable)
Encl 10 -- Regulatory/Public Comments
Encl 11 -- Army Response

## ENCLOSURE 1

## Site Map of Property

9.1

## ENCLOSURE 2

## Environmental Documentation

Previous Relevant Environmental Investigations

| Investigation | Reference |
|---|---|
| Water Quality Study | USAEHA 1975 |
| Installation Assessment | USATHAMA 1979 |
| Environmental Assessment of NAAP Operations | AARCOM 1980 |
| Army Pollution Abatement Study | USAEHA 1981a |
| Management Plan for RCRA Ground Water Monitoring and Assessment Program | USAEHA 1981b |
| Delisting Petition | NAAP 1983 |
| Hazardous Waste Management Special Study | USAEHA 1983 |
| Investigation of Soil Contamination at the Open Burning Ground | USAEHA 1984 |
| Geohydrologic Study | USAEHA 1985 |
| Installation Assessment | EPIC 1985 |
| Evaluation of Solid Wastes Management Units at NAAP | USAEHA 1986 |
| Explosive Reactivity Testing Program | USAEHA 1987 |
| SI Report-Night Soils Pits, TNT Manufacturing Area, Chemical Plant Decontaminated Waste Burial Ground, Little Raccoon Creek | Dames & Moore 1991b |
| RI Report – Red Water Ash Basins, Gypsum Sludge Basins/Pollution Control Center Retention Pond, RDX Burning Ground, RDX Manufacturing Area, Closed Sanitary Landfill | Dames & Moore 1991a |
| RI Report TNT Burning Ground | Dames& Moore 1991c |
| Inventory of Natural Areas and Rare Plant Species | Hedge & Bacone 1994 |
| Endangered, Threatened, and Special Concern Fishes, Amphibians, Reptiles, and Mammals of NAAP | ISU 1994 |
| Phase III RFI Report – RDX Manufacturing Area Surficial Soils | Versar 1998 |
| RFI for SWMUs NAAP-27, NAAP-65 and Little Raccoon Creek | SAIC 2001b |
| Facility-wide RFI | SAIC 2003a |
| Long-term Monitoring at the TNT, BG, RDX-MA, DWBG | SAIC on-going |
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| Final Historical Records Review | TLI 2007 |

**ENCLOSURE 2 (cont.)**

**Environmental Documentation**

Additional Environmental Documentation


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12. e2M (engineering-environmental Management, Inc.). 2002. Final CTT Range/Site Inventory Report, Newport Chemical Depot, Indiana.
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15. FMC (Food Machinery Corporation). 1967. FMC Corporation memorandum by Mr. Robert D. Brannon, dated June 29, 1967, Subject: "Memorandum regarding radioactive sealed leak test performed on the mine filling machines on June 27, 1967."

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90. USAEHA. 1990. Pesticide Management Survey No 16-61-0540-90.

91. USATHAMA (U.S. Army Toxic and Hazardous Materials Agency). 1979. Installation Assessment of Newport Army Ammunition Plant, Records Evaluation Report No. 133.

92. USFWS (U.S. Fish and Wildlife Service). 2001. Wetlands Inventory Report, Newport Chemical Depot, Vermillion County, Indiana.

93. Versar. 1998. Phase III RFI Report, RDX Manufacturing Area, Surficial Soils, Newport Chemical Depot, Newport, Indiana. March 18.

## ENCLOSURE 3

## TABLE 1 – DESCRIPTION OF PROPERTY

| Property Description | ECP Study Section | Condition Category | Remedial Actions |
|---|---|---|---|
| Small Arms Range | 1 | 4 | The remediation of lead contaminated soil occurred spring and summer of 2011. Contaminated soil removed, remainder mixed with stabilizer. IDEM concurred NFA ERC of no residential use. |
| RDX-MA | 2 | 4 | Based on the results of a baseline human health risk assessment, RDX was identified as a chemical of concern in soil. Remedial activities have been completed a total of 6,699 cubic yards of soil were treated by composting and backfill at the RDX-MA. On-going LTM, sample two GW wells annually and collect two surface water samples. No residential or groundwater use. |
| Batteries North of Railroad Bed | 3 | 4 | The batteries were removed and the underlying soil was sampled. NFA. |
| Drums South of North Patrol Road | 3 | 4 | The drums were removed and the underlying soil was sampled. Soil was removed and NFA. |
| TNT-BG | 4 | 4 | CMI activities were conducted at the SWMU and all former structures (e.g., the burn cage) have been removed. Approximately 6,989 cubic yards of loose soil were remediated to meet the target cleanup levels. In addition, groundwater that collected in the soil excavations during the CMI was treated onsite using a carbon filtration unit before discharge to a tributary of Buck Creek.<br><br>The TNT-BG was divided into three groundwater exposure units: TNT-BG North, TNT-BG Central, and TNT-BG Southeast. Results from the Facility-wide RFI indicate site-related contamination in the TNT-BG North exposure unit, although at concentrations near reporting limits (RLs) for SVOCs and metals. Contamination within the TNT-BG Central exposure unit was detected immediately down gradient from the three burial trenches within the fence line of this SWMU. Data for the wells in the TNT-BG Southeast exposure unit indicate lower concentrations of contamination than up gradient wells nearer the trenches, essentially defining the down gradient extent of contamination in the shallow saturated zone. In the human health risk assessment, hypothetical exposure of residents to groundwater in the shallow unsaturated zone is responsible for risks exceeding regulatory targets. Groundwater cancer risks exceeded the target for TNT-BG Central and TNT-BG Southeast exposure units and non-cancer HIs exceeded the target at all three exposure units. LUCs to prevent residential land use and groundwater use at the SWMU and groundwater monitoring in conjunction with the CMI were recommended by the Army. Groundwater monitoring will continue until IDEM determines it is no longer required.<br>2012 LTM exit strategy recommended no additional |

| Property Description | ECP Study Section | Condition Category | Remedial Actions |
|---|---|---|---|
| | | | monitoring, IDEM concurred. ERC: no residential or groundwater use. No intrusive activity. |
| TNT-MA | 5 | 4 | The TNT-MA has been remediated per the facility RCRA permit. 1n January 2006, IDEM issued the RCRA permit renewal including this site as NFA. In 2010, under slab sampling for explosives was conducted in this area. Based on explosives concentrations exceeding residential, but below IDEM industrial risk levels, a no residential use will be placed on this area. |
| PCC | 5 | 4 | The PCC (SWMU NAAP-48) was an Industrial Wastewater Treatment Plant at the TNT-MA and was in operation from 1971 to 1974. This unit neutralized weak acid waste streams and produced calcium sulfate, or gypsum. NECD will submit an NFA memorandum to IDEM seeking concurrence that this site is NFA. In 2010 under slab sampling for explosives was conducted in this area. Based on explosives concentrations exceeding residential, but below IDEM industrial risk levels, a no residential use will be placed on this area. |
| TNT Laboratory Drain | 5 | 4 | The TNT Acid Production Area is within the TNT-MA. The SWMUs associated with the TNT Acid Production area are SWMUs NAAP-56 through NAAP-63, which are drains connected to a process sewer system that flows to SWMU NAAP-48, the PCC. These sites were in operation from 1971 to 1974 and include an Acid Tank Farm Drain, a Sulfur and Ammonia Unloading Area Drain, a Utilities and Shop Area Drain, TNT Laboratory Drains, TNT Acid Laboratory Drains, NAC and Denitration (DN) Drains, AOP Facility Drains, and SAR Drains. In January 2006, IDEM issued the RCRA permit renewal including this site as NFA. In 2010 under slab sampling for explosives was conducted in this area. Based on explosives concentrations exceeding residential, but below IDEM industrial risk levels, a no residential use will be placed on this area. |
| Underground Piping for Former Oil Tanks | 6 | 2 | SI sampling was conducted at the location of the former fuel oil tanks, including in the area of the 1992 spill, to determine if contaminants have been released to the environment. A petroleum odor has been reported in the vicinity and the odor was detected during the SI sampling. Five subsurface soil samples were collected and analyzed for VOCs and SVOCs. Eleven VOCs (including BTEX constituents) and phenanthrene were detected. The majority of VOCs were detected in one sample; only one VOC was detected in each of the other soil samples. Although a petroleum odor was noted and low-level VOCs and one PAH were detected, concentrations were all well below human health screening criteria. These indications of a very minor release in a limited area do not warrant further investigation. A no residential use restriction was placed on this area. |

| Property Description | ECP Study Section | Condition Category | Remedial Actions |
|---|---|---|---|
| Little Raccoon Creek Buried Debris | 7 | 4 | During the VSI conducted as part of the SI, buried debris (e.g., crushed drums, pipes, metal scrap, and hoses) was observed along the east bank of Little Raccoon Creek by the DWBG and the area north of the CDD and west of the Scrap Yard. In addition, a benzene odor and evidence of potential asbestos were reported west of the Scrap Yard during an archaeological reconnaissance. SI sampling was conducted to determine if a release occurred to the environment. Eleven VOCs (including BTEX), 12 SVOCs (primarily PAHs), 1,3,5-TNB, methylphosphonic acid, and 18 metals above background concentrations were detected well below the screening levels. Eight of the 11 VOCs were detected at concentrations below the analytical method RLs. Neither benzene nor any other VOC was detected where the benzene odor was reported. PAH concentrations were limited to the surface soil at the northernmost sampling locations. PCP (a non-PAH SVOC) was detected at a concentration above the screening value at one of the northern sampling locations. 1,3,5-TNB and methylphosphonic acid were detected at concentrations several orders of magnitude below screening criteria. Three metals above background concentrations (arsenic, chromium, and lead) were detected at concentrations exceeding human health screening levels. Metals concentrations above screening criteria are limited to the northernmost sampling locations. The preponderance of detected organic compounds, as well as the screening criteria exceedences, were found along the creek bank adjacent to the DWBG. Further evaluation of soil at the northern end of the Little Raccoon Creek Bank along the DWBG is recommended. NFA is recommended for the area west of the Scrap Yard. Further investigation of the area showed elevated SVOC, explosives, MPA concentrations. Arsenic, chromium and lead were detected at concentrations exceeding the background and IDEM industrial closure levels, but not the enclosure levels for direct contact; the exceedances of the industrial closure levels were not widespread. Due to concentrations above residential closure level, an ERC of no agricultural, residential or intrusive activities for the Little Raccoon Creek Bank along the DWBG including the creek and a minimum of 100 feet along either side of the creek was implemented. . |
| DWBG | 7 | 4 | Soil: A 1-foot-thick soil barrier was placed over the DWBG to prevent ecological receptors from being exposed to the contaminated soil. Surface water and Groundwater: Long term monitoring of the surface water and groundwater for VOCs is required. LUCs include no intrusive activities and no residential, agricultural or groundwater use. |
| Asbestos Burial Area East of the MCD | 7 | 4 | A suspected burial area was identified east of the MCD. SI sampling was conducted at the site to determine if contaminants have been released to the environment as a result of buried asbestos and construction debris. Five subsurface soil samples were collected and analyzed for VOCs, SVOCs, explosives, VX-related products, and metals. BTEX and four metals above background concentrations were detected in the |

| Property Description | ECP Study Section | Condition Category | Remedial Actions |
|---|---|---|---|
| | | | subsurface soil samples. BTEX concentrations were below the RLs of the analytical method. Three of the four metals above background are essential nutrients. Lead was above the background UTL in only one soil sample and did not exceed the human health screening value. No further investigation is recommended for the Asbestos Burial Area East of the Memorial Chapel Dump since SVOCs, explosives, and VX-related products were not detected; concentrations of VOCs and metals above background did not exceed human health screening criteria; and no evidence of contamination was noted during the SI sampling. Due to the possible presence of asbestos and other debris at this location, a land use control (LUC) restricting intrusive activity is recommended. This ERC was implemented as part of the VCAA. |
| Chemical Plant | 8 | 4 | ***Soil*** – The results of the soil investigations are consistent with the Chemical Plant's usage as an industrial facility, do not indicate unacceptable risk for future industrial land use, and are not consistent with any consequential releases of VX-related chemicals. Therefore, NFA for soil other than a restriction on future residential and agricultural land use at the Chemical Plant is recommended.<br><br>***Groundwater*** – The combination of environmental investigations conducted at the NECD Chemical Plant between 1997 and 2010 indicates that overall the facility has exhibited sporadically detected contamination by low concentrations of VOCs, PAHs, VX-related products, and metals in soil; evidence of a degraded chlorinated solvent plume in groundwater west of SWMU NAAP-6; limited detections of VX-related products in a groundwater beneath SWMUs NAAP-6 and NAAP-7; and unverified (not reproduced before or since April 2009 sampling) contamination by VX-related products in groundwater associated with Buildings 143/144. No further groundwater sampling is recommended; however, monitored natural attenuation/modeling assessment is recommended based on the consistent detection of VOCs above screening criteria and VX-related compounds in the groundwater underlying the Chemical Plant SWMU areas during multiple periods of groundwater monitoring.<br><br>An ERC of no residential, agricultural, or groundwater use has been implemented. |
| NECDF | 8 | 4 | The permitted units at this site have been clean closed. Due to minor spills at the site, an ERC of no residential, agricultural, or groundwater use has been implemented at this location. |
| Building 726C | 8 | 4 | Pesticides and herbicides previously were stored in Building 726C. In addition, pesticide formulation is known to have occurred outside the building. SI sampling was conducted to determine whether pesticides or herbicides have been released to the environment. One composite sample composed of four surface soil samples was collected. Five pesticides were detected. Chlordane was detected at a concentration exceeding |

| Property Description | ECP Study Section | Condition Category | Remedial Actions |
|---|---|---|---|
| | | | the human health screening value. In 2011 approximately 45 cubic yards of soil were removed from the contaminated area. Confirmation soils were collected from the excavation sidewalls and floor and analyzed for pesticides and VOCs. Although pesticides and VOCs were detected in the confirmation samples, the detected concentrations were below the IDEM industrial closure levels. An ERC of no residential or agricultural use has been implemented. |
| 716A | 8 | 4 | In 2011 Approximately 27 cubic yards of soil was removed and disposed. Confirmation samples were collected from the floor and sidewall. Concentrations of benzo(a)pyrene, naphthalene, and 1,3,5 trimethylbenzene in the soil remaining at the side were above the IDEM residential closure levels. A no residential or agricultural use ERC will be implemented. |

Category 2: Areas where only release or disposal of petroleum products has occurred.
Category 3: Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.
Category 4: Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken.

## ENCLOSURE 4

## TABLE 2 – NOTIFICATION OF HAZARDOUS SUBSTANCE STORAGE, RELEASE OR DISPOSAL

| Building Number | Name of Hazardous Substance(s) | Date of Storage, Release, or Disposal | Remedial Actions |
|---|---|---|---|
| TNT-MA (Study Section 5) | Red Water (TNT process waste water) | Date not reported. A tank truck that was being used to hold red water at the end of Line 1 overflowed, spilling red water on the ground. The tank truck was stationed between the former nitrification & purification (N&P) Building and the settling basin. | Site was sampled in 2009 and is NFA |
| TNT-MA (Study Section 5) | Toluene | A toluene spill occurred in 1973 at the TNT-MA (Buildings 9511 and 9512). | Site was sampled in 2009 and is NFA. |

* The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA or 'Superfund') 42 U.S.C. §9620(h). This table provides information on the storage of hazardous substances for one year or more in quantities greater than or equal to 1,000 kilograms or the hazardous substances CERCLA reportable quantity (whichever is greater). In addition, it provides information on the known release of hazardous substances in quantities greater than or equal to the substances CERCLA reportable quantity. See 40 CFR Part 373.

## ENCLOSURE 5

## TABLE 3 – NOTIFICATION OF PETROLEUM PRODUCT STORAGE, RELEASE, OR DISPOSAL

| Building Number | Name of Petroleum Product(s) | Date of Storage, Release, or Disposal | Remedial Actions |
|---|---|---|---|
| **Underground Storage Tanks** | | | |
| 144 | Diesel | 1990 | Soil removal |
| 716-A | gasoline | 1990 | Soil removal |
| 144 | diesel | 2002 | Soil removal |
| **Aboveground Storage Tanks** | | | |
| TNT-MA ASTs | Fuel oil | 1990 | Soil removal |
| **Non-UST/AST Storage** | | | |
| TNT-MA | Oil | 1970s | None required |
| NECDF ECF | Diesel | 2003 | Contained in secondary containment |
| Chem plant boiler house | #2 fuel | 1980 | unknown |
| Oil water separators at NECDF area | Oily water | unknown | Soil removal sampling NFA |

## ENCLOSURE 6

## TABLE 4 – NOTIFICATION OF MUNITIONS AND EXPLOSIVES OF CONCERN (MEC)*

| Site | Type of MEC | Date of MEC Activity | Munitions Response Actions |
|---|---|---|---|
| TNT-Burning Ground (TNT-BG) (SWMU NAAP-50) | Rejected TNT, TNT residues, TNT contaminated debris, dinitrotoluene, mononitrotoluene fuel oil, gasoline | Beginning in 1973 and ending in 1986. | A CMS completed in 1995 at the TNT-BG proposed onsite composting as the recommended corrective measure alternative. Approximately 6,989 cubic yards of loose soil was remediated to the target cleanup levels. In addition, groundwater that collected in the soil excavation was treated and discharged. SWMU NAAP-50 is included in the NECD LUCIP. LUCs have been implemented; the LUCs at the TNT-BG include no residential or groundwater use. |
| *Munitions and Explosives of Concern (MEC). This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: (A) Unexploded Ordnance (UXO), as defined in 10 §101(e)(5); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (C) Munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard. | | | |

## ENCLOSURE 7

## CERCLA NOTICE, COVENANT, AND ACCESS PROVISIONS AND OTHER DEED PROVISIONS

The following CERCLA Notice, Covenant, and Access Provisions, along with the Other Deed Provisions, will be placed in the deed in a substantially similar form to ensure protection of human health and the environment and to preclude any interference with ongoing or completed remediation activities.

1. CERCLA NOTICE

For the Property, the Grantor provides the following notice, description, and covenant:

A. Pursuant to section 120(h)(3)(A)(i)(I) and (II) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(i)(I) and (II)), available information regarding the type, quantity, and location of hazardous substances and the time at which such substances were stored, released, or disposed of, as defined in section 120(h), is provided in Exhibit _____, attached hereto and made a part hereof. Additional information regarding the storage, release, and disposal of hazardous substances on the property has been provided to the Grantee, receipt of which the Grantee hereby acknowledges.

B. Pursuant to section 120(h)(3)(A)(i)(III) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(i)(III)), a description of the remedial action taken, if any, on the property is provided in Exhibit ____, attached hereto and made a part hereof. Additional information regarding the remedial action taken, if any, has been provided to the Grantee, receipt of which the Grantee hereby acknowledges.

**2. CERCLA COVENANT**

Pursuant to section 120(h)(3)(A)(ii) and (B) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(ii) and (B)), the United States warrants that -

A. All remedial action necessary to protect human health and the environment with respect to any hazardous substance identified pursuant to section 120(h)(3)(A)(i)(I) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 remaining on the property has been taken before the date of this deed, and

B. Any additional remedial action found to be necessary after the date of this deed shall be conducted by the United States.

**3. RIGHT OF ACCESS**

A. Pursuant to section 120(h)(3)(A)(iii) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(iii)), the United States retains and reserves a perpetual and assignable easement and right of access on, over, and through the property, to enter upon the property in any case in which an environmental response action or corrective action is found to be necessary on the part of the United States, without regard to whether such environmental response action or corrective action is on the Property or on adjoining or nearby lands. Such easement and right of access includes, without limitation, the right to perform any environmental investigation, survey, monitoring, sampling, testing, drilling, boring, coring, test-pitting, installing monitoring or pumping wells or other treatment facilities, response action, corrective action, or any other action necessary for the United States to meet its responsibilities under applicable laws and as provided for in this instrument. Such easement and right of access shall be binding on the Grantee, its successors and assigns, and shall run with the land.

B. In exercising such easement and right of access, the United States shall provide the Grantee or its successors or assigns, as the case may be, with reasonable notice of its intent to enter upon the Property and exercise its rights under this covenant, which notice may be severely curtailed or even eliminated in emergency situations. The United States shall use reasonable means, but without significant additional costs to the United States, to avoid and to minimize interference with the Grantee's and the Grantee's successors' and assigns' quiet enjoyment of the property. At the completion of the work, the work site shall be reasonably restored. Such easement and right of access includes the right to obtain and use utility services, including water, gas, electricity, sewer, and communications services available on the Property at a reasonable charge to the United States. Excluding the reasonable charges for such utility services, no fee, charge, or compensation will be due the Grantee nor its successors and assigns, for the exercise of the easement and right of access hereby retained and reserved by the United States.

C. In exercising such easement and right of access, neither the grantee nor its successors and assigns, as the case may be, shall have any claim at law or equity against the United States or any officer or employee of the United States based on actions taken by the United States or its officers, employees, agents, contractors of any tier, or servants pursuant to and in accordance with this clause: Provided, however, that nothing in this paragraph shall be considered as a waiver by the grantee and its successors and assigns of any remedy available to them under the Federal Tort Claims Act.

**4. "AS IS"**

A. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property and accepts the condition and state of repair of the subject Property. The Grantee understands and agrees that the Property and any part thereof is offered "AS IS" without any representation, warranty, or guaranty by the Grantor as to quantity, quality, title, character, condition, size, or kind, or that the same is in condition or fit to be used for the purpose(s) intended by the Grantee, and no claim for allowance or deduction upon such grounds will be considered.

B. No warranties, either express or implied, are given with regard to the condition of the Property, including, without limitation, whether buildings or structures on the Property do or do not contain asbestos or lead-based paint. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos or lead-based paint in buildings or structures, or other conditions on the

Property. The failure of the Grantee to inspect or to exercise due diligence to be fully informed as to the condition of all or any portion of the Property offered, will not constitute grounds for any claim or demand against the United States.

C. Nothing in this "As Is" provision will be construed to modify or negate the Grantor's obligation under the CERCLA Covenant or any other statutory obligations.

## 5. HOLD HARMLESS

A. To the extent authorized by law, the Grantee, its successors and assigns, covenant and agree to indemnify and hold harmless the Grantor, its officers, agents, and employees from (1) any and all claims, damages, judgments, losses, and costs, including fines and penalties, arising out of the violation of the NOTICES, USE RESTRICTIONS, AND RESTRICTIVE COVENANTS in this Deed by the Grantee, its successors and assigns, and (2) any and all any and all claims, damages, and judgments arising out of, or in any manner predicated upon, exposure to asbestos or lead-based paint in buildings or structures on the Property, or other related condition on any portion of the Property after the date of conveyance**.**

B. The Grantee, its successors and assigns, covenant and agree that the Grantor shall not be responsible for any costs associated with modification or termination of the NOTICES, USE RESTRICTIONS, AND RESTRICTIVE COVENANTS in this Deed, including without limitation, any costs associated with additional investigation or remediation of asbestos or lead-based paint in buildings or structures, or other condition on any portion of the Property.

C. Nothing in this Hold Harmless provision will be construed to modify or negate the Grantor's obligation under the CERCLA Covenant or any other statutory obligations.

## 6. POST-TRANSFER DISCOVERY OF CONTAMINATION

A. If an actual or threatened release of a hazardous substance or petroleum product is discovered on the Property after the date of conveyance, Grantee, its successors or assigns, shall be responsible for such release or newly discovered substance or product unless Grantee, its successors or assigns are able to demonstrate that such release or such newly discovered substance or product was due to Grantor's activities, use, or ownership of the Property. If the Grantee, it successors or assigns believe the discovered hazardous substance or petroleum product is due to Grantor's activities, use or ownership of the Property, Grantee, its successors or assigns will immediately secure the site and notify the Grantor of the existence of the hazardous substances, and Grantee, its successors or assigns will not further disturb such hazardous substances or petroleum product without the written permission of the Grantor.

B. Grantee, its successors and assigns, as consideration for the conveyance of the Property, agree to release Grantor from any liability or responsibility for any claims arising solely out of the release of any hazardous substance or petroleum product on the Property occurring after the date of the delivery and acceptance of this Deed, where such substance or product was placed on the Property by the Grantee, or its successors, assigns, employees, invitees, agents or contractors, after

the conveyance. This paragraph shall not affect the Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules and regulations, or the Grantor's indemnification obligations under applicable laws.

## 7. ENVIRONMENTAL PROTECTION PROVISIONS

The Environmental Protection Provisions are at Exhibit _____, which is attached hereto and made a part hereof. The grantee shall neither transfer the property, lease the property, nor grant any interest, privilege, or license whatsoever in connection with the property without the inclusion of the Environmental Protection Provisions contained herein, and shall require the inclusion of the environmental protection provisions in all further deeds, easements, transfers, leases, or grant of any interest, privilege, or license.

## ENCLOSURE 8

### ENVIRONMENTAL PROTECTION PROVISIONS

The following conditions, restrictions, and notifications will be attached, in a substantially similar form, as an exhibit to the deed and be incorporated therein by reference in order to ensure protection of human health and the environment.

### 1. LAND USE RESTRICTIONS

**A.** The United States Department of the Army has undertaken careful environmental study of the Property and concluded that the land use restrictions set forth below are required to ensure protection of human health and the environment. The Grantee, its successors or assigns, shall not undertake nor allow any activity on or use of the property that would violate the land use restrictions contained herein.

**(1) Residential Use Restriction.** The Grantee, its successors and assigns, shall use the following areas of the Property solely for commercial or industrial activities and not for residential purposes: TNT Burning Ground, RDX Manufacturing area, TNT manufacturing area, asbestos burial area east of the Memorial Chapel Dump, former production facility/Newport Chemical demil facility, B-716A vehicle maintenance shop, B-726C pesticide storage shed, Decontaminated Waste Burial Grounds, Small Arms Range, Little Raccoon Creek Bank, Underground Piping at Fuel Oil Tank Area. These areas are more particularly described in Exhibit _____ (include a map or parcel description precisely identifying these areas). For purposes of this provision, residential use includes, but is not limited to, single family or multi-family residences; child care facilities; and nursing home or assisted living facilities; and any type of educational purpose for children/young adults in grades kindergarten through 12.

**(2) Groundwater Restriction.** Grantee is hereby informed and acknowledges that the groundwater under Property has contamination related to industrial activities on the Property. Groundwater monitoring wells were installed and samples collected in areas of the facility identified in the RCRA permit as having possible groundwater issues. Contaminants detected in these areas include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), site related metals, explosives, and polynuclear aromatic hydrocarbons (PAHs). Contaminants detected in the groundwater in a particular area were dependent on manufacturing activities or material disposal in that area, all contaminant types were not detected in all areas. In some of the areas where samples were collected, the concentrations detected were at relatively low levels and were determined not to pose an unacceptable risk to human health and the environment, groundwater use restrictions were not imposed in these areas. The groundwater contamination detected that does potentially pose an unacceptable risk is limited to industrial areas and areas used for waste disposal on the Property. The Grantee, its successors and assigns, shall not access or use ground water underlying the following areas of the Property: TNT Burning Ground, RDX Manufacturing Area, Decontaminated Waste Burial Ground, and former production facility/Newport Chemical Demil Facility for any purpose without the prior written approval of United States Department of the Army, the Indiana Department of Environmental Management

(IDEM) and the Environmental Protection Agency (EPA), Region 5. These areas are more particularly described in Exhibit _____ (include a map or parcel description precisely identifying these areas). For the purpose of this restriction, "ground water" shall have the same meaning as in section 101(12) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

**(3) Landfill Restriction.** The Property has several non-hazardous waste landfills ("Non-Hazardous Waste Landfill Parcels"). The Grantee, its successors and assigns, shall not conduct or permit others to conduct any excavation activities (i.e. digging, drilling, or any other excavation or disturbance of the land surface or subsurface) or other activities, which may damage the Non-Hazardous Waste Landfill Parcels soil cover and liners. A site map depicting the location of the Non-Hazardous Waste Landfill Parcels is provided as Exhibit _____ (Site Map of Property).

**(4) Agricultural Restriction.** The Grantee, its successors and assigns, shall use the following areas of the Property for commercial or industrial activities and not for agricultural purposes: Decontaminated Waste Burial Ground, former production facility/NECDF, B-716A, B-726C, underground piping at fuel oil tank area, Little Raccoon Creek bank. These areas are more particularly described in Exhibit _____ (include a map or parcel description precisely identifying these areas). For the purposes of this provision, agricultural use includes, but is not limited to raising crops, keeping orchards, keeping vineyards or grazing animals.

**(5) Endangered Species Restriction.** The Indiana Bat (*Myotis sodalist*), a federally endangered species, has been found at NECD. The Grantee, its successors and assigns, and every successor in interest to the Property, or any part thereof, shall comply with the covenants for the protection of the Indiana Bat and its habitat located within the Property as set forth in Exhibit ____.

**B. Modifying Restrictions.** Nothing contained herein shall preclude the Grantee, its successors or assigns, from undertaking, in accordance with applicable laws and regulations and without any cost to the Grantor, such additional action necessary to allow for other less restrictive use of the Property. Prior to such use of the Property, Grantee shall consult with and obtain the approval of the Grantor, and, as appropriate, the State or Federal regulators, or the local authorities. Upon the Grantee's obtaining the approval of the Grantor and, as appropriate, state or federal regulators, or local authorities, the Grantor agrees to record an amendment hereto. This recordation shall be the responsibility of the Grantee and at no additional cost to the Grantor.

**C. Submissions.** The Grantee, its successors and assigns, shall submit any requests to modifications to the above restrictions to Grantor and Indiana Department of Environmental Management (IDEM) and the Environmental Protection Agency (EPA), Region 5 by first class mail, postage prepaid, addressed as follows:

a. Grantor – Ms. Carolyn Jones
Office of the Assistant Chief of Staff
for Installation Management
ATTN: BRAC Division (DAIM-ODB)
600 Army Pentagon
Washington, DC 20310-0600

b. Environmental Protection Agency
Mr. Todd Gmitro, USEPA (Region 5)
Indiana Department of Environmental Management
Mr. Doug Griffin

**2. NOTICE OF THE POTENTIAL PRESENCE OF MUNITIONS AND EXPLOSIVES OF CONCERN (MEC).**

**A.** Grantee is hereby notified that due to the former use of the Property as a military installation, the Property may contain munitions and explosives of concern ("MEC"), chemical warfare material ("CWM") and/or biological warfare material ("BWM"). The term MEC means specific categories of military munitions that may pose unique explosives safety risks and includes: (1) Unexploded ordnance ("UXO"), as defined in 10 U.S.C. §101(e)(5); (2) Discarded military munitions ("DMM"), as defined in 10 U.S.C. §2710(e)(2); or (3) Munitions constituents (e.g., TNT, HMX, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard. The term CWM means items generally configured as a munition containing a chemical compound that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. CWM includes V- and G-series nerve agents or H-series (mustard) and L-series (lewisite) blister agents in other-than-munition configurations; and certain industrial chemicals (e.g., hydrogen cyanide (AC), cyanogen chloride (CK), or carbonyl dichloride (called phosgene or CG)) configured as a military munition. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include: riot control devices; chemical defoliants and herbicides; industrial chemicals (e.g., AC, CK, or CG) not configured as a munition; smoke and other obscuration producing items; flame and incendiary producing items; or soil, water, debris or other media contaminated with low concentrations of chemical agents where no CA hazards exist. The term BWM means systems and system components designed to deliver any organism (bacteria, virus or other disease-causing organism) or toxin found in nature, as a weapon of war against personnel, animals, or plants

**B.** The Grantor represents that, to the best of its knowledge, no MEC, CWM or BWM is currently present on the Property. Notwithstanding the Grantor's determination, the parties acknowledge that there is a possibility that MEC, CWM or BWM may exist on the Property. In the event the Grantee, its successors and assigns, should discover any MEC, CWM or BWM on the Property, they should immediately stop any intrusive or ground–disturbing work in the area or in any adjacent areas and shall not attempt to disturb, remove or destroy it, but shall immediately contact the nearest County Sheriff or local law enforcement agency who will, if needed, contact the nearest Department of Defense Explosive Ordnance Disposal ("EOD") unit. Appropriate Grantor or Grantor designated explosive ordnance personnel will be dispatched promptly to dispose of such MEC, CWM or BWM at no expense to the Grantee, its successors or assigns. The Grantee, its successors or assigns, shall: (a) cooperate with the Grantor with regard to the location of and removal of MEC, CWM or BWM from the Property, provided such cooperation does not require the Grantee, or its successors or assigns, to incur any non-reimbursed direct costs, (b) notify the Grantor as soon as reasonably possible after the discovery of any MEC, CWM or BWM by the Grantee, or its successors and assigns, and (c) take no actions regarding MEC, CWM or BWM discovered on the Property, except as may be specifically directed by the Grantor.

**C.** Easement and Access Rights.

**(1)** The Grantor reserves a perpetual and assignable right of access on, over, and through the Property, to access and enter upon the Property in any case in which a munitions response action is found to be necessary or such access and entrance is necessary to carry out a munitions response action on adjoining property. Such easement and right of access includes, without limitation, the right to perform any additional investigation, sampling, testing, test-pitting, surface and subsurface clearance operations, or any other munitions response action necessary for the United States to meet its responsibilities under applicable laws and as provided for in this Deed. The right of access shall be binding on the Grantee, its successors and assigns, and shall run with the land.

**(2)** In exercising this easement and right of access, the Grantor shall give the Grantee or the then record owner, reasonable notice of the intent to enter on the Property, except in emergency situations. Grantor shall use reasonable means, without significant additional cost to the Grantor, to avoid and/or minimize interference with the Grantee's and the Grantee's successors' and assigns' quiet enjoyment of the Property. Such easement and right of access includes the right to obtain and use utility services, including water, gas, electricity, sewer, and communications services available on the property at a reasonable charge to the United States. Excluding the reasonable charges for such utility services, no fee, charge, or compensation will be due the grantee nor its successors and assigns, for the exercise of the easement and right of access hereby retained and reserved by the United States.

**(3)** In exercising this easement and right of access, neither the Grantee nor its successors and assigns, as the case maybe, shall have any claim at law or equity against the United States or any officer, employee, agent, contractor of any tier, or servant of the United States based on actions taken by the United States or its officers, employees, agents, contractors of any tier, or servants pursuant to and in accordance with this Paragraph, provided that nothing in this paragraph shall be considered as a waiver by the Grantee and its successors and assigns of any remedy available to them under the Federal Tort Claims Act. In addition, the Grantee, its successors and assigns, shall not interfere with any munitions response action conducted by the Grantor on the Property.

## 3. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT

**A.** The Grantee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos containing material "ACM" had been found in buildings on the property. The property may also contain improvements such as buildings, facilities, equipment and pipelines, above and below ground, that contain friable and non-friable asbestos or ACM. The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency have determined that unprotected or unregulated exposure to airborne asbestos fibers increases the risk of asbestos-related diseases, including certain cancers that can result in disability or death.

**B.** The following buildings on the property have been determined to contain friable asbestos: demolished buildings from the RDX Manufacturing Area. The ACM includes: sheeting, siding, coatings, insulation, mastic, Galbestos, roofing, floor tile, and shingles. The Grantor covenants and warrants, as of the date of the conveyance of the Property, the above-referenced buildings will be in a condition such that asbestos or ACM will not be released into the environment (air or soil). The Grantee agrees following the conveyance of the Property to the Grantee to undertake any and all asbestos abatement or remediation in the aforementioned buildings that may

be required under applicable law or regulation at no expense to the Grantor. The Grantor has agreed to transfer said buildings to the Grantee, prior to remediation or abatement of asbestos hazards, in reliance upon the Grantee's express representation and covenant to perform the required asbestos abatement or remediation of these buildings.

**C.** The Grantee covenants and agrees that its use and occupancy of buildings and structures on the Property will be in compliance with all applicable laws relating to asbestos. The Grantee agrees to be responsible for any future remediation or abatement of asbestos found to be necessary on the buildings and structures on the Property to include ACM in or on buried pipelines that may be required under applicable law or regulation.

**D.** The Grantee acknowledges that it has inspected or has had the opportunity to inspect buildings and structures on the Property as to their asbestos and ACM condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any buildings and structures on the Property, including, without limitation, any asbestos or ACM hazards or concerns.

## 4. NOTICE OF THE PRESENCE OF LEAD-BASED PAINT (LBP) AND COVENANT AGAINST THE USE OF THE PROPERTY FOR RESIDENTIAL PURPOSE

**A.** The Grantee is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Every purchaser of any interest in Residential Real Property on which a residential dwelling was built prior to 1978 is notified that there is a risk of exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning.

**B.** The Grantee covenants and agrees that it shall not permit the occupancy or use of any buildings or structures on the Property as Residential Property, as defined under 24 Code of Federal Regulations Part 35, without complying with this section and all applicable federal, state and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. Prior to permitting the occupancy of the Property where its use subsequent to sale is intended for residential habitation, the Grantee specifically agrees to perform, at its sole expense, the Army's abatement requirements under Title X of the Housing and Community Development Act of 1992 (Residential Lead-Based Paint Hazard Reduction Act of 1992).

**C.** The Grantee acknowledges that it has inspected, or has had the opportunity to inspect buildings and structures on the Property as to its lead-based paint content and condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all buildings and structures on the property, including, without limitation, any lead-based paint hazards or concerns.

## 5. RADIOLOGICAL MATERIALS NOTIFICATION AND COVENANT

**A.** The Grantee is hereby informed and does acknowledge that radioactive materials and equipment containing radioactive materials are or were present on the Property to be conveyed, described as follows:

- NECD had US Atomic Energy Commission (AEC) License No. 13-07499-01 for sealed sources used in munitions quality control and US Nuclear Regulatory Commission (USNRC) License No. 13-24726-02 for sealed sources in Army Chemical Agent Monitors and Improved Chemical Agent Monitors. Both licenses have been terminated. All monitors that were stored in Building 729 have been removed and transferred to commodity managers. Building 729B was cleared in July 2011. NECD had an Army Radiation Authorization No. A13-0146-NECD for a Mobile Vehicle and Cargo Inspection System containing a Co 60 radiation source. The unit was transferred to Fort Lewis and the Permit was terminated 24 February 2005.

- Radiological sealed sources in instruments owned and used by Newport Chemical Demilitarization Facility (NECDF) contractors included soil density meters and gauges and industrial radiography devices. All instruments have been removed and the NECDF has been demolished.

- Non-Licensed sources include tritium exit signs, lightning arresters, check sources, and vapor tracers. All sources have been removed from NECD and sent to the Chem-Nuclear Consolidation Facility, Barnwell, South Carolina,

- The Manhattan Engineer District constructed and the AEC operating heavy water plants (P-9 and Dana Heavy Water Plants) on the NECD to support the Manhattan Project. Two buildings from the plants still remain on NECD.

There is no evidence of a release of radiological materials from any of the sources.

**B.** The Grantor reserves a perpetual and assignable right of access on, over, and through the Property, to access and enter upon the Property in any case in which a response action is found to be necessary or such access and entrance is necessary to carry out a response action on adjoining property associated with radiological materials. Such easement and right of access includes, without limitation, the right to perform any additional investigation, sampling, testing, test-pitting, surface and subsurface clearance operations, or any other response action necessary for the United States to meet its responsibilities under applicable laws associated with radiological materials. The right of access shall be binding on the Grantee, its successors and assigns, and shall run with the land.

## 6. PESTICIDE NOTIFICATION AND COVENANT

The Grantee is hereby notified and acknowledges that registered pesticides have been applied to the property conveyed herein and may continue to be present thereon. The Grantee further acknowledges that where a pesticide was applied by the Grantor or at the Grantor's direction, the pesticide was applied in accordance with its intended purpose and consistently with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)(7 U.S.C. § 136, et seq.) and other applicable laws and regulations.

The Grantee covenants and agrees that if the Grantee takes any action with regard to the property, including demolition of structures or any disturbance or removal of soil that may expose, or cause a release of, a threatened release of, or an exposure to, any such pesticide, Grantee assumes all responsibility and liability therefore.

Nothing in the foregoing shall be construed to negate or modify the Grantor's obligations under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. Sec. 9620(h)) or any other statutory obligations.

## ENCLOSURE 9

Statement of MEC Removal (if applicable)

Not Applicable.

**ENCLOSURE 10**

Regulatory/Public Comments

No Comments Received.

## ENCLOSURE 11

No Army Response to Comments.