DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater 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 the groundwater media, 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 #8 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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater and contaminants within groundwater (e.g., non aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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).

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2. Is **groundwater** 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 anywhere at, or from, the facility?

_____ If yes – continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

__X__ If no – skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown (for any media) – skip to #8 and enter "IN" status code.

Rationale and Reference(s):

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. To the east is a residential area, followed by the Derry Area Senior High School. A light industrial facility is located immediately north of the Site. The area west of the Site 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 Site by Pioneer Fuels and Keystone Alloys at the Site 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. 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 Site 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 NuKote. NuKote 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 their contractor in November 1999, which was conducted to allow for the closure/sale of the NuKote facility.

[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 appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

According to the contractor's 1999 Phase II Site Characterization Report, the Facility, under NuKote's ownership, 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 Site 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 Seleniu
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 other 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 Contractor) implying or stating that tank or waste pile storage occurred on-site as indicated on their November 17, 1980, 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 Site, 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 Site to Nukote, 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, which was confirmed during PADEP's July 7, 2005 general inspection. In addition, it was noted that three new tenants now occupied the building. These tenants included 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.

Summary of Soil Results

ITC (the Facility Contractor) collected 22 surface and subsurface soil samples using direct-push sampling methods in 1999. Soil samples were collected at the three septic tank locations (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 documented in the facility files. Soil samples were also collected from SUMP1 and SUMP2, located inside of the building.

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 and sediment characterization study are presented in Tables 4, 5, and 6.

Table 4 (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

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CASRN	Parameters	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
					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 4 (page 3 of 3)
Summary of Detected Metals in Soil Samples
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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.

Table 5
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 6
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).

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 4 and 5), with the exception of one sample location,1,1-DCA, which exceeded both the Residential and Non-Residential MSCs in the sample collected from beneath the former loading dock (LD02). 1,1-DCA, was non-detect in 29 of 30 locations. Soil sample location LD02 is currently inaccessible to receptors, and does not pose a threat to human health or the environment. This sample location 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. These elevated levels of metals might be attributed to natural occurances in the soils. 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 6). 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 from the available documentation reviewed by EPA contractor URS. 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 6). 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"). EPA agrees with this conclusion.

Based on this information, Site soils are not impacted above appropriate regulatory standards, at the areas investigated by the Facilty contractor in 1999 and 2000.

Summary of Groundwater Results

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); but, 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 Site, 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 7:

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, which EPA's contractor was unable to determine the locations from the documentation reviewed.

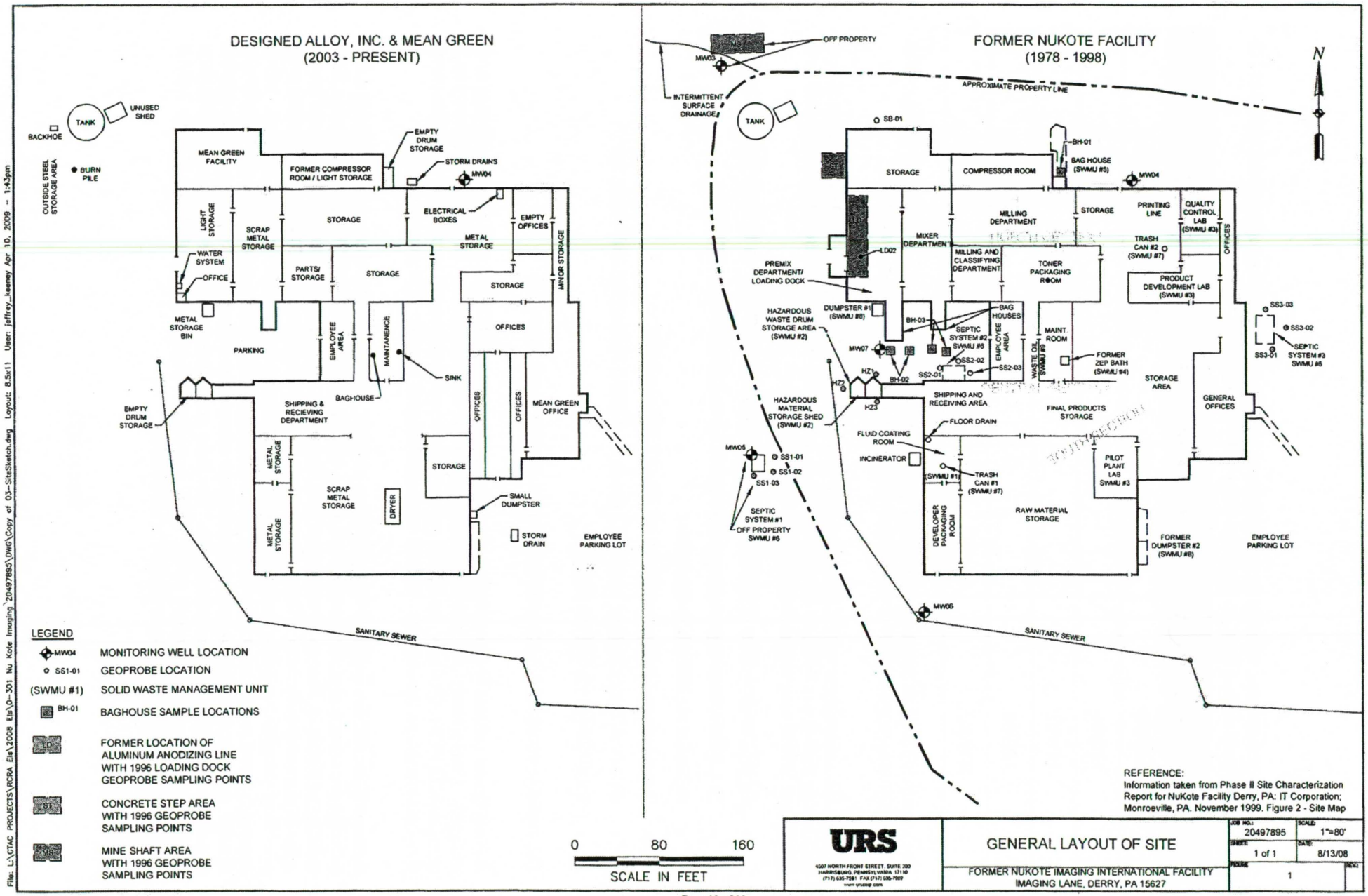
In 1999, ITC collected one round of groundwater samples from MW04, MW06, and MW07, and from a direct-push boring (SS2-03) installed in the vicinity of septic system #2. The groundwater samples collected from MW06 and MW07 were analyzed for the following parameters:

- 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 (of Figure 1). 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)wasfound 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.



REFERENCE:
Information taken from Phase II Site Characterization Report for NuKote Facility Derry, PA; IT Corporation; Monroeville, PA. November 1999. Figure 2 - Site Map

URS
4507 NORTH FRONT STREET, SUITE 300
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7661 FAX (717) 635-7909

GENERAL LAYOUT OF SITE

FORMER NUKOTE IMAGING INTERNATIONAL FACILITY
IMAGING LANE, DERRY, PA 15627

JOB NO.:	SCALE:
20497895	1"=80'
SHEET: 1 of 1	DATE: 8/13/08
FIGURE: 1	REV.:

File: L:\GTAC PROJECTS\RCRA Eis\2008 Eis\0-301 Nu Kote Imaging\20497895\DWG\Copy of 03-SiteSketch.dwg Layout: 8.5x11 User: jeffrey_keaney Apr 10, 2009 -- 1:43pm

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 8, 9, and 10.

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 8, 9, and 10) 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 8), 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 9 and 10). 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 8). 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 9). 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 9). 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 8
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 9
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 10
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)								
				MW04			MW06		MW07				MW08		MW-9A		SUMP-GW-1	SUMP 1	SUMP-GW-2	SUMP2	OF-01
CASRN	Parameter	Residential	Non-Residential	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
Total Metals																					
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**	**28,700**	**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	**1,250**	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 metals in the groundwater.

Based on the Phase II data from 1999 and 2000, there are no suspected complete pathways or concerns for contaminated groundwater exposures at the Former Nukote International Imaging Facility at this time.

The Administrative Record to support EPA's decision may be found in the EPA Office, located at 1650 Arch St, Philadelphia, PA 19103 or in the PADEP South West Regional Office, located at 400 Waterfront Drive, Pittsburgh, PA 15222.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

_____ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2])

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

[2] "Existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Migration of Contaminated Groundwater Under Control
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4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration [3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate "level(s)," and if estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing. .

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

No rationale warranted.

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be **"currently acceptable"** (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be **"currently acceptable"**) – skip to #8 and enter a "NO" status, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown – skip to 8 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

_____ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

No rationale warranted.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

X — YE – Yes, "Migration of contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Former Nukote International Imaging Facility**, **EPA ID PAD 042507178**, located at **1 Imaging Lane in Derry in, PA**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO – Unacceptable migration of contaminated groundwater is observed or expected.

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

Completed by: (signature) _____ Date 8/16/19

(print) Grant Dufficy

(title) RCRA Project Manager

Supervisor: (signature) _____ Date 8/16/19

(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

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