**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**
**RCRA Corrective Action**
**Environmental Indicator (EI) RCRIS code (CA725)**
**Current Human Exposures Under Control**

| | |
|---|---|
| **Facility Name:** | Former Nu-Kote International Imaging Facility |
| **Facility Address:** | 1 Imaging Lane, Derry, Pennsylvania 15627 |
| **Facility EPA ID #:** | PAD 042507178 |

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes – check here and continue with #2 below.

_____ If no – re-evaluate existing data, or

_____ If data are not available skip to #6 and enter "IN" (more information needed) status code

## BACKGROUND

### Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

### Definition of "Current Human Exposures Under Controls" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

### Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program, the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993 (GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

### Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**Current Human Exposures Under Control**
**Environmental Indicator (EI) RCRIS code (CA725)**

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated"[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

| | Yes | No | ? | Rationale/Key Contaminants |
|---|---|---|---|---|
| Groundwater | | X | | See rationale below |
| Air (indoors)[2] | | X | | See rationale below |
| Surface Soil (e.g., <2 ft) | | X | | See rationale below |
| Surface Water | | X | | See rationale below |
| Sediment | | X | | See rationale below |
| Subsurface Soil (e.g., >2 ft) | | X | | See rationale below |
| Air (outdoors) | | X | | See rationale below |

X If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient support documentation demonstrating that these "levels" are not exceeded.

_____ If yes (for any media) – continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) – skip to #6 and enter "IN" status code.

The Facility is situated on approximately 13 acres of land located in Derry Township, Westmoreland County, Pennsylvania. Land use in the surrounding area is mainly agricultural and light industrial, with small residential developments located east of the Facility. The Facility is bound on the south by Malone Road. Beyond the residential area, to the east is Derry Area Senior High School. A light industrial facility is located immediately north of the Facility. The area west of the Facility is mainly forested.

Access to the Facility is via Imaging Lane. The Facility's electric is supplied by Allegheny Power. Natural gas is supplied by Dominion Gas. Sewer is supplied by Derry Township. Potable water is supplied to the Facility and surrounding areas by the Municipal Authority of Westmoreland County (MAWC).

Prior to 1946, the property was used as farmland. In 1946, the property was purchased by Pioneer Fuel who constructed an industrial facility. In 1964, Pioneer Fuel sold the property to Keystone Alloys. Records of the activities performed at the Facility by Pioneer Fuels and Keystone Alloys at the Facility are incomplete.

In 1966, Chamberlain Manufacturing Corporation (Chamberlain) purchased the property from Keystone Alloys. Chamberlain manufactured aluminum siding, storm doors, and windows. Chamberlain operated an aluminum anodizing line, which included several concrete dip tanks located at the western end of the building.

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[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

The number and exact locations of the dip tanks in use during Chamberlain's ownership are unknown. The dip tanks reportedly were removed, backfilled and covered with concrete according to USEPA files (September 1990). Chamberlain continued production at the Facility until 1977, when the property was sold to Imaging Systems Corporation (ISC), a manufacturer of toners and developers for copiers and printers.

In 1978, Pelikan, Inc. (Pelikan) leased the property from ISC and continued with the production of toners and developers. Pelikan eventually purchased the property from ISC in 1989. Pelikan continued production until 1995 when the company was sold to Nu-Kote. Nu-Kote continued with the manufacture of toners and developers until 1998, at which time operations ceased. The Facility was empty at the time a Phase II site characterization was done by Nu-Kote's consultant in November 1999. The Phase II was conducted to allow for the closure/sale of the Nu-Kote facility.

According to the consultant's 1999 Phase II Site Characterization Report, the Facility, consisted of a 110,000 square foot building divided into three primary areas. These areas included the south section, the central section, and the north section. The south section formerly held the fluid coating room, the developer packaging room, the raw material storage area, and the pilot plant room. The north section formerly held the premix department, the milling/classifying department, the toner packaging room, quality control laboratories, the printing line, and the compressor room. Three baghouses were located directly outside of this portion of the Facility. The central section included the shipping/receiving area, the final product storage area, the loading dock, a drum storage area, and a hazardous materials storage shed.

On November 17, 1980, the Facility applied for a hazardous waste permit, which included process codes S01 (container storage), S02 (tank storage), and S03 (storage in waste piles). USEPA acknowledged their application on January 20, 1981. According to the application, the processes performed at the Facility generated the hazardous wastes in **Table 1**:

**Table 1, LIST OF HAZARDOUS WASTES GENERATED IN 1980**

| USEPA Waste Code | Waste Description | USEPA Waste Code | Waste Description |
|---|---|---|---|
| D001 | Characteristically Ignitable | D010 | Characteristically Hazardous for Selenium |
| D002 | Characteristically Corrosive | K054 | Chrome Shavings of Leather |
| F002 | Spent Halogenated Solvents | U226 | Methyl Chloroform |

Later documentation states that this was an error made by the facility when filing the Part A permit. Selenium was never used/processed at this Facility, though it was used at another one of their facilities.

On July 23, 1981, the Facility indicated to USEPA that the maximum capacity for hazardous waste storage was thirty 55-gallon drums. There is no evidence available to URS (EPA's Environmental Indicator Inspection Report Contractor) implying or stating that tank or waste pile storage occurred on-site as indicated in the hazardous waste permit application. On May 6, 1982, USEPA withdrew an Interim Status Compliance letter, which was issued on January 11, 1982. This decision was based on information provided in the Facility's letter to USEPA dated April 16, 1982. On May 21, 1982, USEPA determined that the Facility was an operator of a hazardous waste management facility meeting the Section 2005(e) RCRA Interim Status requirements.

In a letter dated July 20, 1983, the PADEP Bureau of Solid Waste Management (BSWM) indicated that a Part A Application for Hazardous Waste Permit was not filed by the Facility, but PADEP had received several

notification forms for which the Facility filed to change its name. The letter also requested the Facility file a Part B permit application. On August 17, 1983, the Facility submitted an updated notification of hazardous waste activity to USEPA, which indicated the processes performed at the Facility, and associated hazardous wastes generated, as shown in **Table 2**:

**Table 2, LIST OF HAZARDOUS WASTES GENERATED IN 1983**

| USEPA Waste Code | Waste Description | USEPA Waste Code | Waste Description |
|---|---|---|---|
| F002 | Spent Halogenated Solvents | F005 | Spent Non-Halogenated Solvents |
| F003 | Spent Non-Halogenated Solvents | U044 | Chloroform |

In March 1995, with the sale of the Facility to Nu-Kote, the Facility requested that PADEP transfer permit numbers, and the Facility refiled as a small quantity generator of hazardous wastes as shown in Table 3:

**Table 3, LIST OF HAZARDOUS WASTES GENERATED IN 1995**

| USEPA Waste Code | Waste Description | USEPA Waste Code | Waste Description |
|---|---|---|---|
| F001 | Spent Halogenated Solvents and Degreasers | F005 | Spent Non-Halogenated Solvents |

On July 29, 1998, the Facility notified PADEP Bureau of Air Quality (BAQ) that it had officially ceased operations at the Site. Three new tenants now occupied the building, including DAPI, a steel processor; Steel Tech, a stainless-steel trailer hitch maker; and Mean Green, a vehicle starter and alternator repair service. According to the PADEP inspection report, DAPI had occupied the building since 2003. During the EPA contractor's August 2008 site visit, it was noted that Steel Tech no longer operated at the Site.

**Groundwater:**

Two onsite monitoring wells (MW01 and MW02) were attempted but not completed prior to ITC's 1999 investigation. It is assumed, based on information provided in ITC's 1999 Site Characterization Report (SCR), that these wells were attempted during ITC's 1996 Site Screening Investigation (document was not located in PADEP or USEPA files for review); the reasoning these wells were not completed is unknown. During ITC's 1999 investigation, five additional on-site monitoring wells (MW03, MW04, MW05, MW06, and MW07) were attempted; however, only three of these wells (MW04, MW06, and MW07) were completed. Groundwater was not encountered while drilling MW03 and MW05; therefore, ITC grouted these boreholes closed. In 2000, ITC installed two additional monitoring wells (MW08 and MW09A) at the Facility, the locations of which were not identified in the documentation reviewed by EPA's contractor.

The completed wells were installed in shallow bedrock with depths ranging from approximately 13.5 to 115 feet below ground surface (bgs), as described in the following **Table 4**:

| Well ID | Bottom Depth (feet bgs) | Screened Interval (feet bgs) |
|---|---|---|
| MW04 | 39.2 | 24.2 - 39.2 |
| MW06 | 41.5 | 31.5 - 41.5 |
| MW07 | 25 | 15 - 25 |
| MW08 | 13.5 | Unknown |
| MW09A | 114.7 | Unknown |

The monitoring well locations are shown on **Figure 1**, with the exception of MW08 and MW09A, whose locations are unknown.

In 1999, ITC collected one round of groundwater samples from MW04, MW06, and MW07, and from a direct-push boring (SS2-03) installed in the vicinity of septic system #2. The groundwater samples collected from MW06 and MW07 were analyzed for the following parameters:

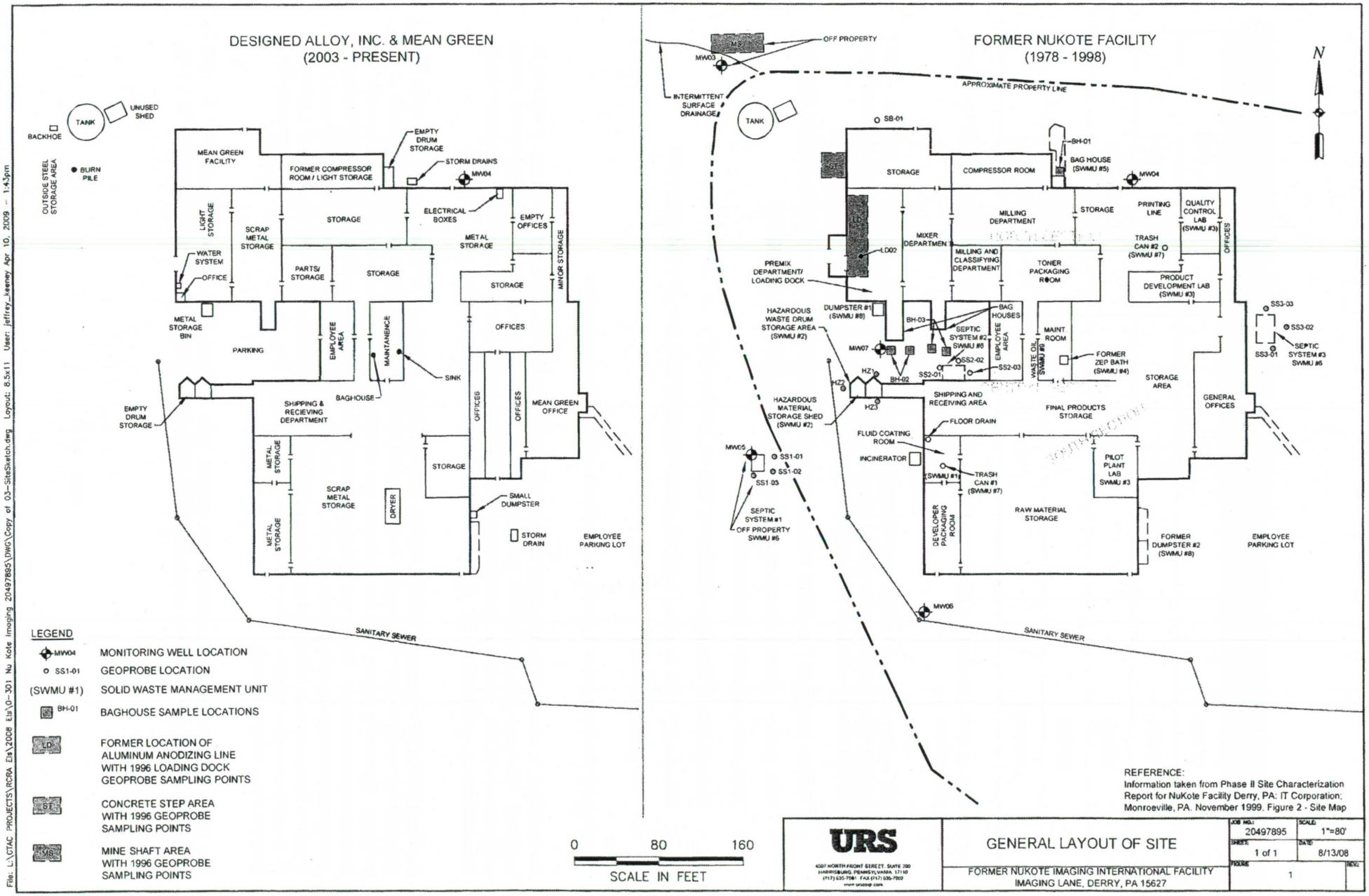
- Target Compound List (TCL) Volatile Organic Compounds (VOCs) via USEPA Method 8260B;
- TCL Semivolatile Organic Compounds (SVOCs) via USEPA Method 8270C;
- Pesticides via USEPA Method 8081;
- Polychlorinated Biphenyls (PCBs) via USEPA Method 8082;
- Dissolved Target Analyte List (TAL) metals via USEPA Method 6010B/7470A; and
- Total cyanide via USEPA 9012A.

The available documentation contains only analysis data for dissolved metals.

An insufficient amount of groundwater was available at MW04 and SS2-03 for all parameter groups to be analyzed. Consequently, the MW04 groundwater sample was analyzed for all listed parameters except pesticides and PCBs. Similarly, the SS2-03 groundwater sample was analyzed for all listed parameters except dissolved metals and total cyanide. SS2-03 was not re-sampled after the 1999 sampling event.

In March 2000, ITC re-sampled MW04, MW06, and MW07. In addition to the monitoring well samples, ITC collected one water sample from each of two sumps (SUMP GW-1 and SUMP GW-2) located inside of the building. One sump was located in the former raw material storage area and the other was located in the former compressor room. These sumps reportedly received drainage from 31 floor drains located in the pilot plant room/raw materials storage area and two floor drains located in the compressor room. EPA's contractor found no documentation in the files indicating which of the sumps ITC labeled SUMP1 and SUMP2, and none of the documentation relative to the construction of these sumps (e.g., depth or construction materials) was found in the available records.

The three groundwater and two sump water samples were analyzed for the same parameters as the 1999 groundwater samples listed above, except the MW06 groundwater sample, which was analyzed for VOCs only.

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In addition, the March 2000 groundwater and sump water samples were analyzed for total TAL metals only; and ITC re-sampled MW04, MW06, MW07, SUMP1, and SUMP2 in April 2000 and analyzed them for dissolved TAL metals. The sumps were not re-sampled after March/April 2000.

ITC collected an initial round of groundwater samples from newly installed wells MW08 and MW09A in May 2000. These two wells, along with MW04, MW06, and MW07, were re-sampled in October/November 2000. The groundwater samples were analyzed for the same parameters as the 1999 groundwater samples listed above. Monitoring wells MW08 and MW09A were not analyzed for pesticides and PCBs in May 2000.

A summary of the organic and inorganic parameters detected in the 1999 and 2000 groundwater and sump water samples is presented in **Tables 5, 6, and 7**.

When comparing the groundwater data collected by ITC in 1999 and 2000 to the current PADEP Used Aquifer Groundwater MSCs for both the Residential and Non-Residential results (**Tables 5, 6, and 7**) to the PADEP Land Recycling and Environmental Remediation Standards Act (revised in November 24, 2001), the majority of the organic constituents analyzed for were not detected in the groundwater and sump water samples collected in 1999 and 2000. The concentrations of the organic constituents that were detected were all below the current PADEP Residential and Non-Residential MSCs (**Table 5**), except for the following two SVOCs: Bis(2-ethylhexyl)phthalate at SS2-03, MW04, MW06, and MW07; and N-nitrosodiphenylamine at SUMP GW-2.

Bis(2-ethylhexyl)phthalate is regarded as a common laboratory contaminant and was identified in two QA/QC laboratory blanks, suggesting that the presence of this constituent was due to laboratory contamination and the constituent is not a site-related groundwater contaminant. The source for the N-nitrosodiphenylamine concentration at SUMP GW-2 is unknown and may be considered an anomaly at this site.

The 1999 and 2000 groundwater samples were also analyzed for metals (dissolved metals in 1999, total and dissolved metals in 2000) (**Tables 6 and 7**). Although the majority of the dissolved metals analyzed for were detected in the 1999 samples, none of the detected concentrations exceeded the Residential or Non-Residential groundwater MSCs (**Table 5**). The 2000 groundwater data indicated that total concentrations of aluminum, antimony, arsenic, beryllium cadmium, chromium, iron, lead, manganese, nickel, and zinc were present at one or more of monitoring well locations MW04, MW06, MW07, MW08 and/or MW09A above the Residential and Non-Residential groundwater MSCs (**Table 6**). Several of these constituents (i.e., aluminum, iron, lead, manganese, and thallium) were also identified in the dissolved phase above the Residential and Non-Residential Groundwater MSCs, although generally at significantly lesser concentrations (**Table 6**). These constituents are typical rock-forming minerals, and their presence at such elevated concentrations may be related to leaching from the surrounding geologic formation. Note that for several non-detected metals (particularly thallium, and in some cases, antimony and beryllium), the instrument detection limit or reporting limit was greater than the current PADEP Residential and Non-Residential Groundwater MSC; therefore, it is unknown whether these constituents were present above the MSCs.

Based on groundwater sampling conducted in 1999 and 2000 by ITC, groundwater at the Site appears to be impacted above the PADEP Residential and/or Non-Residential Used Aquifer Groundwater MSCs by metals (including aluminum, iron, lead, manganese, and thallium), which may be related to the natural occurrence of these metals in the surrounding soil and/or geologic formations (sandstone, shale, and coal) rather than to past site operations. This assumption is further supported by Synthetic Precipitation Leaching Procedure (SPLP) analyses performed on soil samples collected by ITC during drilling of MW08 and MW09A in May 2000, which indicate the presence of aluminum, iron, lead, and thallium in the resultant leachate above the Residential and Non-Residential Groundwater MSCs. It should be noted that there is a reclaimed surface mine located immediately southwest of the Site. Underground mines may also be present in the vicinity of the Site. A mine shaft has been identified immediately northwest of the Site, in the location of MW03 (see **Figure 1**).

EPA's contractor (URS) observed one existing onsite monitoring well (MW04) during the September 2008 site visit. The condition of this well is unknown. URS found no documentation in the PADEP/USEPA files reviewed indicating

**Table 5**
**Summary of Detected Organic Parameters in Groundwater Samples**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CASRN | PARAMETER | PADEP Used Aquifer Groundwater MSCs (ug/L) | | Sample ID and Concentration of Parameters (ug/L) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Residential | Non-Residential | SS2-03 | MW04 | | | MW06 | | | MW07 | | | MW08 | | MW09A | | SUMP-GW-1 | SUMP-GW-2 |
| VOCs | | | | Aug-99 | Aug-99 | Mar-00 | Nov-00 | Aug-99 | Mar-00 | Oct-00 | Aug-99 | Mar-00 | Oct-00 | May-00 | Oct-00 | May-00 | Oct-00 | Mar-00 | Mar-00 |
| 67-64-1 | Acetone | 3,700 | 10,000 | ND | ND | ND | 2.4 JB | ND | 1.4 J | 2 JB | ND | 2.2 J | 2 JB | ND | 1.7 JB | 1.9 J | 1.9 J | 5.7 J | 9 J |
| 108-90-7 | Chlorobenzene | 100 | 100 | 59 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.1 J | ND | ND | ND | ND | ND |
| 75-34-3 | 1,1-Dichloroethane | 27 | 110 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.5 J | ND | ND | ND | ND | ND |
| 79-01-6 | Trichloroethylene | 5 | 5 | ND | ND | ND | ND | ND | ND | 2.6 J | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 71-55-6 | 1,1,1-Trichloroethane | 200 | 200 | ND | ND | ND | ND | ND | ND | 3.4 J | 19 | 12 | 28 | ND | 11 | ND | ND | ND | ND |
| SVOCs | | | | | | | | | | | | | | | | | | | |
| 117-81-7 | Bis(2-ethylhexyl)phthalate | 6 | 6 | **6.2** | **14** | ND | ND | **16** | NA | ND | **11** | ND | ND | ND | ND | ND | ND | ND | ND |
| 91-57-6 | 2-Methylnaphthalene | 730 | 2,000 | ND | ND | 3.3 J | ND | ND | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 86-30-6 | N-Nitrosodiphenylamine | 130 | 530 | ND | ND | ND | ND | ND | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND | **3,200** |
| Pesticides | | | | | | | | | | | | | | | | | | | |
| 60-57-1 | Dieldrin | 0.041 | 0.160 | ND | NA | ND | ND | 0.002 | NA | ND | ND | ND | ND | NA | ND | NA | ND | ND | ND |

**Notes:**

1. All values are presented in ug/L.
2. ND - Compound not detected in sample.
3. NA - Not Analyzed.
4. J - Estimated result. Result below reporting limit.
5. B - Method blank contamination. The associated method blank contains the target analyte at a reportable concentration.
6. Bold, underlined values exceeded the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) Residential and Non-Residential
7. SS2-03 is a grab sample of groundwater encountered at the soil/bedrock interface in Geoprobe soil boring 3 installed at Septic System #2. This location was not sampled after the August 1999 sampling event.
8. Only the parameters detected in the groundwater samples are presented on this table.
9. Groundwater samples collected by ITC in 1999 from MW06 and MW07 were anayzed for the following: total cyanide via USEPA Method 9012A, total and dissolved TAL metals via USEPA Method 6010B/7470A, pesticides via USEPA Method 8081, PCBs via USEPA Method 8082, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B. An insufficient amount of groundwater was available at MW04 and SS2-03 for all parameter groups to be analyzed. Consequently, the groundwater sample collected at MW04 was analyzed for all listed parameters except pesticides and PCBs. Similarly, the groundwater sample collected
10. Groundwater samples collected by ITC in March and October 2000 were analyzed for the following: total cyanide via USEPA Method 9012A, total/dissolved TAL metals via USEPA Method 6010B/7470A, TCL VOCs via USEPA Method 8260B, TCL SVOCs via USEPA Method 8270C, pesticides via USEPA Method 8081A, and PCBs via USEPA Method 8082, with the exception of MW06
11. Groundwater samples collected by ITC in May 2000 were analyzed for the following: total cyanide via USEPA Method 9012A, total/dissolved TAL metals via USEPA Method 6010B/7470A, TCL VOCs via USEPA Method 8260B, and TCL SVOCs via USEPA

**Table 6**
**Summary of Dissolved Metals Detected in Groundwater Samples - 1999**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CASRN | Parameter | PADEP Used Aquifer Groundwater MSCs (ug/L) | | Sample ID and Concentration of Parameters (ug/L) | | |
|---|---|---|---|---|---|---|
| | | Residential | Non-Residential | MW04 | MW06 | MW07 |
| 7429-90-5 | Aluminum | 200 | 200 | 1.4 | 0.16 | 0.26 |
| 7440-39-3 | Barium | 2,000 | 2,000 | 0.11 | 0.078 | 0.037 |
| 7440-70-2 | Calcium | NS | NS | 75 | 100 | 11 |
| 18540-29-9 | Chromium | 100 | 100 | 0.008 | 0.001 | 0.009 |
| 7439-89-6 | Iron | 300 | 300 | 1.4 | 0.19 | 0.13 |
| 7439-92-1 | Lead | 5 | 5 | 0.005 | 0.004 | 0.001 |
| 7439-95-4 | Magnesium | NS | NS | 38 | 39 | 6.2 |
| 7439-96-5 | Manganese | 300 | 300 | 0.093 | 0.17 | 0.55 |
| 7439-97-6 | Mercury | 2 | 2 | ND | 0.0003 | 0.0003 |
| 7440-02-0 | Nickel | 100 | 100 | 0.015 | 0.022 | 0.018 |
| 7449-09-7 | Potassium | NS | NS | 6.8 | 3.2 | 1.6 |
| 7440-22-4 | Silver | 100 | 100 | ND | 0.004 | ND |
| 7440-23-5 | Sodium | NS | NS | 9.6 | 19 | 4.9 |
| 7440-66-6 | Zinc | 2,000 | 2,000 | 0.024 | 0.018 | 0.038 |

**Notes:**

1. All values are presented in ug/L.
2. ND - Compound not detected in sample.
3. NS - No PADEP Statewide Health Standard for groundwater exists for this parameter.
4. There are no exceedances of the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) Residential or Non-Residential MSCs for Groundwater in a Used Aquifer Area for this data set.
5. Values listed for aluminum and iron are secondary maxiumum contaminant levels (SMCLs).
6. Value listed for chromium is for total chromium. Chromium MSCs not speciated for groundwater.
7. Only the parameters detected in the groundwater samples are presented on this table.
8. Groundwater samples collected by ITC in 1999 from MW06 and MW07 were anayzed for the following: total cyanide via USEPA Method 9012A, total and dissolved TAL metals via USEPA Method 6010B/7470A, pesticides via USEPA Method 8081A, PCBs via USEPA Method 8082, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
9. An insufficient amount of groundwater was available at MW04 and SS2-03 for all parameter groups to be analyzed. Consequently, the groundwater sample collected at MW04 was analyzed for all listed parameters except pesticides and PCBs. Similarly, the groundwater sample collected at SS2-03 was analyzed for all listed parameters except total/dissolved TAL metals and total cyanide.
10. Samples reportedly were analyzed for TAL metals, which includes those metals listed in this table as well as antimony, arsenic, beryllium, cadmium, cobalt, copper, selenium, thallium, and vanadium. Based on the data presented in ITC's 1999 report, copper and vanadium were not detected in the samples. It is assumed that the remaining seven metals were analyzed for but were not detected in the samples. URS did not review the complete laboratory data for these samples.

**Table 7**
**Summary of Metals in Groundwater Samples - 2000**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| | | PADEP Used-Aquifer Groundwater MSCs (ug/L) | | Sample ID and Concentration of Parameters (ug/L) | | | | | | | | Sample ID and Concentration of Parameters (ug/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CASRN | Parameter | Residential | Non-Residential | MW04 | | | MW06 | | MW07 | | | MW08 | | MW-9A | | SUMP-GW-1 | SUMP 1 | SUMP-GW-2 | SUMP2 | OF-01 |
| **Total Metals** | | | | Mar-00 | Apr-00 | Nov-00 | Apr-00 | Oct-00 | Mar-00 | Apr-00 | Oct-00 | May-00 | Oct-00 | May-00 | Oct-00 | Mar-00 | Apr-00 | Mar-00 | Apr-00 | Jan-00 |
| 7429-90-5 | Aluminum | 200 | 200 | **58,500** | NA | **37,400** | NA | **2,090** | **13,900** | NA | **563** | **27,400** | **21,500** | **2,380** | **201** | **1,970** | NA | **2,630** | NA | **5,700** |
| 7440-36-0 | Antimony | 6 | 6 | ND | NA | 2.8 B | NA | 1.7 B | *ND** | NA | *ND** | 1.8 B | *ND** | ND | 1.7 B | ND | NA | **7.7 B** | NA | 3.2 |
| 7440-38-2 | Arsenic | 10 | 10 | **50.6** | NA | **33.8** | NA | ND | 5.6 B | NA | ND | **22.8** | **11.5** | 5.9 B | **12.6** | 7.1 B | NA | 7.6 B | NA | **11** |
| 7440-39-3 | Barium | 2,000 | 2,000 | 1,460 | NA | 955 | NA | 92.7 B | 123 B | NA | 38.3 B | 238 | 140 B | 51.5 B | 25.9 B | 168 B | NA | 1,250 | NA | 90 |
| 7440-41-7 | Beryllium | 4 | 4 | **5.2** | NA | 3.2 B | NA | *ND** | 1.3 B | NA | 0.62 B | 1.7 B | 1.4 B | 0.15 B | *ND** | *ND** | NA | 0.65 B | NA | 0.63 |
| 7440-43-9 | Cadmium | 5 | 5 | **42.2** | NA | **14.8** | NA | ND | ND | NA | **11.3** | ND | **18.1** | ND | 1.9 B | 0.55 B | NA | *ND** | NA | **6.4** |
| 7440-70-2 | Calcium | NS | NS | 467,000 | NA | 325,000 | NA | 122,000 | 15,700 | NA | 12,300 | 57,800 | 47,700 | 226,000 | 250,000 | 33,500 | NA | 41,300 | NA | 2,300 |
| 18540-29-9 | Chromium | 100 | 100 | **146** | NA | 93.3 | NA | 5.2 | 19.6 | NA | 3.5 B | 52.2 E | 26.1 | 6.9 B | 4.7 B | **8.8** | NA | **5,010** | NA | 55 |
| 7440-48-4 | Cobalt | 730 | 2,000 | 77.2 | NA | 58.5 | NA | 1.6 B | 24.4 B | NA | 4 B | 45.3 B | 11.1 B | 7.9 B | 5.7 B | 4 B | NA | 447 | NA | 10 |
| 7440-50-8 | Copper | 1,000 | 1,000 | 122 | NA | 74.3 | NA | 6.9 B | 21.3 B | NA | ND | 61.4 | 41.9 | 2.3 B | ND | 156 | NA | 993 | NA | 250 |
| 7439-89-6 | Iron | 300 | 300 | **136,000** | NA | **82,000** | NA | **3,250** | **61,200** | NA | **3,960** | **74,600** | **26,700** | **9,000** | **14,900** | **4,730** | NA | **3,200,000** | NA | **51,000** |
| 7439-92-1 | Lead | 5 | 5 | **108** | NA | **65.4** | NA | 3.3 | **13.1** | NA | ND | **41.6** | **27.6** | 2.2 B | ND | **7.5** | NA | **58** | NA | **92** |
| 7439-95-4 | Magnesium | NS | NS | 167,000 | NA | 122,000 | NA | 26,500 | 11,100 | NA | 6,500 | 8,890 | 4,950 B | 27,300 | 30,200 | 2,150 B | NA | 13,000 | NA | 950 |
| 7439-96-5 | Manganese | 300 | 300 | **2,950** | NA | **1,790** | NA | 81.1 | **947** | NA | **478** | **1,280** | **394** | **440** | **564** | 181 | NA | **20,500** | NA | **610** |
| 7439-97-6 | Mercury | 2 | 2 | 0.26 | NA | 0.33 | NA | 0.074 B | ND | NA | ND | 0.19 B | 0.12 B | 0.051 B | 0.054 B | 0.066 B | NA | 0.72 | NA | 0.66 |
| 7440-02-0 | Nickel | 100 | 100 | **164** | NA | **108** | NA | 3.5 B | 38.4 B | NA | 11.3 B | 60.5 | 21.2 B | 7.6 B | 21.8 B | 8.4 B | NA | **1,260** | NA | 32 |
| 7440-09-7 | Potassium | NS | NS | 22,400 | NA | 14,200 | NA | 2,780 B | 6,710 | NA | 1,850 B | 7,900 | 5,780 | 3,560 B | 3,330 B | 8,290 | NA | 24,200 | NA | 660 |
| 7782-49-2 | Selenium | 50 | 50 | ND | NA | ND | NA | ND | 3.1 B | NA | ND | 6.7 | 3.1 B | ND | ND | 3.6 B | NA | *ND** | NA | ND |
| 7440-22-4 | Silver | 100 | 100 | ND | NA | ND | NA | ND | ND | NA | ND | ND | ND | ND | 1.1 B | ND | NA | ND | NA | 0.57 |
| 7440-23-5 | Sodium | NS | NS | 9,950 | NA | 10,700 | NA | 9,110 | 5,500 | NA | 4,320 B | 1,910 B | 5,940 | 15,800 | 23,200 | 14,100 | NA | 19,500 | NA | ND |
| 7440-28-0 | Thallium | 2 | 2 | *ND** | NA | *ND** | NA | *ND** | *ND** | NA | *ND** | *ND** | *ND** | *ND** | *ND** | *ND** | NA | *ND** | NA | ND |
| 7440-62-2 | Vanadium | 260 | 720 | 107 | NA | 71.7 | NA | 9.2 B | 23.2 B | NA | ND | 51.1 | 30.2 B | 5.1 B | 2.3 B | 5.3 B | NA | ND | NA | 6.3 |
| 7440-66-6 | Zinc | 2,000 | 2,000 | **2,450** | NA | 1,040 | NA | 27.6 | 127 | NA | 30.5 | 180 | 94.6 | 28.8 | 5.8 B | 417 | NA | **25,500** | NA | 1,700 |
| **Dissolved Metals** | | | | | | | | | | | | | | | | | | | | |
| 7429-90-5 | Aluminum | 200 | 200 | NA | 25.6 B | **994** | ND | 43.8 B | NA | 57.2 B | 85.6 B | 31.2 B | 176 B | ND | ND | NA | ND | NA | 39.9 B | – |
| 7440-36-0 | Antimony | 6 | 6 | NA | 2.5 B | 1.5 B | 1.8 B | *ND** | NA | ND | *ND** | ND | *ND** | 2.3 B | *ND** | NA | ND | NA | 2.5 B | – |
| 7440-38-2 | Arsenic | 10 | 10 | NA | ND | ND | ND | ND | NA | ND | ND | ND | ND | 3.2 B | 5.6 B | NA | ND | NA | ND | – |
| 7440-39-3 | Barium | 2,000 | 2,000 | NA | 103 B | 89.2 B | 52.3 B | 63.7 B | NA | 34.6 B | 33.1 B | 50 B | 23.8 B | 36.4 B | 26.3 B | NA | 95.2 B | NA | 12.1 B | – |
| 7440-41-7 | Beryllium | 4 | 4 | NA | *ND** | *ND** | *ND** | *ND** | NA | *ND** | 0.53 B | ND | *ND** | ND | *ND** | NA | *ND** | NA | *ND** | – |
| 7440-43-9 | Cadmium | 5 | 5 | NA | 1.5 B | 1.1 B | ND | ND | NA | 2.2 | 1 B | ND | 1.6 B | ND | ND | NA | ND | NA | ND | – |
| 7440-70-2 | Calcium | NS | NS | NA | 65,300 | 96,000 | 109,000 | 113,000 | NA | 15,100 | 11,800 | 52,500 | 39,000 | 220,000 | 241,000 | NA | 21,700 | NA | 15,000 | – |
| 18540-29-9 | Chromium | 100 | 100 | NA | 2.5 B | 3.4 B | ND | 2.4 B | NA | ND | 1.1 B | ND | 1.7 B | 8.7 B | 1.1 B | NA | 5.6 | NA | 1.5 B | – |
| 7440-48-4 | Cobalt | 730 | 2,000 | NA | 1.9 B | 3.7 B | ND | ND | NA | 14.4 B | 8 B | 5.8 B | ND | 5.4 B | 3.7 B | NA | ND | NA | ND | – |
| 7440-50-8 | Copper | 1,000 | 1,000 | NA | ND | ND | ND | ND | NA | ND | ND | ND | ND | ND | ND | NA | ND | NA | ND | – |
| 7439-89-6 | Iron | 300 | 300 | NA | 54 B | **1,260** | 19.2 B | 63 B | NA | **9,050** | **3,820** | **2,390** | 243 | **4,180** | **9,400** | NA | 61.1 B | NA | 78.3 B | – |
| 7439-92-1 | Lead | 5 | 5 | NA | ND | 2.9 B | ND | ND | NA | ND | **9.6** | ND | ND | ND | 2.6 B | NA | 2.4 B | NA | ND | – |
| 7439-95-4 | Magnesium | NS | NS | NA | 22,000 | 37,800 | 29,700 | 24,100 | NA | 8,260 | 5,910 | 3,170 B | 1,770 B | 26,200 | 28,700 | NA | 5,090 | NA | 802 B | – |
| 7439-96-5 | Manganese | 300 | 300 | NA | 2 B | 103 | 4.4 B | 5 B | NA | **862** | **471** | **775** | 25.1 | **396** | **530** | NA | **310** | NA | 4.2 B | – |
| 7439-97-6 | Mercury | 2 | 2 | NA | ND | ND | ND | 0.082 B | NA | ND | ND | ND | 0.058 B | 0.081 B | 0.051 B | NA | ND | NA | ND | – |
| 7440-02-0 | Nickel | 100 | 100 | NA | 4.8 B | 4.2 B | ND | ND | NA | 24.7 B | 15.3 B | ND | ND | 8.1 B | 15.4 B | NA | ND | NA | 6.5 B | – |
| 7440-09-7 | Potassium | NS | NS | NA | 3,080 B | 3,820 B | 1,180 B | 1,630 B | NA | 2,590 B | 2,300 B | 1,160 B | 960 B | 2,860 B | 3,010 B | NA | 27,000 | NA | 1,920 B | – |
| 7782-49-2 | Selenium | 50 | 50 | NA | ND | ND | ND | ND | NA | ND | ND | ND | ND | ND | ND | NA | ND | NA | ND | – |
| 7440-22-4 | Silver | 100 | 100 | NA | ND | ND | ND | ND | NA | ND | ND | ND | ND | ND | ND | NA | ND | NA | ND | – |
| 7440-23-5 | Sodium | NS | NS | NA | 7,610 | 10,700 | 16,300 | 13,300 | NA | 9,000 | 7,490 | 12,900 | 9,030 | 18,800 | 26,000 | NA | 25,700 | NA | 11,300 | – |
| 7440-28-0 | Thallium | 2 | 2 | NA | *ND** | *ND** | *ND** | **4 B** | NA | *ND** | **8.3 B** | *ND** | **4.4 B** | *ND** | *ND** | NA | *ND** | NA | *ND** | – |
| 7440-62-2 | Vanadium | 260 | 720 | NA | 4.9 B | 5 B | 2.3 B | 3.4 B | NA | 1.1 B | ND | ND | 4 B | 2.5 B | 2.3 B | NA | ND | NA | 3.4 B | – |
| 7440-66-6 | Zinc | 2,000 | 2,000 | NA | 72.2 | 56.5 | 14.7 B | 17.4 B | NA | 53.6 | 39.2 | 8.6 B | 16.8 B | 14.8 B | 10.4 B | NA | 170 | NA | 37.9 | – |

**Notes:**

1. All values are presented in ug/L.
2. Bold, underlined values exceeded the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) Residential or Non-Residential MSCs for Groundwater in a Used Aquifer Area.
3. B - Estimated result. Result is below the reporting limit.
4. NA - Not analyzed.
5. ND - Parameter was not detected in sample.
6. *ND** - Indicates instrument detection limit or reporting limit for this compound (antimony, beryllium, selenium, and thallium) was greater than the PADEP Residential and Non-Residential MSC.
7. NS - No PADEP Residential or Non-Residential Groundwater MSCs exists for this parameter.
8. Values listed for aluminum and iron are secondary maximum contaminant levels (SMCLs).
9. Value listed for chromium is for total chromium. Chromium MSC is not speciated for groundwater.
10. Groundwater samples collected by ITC in March, May, and October/November 2000 were analyzed for the following: total cyanide via USEPA Method 9012A, total/dissolved TAL metals via USEPA Method 6010B/7470A, TCL VOCs via USEPA Method 8260B, TCL SVOCs via USEPA Method 8270C, pesticides via USEPA Method 8081A, and PCBs via USEPA Method 8082, with the exception of MW06, which was analyzed for VOCs only.
11. Groundwater samples collected in April 2000 (MW04, MW06, MW07, SUMP1, and SUMP2) were analyzed for dissolved metals only.
12. Groundwater samples collected in May 2000 (MW08 and MW-9A) were not analyzed for pesticides and PCBs.
13. Total cyanide was not detected in any of the analyzed samples.
14. Sump-GW-2 sample was diluted for aluminum, antimony, beryllium, cadmium, chromium, copper, lead, manganese, nickel, selenium, thallium, vanadium, and zinc due to interference/saturation from iron and interelement corrections associated with iron.

that the monitoring wells have been properly abandoned. URS recommended that any monitoring wells that are no longer required for site investigation activities be properly abandoned because the wells may act as potential conduits for contaminants to enter the underlying aquifer.

The source of drinking water at the Site and surrounding area is via MAWC. According to Pennsylvania's Drinking Water Reporting System (Source: Pennsylvania Drinking Water System, 2007), MAWC's public water system currently serves a population of 123,000 through 5,000 connections. Water is mainly provided from Beaver Run Reservoir.

According to the Pennsylvania Groundwater Information System (PaGWIS), there are eight wells located within a one-mile radius of the Site, one of which (a residential well located northeast of the Site) is located within a one-half mile radius of the Site. One test well is located northwest of the Site; three residential wells are located west of the Site; and three shallow wells (up to 50 feet bgs) belonging to Newcomer Products, Inc. are located south of the Site.

Information provided in ITC's 1999 report indicates that regional groundwater flow is toward the west through poorly connected fractures in the underlying bedrock. Only two of the completed wells (MW04 and MW06) appear to monitor the same aquifer zone (approximately 35 feet bgs). MW07 appears to monitor a shallower aquifer zone (approximately 15 feet bgs). Detailed drilling and well construction information for MW08 and MW09A was not identified in the documentation reviewed by URS; however, based on the reported well depths (13.62 feet bgs and 116.15 feet bgs, respectively) and the reported groundwater static water level measurements (4.9 and 77.85 feet bgs, respectively), it is inferred that MW08 and MW09A themselves monitor separate aquifer zones apart from MW04/MW06 and MW07. Because these wells may be in different aquifers, the local groundwater flow direction is difficult to ascertain; however, it is assumed that the local groundwater flow direction mimics the regional flow direction (west, toward the tributaries to Union Run). The influence, if any, of the underground mines on the local groundwater flow direction is unknown at this time.

Based on the assumption that groundwater flows toward the west and because no site-related constituents have been identified in site groundwater monitoring wells above the Residential and Non-Residential MSCs, EPA concludes that exposure to site groundwater by off-site human receptors is not a concern at this time. It appears that metals concentrations detected in groundwater above the Residential and Non-Residential MSCs are not related to the former Site operations and are most likely naturally occurring.

**Indoor Air:**

Exposure to onsite workers via the indoor air pathway can be attributed to regular plant operations due to past usage and the presence of solvents, etc. It is presumed that this exposure was controlled in accordance with Operational Safety and Health Administration (OSHA) regulations; however, documentation of this nature was not reviewed as part of the scope of this EI.

To evaluate the vapor intrusion pathway to on-site and off-site structures from possibly-impacted site soil and groundwater, URS (Contracted by the Facility) reviewed analytical results of soil and groundwater samples collected by ITC in 1999 and 2000 as part of the Facility Phase II report. Sample locations are shown in **Figure 1**. The 1999/2000 soil and groundwater data were evaluated according to the PADEP Land Recycling Program Technical Guidance Manual (TGM) – Section IV.A.4 Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard (VI TGM), effective at the time of the evaluation (January 24, 2004). Existing structures located within 100 feet of the soil and groundwater sample locations include the Facility and, potentially, the light industrial building located immediately to the north (**Figure 1**).

The PADEP VI TGM contains Default Residential and Non-Residential Soil and Groundwater Screening Values for Protection of Indoor Air, which were calculated based on the following assumptions (among others):

- The presence of a minimum of five feet of unsaturated "soil-like" material present between the contamination source (either groundwater or soil) and the slab or basement of the structure requiring evaluation; and,
- The absence, within 30 feet of the structure and the potential source, of preferential vapor migration pathways (including utility conduits).

Based on the information currently available (October 2009) relative to the Site's 1999/2000 soil data, the default screening criteria as described in the PADEP VI TGM cannot be used for the following reasons:

- One soil sample contained a concentration of 1,1-dichloroethane (DCA) that exceeded the most conservative PADEP Residential and Non-Residential Soil Medium-Specific Concentrations (MSCs) (the lesser of the Direct Contact and Soil-to-Groundwater Pathway MSCs for the appropriate sample depths, which are 0 to 15 feet for residential use scenarios and 0 to 2 or 2 to 15 feet for non-residential use scenarios) (LD02, **Table 8**). This sample was collected from beneath the concrete floor of the loading dock at a depth of 2 to 4 feet bgs (described in Section 4.4); therefore, five feet of unsaturated "soil-like" material does not separate the contamination source and the slab.

- Preferential pathways are assumed to exist within 30 feet of the existing structure. These pathways would include, at a minimum, underground piping from the building to each of the three sewer systems (SS1, SS2, and SS3) and the storm sewer system to which at least one of the inside drains reportedly was directed.

Two sumps (identified by ITC as SUMP1 and SUMP 2) were located inside of the building to which drainage from 33 floor drains (now sealed) were directed. There have been no documented releases to these floor drains/sumps; however, water within both of the sumps was collected by ITC in 2000. N-nitrosodiphenylamine was detected in the SUMP2 sample above the Residential and Non-Residential Groundwater MSCs (**Table 5**). N-nitrosodiphenylamine is not listed in the PADEP VI TGM as a constituent of indoor air concern; therefore, its presence in the SUMP2 sample was not further considered in the VI pathway evaluation. No information relative to the construction of the sumps was identified in the available documentation.

Per EPA's VISL Calculator, N-nitrosodiphenylamine is not sufficiently volatile to pose an inhalation risk from a soil or groundwater source.

There were no exceedances of the Residential and Non-Residential Groundwater MSCs in the 1999 or 2000 groundwater datasets with the exception of bis (2-ethylhexyl) phthalate identified in the SS2-03, MW04, MW06, MW07 samples collected in 1999 (**Table 5**). As described in Section 4.2.2, bis (2-ethylhexyl) phthalate was identified in two quality assurance/quality control (QA/QC) laboratory blanks, suggesting that its presence was due to laboratory contamination; therefore, this constituent was not further considered in the VI pathway evaluation.

Based on all the information above, it appears that the indoor air pathway is incomplete at this time.

**Soils:**

According to information obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) program, the majority of the Facility, particularly beneath the existing buildings, is underlain by the Urban Land Guernsey complex soil type, classified as UhB. These soils are typically moderately well drained and consist of dark brown silt loam underlain with yellowish brown silty loam and silty clay, gray clay and silty clay, and grayish brown channery silty clay loam. The remainder of the Site is underlain by the Dormont series soils classified as DoB. These soils are typically moderately well drained and consist of brown silt loam underlain with yellowish brown loam, silt loam, and silty clay loam followed by brownish yellow silty clay loam, light yellowish brown channery silt clay loam and channery silt loam, and yellowish-brown silty clay.

According to information provided in ITC's 1999 Site Characterization Report, the Facility is underlain by brown clay intermixed with black/gray silty material and coal fragments. The underlying bedrock consists of black carbonaceous shale, limestone, and coal. Depth to bedrock reportedly ranges from 4 feet bgs at MW04 to 17.5 feet bgs at MW05 and MW06, as described on soil boring/monitoring well logs provided in ITC's 1999 report.

ITC collected 22 surface and subsurface soil samples using direct-push sampling methods in 1999. Soil samples were collected at the three septic tanks (SS1-01, SS1-02, SS1-03, SS2-01, SS2-02, SS2-03, SS3-01, SS3-02, and SS3-03), beneath the loading dock (LD02), at the hazardous materials storage shed/hazardous waste drum storage area (HZ01, HZ02, and HZ03), in the vicinity of the baghouses (BH-01, BH-02, and BH-03), from a stained soil area located north of the storage area portion of the production building (SB01), and from the boreholes of the seven attempted monitoring

wells.

In 2000, ITC collected additional soil samples during drilling of monitoring wells MW08 and MW09A. One additional soil sample (OF-1) was also collected; however, the location and the depth of the sample were not identified in the documentation reviewed by URS. "Soil" samples were also collected from both of the sumps (SUMP1 and SUMP2) located inside of the building. The samples were analyzed for the following parameters:

- TCL VOCs via USEPA Method 8260B;
- TCL SVOCs via USEPA Method 8270C;
- TAL metals via USEPA Method 6010B/7470A;
- Total cyanide via USEPA Method 9012A; and
- Total organic carbon.

The 2000 monitoring well soil samples were also analyzed for SPLP VOCs, SPLP SVOCs, SPLP cyanide, and SPLP metals. The analytical results of ITC's soil characterization study are presented in **Tables 8, 9,** and **10.**

**Table 8**
**Summary of Detected VOCs, PCBs, and Pesticides in Soil Samples**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD04507178

| CASRN | | Most Conservative PADEP Used-Aquifer MSC (mg/kg) | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Baghouses 1999 | | | Hazardous Waste DSA and Storage Shed 1999 | | | Loading Dock 1999 | Unknown Location 2000 | SUMPS 2000 | |
| | | Residential | Non-Residential | BH-01 | BH-02 | BH-03 | HZ01 | HZ02 | HZ03 | LD02 | OF-01 | SUMP-S-1 | SUMP-S-2 |
| | | | | Surface Composites | | | 8-10' | 2-4' | 0-2' | 2-4' | Unknown | Unknown | Unknown |
| **VOCS** | | | | | | | | | | | | | |
| 67-64-1 | Acetone | 370 | 1,000 | 0.029 | 0.015 | ND | ND | ND | ND | 0.13 | 0.12 | ND | ND |
| 78-93-3 | 2-Butanone | 280 | 580 | ND | ND | ND | ND | ND | ND | ND | 0.02 | ND | ND |
| 75-15-0 | Carbon Disulfide | 190 | 410 | ND | ND | ND | ND | ND | ND | 0.15 | ND | ND | ND |
| 108-90-7 | Chlorobenzene | 10 | 10 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0056J |
| 75-09-2 | Methylene Chloride | 0.5 | 0.5 | ND | ND | ND | ND | ND | ND | 0.012 | ND | ND | ND |
| 75-34-3 | 1,1-Dichloroethane | 2.7 | 11 | ND | ND | ND | ND | ND | ND | **26** | ND | ND | ND |
| 127-18-4 | Tetrachloroethene | 0.5 | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 71-55-6 | 1,1,1-Trichloroethane | 20 | 20 | ND | ND | ND | ND | ND | ND | 0.049 | 0.039 | ND | ND |
| 1330-20-7 | Xylenes | 1,000 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCBs** | | | | | | | | | | | | | |
| 11097-69-1 | Aroclor-1254 | 4.4 | 44 | ND | ND | ND | ND | ND | ND | 0.37 | ND | NA | NA |
| 11096-82-5 | Aroclor-1260 | 30 | 130 | ND | ND | 0.26 | ND | ND | ND | ND | ND | NA | NA |
| **Pesticides** | | | | | | | | | | | | | |
| 309-00-2 | Aldrin | 0.1 | 0.44 | ND | ND | 0.1 | ND | ND | ND | ND | ND | NA | NA |
| 72-20-8 | Endrin | 5.5 | 5.5 | ND | 0.19 | 5.4 | ND | ND | ND | ND | ND | NA | NA |

| CASRN | VOCs | Most Conservative PADEP Used-Aquifer MSC (mg/kg) | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Septic System #1 1999 | | | Septic System #2 1999 | | | Septic System #3 1999 | | | Stained Soil Area |
| | | Residential | Non-Residential | SS1-01 | SS1-02 | SS1-03 | SS2-01 | SS2-02 | SS2-03 | SS3-01 | SS3-02 | SS3-03 | SB01 |
| | | | | 4-6' | 14-15' | 8-10' | 4-6' | 2-4' | 6-8' | 0-2' | 0-2' | 0-2' | 0-2' |
| **VOCS** | | | | | | | | | | | | | |
| 67-64-1 | Acetone | 370 | 1,000 | 0.018 | 0.013 | ND | ND | 0.024 | 0.015 | 0.021 | 0.015 | ND | 0.046 |
| 78-93-3 | 2-Butanone | 280 | 580 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-15-0 | Carbon Disulfide | 190 | 410 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 108-90-7 | Chlorobenzene | 10 | 10 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-09-2 | Methylene Chloride | 0.5 | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-34-3 | 1,1-Dichloroethane | 2.7 | 11 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 127-18-4 | Tetrachloroethene | 0.5 | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 71-55-6 | 1,1,1-Trichloroethane | 20 | 20 | ND | 0.017 | ND | ND | 0.15 | ND | ND | ND | ND | ND |
| 1330-20-7 | Xylenes | 1,000 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCBs** | | | | | | | | | | | | | |
| 11097-69-1 | Aroclor-1254 | 4.4 | 44 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 11096-82-5 | Aroclor-1260 | 30 | 130 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Pesticides** | | | | | | | | | | | | | |
| 309-00-2 | Aldrin | 0.1 | 0.44 | ND | ND | ND | 0.0043 | ND | ND | ND | ND | ND | ND |
| 72-20-8 | Endrin | 5.5 | 5.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| CASRN | VOCs | Most Conservative PADEP Used-Aquifer MSC (mg/kg) | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Monitoring Wells | | | | | | | | | |
| | | Residential | Non-Residential | MW03 1999 3-4' | MW04 1999 0-2' | MW05 1999 8-10' | MW06 1999 13.5-15' | MW07 1999 6-7' | MW08-01 2000 0-4' | MW08-02 2000 4-6' | MW08-03 2000 6-8' | MW08-04 2000 8-12' | MW09-01 2000 0-4' |
| **VOCS** | | | | | | | | | | | | | |
| 67-64-1 | Acetone | 370 | 1,000 | 0.041 | 0.013 | 0.0097 | ND | ND | 0.0035JB | 0.010JB | 0.0076 | 0.0085JB | 0.010JB |
| 78-93-3 | 2-Butanone | 280 | 580 | ND | ND | ND | ND | ND | ND | 0.0028JB | 0.0024 | ND | 0.0027JB |
| 75-15-0 | Carbon Disulfide | 190 | 410 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 108-90-7 | Chlorobenzene | 10 | 10 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-09-2 | Methylene Chloride | 0.5 | 0.5 | ND | 0.017 | ND | ND | ND | ND | ND | ND | ND | ND |
| 75-34-3 | 1,1-Dichloroethane | 2.7 | 11 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 127-18-4 | Tetrachloroethene | 0.5 | 0.5 | ND | ND | ND | ND | 0.0076 | ND | ND | ND | ND | ND |
| 71-55-6 | 1,1,1-Trichloroethane | 20 | 20 | ND | ND | ND | ND | 0.092 | ND | ND | ND | ND | ND |
| 1330-20-7 | Xylenes | 1,000 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | 0.0068 | ND |
| **PCBs** | | | | | | | | | | | | | |
| 11097-69-1 | Aroclor-1254 | 4.4 | 44 | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA |
| 11096-82-5 | Aroclor-1260 | 30 | 130 | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA |
| **Pesticides** | | | | | | | | | | | | | |
| 309-00-2 | Aldrin | 0.1 | 0.44 | ND | 0.0029 | ND | ND | ND | NA | NA | NA | NA | NA |
| 72-20-8 | Endrin | 5.5 | 5.5 | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA |

Notes:
1. All values are presented in mg/kg.
2. ND - Compound not detected in sample.
3. Values that are bolded, underlined, and highlighted gray exceeded the most conservative PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of
4. "Most conservative" soil MSCs are derived by comparing the Generic and 100x Groundwater MSCs for the Soil-to-Groundwater pathway and selecting the greater of those two values. The Soil-to-Groundwater Pathway MSC value is then compared to the appropriate Direct Contact MSC (0 to 15 feet for Residential and either 0 to 2 feet or 2 to 15 feet for Non-Residential). The lesser of these two values is used. The most conservative MSCs for the non-residential scenario are the same for both the 0 to 2 feet and the 2 to 15 feet interval.
5. Soil samples collected by ITC in 1999 were anayzed for the following: total cyanide via USEPA Method 9012A, total TAL metals via USEPA Method 6010B/7470A, pesticides via USEPA Method 8081, PCBs via USEPA Method 8082, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
6. Soil samples collected by ITC in 2000 were anayzed for the following: total cyanide via USEPA Method 9012A, total TAL metals via USEPA Method 6010B/7470A, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
7. B - Method blank-contaminated.
8. J - Estimated result. Result below reporting limit.

**Table 9**
**Summary of Detected SVOCs in Soil Samples**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CASRN | SVOCs | Most Conservative PADEP Used-Aquifer MSCs (mg/kg) | | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Baghouses 1999 | | | Hazardous Waste DSA and Storage Shed | | | Loading Dock | Unknown Location | SUMPS 2000 | |
| | | Residential 0-15' | Non-Residential 0-2' | Non-Residential 2-15' | BH-01 | BH-02 | BH-03 | HZ01 | HZ02 | HZ03 | LD02 | OF-1 | SUMP-S-1 | SUMP-S-2 |
| | | | | | Surface Composite | | | 8-10' | 2-4' | 0-2' | 2-4' | Unknown | Unknown | Unknown |
| 120-12-7 | Anthracene | 350 | 350 | 350 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 117-81-7 | Bis(2-ethylhexyl)phthalate | 130 | 130 | 130 | ND | ND | ND | ND | ND | ND | 0.35 | ND | 0.32 | ND |
| 56-55-3 | Benzo (a) anthracene | 25 | 110 | 320 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 50-32-8 | Benzo (b) pyrene | 2.5 | 11 | 46 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 205-99-2 | Benzo (b) fluoranthene | 25 | 110 | 170 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 86-74-8 | Carbazole | 21 | 83 | 83 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 218-01-9 | Chrysene | 230 | 230 | 230 | ND | ND | ND | ND | ND | ND | 0.35 | ND | ND | ND |
| 206-44-0 | Flouranthene | 3,200 | 3,200 | 3,200 | ND | ND | 0.4 | ND | ND | ND | ND | 6.3 | ND | ND |
| 91-57-6 | 2-Methylnaphthalene | 2,900 | 8,000 | 8,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 86-30-6 | N-nitrosodiphenylamine | 20 | 83 | 83 | ND | 0.35 | 0.38 | ND | ND | ND | ND | ND | ND | 17J |
| 85-01-8 | Phenanthrene | 10,000 | 10,000 | 10,000 | ND | ND | ND | ND | ND | ND | 1.1 | ND | ND | ND |
| 129-00-0 | Pyrene | 2,200 | 2,200 | 2,200 | ND | ND | ND | ND | ND | ND | ND | 5 | ND | ND |

| CASRN | SVOCs | Most Conservative PADEP Used-Aquifer MSCs (mg/kg) | | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Septic System #1 1999 | | | Septic System #2 1999 | | | Septic System #3 1999 | | | Stained Soil Area |
| | | Residential 0-15' | Non-Residential 0-2' | Non-Residential 2-15' | SS1-01 | SS1-02 | SS1-03 | SS2-01 | SS2-02 | SS2-03 | SS3-01 | SS3-02 | SS3-03 | SB01 |
| | | | | | 4-6' | 14-15' | 8-10' | 4-6' | 2-4' | 6-8' | 0-2' | 0-2' | 0-2' | 0-2' |
| 120-12-7 | Anthracene | 350 | 350 | 350 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 117-81-7 | Bis(2-ethylhexyl)phthalate | 130 | 130 | 130 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 56-55-3 | Benzo (a) anthracene | 25 | 110 | 320 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 50-32-8 | Benzo (b) pyrene | 2.5 | 11 | 46 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 205-99-2 | Benzo (b) fluoranthene | 25 | 110 | 170 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 86-74-8 | Carbazole | 21 | 83 | 83 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 218-01-9 | Chrysene | 230 | 230 | 230 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 206-44-0 | Flouranthene | 3,200 | 3,200 | 3,200 | ND | ND | ND | ND | ND | 0.42 | ND | ND | ND | ND |
| 91-57-6 | 2-Methylnaphthalene | 2,900 | 8,000 | 8,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 86-30-6 | N-nitrosodiphenylamine | 20 | 83 | 83 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 85-01-8 | Phenanthrene | 10,000 | 10,000 | 10,000 | ND | ND | ND | 0.92 | ND | ND | ND | 0.41 | ND | ND |
| 129-00-0 | Pyrene | 2,200 | 2,200 | 2,200 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| CASRN | SVOCs | Most Conservative PADEP Used-Aquifer MSCs (mg/kg) | | | Monitoring Wells | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Residential 0-15' | Non-Residential 0-2' | Non-Residential 2-15' | MW03 1999 3-4' | MW04 1999 0-2' | MW05 1999 8-10' | MW06 1999 13.5-15' | MW07 1999 6-7' | MW08-01 2000 0-4' | MW08-02 2000 4-6' | MW08-03 2000 6-8' | MW08-04 2000 8-12' | MW09-01 2000 0-4' |
| 120-12-7 | Anthracene | 350 | 350 | 350 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.13J |
| 117-81-7 | Bis(2-ethylhexyl)phthalate | 130 | 130 | 130 | ND | NA | ND | ND | ND | NA | ND | 0.19J | ND | ND |
| 56-55-3 | Benzo (a) anthracene | 25 | 110 | 320 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.14J |
| 50-32-8 | Benzo (b) pyrene | 2.5 | 11 | 46 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.14J |
| 205-99-2 | Benzo (b) fluoranthene | 25 | 110 | 170 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.2J |
| 86-74-8 | Carbazole | 21 | 83 | 83 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.22J |
| 218-01-9 | Chrysene | 230 | 230 | 230 | ND | NA | ND | ND | 0.53 | NA | ND | ND | ND | 0.19J |
| 206-44-0 | Flouranthene | 3,200 | 3,200 | 3,200 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.41 |
| 91-57-6 | 2-Methylnaphthalene | 2,900 | 8,000 | 8,000 | ND | NA | ND | ND | 0.49 | NA | ND | ND | ND | ND |
| 86-30-6 | N-nitrosodiphenylamine | 20 | 83 | 83 | ND | NA | ND | ND | ND | NA | ND | ND | ND | ND |
| 85-01-8 | Phenanthrene | 10,000 | 10,000 | 10,000 | ND | NA | ND | ND | 1.5 | NA | ND | ND | 0.21J | 0.63 |
| 129-00-0 | Pyrene | 2,200 | 2,200 | 2,200 | ND | NA | ND | ND | ND | NA | ND | ND | ND | 0.22J |

Notes:
1. All values are presented in mg/kg.
2. NA - Analytical results not available reviewed documentation.
3. None of the concentrations in this data set exceed the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) Residential or Non-Residential Soil MSCs for a Used Aquifer Area.
4. "Most conservative" soil MSCs are derived by comparing the Generic and 100x Groundwater MSCs for the Soil-to-Groundwater pathway and selecting the greater of those two values. The Soil-to-Groundwater Pathway MSC value is then compared to the appropriate Direct Contact MSC. The lesser of these two values is used.
5. Soil samples collected by ITC in 1999 were anayzed for the following: total cyanide via USEPA Method 9012A, total TAL metals via USEPA Method 6010B/7470A, pesticides via USEPA Method 8081, PCBs via USEPA Method 8082, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
6. Soil samples collected by ITC in 2000 were anayzed for the following: total cyanide via USEPA Method 9012A, total TAL metals via USEPA Method 6010B/7470A, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
7. J - Estimated result. Result is less than the reporting limit.

**Table 10 (page 1 of 3)**
**Summary of Detected Metals in Soil Samples**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CASRN | Parameters | Most Conservative PADEP Used-Aquifer MSC (mg/kg) | | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Baghouses 1999 | | | Hazardous Waste DSA and Storage Shed 1999 | | | Loading Dock 1999 | Unknown Location 2000 | SUMPS 2000 | |
| | | Residential 0-15 feet | Non-Residential 0-2 feet | Non-Residential 2-15 feet | BH-01 | BH-02 | BH-03 | HZ01 | HZ02 | HZ03 | LD-02 | OF-01 | SUMP-S-1 | SUMP-S-2 |
| | | | | | Surface Composites | | | 8-10' | 2-4' | 0-2' | 2-4' | 2000 | Unknown | |
| 7429-90-5 | Aluminum | 190,000 | 190,000 | 190,000 | 7,000 | 3,800 | 5,900 | 3,200 | 6,800 | 7,200 | 530 | 5,700 | 3,750 | 90.7 |
| 7440-36-0 | Antimony | 27 | 27 | 27 | 0.65 | 0.97 | 1.3 | 1.6 | ND | ND | 14 | 3.2 | 0.72B | ND |
| 7440-38-2 | Arsenic | 12 | 150 | 150 | 5.9 | 8.4 | 11 | **23** | **15** | 8.4 | **25** | 11 | 8.8 | 0.54B |
| 7440-39-3 | Barium | 8,200 | 8,200 | 8,200 | 98 | 89 | 96 | 49 | 69 | 93 | 17 | 90 | 91 | 27.9 |
| 7440-41-7 | Beryllium | 320 | 320 | 320 | 0.72 | 0.32 | 0.29 | 0.32 | 1 | 0.89 | ND | 0.63 | 0.3B | 0.026B |
| 7440-43-9 | Cadmium | 38 | 38 | 38 | ND | 0.32 | 1.4 | ND | ND | ND | ND | 6.4 | 0.93 | ND |
| 7440-70-2 | Calcium | NS | NS | NS | 2,400 | 45,000 | 16,000 | 260 | 1,600 | 5,500 | ND | 2,300 | 136,000 | 693 |
| 18540-29-9 | Chromium | 94 | 190 | 190 | 11 | 30 | 34 | 16 | 13 | 13 | **160** | 55 | 52.2 | **217** |
| 7440-48-4 | Cobalt | 73 | 200 | 200 | 12 | 4.5 | 4.2 | ND | 8.2 | 6.7 | 20 | 10 | 9.9 | 28.4 |
| 7440-50-8 | Copper | 8,200 | 36,000 | 36,000 | 15 | 25 | 57 | 21 | 27 | 22 | 190 | 250 | 292 | 23.4 |
| 7439-89-6 | Iron | 66,000 | 190,000 | 190,000 | 19,000 | 16,000 | 24,000 | 24,000 | 13,000 | 11,000 | **410,000** | 51,000 | 42,100 | **202,000** |
| 7439-92-1 | Lead | 450 | 450 | 450 | 15 | 170 | 89 | 22 | 16 | 22 | 3.6 | 92 | 13.1 | 1.4B |
| 7439-95-4 | Magnesium | NS | NS | NS | 750 | 680 | 730 | 200 | 840 | 1,200 | ND | 950 | 11,400 | 283B |
| 7439-96-5 | Manganese | 31,000 | 190,000 | 190,000 | 680 | 300 | 240 | 18 | 48 | 310 | 2,400 | 610 | 648 | 1,140 |
| 7439-97-6 | Mercury | 10 | 10 | 10 | ND | 0.13 | 0.17 | 0.39 | 0.12 | 0.12 | ND | 0.66 | 0.016B | ND |
| 7440-02-0 | Nickel | 650 | 650 | 650 | 14 | 13 | 20 | 5 | 15 | 14 | 110 | 32 | 57.2 | 75.4 |
| 7440-09-7 | Potassium | NS | NS | NS | 750 | 1,300 | 1,400 | 1,100 | 1,400 | 1,800 | 470 | 660 | 479B | 81.1B |
| 7782-49-2 | Selenium | 26 | 26 | 26 | ND | ND | ND | 5 | ND | ND | ND | ND | ND | ND |
| 7440-23-5 | Sodium | NS | NS | NS | 260 | 650 | ND | 400 | 270 | 300 | 1,400 | ND | 177B | 104B |
| 7440-28-0 | Thallium | 14 | 14 | 14 | ND | ND | ND | ND | ND | ND | **22** | ND | ND | ND |
| 7440-62-2 | Vanadium | 1,500 | 20,000 | 72,000 | 16 | 11 | 15 | 24 | 16 | 14 | 8.6 | 6.3 | 8.5 | ND |
| 7440-66-6 | Zinc | 12,000 | 12,000 | 12,000 | 86 | 130 | 260 | 52 | 120 | 110 | 11 | 1,700 | 1,220 | 293 |

**Table 10 (page 2 of 3)**
**Summary of Detected Metals in Soil Samples**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| | | Most Conservative PADEP Used-Aquifer MSC (mg/kg) | | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Septic System #1 1999 | | | Septic System #2 1999 | | | Septic System #3 1999 | | | Stained Soil Area |
| | | Residential 0-15 feet | Non-Residential 0-2 feet | Non-Residential 2-15 feet | SS1-01 | SS1-02 | SS1-03 | SS2-01 | SS2-02 | SS2-03 | SS3-01 | SS3-02 | SS3-03 | SB-01 |
| CASRN | Parameters | | | | 4-6' | 14-15' | 8-10' | 4-6' | 2-4' | 6-8' | 0-2' | 0-2' | 0-2' | 0-2' |
| 7429-90-5 | Aluminum | 190,000 | 190,000 | 190,000 | 9,100 | 8,900 | 5,900 | 3,700 | 8,100 | 6,200 | 6,100 | 6,200 | 5,600 | 6,500 |
| 7440-36-0 | Antimony | 27 | 27 | 27 | 1.4 | 0.72 | 1.3 | 0.57 | 1.3 | 0.88 | ND | 0.84 | 1.3 | 0.75 |
| 7440-38-2 | Arsenic | 12 | 150 | 150 | 4.3 | 3.8 | **19** | **37** | **23** | 9.6 | **22** | **14** | 7.1 | 9.8 |
| 7440-39-3 | Barium | 8,200 | 8,200 | 8,200 | 110 | 31 | 75 | 87 | 160 | 98 | 82 | 120 | 550 | 110 |
| 7440-41-7 | Beryllium | 320 | 320 | 320 | 0.82 | 0.49 | 0.97 | 0.46 | 0.97 | 0.68 | 0.86 | 0.67 | 0.32 | 0.63 |
| 7440-43-9 | Cadmium | 38 | 38 | 38 | ND | ND | 1.1 | ND | ND | ND | ND | ND | ND | ND |
| 7440-70-2 | Calcium | NS | NS | NS | 1,700 | 400 | 760 | 1,400 | 1,200 | 4,100 | 1,300 | 7,900 | 840 | 1,400 |
| 18540-29-9 | Chromium | 94 | 190 | 190 | 13 | 16 | 13 | 13 | 14 | 15 | 7.6 | 9.5 | 17 | 9.9 |
| 7440-48-4 | Cobalt | 73 | 200 | 200 | 15 | 9.4 | 14 | ND | 9.1 | 5.3 | 5.9 | 2.2 | 2.4 | 7.9 |
| 7440-50-8 | Copper | 8,200 | 36,000 | 36,000 | 20 | 23 | 25 | 7 | 16 | 24 | 20 | 17 | 25 | 10 |
| 7439-89-6 | Iron | 66,000 | 190,000 | 190,000 | 21,000 | 19,000 | 20,000 | 11,000 | 19,000 | 23,000 | 19,000 | 13,000 | 37,000 | 20,000 |
| 7439-92-1 | Lead | 450 | 450 | 450 | 27 | 14 | 20 | 20 | 45 | 31 | 29 | 19 | 14 | 12 |
| 7439-95-4 | Magnesium | NS | NS | NS | 1,100 | 2,700 | 650 | 210 | 520 | 610 | 470 | 1,400 | 1,100 | 640 |
| 7439-96-5 | Manganese | 31,000 | 190,000 | 190,000 | 1,900 | 160 | 200 | 14 | 1,100 | 310 | 150 | 180 | 48 | 850 |
| 7439-97-6 | Mercury | 10 | 10 | 10 | 0.12 | ND | 0.31 | 0.72 | 0.25 | 0.22 | 0.15 | 0.15 | 0.1 | 0.13 |
| 7440-02-0 | Nickel | 650 | 650 | 650 | 15 | 20 | 16 | 5 | 12 | 11 | 9.4 | 5.4 | 6.6 | 10 |
| 7440-09-7 | Potassium | NS | NS | NS | 890 | 1,100 | 1,000 | 970 | 830 | 990 | 2,300 | 2,500 | 1,500 | 930 |
| 7782-49-2 | Selenium | 26 | 26 | 26 | ND | ND | ND | 3.1 | ND | 1.3 | ND | ND | ND | ND |
| 7440-23-5 | Sodium | NS | NS | NS | 730 | 520 | 650 | 760 | 350 | 630 | 520 | 500 | 340 | 310 |
| 7440-28-0 | Thallium | 14 | 14 | 14 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 7440-62-2 | Vanadium | 1,500 | 20,000 | 72,000 | 18 | 12 | 14 | 9.9 | 17 | 15 | 9.7 | 9.2 | 16 | 17 |
| 7440-66-6 | Zinc | 12,000 | 12,000 | 12,000 | 71 | 69 | 65 | 11 | 140 | 59 | 69 | 76 | 99 | 69 |

**Table 10 (page 3 of 3)**
**Summary of Detected Metals in Soil Samples**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CASRN | Parameters | Most Conservative PADEP Used-Aquifer MSC (mg/kg) | | | Sample Location, Sample ID, Sample Depth, and Concentration of Parameters (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Monitoring Wells | | | | | | | | | |
| | | Residential 0-15 feet | Non-Residential 0-2 feet | Non-Residential 2-15 feet | MW03 | MW04 | MW05 | MW06 | MW07 | MW08-01 | MW08-02 | MW08-03 | MW08-04 | MW09-01 |
| | | | | | 3-4' | 0-2' | 8-10' | 13.5-15' | 6-7' | 2000 0-4' | 2000 4-6' | 2000 6-8' | 2000 8-12' | 2000 0-4' |
| 7429-90-5 | Aluminum | 190,000 | 190,000 | 190,000 | 7,900 | 4,300 | 3,800 | 3,300 | 4,400 | 6,310 | 7,530 | 8,520 | 6,200 | 9,060 |
| 7440-36-0 | Antimony | 27 | 27 | 27 | 1.1 | 1 | ND | 0.83 | 1.3 | 0.28BN | 0.22BN | 0.27BN | 0.17UN | 0.39BN |
| 7440-38-2 | Arsenic | 12 | 150 | 150 | 11 | **33** | 9.2 | 6.2 | **46** | **13.3** | **21.1** | **17.2** | 8.9 | 11.8 |
| 7440-39-3 | Barium | 8,200 | 8,200 | 8,200 | 80 | 120 | 29 | 94 | 120 | 86.2 | 95.7 | 118 | 43.4 | 99.7 |
| 7440-41-7 | Beryllium | 320 | 320 | 320 | 0.73 | 0.54 | 0.67 | 0.31 | 0.57 | 0.72E | 0.76E | 0.82E | 0.66E | 0.66E |
| 7440-43-9 | Cadmium | 38 | 38 | 38 | ND | ND | ND | ND | ND | 0.14B | ND | ND | ND | 0.19B |
| 7440-70-2 | Calcium | NS | NS | NS | 2,100 | 1,500 | 610 | 6,800 | 5,300 | 69,400N | 6,060N | 7,280N | 1,260 | 37,000N |
| 18540-29-9 | Chromium | 94 | 190 | 190 | 17 | 13 | 14 | 8.3 | 17 | 13.6 | 17.5 | 18 | 15.8 | 17.9 |
| 7440-48-4 | Cobalt | 73 | 200 | 200 | 11 | 1.7 | 5.2 | 4.6 | 3 | 12.3 | 10.7 | 14 | 22.5 | 9.9 |
| 7440-50-8 | Copper | 8,200 | 36,000 | 36,000 | 23 | 18 | 19 | 18 | 18 | 29 | 22.9 | 35.5 | 26.5 | 38.8 |
| 7439-89-6 | Iron | 66,000 | 190,000 | 190,000 | 31,000 | 30,000 | 15,000 | 14,000 | 27,000 | 22,200 | 38,700 | 41,900 | 50,200 | 24,200 |
| 7439-92-1 | Lead | 450 | 450 | 450 | 21 | 22 | 12 | 18 | 25 | 24.6 | 44 | 36.8 | 13.5 | 33 |
| 7439-95-4 | Magnesium | NS | NS | NS | 910 | 260 | 510 | 720 | 390 | 1,060 | 961 | 929 | 1,260 | 960 |
| 7439-96-5 | Manganese | 31,000 | 190,000 | 190,000 | 790 | 48 | 40 | 90 | 81 | 612 | 477 | 634 | 268 | 720 |
| 7439-97-6 | Mercury | 10 | 10 | 10 | 0.2 | 0.62 | 0.2 | ND | 0.96 | 0.13 | 0.19 | 0.2 | 0.06 | 0.17 |
| 7440-02-0 | Nickel | 650 | 650 | 650 | 15 | 4.4 | 9.8 | 9.7 | 8.7 | 14 | 10.3 | 13.8 | 24.4 | 14.5 |
| 7440-09-7 | Potassium | NS | NS | NS | 1,300 | 1,100 | 710 | 860 | 1,200 | 871 | 868 | 948 | 757 | 891 |
| 7782-49-2 | Selenium | 26 | 26 | 26 | ND | 6.7 | ND | ND | 5.3 | 2.1 | 4.6 | 3.4 | 2.4 | 2 |
| 7440-23-5 | Sodium | NS | NS | NS | 340 | 440 | 410 | 610 | 770 | 67.2B | 64.1B | 75.3B | 42.7B | 68.3B |
| 7440-28-0 | Thallium | 14 | 14 | 14 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 7440-62-2 | Vanadium | 1,500 | 20,000 | 72,000 | 20 | 14 | 8.4 | 10 | 15 | 14.3 | 19.5 | 22 | 20.7 | 17 |
| 7440-66-6 | Zinc | 12,000 | 12,000 | 12,000 | 99 | 52 | 52 | 64 | 31 | 64.6NE | 55.6NE | 128NE | 97.3NE | 88NE |

**Notes:**
1. All values are presented in mg/kg.
2. NA - Analytical results not available reviewed documentation.
3. ND - Compound not detected in sample.
4. NS - No PADEP Statewide Health Standard for this compound.
5. Values that are bolded, underlined, and highlighted gray exceed both the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) Residential and Non-Residential Soil MSCs for a Used Aquifer Area.
6. Values that are bolded and underlined exceed only the Residential Soil MSCs.
7. "Most conservative" soil MSCs are derived by comparing the Generic and 100x Groundwater MSCs for the Soil-to-Groundwater pathway and selecting the greater of those two values. The Soil-to-Groundwater Pathway MSC value is then compared to the appropriate Direct Contact MSC. The lesser of these two values is used.
8. Chromium VI was assumed for the MSCs listed.
9. B - Estimated result. Result is less than the reporting limit.
10. E - Matrix interference.
11. N - Spiked analyte rcovery is outside stated control limits.

URS compared ITC's 1999 and 2000 soil data to current Residential and Non-Residential MSCs. The MSCs used for comparison of these data are considered the most conservative (lesser of the Soil-to-Groundwater Pathway and Direct Contact MSCs) for each use scenario for the depth from which each sample was collected (i.e., residential - 0 to 15 feet or non-residential - 0 to 2 feet or 2 to 15 feet).

While there were detections of VOCs, pesticides, PCBs, and SVOCs in most of the soil samples, the detected concentrations did not exceed either the Residential or Non-Residential MSCs (see **Tables 8** and **9**) with the exception of 1,1-DCA, which exceeded both the Residential and Non-Residential MSCs in the sample collected from beneath the former loading dock (LD02). This sample also contained concentrations of arsenic and chromium that exceeded only the residential MSCs, and concentrations of iron and thallium that exceeded both the Residential and Non-Residential MSCs. According to ITC's 1999 Site Characterization Report, this sample was collected from directly beneath the concrete floor of the loading dock.

Chromium and Iron were detected in the March 2000 SUMP-S-2 sample at concentrations above the Residential and Non-Residential MSCs (**Table 8**). This sample was collected from one of two sumps (now sealed) that received spills/releases from floor drains located in the pilot plant room/raw materials storage area or the compressor room. Which of the two sumps ITC labeled SUMP2 is unknown. There have been no documented releases to the drains that emptied into these sumps.

Arsenic was detected above the Residential MSC in soil samples collected in the vicinity of the hazardous materials storage shed and hazardous waste drum storage area, each of the three septic systems, and in the boreholes of MW04 and MW07 (**Table 10**). ITC concluded that the elevated arsenic concentrations were naturally occurring and not related to site operations (samples were generally collected from intervals described by ITC as "black silty material").

**Sediment:**

Two unnamed tributaries to Union Run are located in the vicinity of the Site. One of the tributaries is located approximately 0.24 miles northwest of the property. A drainage swale leads from the Facility to an intermittent surface drainage pathway that ultimately discharges to this unnamed tributary. The other tributary is located approximately 0.13 miles southwest of the Site. PADEP identifies both of the Union Run tributaries as warm water fisheries. Both water bodies are non-attaining segments of the Integrated List according to the standards set by the PADEP Clean Streams Law, and are listed as impaired by acid mine drainage. These standards are based upon aquatic life, fish consumption, recreational use, and potable water supply criteria. The unnamed tributaries join and discharge into Union Run approximately 0.5 miles west of the Site. PADEP also identifies Union Run as a warm water fishery, non-attaining segment, impaired by acid mine drainage.

Both the eMapPA and FEMA Flood Insurance Rate Maps indicate that no portion of the Facility is located within the 100- or 500-year flood plains of Union Run. The unnamed tributary floodplains are currently not defined; therefore, it is unknown whether the Facility is located within the floodplain of either of these water bodies. Neither the drainage swale nor the drainage pathway to which it discharges is identified on the eMapPA or the FEMA FIRM map. There are no sensitive habitats onsite. No ponds or wetlands were observed at the time of the 2009 site visit.

There have been two documented instances of releases of Site-related materials to the onsite drainage swale and the drainage pathway to which it discharges. The first instance occurred on July 2, 1990, approximately 100 pounds of clay, flint, and feldspar removed from the settling basins was accidentally discharged into the drainage swale leading to a drainage pathway that ultimately discharges to an unnamed tributary to Union Run located approximately 0.24 miles northwest of the Site. On October 23, 1991, another release of clay occurred to the same drainage swale. ITC collected four sediment samples during their 1999 investigation. Two sediment samples (SS01 and SS02) were collected from the intermittent drainage swale located on the northwestern corner of the property, in the vicinity of the mine shaft vent (**Figure 1**). Two additional samples (SD-01 and SD-02) were collected from the intermittent surface drainage pathway into which the drainage swale discharges. Detected constituents are presented on **Tables 11** and **12.**

**Table 11**
**Summary of Detected VOCs and SVOCs in Sediment Samples - 1999**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CARSN | CONSTITUENT | PADEP Direct Contact Soil MSCs (mg/kg) | | Sample ID and Concentration of Parameters (mg/kg) | | | |
|---|---|---|---|---|---|---|---|
| | | Residential (0-15 feet) | Non-Residential (0-2 feet) | SS01 | SS02 | SD-01 | SD-02 |
| | | | | Drainage Swale Surface Grab | | Drainage Pathway to Unnamed Tributary Located Northwest of Site - Surface Grab | |
| **VOCs** | | | | | | | |
| 67-64-1 | Acetone | 10,000 | 10,000 | 22 | 110 | 26 | 39 |
| **SVOCs** | | | | | | | |
| 206-44-0 | Fluoranthene | 8,800 | 110,000 | 0.79 | ND | 0.85 | ND |
| 86-30-6 | N-nitrosodiphenylamine | 3,700 | 16,000 | 0.95 | ND | ND | ND |
| 85-01-8 | Phenanthrene | 66,000 | 190,000 | 0.52 | ND | 0.52 | ND |
| 129-00-0 | Pyrene | 6,600 | 84,000 | 0.67 | ND | 0.69 | ND |

**Notes:**

1. All values are presented in mg/kg.
2. ND - Compound not detected in sample.
3. There are no exceedances of the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) for Residential and Non-Residential Direct Contact Soil MSCs in this dataset.
4. PADEP Residential and Non-Residential Direct Contact Soil MSCs were used for screening this dataset. Sediment samples were collected from an intermittent drainage swale and an intermittent drainage pathway that discharges to an unnamed tributary of Union Run. PADEP identifies the unnamed tributary and Union Run as impaired water bodies. The drainage swale and pathway, both dry during ITC's sampling, are not identified by PADEP.
5. It is beyond this scope of work to perform an ecological risk evaluation of this data. To evaluate human exposure to potentially impacted soil/sediment, the analytical data presented in this table were compared to the PADEP Direct Contact Soil MSCs.
6. Sediment samples collected by ITC in 1999 were anayzed for the following: total cyanide via USEPA Method 9012A, total TAL metals via USEPA Method 6010B/7470A, pesticides via USEPA Method 8081, PCBs via USEPA Method 8082, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
7. No VOCs were detected in the samples, except for acetone.
8. No PCBs or pesticides were detected in the sediment samples.

**Table 12**
**Summary of Metals in Sediment Samples - 1999**
Former NuKote Imaging International Facility
Derry, Westmoreland County, Pennsylvania
PAD042507178

| CASRN | METALS | PADEP Direct Contact Soil MSCs (mg/kg) | | Sample ID, Sample Location, and Concentration of Parameters (mg/kg) | | | |
|---|---|---|---|---|---|---|---|
| | | Residential (0-15 ft) | Non-Residential (0-2 ft) | SS01 | SS02 | SD-01 | SD-02 |
| | | | | Drainage Swale Surface Grab | | Drainage Pathway to Unnamed Tributary Located Northwest of Site - Surface Grab | |
| 7429-90-5 | Aluminum | 190,000 | 190,000 | 9,900 | 7,900 | 5,400 | 7,500 |
| 7440-36-0 | Antimony | 88 | 1,100 | 2.9 | 1.1 | 1.2 | 1.8 |
| 7440-38-2 | Arsenic | 12 | 53 | 5.9 | 11 | 9.7 | 9.6 |
| 7440-39-3 | Barium | 15,000 | 190,000 | 100 | 89 | 110 | 87 |
| 7440-41-7 | Beryllium | 440 | 5,600 | 0.68 | 0.67 | 0.71 | 0.99 |
| 7440-43-9 | Cadmium | 47 | 210 | 0.27 | ND | ND | ND |
| 7440-70-2 | Calcium | NS | NS | 1,900 | 1,900 | 3,200 | 3,200 |
| 18540-29-9 | Chromium | 94 | 420 | **1,000** | 34 | 15 | 51 |
| 7440-48-4 | Cobalt | 4,400 | 56,000 | 11 | 11 | 12 | 13 |
| 7440-50-8 | Copper | 8,200 | 100,000 | 120 | 20 | 21 | 30 |
| 57-12-5 | Cyanide | 4,400 | 56,000 | 26 | 1.8 | ND | ND |
| 7439-92-1 | Lead | 500 | 1,000 | 40 | 22 | 57 | 31 |
| 7439-95-4 | Magnesium | NS | NS | 890 | 830 | 1,200 | 1,600 |
| 7439-96-5 | Manganese | 31,000 | 190,000 | 370 | 830 | 910 | 860 |
| 7439-97-6 | Mercury | 66 | 840 | 0.32 | 0.12 | 0.12 | ND |
| 7440-02-0 | Nickel | 4,400 | 56,000 | 23 | 14 | 17 | 20 |
| 7440-09-7 | Potassium | NS | NS | 1,100 | 1,300 | 900 | 760 |
| 7440-23-5 | Sodium | NS | NS | ND | 230 | 630 | 310 |
| 7440-28-0 | Thallium | 15 | 200 | ND | ND | ND | 2.5 |
| 7440-62-2 | Vanadium | 1,500 | 20,000 | 21 | 19 | 19 | 23 |
| 7440-66-6 | Zinc | 66,000 | 190,000 | 480 | 120 | 73 | 230 |

**Notes:**

1. All values are presented in mg/kg.
2. ND - Compound not detected in sample.
3. NS - No PADEP MSC exists for this constituent.
4. Values that are bolded, underlined, and highlighted gray exceed both the PADEP Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708) Residential and Non-Residential Direct Contact Soil MSCs to
5. PADEP Residential and Non-Residential Direct Contact Soil MSCs were used for screening this dataset. Sediment samples were collected from an intermittent drainage swale and an intermittent drainage pathway that discharges to an unnamed tributary of Union Run. PADEP identifies the unnamed tributary and Union Run as impaired water bodies. The drainage swale and pathway, both dry during ITC's sampling, are not identified by PADEP.
6. It is beyond this scope of work to perform an ecological risk evaluation of this data. To evaluate human exposure to potentially impacted soil/sediment, the analytical data presented in this table were compared to the PADEP Direct Contact Soil MSCs.
7. Sediment samples collected by ITC in 1999 were anayzed for the following: total cyanide via USEPA Method 9012A, total TAL metals via USEPA Method 6010B/7470A, pesticides via USEPA Method 8081, PCBs via USEPA Method 8082, TCL SVOCs via USEPA Method 8270C, and VOCs via USEPA Method 8260B.
8. Cyanide MSC is representative of free cyanide whereas the results are for total cyanide.
9. Chromium MSC listed above is for hexavalent chromium (Cr VI).

URS charted and compared the analytical results for the sediment samples to current PADEP Residential and Non-Residential Direct Contact Soil MSCs (**Table 8**). An ecological risk evaluation of the sediment sample analytical data was not performed at the time of the sampling event. To evaluate human exposure via direct contact with potentially impacted soil/sediment in the drainage swale and pathway, the analytical data were evaluated against the Direct Contact MSCs.

No VOCs were detected in the sediment samples, except acetone, which was identified in each of the four samples at concentrations ranging from 22 to 110 mg/kg. Acetone is a common laboratory contaminant. Although acetone historically was used at the Facility, its presence in the samples also may be an artifact of laboratory sample preparation. Several SVOCs (fluoranthene, N-nitrosodiphenylamine, phenanthrene, and pyrene) were detected in the two of the sediment samples at concentrations below the PADEP Residential and Non-Residential MSCs. Based on information provided in historical documentation, the SVOCs detected in the samples were not typically used by the Facility. No PCBs or pesticides were detected in the sediment samples. None of the metals analyzed for were detected in the sediment samples above the PADEP Residential and Non-Residential Direct Contact Soil MSCs, with the exception of chromium, which was detected at SS01 at a concentration of 1,000 mg/kg (**Table 9**).

Based on the information presented in this section, direct contact with chromium-impacted sediment in the drainage swale located northwest of the Site is possible, but it is also a naturally occurring metal found in soil. The extent of impact to sediments in the swale is unknown. Based on the analytical results for samples SD-01 and SD-02, sediment in the intermittent drainage pathway that discharges to the unnamed northwestern tributary does not appear to be impacted by releases associated with past site operations.

**Surface Water:**

A water pollution report was completed by the Pennsylvania Fish and Boat Commission (PFBC) regarding a release from the Facility's settling basins into a nearby tributary on July 3, 1990. According to the report, part of the Facility's wastewater treatment system included gravity settling of solids prior to treatment using a flocculant. The gravity settling occurred in eight "primary basins" located at the northwestern end of the property. The primary basins were cleaned out approximately every six to eight weeks to ensure proper operation. On July 2, 1990, approximately 100 pounds of clay, flint, and feldspar removed from the settling basins was accidentally discharged into the drainage swale leading to a drainage pathway that ultimately discharges to an unnamed tributary to Union Run located approximately 0.24 miles northwest of the Site. The tributary reportedly became noticeably "milky" for approximately two hours. The PFBC report concluded that while no fish were killed, the pollution was acute, and the layers of clay, flint, and feldspar deposited into the drainage swale and the tributary required corrective action. Although this release was accidental, a settlement was reached between the Facility and PADEP, which was paid by the Facility on March 6, 1991.

On October 23, 1991, another release of clay occurred to the drainage swale. Tap water was used in the former grinding department as a coolant for grinding fired electrical porcelain insulators. The cooling water was directed to a sump located in the southern portion of the former grinding department. From the sump, the cooling water was pumped to the Facility's wastewater treatment system (**Figure 1**). The release of clay caused the sump pump to fail and the sump overflowed. Approximately five pounds of clay, flint, feldspar, and small fired porcelain particles were discharged into the unnamed tributary located northwest of the Site via the drainage swale. As a result of this release, the Facility increased inspections on the grinders from once a day to twice a day, and a back-up pump was reportedly installed and in operation by November 1, 1991.

On July 28, 1993, a NOV was issued related to an April 20, 1993 PADEP inspection which revealed that the Facility was discharging industrial wastes contrary to the terms and conditions of its National Pollutant Discharge Elimination System (NPDES) permit. More specifically, a monthly discharge monitoring report (DMR) was not submitted for the months of March, June, August, October, and December 1992, and January, February, and March 1993. In addition, the Facility's NPDES permit expired on November 14, 1989, and the Facility did not apply for a renewal in a timely manner. Other observations noted during the inspection included an inoperable alarm bell for the settling basin, diminished capacity of the settling basins by deposition of clay, and the absence of an updated Preparedness, Prevention, and Contingency (PPC) plan. The Facility responded to the NOV by immediately taking the following actions: 1) completing and submitting to PADEP the missing DMR reports, 2) repairing the settling basin alarm bell, and 3) updating the PPC plan. However, the Facility disagreed that the capacity of the settling basins had been reduced arguing that when eight settling basins were in

use, there was insufficient space to install sediment screens prior to discharge of wastewater into the sump. The lack of screens allowed foreign material to enter the basins which caused clogging, and ultimately lead to overflows. Following the reduction from eight to four settling basins, overflows had occurred.

Based on groundwater sampling conducted in 1999 and 2000 by ITC, groundwater at the Site appears to be impacted above the PADEP Residential and/or Non-Residential Used-Aquifer Groundwater MSCs only by metals (aluminum, iron, lead, manganese, and thallium), which are probably attributed to the natural occurrence of these metals in the surrounding soil and/or geologic formations (sandstone, shale, and coal) rather than to historical site operations.

**Outdoor Air:**

The former Facility held PADEP-issued Operating Permits for emissions from sources that included several baghouses. The Facility's operating permits related to the former air emissions sources expired on August 31, 1998, and August 31, 1999. No records were found in PADEP or USEPA files that indicate the operating permits were renewed beyond these dates, and records indicate that the Facility ceased operation in 1998.

It has been documented that the fluidized bed coater (FBC) had released emissions of MEK and Teflon in excess of those permitted by PADEP, even after an increase in stack height from 39 feet to 70 feet in 1987; however, the FBC is no longer in operation at the Facility. There were no other documented air quality violations of significance for the Site. Based on the review of historical documentation and observations made during previous PADEP, EPA, and contractor site visits, the outdoor air exposure pathway is not of concern at the Site.

EPA does not believe there are any completed pathways or concerns for Human Health exposures at the former Nu-Kote Facility at this time.

**Current Human Exposures Under Control**
**Environmental Indicator (EI) RCRIS code (CA725)**

3. Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

| "Contaminated Media" | Residents | Workers | Daycare | Construction | Trespassers | Recreation | Food[3] |
|---|---|---|---|---|---|---|---|
| Groundwater | | | | | | | |
| Air (indoors) | | | | | | | |
| Soil (surface, e.g., <2 ft) | | | | | | | |
| Surface Water | | | | | | | |
| Sediment | | | | | | | |
| Soil (subsurface e.g., >2 ft) | | | | | | | |
| Air (outdoors) | | | | | | | |

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strikeout specific Media including Human Receptors -- spaces for Media, which are not "contaminated" as identified in #2 above.
2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media – Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations, some potential "Contaminated" Media – Human Receptor combinations (Pathways) do not have check spaces ("_____"). While these combinations may not be probable in most situations, they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media –receptor combination) – skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet) to analyze major pathways.

_____ If yes (pathways are complete for any "Contaminated" Media – Human Receptor combination) – continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media – Human Receptor combination) – skip to #6 and enter "IN" status code.

**Rationale and Reference(s):**

No rationale warranted.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

**Current Human Exposures Under Control**
**Environmental Indicator (EI) RCRIS code (CA725)**

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"** (i.e., potentially[4] " unacceptable" levels) because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures (can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) – skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) – continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) – skip to #6 and enter "IN" status code.

**Rationale and Reference(s):**

No rationale warranted.

[4] If there is any question on whether the identified exposures are "significant' (i.e., potentially "unacceptable") consult a Human Health Risk Assessment specialist with appropriate education, training and experience.

**Current Human Exposures Under Control**
**Environmental Indicator (EI) RCRIS code (CA725)**

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) – continue and enter a "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable") – continue and enter a "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) – continue and enter "IN" status code.

**Rationale and Reference(s):**

No rationale warranted.

**Current Human Exposures Under Control**
**Environmental Indicator (EI) RCRIS code (CA725)**

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE – Yes, "Current Human Exposures Under Control" has been verified.

____ NO – "Current Human Exposures" are NOT "Under Control."

____ IN – More information is needed to make a determination.

Completed by: (signature) [signature] Date 7/3/19

(print) Grant Dufficy

(title) RCRA Project Manager

Supervisor: (signature) [signature] Date 7.2-19

(print) Paul Gotthold

(title) Assoc. Director Office of PA Remediation

(EPA Region or State) EPA Region III

Locations where References may be found:

USEPA Region III
Land, Chemicals and Redevelopment Division
1650 Arch Street
Philadelphia, PA 19103

PADEP South West Regional Office
400 Waterfront Drive
Pittsburgh, PA 15222

Contact telephone and e-mail numbers:

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**FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.**