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Former Harshaw Chemical Company
FUSRAP Site
Cleveland, OH

Record of Decision
Investigative Area - 06

March 2011

Prepared by:

U.S. Army Corps of Engineers - Buffalo District

I. DECLARATION FOR THE RECORD OF DECISION

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Formerly Utilized Sites Remedial Action Program
Former Harshaw Chemical Company Site, Investigative Area – 06
Cleveland, Ohio

STATEMENT OF BASIS AND PURPOSE

This Record of Decision presents the decision for Investigative Area – 06 (IA06) at the Former Harshaw Chemical Company Site in Cleveland, Ohio, that is being addressed by the United States Army Corps of Engineers (USACE) Buffalo District under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The decision was made in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 United States Code Section 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act, and to the extent practicable the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR 300 et seq., as directed by Congress in the Energy and Water Appropriation Act for Fiscal Year 2000, PL 106-60, 10 U.S.C. Section 2701. The information supporting the USACE decision as the lead agency under FUSRAP for Investigative Area – 06 is contained in the Administrative Record file located at the Cuyahoga County Library Brooklyn Branch, (4480 Ridge Rd, Brooklyn, OH 44144) and the USACE CERCLA Records Room located at 1776 Niagara Street, Buffalo, NY 14207.

Comments on the Proposed Plan provided by the Ohio Environmental Protection Agency (OEPA) and Ohio Department of Health (ODH) (Part III - Responsiveness Summary) were evaluated and considered in the USACE decision. The OEPA and ODH do not oppose the No Action Proposed Plan. However, OEPA stated that there may be risks associated with contamination not related to FUSRAP, which do not fall under the Corps' authority that would need to be addressed prior to beneficial reuse of the site.

ASSESSMENT OF SITE

The USACE, designated as the lead Federal agency for the execution and administration of eligible FUSRAP remediations has determined that no action is necessary for Investigative Area-06 to protect human health, welfare or the environment from FUSRAP related contamination.

DESCRIPTION OF THE SELECTED REMEDY

Background

Beginning in 1944, the primary role of the former Harshaw Chemical Company was converting uranium concentrate feed materials to uranium tetrafluoride (UF_4), uranium hexafluoride (UF_6) and uranium trioxide (UO_3). These operations ceased by May 1953. UO_3 produced from recycled uranium was purified in the Harshaw refinery in 1953 into early 1954, at which point all FUSRAP-related process operations ceased. However, no uranium processing was conducted in IA06. Investigative Area – 06 has no evidence of the historical presence of buildings or chemical or radiological processing. Small areas of

land disposal are evidenced by vehicle tracks on a historical aerial photograph analysis and an area of slightly elevated radioactivity was identified during sampling activity.

Decision Summary

As described in the April 2010 Proposed Plan, no action for Investigative Area – 06 is necessary because there is no unacceptable risk for the current and reasonably anticipated future land use, recreational, from FUSRAP-related constituents.

STATUTORY DETERMINATIONS

No CERCLA Section 121 statutory determinations are necessary for this Record of Decision since USACE has determined that no remedial action is necessary under CERCLA and no remedy is being selected. USACE has concluded that there is no unacceptable risk to current or reasonably anticipated future land users from FUSRAP-related constituents. This is based on a pathway and exposure analysis performed using site specific factors and compared against the United States Environmental Protection Agency risk limits. No remedial actions are warranted for Investigative Area – 06.

[redacted]

JOHN W. PEABODY
Major General, US Army
Division Engineer

18 MAR 2011

Date

II. DECISION SUMMARY FOR THE RECORD OF DECISION

RECORD OF DECISION

FOR THE INVESTIGATIVE AREA 06
HARSHAW SITE, CLEVELAND, OHIO

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ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
amsl	Above Mean Sea Level
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual Site Model
EPC	Exposure Point Concentration
ft	foot/feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
g	gram
HHRA	Human Health Risk Assessment
HI	Hazard Index
IA	Investigative Area
IRIS	Integrated Risk Information System
kg	kilogram
MCLs	Maximum Contaminant Levels
MED	Manhattan Engineer District
mg	milligrams
µg	micrograms
µ	micro
NFA	No Further Action
NRC	Nuclear Regulatory Commission
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
PP	Proposed Plan
ppm	parts per million
Ra	radium
RI	Remedial Investigation
RIR	Remedial Investigation Report
ROD	Record of Decision
SAIC	Science Applications International Corporation
Th	Thorium
U	Uranium
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
yr	year(s)

1. SITE NAME, LOCATION AND DESCRIPTION

Formerly Utilized Sites Remedial Action Program (FUSRAP)
Former Harshaw Chemical Company Site, Investigative Area – 06
Cleveland, Ohio

1.1. Harshaw Site Overview

The Former Harshaw Chemical Company Site is located at 1000 Harvard Avenue, in Cleveland, Ohio, approximately three miles south of downtown Cleveland and it is adjacent to the Cuyahoga River and Big Creek. The site is a 55-acre property located in an industrialized area of Cleveland, and includes several developed and undeveloped land parcels. Developed site parcels include former production areas with remaining buildings, former production area foundations, parking areas associated with previously demolished buildings, and re-developed privately-owned commercial properties. The site includes areas of pavement, broken pavement, and non-paved (vegetated, dirt, or gravel) surfaces. The Harshaw Site was divided by the United States Army Corps of Engineers (Corps) into Investigative Areas (IAs) to aid in Remedial Investigation planning and fieldwork. The Investigative Areas were:

IA01 – Building G-1
IA02 – Other remaining site buildings
IA03 – Soils within the main MED/AEC production area north of Harvard, west of Cuyahoga River
IA04 – Remainder of the soils north of Harvard, west of Cuyahoga River
IA05 – Soils south of Harvard, north of Big Creek and Cuyahoga River
IA06 – Soils north of Harvard, east of Cuyahoga River
IA07 – Soils south of Harvard, west of Cuyahoga River
IA08 – Surface water and sediments within the Cuyahoga River and Big Creek
IA09 – Sediments and waters within site storm and sanitary sewers
IA10 – Groundwater under the site west of Cuyahoga River

This Record of Decision (ROD) is solely for Investigative Area - 06, an approximate 6-acre parcel east of the Cuyahoga River and north of Harvard Avenue (Figure 1).

The Harshaw Chemical Company conducted radiological compound research and production activities under contract to the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC). All Formerly Utilized Sites Remedial Action Program (FUSRAP)-related process operations ceased in early 1954. The primary radiological production process conducted under government contract involved the refining of uranium oxide feed material to produce numerous uranium-based materials. In 2001, the Corps conducted a Preliminary Assessment of the Harshaw Site. The Preliminary Assessment concluded that although there was no imminent threat to human health or the environment the site should be included in FUSRAP and undergo further characterization to determine potential future risk associated with MED/AEC materials. Based on historical information and aerial photo analysis, IA06 was never used as a production area either for FUSRAP-related activities or the Former Harshaw Chemical Company's commercial processes. However, there is evidence of small areas of ground disturbance which can be attributed to

historical construction-debris fill activities. The parcel is currently vacant and is approximately 90% wooded.

Prior to the Harshaw Site being determined eligible for FUSRAP, investigations were conducted by site owners. Though these investigations generally focused on the main process area, there was some limited data for IA06. In 2002, the Corps initiated a Remedial Investigation (RI) of the entire Harshaw Site. The Corps used data from the historic investigations as an aid to help determine the areas to study during the Remedial Investigation. Section 2 presents characterization and conclusions pertaining to IA06 in the RI.

1.2. Corps Authority at the Harshaw Site

The Corps is the lead Federal agency under FUSRAP for purposes of executing a CERCLA response action for FUSRAP constituents at the Former Harshaw Chemical, if required, pursuant to authority established in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Public Law 105-245. The Former Harshaw Chemical Site is not listed on the United States Environmental Protection Agency's (USEPA's) National Priority List. For purposes of FUSRAP, any remedial actions conducted for the Harshaw Site, IA 06 would address only hazardous substances that were released during the period of MED/AEC contract work and related to activities in support of MED/AEC, and not any earlier or later releases of hazardous substances that may have occurred, except to the extent they may be comingled with the MED/AEC-related materials. As described herein, the Corps has determined that no remedial action is warranted for the Harshaw Site, IA06.

1.3. Community Participation

Public input was encouraged to ensure that the decision for IA06 at the Harshaw Site addressed community concerns in addition to being protective of human health and the environment. The administrative record file contains all of the documentation used to support the decision at the following locations:

Cuyahoga Public Library, Brooklyn Branch
4480 Ridge Road
Brooklyn, Ohio 44144

US Army Corps of Engineers - Buffalo District
CERLCA Records Room
1776 Niagara Street
Buffalo, New York 14207

A public meeting on the Proposed Plan for IA06 at the Harshaw Site was held on May 12, 2010. At the meeting USACE explained the history of the IA06, studies and investigations completed, areas of slightly elevated activity, the IA06 risk assessment for FUSRAP-related materials, and the decision proposed for IA06. The public meeting transcripts and details of public comments received and responses to those comments are addressed in Part III of this ROD, the Responsiveness Summary.

1.4. Physical and Environmental Site Characteristics

The physical and environmental characteristics of the Harshaw Site are described in detail in the RI report Rev. 1 (SAIC 2009). An overview of the physical and environmental characteristics of the Harshaw Site is presented in the following paragraphs.

The Former Harshaw Chemical Site (the developed portion) is located at the confluence of the Cuyahoga River and Big Creek floodplains. The site is relatively flat, with a slope of less than 1% toward the east (Cuyahoga River) and to the south (Big Creek). The land surface elevation at the site ranges from approximately 594 ft above mean sea level (amsl) in the northern portion, to approximately 590 ft amsl near the banks of Big Creek and the Cuyahoga River. The elevation of the river itself is approximately 575 ft amsl. The surrounding areas above the floodplain are developed land with relatively low relief at an approximate elevation of 675 ft amsl.

Investigative Area - 06 represents an undeveloped portion of the site where no known drainage systems exist. The land surface in IA06 is relatively low-lying, only 5 to 8 ft above the surface of the Cuyahoga River. During periods of high river flow, IA06 is often flooded by the Cuyahoga River, which deposits silt and sand on the IA06 land surface. It is expected that groundwater flow in IA06 is primarily west towards the Cuyahoga River.

An ecological site walkover indicated that IA06, located in a heavily industrialized area of Cleveland, has limited adequate habitat for small mammals, birds and other fauna. The Cuyahoga River and the Big Creek provide habitat for aquatic biota, and sediments provide habitat for benthic invertebrates. There are no sensitive habitats or threatened and endangered species on the site that warrant special consideration or protection.

1.5. Ongoing Activities at IA06

There is no current industrial activity in IA06. However, there are signs of routine trespassing, which appears to be related to recreational purposes (i.e. foot paths, fishing access and bonfire).

2. INVESTIGATIVE AREA – 06

2.1. Site Characterization

2.1.1. Geophysical Survey

To begin the investigation in IA06, the Corps performed geophysical surveys using electromagnetic terrain conductivity scans and ground penetrating radar. The geophysical surveys did not indicate the presence of underground utilities, tanks or other storage containers, or building foundations. Four anomalies were detected as shown on Figure 2. Anomaly A is coincident with an elevation change and has visible debris such as bricks and broken concrete and asphalt. Anomalies B and C had no distinguishing visual characteristics and soil borings taken in these areas had no MED/AEC material. Anomaly D was investigated and verified to be a steel sheet pile wall.

2.1.2. Gamma Radiation Survey

The Corps performed a survey to characterize gamma radiation levels across IA06 and identify any elevated locations for collection of soil borings. The yellow and red dots near the south-central portion of IA06 shown in Figure 3 indicate elevated gamma radiation readings. Previous investigations had identified this area as having elevated uranium concentrations.

2.1.3. Soil Sampling

Using the geophysical and gamma radiation survey data, the Corps developed a field sampling plan for IA06. Four phases of soil sampling were conducted with the following objectives: 1) to characterize the geophysical survey anomalies; 2) to investigate elevated areas of radiation identified by the gamma radiation survey and confirm results from prior privately conducted investigations; 3) to characterize the nature and extent of MED/AEC-related radionuclides and chemicals; 4) to assess the potential risk from FUSRAP-related materials assuming several land uses; and 5) to collect sufficient data to support IA06 closure. From a review of data from early phases of the investigation, the Corps determined that No Action in IA06 was appropriate and could support community planning actions. A final phase of IA06 sampling was conducted to ensure sufficient information was available for consideration.

The Corps collected a total of 99 soil samples from 42 locations during the site-wide Remedial Investigation in IA06. As described in the Remedial Investigation Report, some soil borings were sampled at more than one depth interval. Intervals selected for additional laboratory analysis were those which produced the highest field screening results for radioactivity. The Corps analyzed soil samples for the following radionuclides and chemicals:

Radionuclides:
- Uranium-234,235 & 238
- Thorium- 230 & 232
- Radium- 226 & 228
- Technetium- 99
- Americium- 241
- Cesium- 137
- Europium- 152 & 154
- Neptunium- 237
- Plutonium- 238 & 239/240

Chemicals:
- Lithium
- Molybdenum
- Uranium
- Kerosene (as analyzed by Total Petroleum Hydrocarbons- Diesel Range Organics)

These radionuclides and chemicals were used at the former Harshaw Chemical Company in processes related to contracts with the MED/AEC and had the potential to be released to the environment and pose a risk to human health. Cesium-137 is an exception as there is no evidence that it was ever used under contract to the MED or AEC. It was included because of an isolated elevated detection elsewhere on the Harshaw Site. Also, though lead-210 (present in the U-238 decay chain) was not directly analyzed, it was assumed to be present in equilibrium with radium-226 and included in the risk assessment.

The Corps selected analytical methods with sufficient sensitivity to meet the data requirements of a human health risk assessment. Several of the radionuclides listed above were not detected. In addition, the Corps had a subset of samples analyzed by a method which precisely analyzes uranium isotope mass ratios. This additional analysis provided sufficient data to verify that uranium residues on the site are not enriched uranium which, if present, could have led to higher potential risks.

Table 1 presents a summary of soil sampling results from IA06 as well as background sampling results which are collected from an area with no known past MED/AEC use. Borings in IA06 were taken to a depth of 13 feet plus an additional deeper boring to find the lower limit of potential MED/AEC-related materials. The background sampling locations were in the Cleveland Metroparks located approximately 1.5 miles from the Harshaw Site. Sampling locations in IA06 are shown in Figure 4.

Additional samples were collected around elevated uranium sample locations to determine the extent of the elevated radioactivity. Uranium impacts were generally confined to the south-central portion of IA06 and were coincident with elevated activity reported in the gamma radiation survey. Likewise, thorium-230 and radium-226 results above background were generally collocated with elevated uranium activity. These areas were characterized by visible construction debris such as bricks and broken concrete and asphalt, suggesting that elevated results are associated with debris. The nominal extent of the slight impacts was less than 20 feet in diameter and well bounded by adjacent samples that were indicative of background conditions.

None of the radionuclides listed in Table 1, associated with recycled uranium processing were found. Cesium-137 was detected at levels similar to those at the background location. Total petroleum hydrocarbons/diesel range organics (to give indication of kerosene impacts) were detected above background in some IA06 locations.

2.2. Groundwater Characterization

Groundwater sampling was not conducted in IA06 because the uranium levels in the IA06 soils could not result in significant groundwater contamination through leaching. Additionally, the periodic flooding and resulting mixture of river water with groundwater in IA06 would result in consistently diluted samples. This flooding and dilution was observed during sampling of wells along the river bank elsewhere on the Harshaw Site during an IA06 flood.

Therefore, to be conservative, the Corps used two separate modeling methods to estimate potential uranium concentrations in groundwater in IA06, a computer model SESOIL, and an estimation based on uranium partitioning between soil and groundwater. Concentrations predicted from both analyses are considered reasonable worst-case predictions for IA06. Using SESOIL, potential uranium concentration in groundwater will peak at 6.2 µg/L. The range of predicted concentrations using the soil-water partitioning coefficient for uranium was 3.3 – 16.3 µg/L.

By comparison, the USEPA Maximum Contaminant Level for drinking water is 30 µg/L. While this value is not applicable to the site as a point of compliance, it can be referenced for comparison purposes. The range of modeled groundwater concentrations cited above is below the Maximum Contaminant Level for uranium and would not be considered a concern even if the groundwater below IA06 were used as a drinking water source. Groundwater at the Harshaw Site is not used as a drinking water source as other sources are readily available (municipal water supply). Additionally, a search of the Ohio Department of Natural Resources well database found no wells within a two mile radius (the maximum search radius) that are used for drinking water or crop irrigation. Sampling results of Cuyahoga River water and sediments have been at or near background concentrations since the Corps began the Remedial Investigation. The USEPA Maximum Contaminant Level of 30 µg/L is simply a protective benchmark against which to compare modeling results. No ARARs are being identified for IA06 groundwater.

3. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The Harshaw Site is zoned as an industrial area. Investigative Area – 06 is not currently used by the property owners. However, there is evidence of trespassing for recreational purposes (i.e. foot paths, fishing access, and bonfires). Adjacent properties are industrial.

Based on the Future Land Use Checklist (USACE) and the Community Master Plans, IA06 will likely be developed for recreational use. A plan has been developed by the Ohio Canal Corridor for extending the Towpath Trail (a multi-use recreational path) from its current terminus at Harvard Avenue to Can Park Basin in downtown Cleveland (approximately 6 miles north). This plan includes portions of the Harshaw Site including IA06. These plans, along with input from the Cuyahoga County Engineer's Office and existing site conditions, the Corps has indentified the potential future land use to be recreational.

No potable drinking water wells are currently located in the vicinity of the site. Future uses of groundwater from on-site sources are unlikely since municipal water supplies from Lake Erie are readily available.

4. RISK ASSESSMENT SUMMARY

The Corps conducted a baseline human health risk assessment and an ecological risk assessment for FUSRAP-related materials in accordance with CERCLA guidance. The full version of the Risk Assessment can be found in the RI Report.

4.1. Baseline Human Health Risk Assessment

A baseline risk assessment was conducted for this site under FUSRAP. This risk assessment was focused on FUSRAP-related materials. This baseline risk assessment determined the potential risk a site poses in its current condition from FUSRAP-related materials. These risks, which result from residual radionuclides or chemicals from MED/AEC materials, are determined for both current and hypothetical land users.

The hypothetical land uses evaluated in the BRA include industrial (maintenance and construction workers), residential, subsistence farming and recreational/trespass. Residential and subsistence farming land uses were evaluated in the BRA to determine if further federal action was necessary. The Conceptual Site Model (CSM) for the Harshaw Site is shown on Figure 5. The CSM presents the impacted materials, transport mechanisms, exposure media, exposure routes and potential human receptors for the Harshaw Site.

Any radionuclide or chemical evaluated further in the risk assessment met the following conditions: 1) was detected in IA06; 2) exceeded background levels; 3) was detected more than 5% of the time; and 4) exceeded preliminary screening levels. Preliminary screening levels for radionuclides used during the baseline human health risk assessment were taken from the US Nuclear Regulatory Commission for decommissioning licensed sites (NRC 2003). This guidance provided a benchmark to which USACE could compare data. Preliminary screening levels for chemicals were taken from US Environmental Protection Agency Regional Screening Levels (USEPA 2008). Following these steps, the radionuclides and chemicals that were evaluated further in the risk assessment in IA06 were radium-226 (and lead-210), thorium-230, uranium-234, uranium-238, total uranium, and kerosene. A summary of concentrations for these radionuclides and chemicals can be found in Table 1. Any potential ARARs listed in the Remedial Investigation were considered as part of the risk assessment.

Table 2 presents the results of the baseline risk assessment for FUSRAP-related constituents for all evaluated land uses. The potential risks in Table 2 used reasonable maximum exposure assumptions. Using these assumptions, risks from exposure to FUSRAP-related constituents in IA06 are within the USEPA risk range of 1 in 1,000,000 to 1 in 10,000 (denoted in the table as 1E-06 and 1E-04, respectively) for the current industrial land use associated with the maintenance worker and for the reasonably anticipated future land use of recreational. Table 2 presents a comparison of potential risks in IA06 to the potential risk posed by naturally occurring levels of the same radionuclides collected from background locations. As shown in the table, the background risks fall within the same range. Neither the residential nor subsistence farming land use is considered a reasonable land use for IA06. Potential risks posed to residents and subsistence farmers are equivalent to those risks posed by background levels of the same radionuclides or within acceptable risk levels.

The groundwater modeling tool built into the risk estimating program (different than the two discussed in Section 2.2., Groundwater Characterization) predicts uranium concentrations in groundwater peaking 185 years from the present. Additionally, USEPA states that the upper end of the risk range (1 in 10,000) is not a limit and that risk estimates around 1 in 10,000 may be acceptable based on site conditions. At the Harshaw Site and in IA06, potable water is readily available from municipal water sources thus allowing the elimination of groundwater as an exposure pathway. Based on this assumption, the potential risk in IA06 is considered to fall within the acceptable risk range provided by USEPA guidance.

The human health risk assessment also evaluated non-cancer risk from chemicals including uranium as a heavy metal. Non-cancer risk is expressed as a hazard index. The hazard index incorporates a threshold level (a hazard index of 1) below which non-cancer health effects are not expected. The hazard index for a maintenance worker in IA06 was estimated to be 0.007, for a construction worker 0.05 and for a subsistence farmer 0.2. The hazard index for a teenager who might visit IA06 in the future for recreational purposes was estimated to be 0.005. These results show that there are no non-cancer risk exceeding established limits in IA06.

4.2. Ecological Risk Assessment

An ecological site walkover indicated that IA06, located in a heavily industrialized area of Cleveland, has limited adequate habitat for small mammals, birds and other fauna. There are no sensitive habitats or threatened and endangered species on the site that warrant special consideration or protection. No ecosystem or habitat restoration is planned for the site. Nonetheless, a conservative screening level risk assessment was performed to evaluate the potential for adverse environmental effects to occur due to the presence of MED/AEC-related radionuclides and chemicals on IA06. The screening level risk assessment concluded that ecological risk is negligible and no action is warranted with respect towards ecological receptors in IA06.

4.3. Risk Characterization Summary

The baseline risk assessment concluded that for the reasonable future land use at the site (recreational or industrial), human health risks due to exposure to FUSRAP-related materials are all within the range of acceptable cancer risks established by the USEPA. No ecological risk concerns for exposure to FUSRAP-related constituents were identified. The risk characterization for unlikely future land uses such as residential or subsistence farming estimated that risks would be at the upper end of the USEPA acceptable risk range. However, it is highly unlikely that IA06 would be developed for subsistence farming (someone who lives on the land, uses only groundwater at the site as drinking water and an irrigation source, and eats meat, milk and vegetables raised, produced and grown on the land). Investigative Area - 06 lies in the 100-Year Flood Plain and is regularly inundated by river waters, and the meandering nature of the Cuyahoga River results in regular deposition and erosion of the IA06 shoreline. Additionally, the development of this area for residential use is also unlikely given the size of the property and the viable surrounding businesses limiting any residential development of the 6-acre property. Furthermore, the scenarios exceeding the acceptable risk range, residential and agricultural uses, assumed that the groundwater below IA06 would be used as a source of drinking and/or irrigation water. Using groundwater in IA06 is unlikely due to the availability of municipal drinking water sources (from Lake Erie) and proximity to a surface water source (Cuyahoga River). Considering these site conditions (i.e. no groundwater use) potential risks are equivalent to background and within the acceptable risk range. No land use controls should be necessary to ensure protection of human health and the environment from FUSRAP-related constituents at IA06.

5. SCOPE OF CERCLA ACTION

As described in the foregoing sections of this ROD, the Corps has determined that no CERCLA remedial action is warranted for IA06 with regard to FUSRAP-related material and that a Feasibility Study is not necessary. This determination was made based on investigation findings. The FUSRAP baseline human health risk assessment shows that there is no unacceptable risk to current or reasonably anticipated future land uses. The Corps has worked with local community groups, such as the Ohio Canal Corridor, to discuss potential uses of this parcel and has concluded that IA06 is most likely to be developed as a recreational area. For recreational land use, IA06 poses no unacceptable risk. Under a No Action alternative, no remedial action would be performed and no land-use controls would need to be implemented. Because it has been determined that no remediation is necessary in IA06 due to the lack of unacceptable risk, Applicable or Relevant and Appropriate Requirements are not established and Five-Year Reviews will not be required. This proposed action is consistent with CERCLA and its implementing regulations.

6. SELECTED REMEDY

The Corps, as lead agency under FUSRAP, has determined that no action is necessary to protect human health and welfare or the environment from exposure to FUSRAP related material. The Ohio Environmental Protection Agency and Ohio Department of Health do not oppose the USACE proposed plan. See the Ohio Environmental Protection Agency letter dated May 26, 2010 in the attachment in Part III of this ROD, the Responsiveness Summary.

7. STATUTORY DETERMINATIONS

No CERCLA 121 statutory determinations are necessary for this ROD since USACE has determined that no remedial action is necessary under CERCLA and no remedy is being selected.

8. EXPLANATION OF SIGNIFICANT CHANGES

There are no significant changes to the Investigative Area – 06 Proposed Plan based on comments received.

9. REFERENCES

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FIGURES

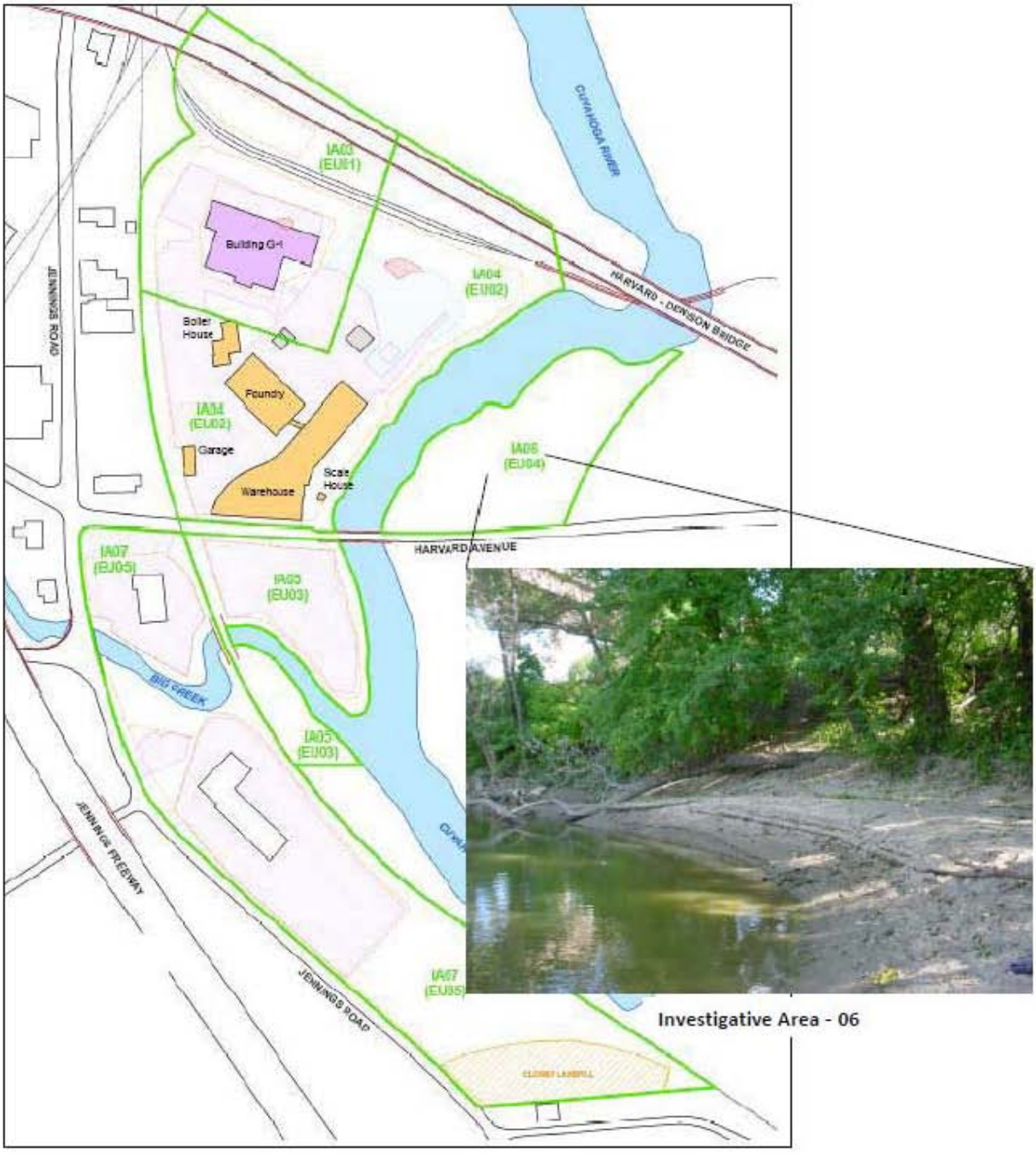


Figure 1: IA06 at the Former Harshaw Chemical Company FUSRAP Site

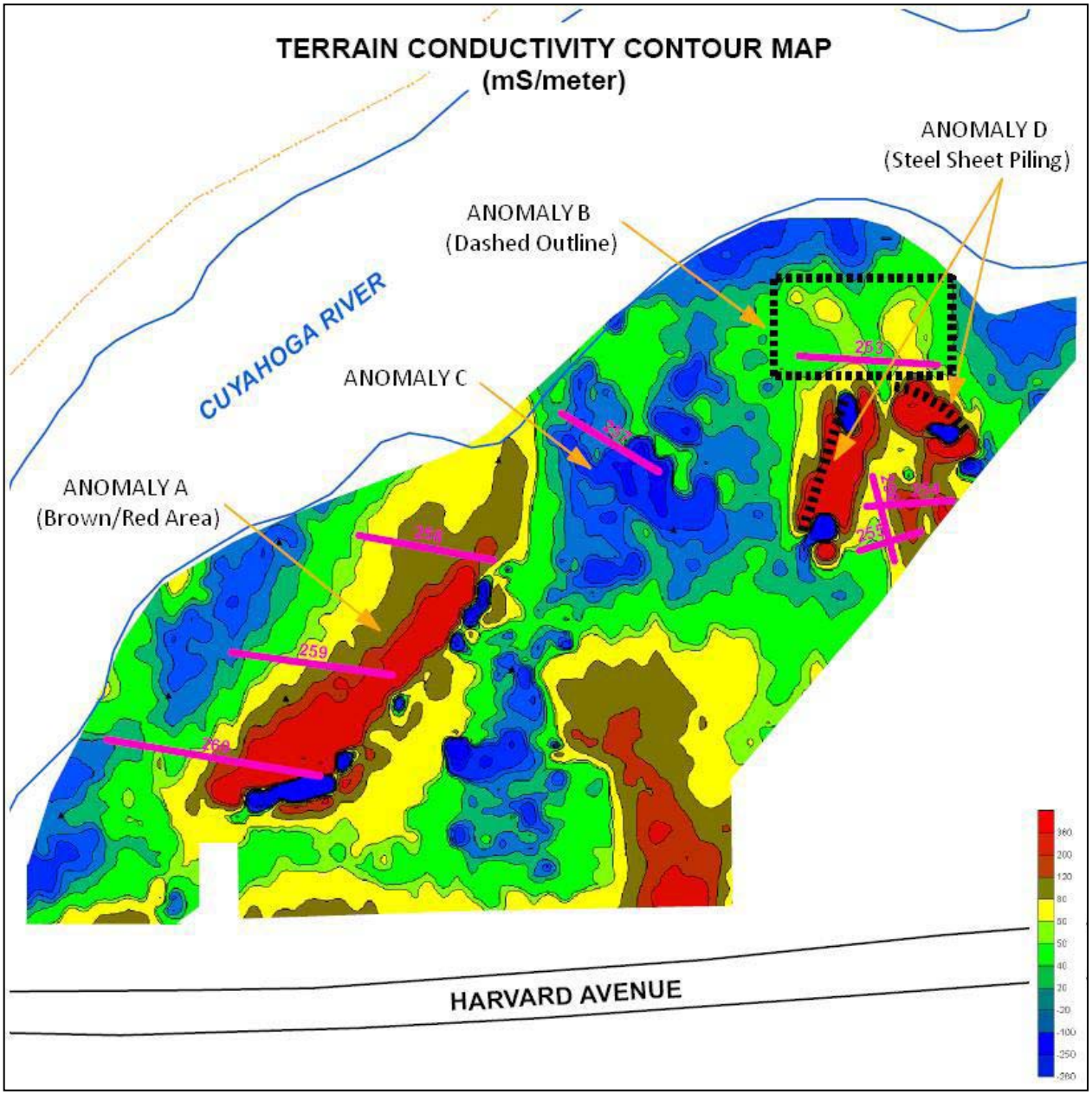


Figure 2: Terrain Conductivity Map Showing Anomalies Detected in IA06

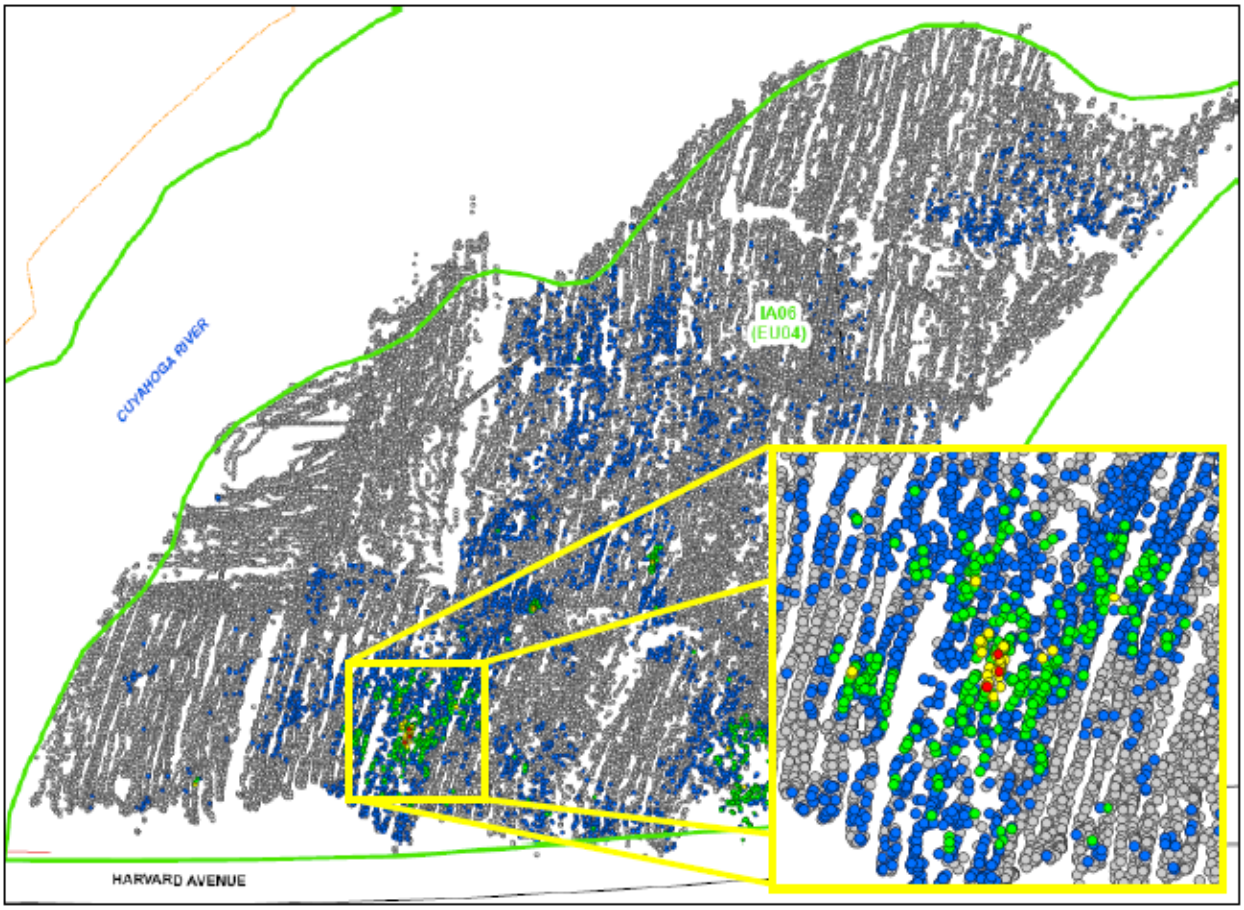


Figure 3: Gamma Radiation Survey Map

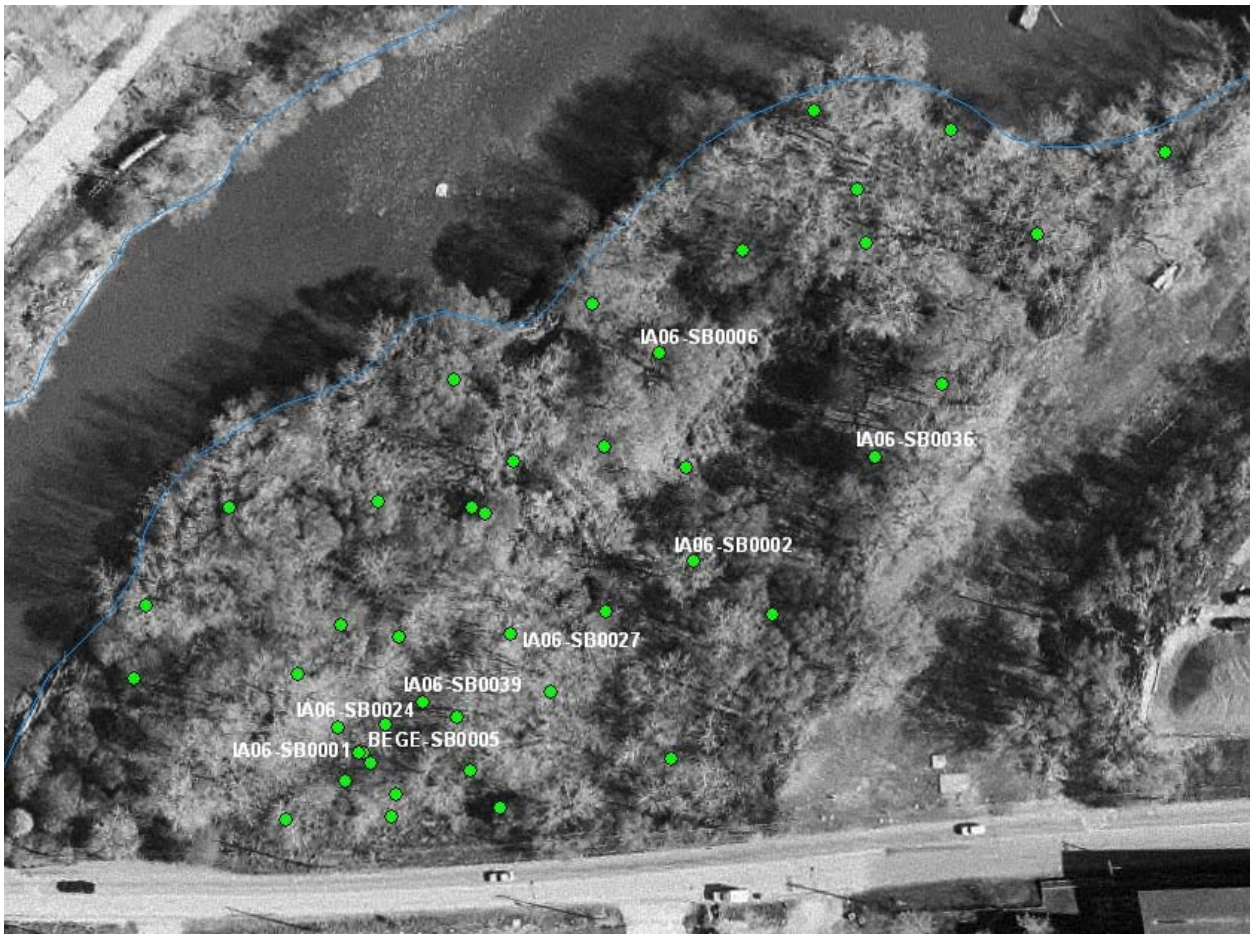
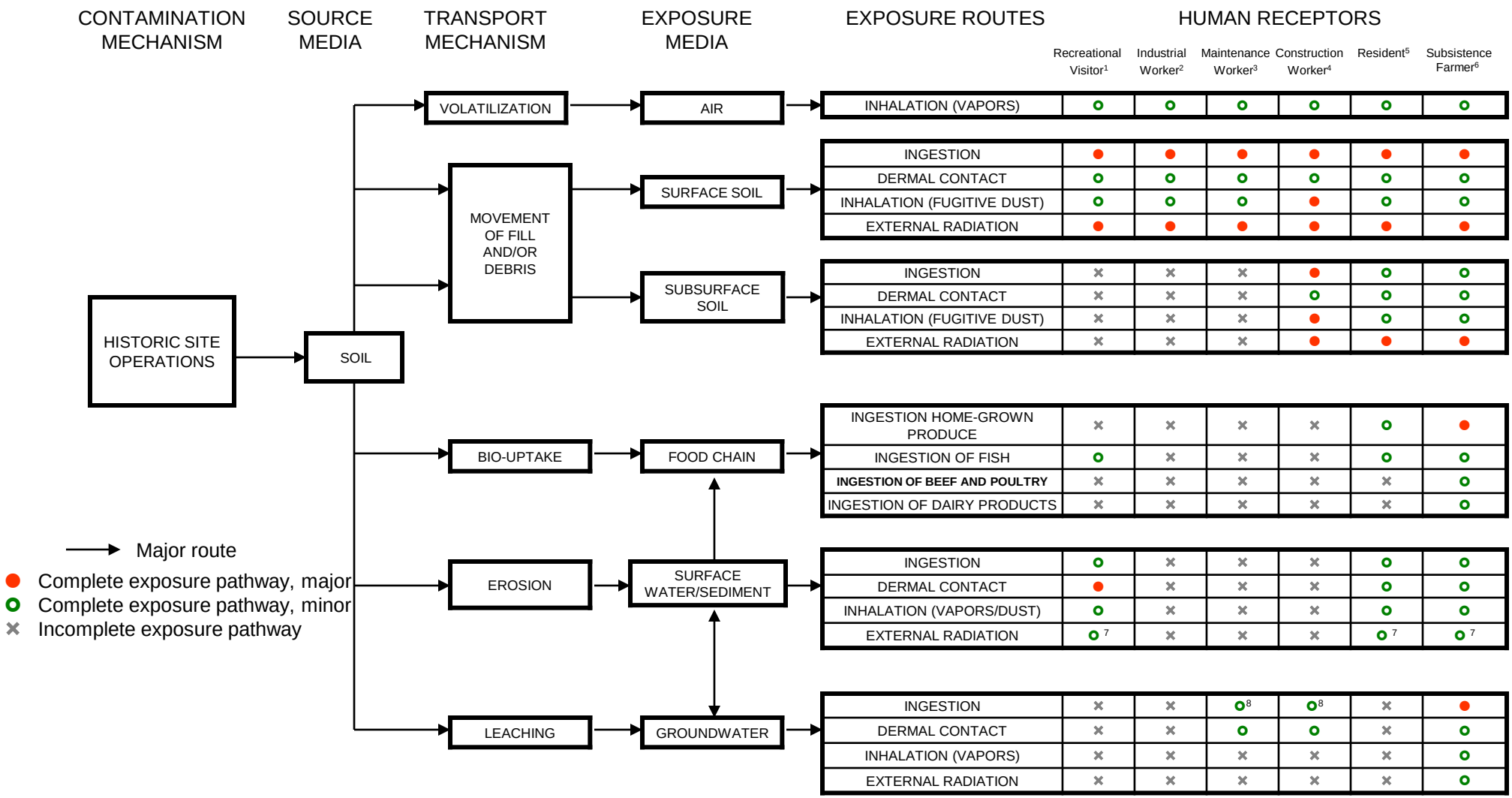


Figure 4: IA06 Sampling Locations

Figure 5 Conceptual Site Model – Pathways for Human Exposure at IA06 of the Former Harshaw Chemical Site



Notes:

1. Current and future recreational visitor scenarios were assessed for adult and adolescent receptors.
2. Adult Industrial workers were assessed for future land use scenarios.
3. Adult Construction workers were assessed for the future land use scenario.
4. Adult Maintenance workers were assessed for the current and future land use scenario.
5. Future residential scenario were assessed for adult and child receptors.
6. Subsistence Farmer adult and child were assessed for future land use scenarios.
7. External Radiation was considered a minor exposure pathway in the case of surface water.
8. Workers were assumed to have only incidental ingestion of groundwater while maintaining groundwater treatment system (maintenance) and excavating (construction).

TABLES

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HARSHAW
BASELINE RISK ASSESSMENT
Table 1
Human Health Statistical Report

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Range of MDL	Mean	Mean (Det)	StDev	Normal?	UCL95	UCL>Max?	EPC	Net EPC (Rad)	Background Value	Risk Screening Value	Screen Basis*	COPC Flag	Rationale**
IA 06 Soil (0"-6")																			
Radionuclides																			
AC-227	pCi/g	35	35	-	-	2.39E-01-1.00E+00	2.93E-01	-	-	-	-	-	0.00E+00	0.00E+00	8.71E-02	5.00E-01	C	-	IFD
AM-241	pCi/g	36	35	2.75E-01-2.75E-01	IA06-SB0027	3.68E-02-3.63E-01	9.03E-02	2.75E-01	0.05	No	1.11E-01	No	1.11E-01	1.11E-01	0.00E+00	2.10E+00	C	-	IFD
CS-137	pCi/g	34	14	5.93E-02-1.09E+00	IA06-SB0036	2.89E-02-1.11E-01	1.82E-01	2.88E-01	0.25	No	3.10E-01	No	3.10E-01	0.00E+00	5.40E-01	1.10E+01	C	No	BSL
EU-152	pCi/g	2	2	-	-	2.40E-01-2.70E-01	1.28E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.70E+00	C	-	IFD
EU-154	pCi/g	2	2	-	-	7.50E-01-9.60E-01	4.28E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.00E+00	C	-	IFD
NP-237	pCi/g	2	2	-	-	5.40E-01-6.00E-01	2.85E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.50E-01	C	-	IFD
PA-231	pCi/g	35	35	-	-	9.13E-01-3.00E+00	1.05E+00	-	-	-	-	-	0.00E+00	0.00E+00	8.71E-02	3.00E-01	C	-	IFD
Pb-210	**pCi/g**	**36**	**0**	**2.13E-01-2.31E+00**	**IA06-SB0001**	**3.93E-02-2.12E-01**	**8.39E-01**	**8.39E-01**	**0.37**	**No**	**9.67E-01**	**No**	**9.67E-01**	**0.00E+00**	**1.39E+00**	**9.00E-01**	**C**	**Yes**	**ASL**
PU-238	pCi/g	2	2	-	-	4.40E-02-4.60E-02	2.25E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.50E+00	C	-	IFD
PU-239	pCi/g	2	2	-	-	3.80E-02-5.60E-02	2.35E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.30E+00	C	-	IFD
RA-226	**pCi/g**	**36**	**0**	**2.13E-01-2.31E+00**	**IA06-SB0001**	**3.93E-02-2.12E-01**	**8.39E-01**	**8.39E-01**	**0.37**	**No**	**9.67E-01**	**No**	**9.67E-01**	**0.00E+00**	**1.39E+00**	**7.00E-01**	**C**	**Yes**	**ASL**
RA-228	pCi/g	36	0	3.22E-01-1.36E+00	IA06-SB0035	7.12E-02-2.99E-01	8.10E-01	8.10E-01	0.26	Yes	8.83E-01	No	8.83E-01	0.00E+00	1.39E+00	2.60E+00	C	No	BKG
TC-99	pCi/g	2	2	-	-	3.00E-01-3.60E-01	1.65E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.90E+01	C	-	IFD
TH-228	pCi/g	38	0	1.63E-01-2.98E+00	IA06-SB0001	6.16E-02-6.85E-01	9.33E-01	9.33E-01	0.51	No	1.10E+00	No	1.10E+00	0.00E+00	1.36E+00	4.70E+00	C	No	BSL
TH-230	pCi/g	34	0	2.33E-01-2.13E+00	IA06-SB0024	4.73E-02-3.91E-01	1.08E+00	1.08E+00	0.42	Yes	1.20E+00	No	1.20E+00	0.00E+00	1.21E+00	1.80E+00	C	No	BSL
TH-232	pCi/g	38	0	2.25E-01-1.49E+00	IA06-SB0001	3.05E-02-2.27E-01	8.13E-01	8.13E-01	0.30	Yes	8.95E-01	No	8.95E-01	0.00E+00	1.36E+00	1.10E+00	C	No	BSL
Total Uranium	**mg/kg**	**32**	**18**	**1.88E+00-3.57E+01**	**IA06-SB0001**	**1.06E+00-9.48E+00**	**5.38E+00**	**9.13E+00**	**6.94**	**No**	**6.92E+00**	**No**	**6.92E+00**	**9.80E-01**	**5.94E+00**	**2.30E+01**	**N**	**Yes**	**ASL**
U-233	ug/g	2	2	-	-	5.23E-05-5.23E-05	2.62E-05	-	-	-	-	-	0.00E+00	-	0.00E+00	1.35E-03	C	-	IFD
U-234	pCi/g	32	18	6.26E-01-1.19E+01	IA06-SB0001	3.52E-01-3.16E+00	1.79E+00	3.04E+00	2.31	No	2.31E+00	No	2.31E+00	3.30E-01	1.98E+00	1.30E+01	C	No	BSL
U-235	pCi/g	32	31	5.82E-01-5.82E-01	IA06-SB0024	1.26E-01-1.40E+00	2.34E-01	5.82E-01	0.18	No	2.94E-01	No	2.94E-01	2.07E-01	8.71E-02	8.00E+00	C	-	IFD
U-236	ug/g	2	2	-	-	2.31E-05-2.31E-05	1.16E-05	-	-	-	-	-	0.00E+00	-	0.00E+00	2.20E-01	C	-	IFD
U-238	pCi/g	32	18	6.26E-01-1.19E+01	IA06-SB0001	3.52E-01-3.16E+00	1.79E+00	3.04E+00	2.31	No	2.31E+00	No	2.31E+00	3.30E-01	1.98E+00	1.40E+01	C	No	BSL
IA 06 Soil (0'-2') *Interval evaluated in the human health risk assessment																			
Radionuclides																			
AC-227	pCi/g	49	49	-	-	2.39E-01-1.00E+00	3.27E-01	-	-	-	-	-	0.00E+00	0.00E+00	8.71E-02	5.00E-01	C	-	IFD
AM-241	pCi/g	51	50	2.75E-01-2.75E-01	IA06-SB0027	1.94E-02-3.63E-01	8.34E-02	2.75E-01	0.05	No	1.02E-01	No	1.02E-01	1.02E-01	0.00E+00	2.10E+00	C	-	IFD
CS-137	pCi/g	49	21	1.88E-02-1.09E+00	IA06-SB0036	8.20E-03-1.11E-01	1.54E-01	2.46E-01	0.23	No	2.28E-01	No	2.28E-01	0.00E+00	4.29E-01	1.10E+01	C	No	BSL
EU-152	pCi/g	4	4	-	-	2.40E-01-3.30E-01	1.38E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.70E+00	C	-	IFD
EU-154	pCi/g	4	4	-	-	6.90E-01-1.00E+00	4.25E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.00E+00	C	-	IFD

***Screen Basis**

C	Carcinogenic	N	Non-carcinogenic

Note: Non-carcinogenic screening values have been divided by 10 to account for the potential presence of multiple non-carcinogens in the screen

COPC Flag - Maximum detections for Radionuclides in soil and groundwater are compared to the the background + screening value. Other results are compared to background and screening levels separately.

****Rationale:**

ASL	Above risk based screening level	ASL-MBKG	Above risk based screening level - Background value missing
BSL	Below risk based screening level	BSL-MBKG	Below risk based screening level - Background value missing
IFD	Infrequent detection (less than 5%)	ABL-MSCR	Above background value - Risk based screening level missing
BKG	Comparable to background value	BKG-MSCR	Comparable to background value - Risk based screening level missing
NTX	No Toxicity (risk) Information		

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BASELINE RISK ASSESSMENT
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Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Range of MDL	Mean	Mean (Det)	StDev	Normal?	UCL95	UCL>Max?	EPC	Net EPC (Rad)	Background Value	Risk Screening Value	Screen Basis*	COPC Flag	Rationale**
IA 06 Soil (0'-2') *Interval evaluated in the human health risk assessment																			
Radionuclides																			
NP-237	pCi/g	4	4	-	-	5.40E-01-1.00E+00	3.68E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.50E-01	C	-	IFD
PA-231	pCi/g	50	50	-	-	9.13E-01-3.00E+00	1.08E+00	-	-	-	-	-	0.00E+00	0.00E+00	8.71E-02	3.00E-01	C	-	IFD
Pb-210	**pCi/g**	**51**	**0**	**2.13E-01-2.36E+00**	**BEGE-SB0005**	**3.93E-02-2.12E-01**	**9.69E-01**	**9.69E-01**	**0.47**	**No**	**1.10E+00**	**No**	**1.10E+00**	**0.00E+00**	**1.45E+00**	**9.00E-01**	**C**	**Yes**	**ASL**
PU-238	pCi/g	4	4	-	-	4.40E-02-9.20E-02	2.99E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.50E+00	C	-	IFD
PU-239	pCi/g	4	4	-	-	2.30E-02-6.60E-02	2.29E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.30E+00	C	-	IFD
RA-226	**pCi/g**	**51**	**0**	**2.13E-01-2.36E+00**	**BEGE-SB0005**	**3.93E-02-2.12E-01**	**9.69E-01**	**9.69E-01**	**0.47**	**No**	**1.10E+00**	**No**	**1.10E+00**	**0.00E+00**	**1.45E+00**	**7.00E-01**	**C**	**Yes**	**ASL**
RA-228	pCi/g	51	0	3.22E-01-1.36E+00	IA06-SB0035	2.85E-02-2.99E-01	8.34E-01	8.34E-01	0.25	Yes	8.92E-01	No	8.92E-01	0.00E+00	1.87E+00	2.60E+00	C	No	BKG
TC-99	pCi/g	4	4	-	-	2.90E-01-3.60E-01	1.59E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.90E+01	C	-	IFD
TH-228	pCi/g	55	0	1.63E-01-2.98E+00	IA06-SB0001	2.85E-02-8.49E-01	1.01E+00	1.01E+00	0.49	No	1.15E+00	No	1.15E+00	0.00E+00	1.41E+00	4.70E+00	C	No	BSL
TH-230	**pCi/g**	**44**	**0**	**2.33E-01-5.75E+00**	**IA06-SB0011**	**4.73E-02-6.18E-01**	**1.39E+00**	**1.39E+00**	**0.94**	**No**	**1.65E+00**	**No**	**1.65E+00**	**4.40E-01**	**1.21E+00**	**1.80E+00**	**C**	**Yes**	**ASL**
TH-232	pCi/g	55	0	2.25E-01-1.49E+00	IA06-SB0001	2.85E-02-3.10E-01	8.56E-01	8.56E-01	0.29	Yes	9.21E-01	No	9.21E-01	0.00E+00	1.41E+00	1.10E+00	C	No	BSL
Total Uranium	**mg/kg**	**47**	**18**	**1.70E+00-1.09E+02**	**IA06-SB0024**	**5.55E-01-9.48E+00**	**1.07E+01**	**1.57E+01**	**17.89**	**No**	**1.41E+01**	**No**	**1.41E+01**	**8.16E+00**	**5.94E+00**	**2.30E+01**	**N**	**Yes**	**ASL**
U-233	ug/g	4	4	-	-	5.23E-05-5.23E-05	2.62E-05	-	-	-	-	-	0.00E+00	-	0.00E+00	1.35E-03	C	-	IFD
U-234	**pCi/g**	**47**	**18**	**5.67E-01-3.62E+01**	**IA06-SB0024**	**1.85E-01-3.16E+00**	**3.55E+00**	**5.25E+00**	**5.96**	**No**	**4.71E+00**	**No**	**4.71E+00**	**2.73E+00**	**1.98E+00**	**1.30E+01**	**C**	**Yes**	**ASL**
U-235	pCi/g	47	39	7.84E-02-2.39E+00	IA06-SB0024	5.56E-02-1.40E+00	3.14E-01	6.89E-01	0.38	No	4.22E-01	No	4.22E-01	3.35E-01	8.71E-02	8.00E+00	C	No	BSL
U-236	ug/g	4	4	-	-	2.31E-05-2.31E-05	1.16E-05	-	-	-	-	-	0.00E+00	-	0.00E+00	2.20E-01	C	-	IFD
U-238	**pCi/g**	**47**	**18**	**5.67E-01-3.62E+01**	**IA06-SB0024**	**1.85E-01-3.16E+00**	**3.55E+00**	**5.25E+00**	**5.96**	**No**	**4.71E+00**	**No**	**4.71E+00**	**2.73E+00**	**1.98E+00**	**1.40E+01**	**C**	**Yes**	**ASL**
Metals																			
Lithium	mg/kg	7	0	1.52E+01-3.01E+01	IA06-SB0006	2.31E-02-1.14E-01	2.29E+01	2.29E+01	5.47	Yes	2.69E+01	No	2.69E+01	-	3.17E+01	1.60E+01	N	No	BKG
Molybdenum	mg/kg	7	0	3.04E+00-5.63E+00	IA06-SB0002	4.77E-02-2.36E-01	3.80E+00	3.80E+00	0.89	Yes	4.45E+00	No	4.45E+00	-	4.07E+00	3.90E+01	N	No	BSL
Semivolatile Organic Compunds																			
TPH-DRO	**mg/kg**	**7**	**0**	**2.73E+01-2.89E+02**	**IA06-SB0002**	**1.21E+00-1.31E+01**	**9.40E+01**	**9.40E+01**	**91.66**	**No**	**3.01E+02**	**Yes**	**2.89E+02**	**-**	**1.90E+01**	**1.02E+02**	**N**	**Yes**	**ASL**
IA 06 Soil (0'-13') *Interval evaluated in the human health risk assessment																			
Radionuclides																			
AC-227	pCi/g	96	96	-	-	2.07E-01-1.00E+00	2.90E-01	-	-	-	-	-	0.00E+00	0.00E+00	1.06E-01	5.00E-01	C	-	IFD
AM-241	pCi/g	96	95	2.75E-01-2.75E-01	IA06-SB0027	1.94E-02-3.63E-01	7.65E-02	2.75E-01	0.04	No	8.78E-02	No	8.78E-02	8.78E-02	0.00E+00	2.10E+00	C	-	IFD
CS-137	pCi/g	95	45	1.63E-02-1.09E+00	IA06-SB0036	8.20E-03-1.11E-01	1.01E-01	1.66E-01	0.17	No	1.13E-01	No	1.13E-01	0.00E+00	5.40E-01	1.10E+01	C	No	BSL
EU-152	pCi/g	4	4	-	-	2.40E-01-3.30E-01	1.38E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.70E+00	C	-	IFD
EU-154	pCi/g	4	4	-	-	6.90E-01-1.00E+00	4.25E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.00E+00	C	-	IFD

*Screen Basis			
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IA 06 Soil (0'-13') *Interval evaluated in the human health risk assessment																			
Radionuclides																			
NP-237	pCi/g	4	4	-	-	5.40E-01-1.00E+00	3.68E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.50E-01	C	-	IFD
PA-231	pCi/g	95	95	-	-	7.54E-01-3.00E+00	9.76E-01	-	-	-	-	-	0.00E+00	0.00E+00	1.06E-01	3.00E-01	C	-	IFD
Pb-210	**pCi/g**	**98**	**0**	**2.13E-01-2.36E+00**	**BEGE-SB0005**	**2.95E-02-2.22E-01**	**8.91E-01**	**8.91E-01**	**0.39**	**No**	**9.60E-01**	**No**	**9.60E-01**	**0.00E+00**	**1.41E+00**	**9.00E-01**	**C**	**Yes**	**ASL**
PU-238	pCi/g	4	4	-	-	4.40E-02-9.20E-02	2.99E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.50E+00	C	-	IFD
PU-239	pCi/g	4	4	-	-	2.30E-02-6.60E-02	2.29E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.30E+00	C	-	IFD
RA-226	**pCi/g**	**98**	**0**	**2.13E-01-2.36E+00**	**BEGE-SB0005**	**2.95E-02-2.22E-01**	**8.91E-01**	**8.91E-01**	**0.39**	**No**	**9.60E-01**	**No**	**9.60E-01**	**0.00E+00**	**1.41E+00**	**7.00E-01**	**C**	**Yes**	**ASL**
RA-228	pCi/g	98	0	3.22E-01-1.46E+00	IA06-SB0039	2.85E-02-2.99E-01	8.01E-01	8.01E-01	0.24	Yes	8.42E-01	No	8.42E-01	0.00E+00	1.79E+00	2.60E+00	C	No	BKG
TC-99	pCi/g	4	4	-	-	2.90E-01-3.60E-01	1.59E-01	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.90E+01	C	-	IFD
TH-228	pCi/g	102	0	1.63E-01-2.98E+00	IA06-SB0001	2.85E-02-8.49E-01	9.50E-01	9.50E-01	0.41	No	1.02E+00	No	1.02E+00	0.00E+00	1.41E+00	4.70E+00	C	No	BSL
TH-230	**pCi/g**	**78**	**0**	**2.33E-01-1.00E+01**	**IA06-SB0027**	**4.73E-02-6.18E-01**	**1.42E+00**	**1.42E+00**	**1.25**	**No**	**1.55E+00**	**No**	**1.55E+00**	**3.40E-01**	**1.21E+00**	**1.80E+00**	**C**	**Yes**	**ASL**
TH-232	pCi/g	102	0	2.25E-01-1.56E+00	IA06-SB0039	2.85E-02-3.10E-01	8.33E-01	8.33E-01	0.27	Yes	8.78E-01	No	8.78E-01	0.00E+00	1.41E+00	1.10E+00	C	No	BSL
Total Uranium	**mg/kg**	**93**	**37**	**1.70E+00-1.09E+02**	**IA06-SB0024**	**5.55E-01-9.48E+00**	**8.78E+00**	**1.30E+01**	**14.87**	**No**	**9.58E+00**	**No**	**9.58E+00**	**2.32E+00**	**7.26E+00**	**2.30E+01**	**N**	**Yes**	**ASL**
U-233	ug/g	4	4	-	-	5.23E-05-5.23E-05	2.62E-05	-	-	-	-	-	0.00E+00	-	0.00E+00	1.35E-03	C	-	IFD
U-234	**pCi/g**	**93**	**37**	**5.67E-01-3.62E+01**	**IA06-SB0024**	**1.85E-01-3.16E+00**	**2.93E+00**	**4.34E+00**	**4.96**	**No**	**3.19E+00**	**No**	**3.19E+00**	**7.70E-01**	**2.42E+00**	**1.30E+01**	**C**	**Yes**	**ASL**
U-235	pCi/g	94	79	7.84E-02-2.39E+00	IA06-SB0024	5.56E-02-1.40E+00	2.70E-01	6.86E-01	0.33	No	3.23E-01	No	3.23E-01	2.17E-01	1.06E-01	8.00E+00	C	No	BSL
U-236	ug/g	4	4	-	-	2.31E-05-2.31E-05	1.16E-05	-	-	-	-	-	0.00E+00	-	0.00E+00	2.20E-01	C	-	IFD
U-238	**pCi/g**	**93**	**37**	**5.67E-01-3.62E+01**	**IA06-SB0024**	**1.85E-01-3.16E+00**	**2.93E+00**	**4.34E+00**	**4.96**	**No**	**3.19E+00**	**No**	**3.19E+00**	**7.70E-01**	**2.42E+00**	**1.40E+01**	**C**	**Yes**	**ASL**
Metals																			
Lithium	mg/kg	14	0	1.08E+01-3.01E+01	IA06-SB0006	2.28E-02-1.14E-01	2.04E+01	2.04E+01	6.06	Yes	2.33E+01	No	2.33E+01	-	3.17E+01	1.60E+01	N	No	BKG
Molybdenum	mg/kg	14	0	2.25E+00-5.63E+00	IA06-SB0002	4.70E-02-2.36E-01	3.52E+00	3.52E+00	0.93	Yes	3.96E+00	No	3.96E+00	-	4.13E+00	3.90E+01	N	No	BSL
Semivolatile Organic Compunds																			
TPH-DRO	**mg/kg**	**14**	**0**	**5.49E+00-3.22E+02**	**IA06-SB0006**	**1.19E+00-1.31E+01**	**1.01E+02**	**1.01E+02**	**107.57**	**No**	**3.45E+02**	**Yes**	**3.22E+02**	**-**	**1.90E+01**	**1.02E+02**	**N**	**Yes**	**ASL**
IA 06 Soil (>13')																			
Radionuclides																			
AC-227	pCi/g	1	1	-	-	2.51E-01-2.51E-01	1.26E-01	-	-	-	-	-	0.00E+00	0.00E+00	1.06E-01	5.00E-01	C	-	IFD
AM-241	pCi/g	1	1	-	-	1.48E-01-1.48E-01	7.40E-02	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.10E+00	C	-	IFD
CS-137	pCi/g	1	1	-	-	2.11E-02-2.11E-02	1.06E-02	-	-	-	-	-	0.00E+00	0.00E+00	5.40E-01	1.10E+01	C	-	IFD
Pb-210	pCi/g	1	0	7.63E-01-7.63E-01	IA06-SB0027	3.73E-02-3.73E-02	7.63E-01	7.63E-01	0.00	-	-	-	7.63E-01	0.00E+00	1.41E+00	9.00E-01	C	No	BKG
RA-226	pCi/g	1	0	7.63E-01-7.63E-01	IA06-SB0027	3.73E-02-3.73E-02	7.63E-01	7.63E-01	0.00	-	-	-	7.63E-01	0.00E+00	1.41E+00	7.00E-01	C	No	BKG

*Screen Basis			
C	Carcinogenic	N	Non-carcinogenic

Note: Non-carcinogenic screening values have been divided by 10 to account for the potential presence of multiple non-carcinogens in the screen

COPC Flag - Maximum detections for Radionuclides in soil and groundwater are compared to the the background + screening value. Other results are compared to background and screening levels separately.

**Rationale:			
ASL	Above risk based screening level	ASL-MBKG	Above risk based screening level - Background value missing
BSL	Below risk based screening level	BSL-MBKG	Below risk based screening level - Background value missing
IFD	Infrequent detection (less than 5%)	ABL-MSCR	Above background value - Risk based screening level missing
BKG	Comparable to background value	BKG-MSCR	Comparable to background value - Risk based screening level missing
NTX	No Toxicity (risk) Information		

US Army Corps of Engineers ®

HARSHAW
BASELINE RISK ASSESSMENT
Table 1
Human Health Statistical Report

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Range of MDL	Mean	Mean (Det)	StDev	Normal?	UCL95	UCL>Max?	EPC	Net EPC (Rad)	Background Value	Risk Screening Value	Screen Basis*	COPC Flag	Rationale**
IA 06 Soil (>13')																			
Radionuclides																			
RA-228	pCi/g	1	0	1.03E+00-1.03E+00	IA06-SB0027	6.72E-02-6.72E-02	1.03E+00	1.03E+00	0.00	-	-	-	1.03E+00	0.00E+00	1.79E+00	2.60E+00	C	No	BKG
TH-228	pCi/g	1	0	1.20E+00-1.20E+00	IA06-SB0027	1.38E-01-1.38E-01	1.20E+00	1.20E+00	0.00	-	-	-	1.20E+00	0.00E+00	1.41E+00	4.70E+00	C	No	BKG
TH-230	pCi/g	1	0	1.18E+00-1.18E+00	IA06-SB0027	1.42E-01-1.42E-01	1.18E+00	1.18E+00	0.00	-	-	-	1.18E+00	0.00E+00	1.21E+00	1.80E+00	C	No	BKG
TH-232	pCi/g	1	0	1.11E+00-1.11E+00	IA06-SB0027	1.37E-01-1.37E-01	1.11E+00	1.11E+00	0.00	-	-	-	1.11E+00	0.00E+00	1.41E+00	1.10E+00	C	No	BKG
Total Uranium	mg/kg	1	0	1.79E+01-1.79E+01	IA06-SB0027	3.51E+00-3.51E+00	1.79E+01	1.79E+01	0.00	-	-	-	1.79E+01	1.06E+01	7.26E+00	2.30E+01	N	No	BSL
U-234	pCi/g	1	0	5.95E+00-5.95E+00	IA06-SB0027	1.17E+00-1.17E+00	5.95E+00	5.95E+00	0.00	-	-	-	5.95E+00	3.53E+00	2.42E+00	1.30E+01	C	No	BSL
U-235	pCi/g	1	0	2.05E-01-2.05E-01	IA06-SB0027	1.39E-01-1.39E-01	2.05E-01	2.05E-01	0.00	-	-	-	2.05E-01	9.90E-02	1.06E-01	8.00E+00	C	No	BSL
U-238	pCi/g	1	0	5.95E+00-5.95E+00	IA06-SB0027	1.17E+00-1.17E+00	5.95E+00	5.95E+00	0.00	-	-	-	5.95E+00	3.53E+00	2.42E+00	1.40E+01	C	No	BSL

*Screen Basis			
C	Carcinogenic	N	Non-carcinogenic

Note: Non-carcinogenic screening values have been divided by 10 to account for the potential presence of multiple non-carcinogens in the screen

**Rationale:			
ASL	Above risk based screening level	ASL-MBKG	Above risk based screening level - Background value missing
BSL	Below risk based screening level	BSL-MBKG	Below risk based screening level - Background value missing
IFD	Infrequent detection (less than 5%)	ABL-MSCR	Above background value - Risk based screening level missing
BKG	Comparable to background value	BKG-MSCR	Comparable to background value - Risk based screening level missing
NTX	No Toxicity (risk) Information		

COPC Flag - Maximum detections for Radionuclides in soil and groundwater are compared to the the background + screening value. Other results are compared to background and screening levels separately.

Table 2: IA06 Risk Summary Table

Risk Summary Table			
Receptor	**Year**	**Average Background Baseline Risk**	**IA06 Baseline Risk**
Surface Soil (0-2 feet below ground surface)			
Industrial Worker	0	2E-05	3E-05
	1000	1E-05	1E-05
Maintenance Worker	0	5E-05	5E-05
	1000	2E-05	3E-05
Recreational Adult	0	3E-06	3E-06
	1000	1E-06	2E-06
Recreational Adolescent	0	1E-06	1E-06
	1000	4E-07	6E-07
Total Soil (0-13 feet below ground surface)			
Residential Adult/Child	0	**1E-04**	**1E-04**
	185	**1E-04**	**1E-04**
	1000	6E-05	8E-05
Construction Worker	0	2E-06	2E-06
	1000	9E-07	1E-06
Subsistence Farmer Adult	0	**4E-04**	**4E-04**
	185	**4E-04**	**6E-04**
	1000	**2E-04**	**2E-04**

* Bolded numbers indicate instances when the US EPA risk limit of 1E-04 has been exceeded.

III. RESPONSIVENESS SUMMARY

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LIST OF ATTACHMENTS

Attachment 1	Letter from the office of Congressman Dennis Kucinich dated May 12, 2010
Attachment 2	Letter from the Ohio Dept of Health and Environmental Protection Agency dated May 26, 2010
Attachment 3	E-mail from Ms. Chris Trepal

Attachment 4	Comment card submitted by Mr. Roger Kalbrunner
Attachment 5	Comment card submitted by Mr. Herbert W. Strong, Jr.
Attachment 6	E-mail from Mr. Dean Van Farowe
Attachment 7	Letter from Mr. James McCafferty, Cuyahoga County Administrator dated May 24, 2010
Attachment 8	Letter from Mr. Claude Cornett dated May 12, 2010
Attachment 9	Transcripts from Public Meeting, May 12, 2010

1. INTRODUCTION

On April 26, 2010, the Buffalo District, United States Army Corps of Engineers (USACE) issued a Proposed Plan (PP) for the IA06 at the Harshaw Site, Cleveland, OH. A public meeting was held May 12, 2010 during which USACE presented background information and its recommendation for the IA06. During the meeting, the public was invited to submit comments and written comments were accepted through May26, 2010. This Responsiveness Summary addresses the comments received from the public during the public meeting and the comment period.

As described in the PP, USACE has concluded that no action is necessary in IA06 because there is no unacceptable risk for current and reasonably anticipated future land uses from FUSRAP-related constituents.

2. OVERVIEW OF PUBLIC INVOLVEMENT

On April 26, 2010, a letter announcing the release of the PP was sent to all the individuals identified on the official mailing list established for the Harshaw project. The mailing list includes over 200 individuals, including elected officials. In addition, a "News from the Corps" release was sent electronically to the Harshaw electronic list service. The electronic mailing list includes around 80 participants.

Legal advertisements announcing the May 12, 2010, public meeting on the Harshaw IA06 PP were placed in the Cleveland Plain Dealer, the Old Brooklyn News and the Sun Post Herald.

The public meeting was held on May 12, 2010 at 6:30pm in the Cleveland Metro Parks Leonard Kreiger Canal Way Center.

Approximately 30 members of the community attended the meeting of which several indicated that they wanted to speak at the meeting. A court reporter was available at the meeting to record comments. At the meeting USACE explained the history of the Harshaw site and IA06, studies and investigations completed, areas of elevated activity and the reasons no action is recommended. Comments received and the public meeting and written comments are addressed in Section 3, below. The meeting transcript is included in Part III, after the responses to comments.

3. RESPONSES TO COMMENTS

3.1 Responses to Comments, Public Meeting

(The following comments and responses from the public meeting have been paraphrased from the meeting's official transcripts, found in Part III of the Record of Decision. Some of the responses have been edited from the transcript to provide further clarification. The full text of the response as given during the Proposed Plan public meeting may be found in the transcript itself):

1. **Claude Cornett (meeting transcript, page 39)**

Comment No. 1 (meeting transcript, pages 39-40):
Mr. Cornett stated that a hard copy of the latest version of the Harshaw Remedial Investigation Report is not currently available at the local library.
Response No. 1 (meeting transcript, page 40):
Lt. Col. Snead responded that the Corps would ensure the proper documents are available, in hard copy at the library. The December 2009 revision of the Harshaw Remedial Investigation Report is now available hard copy in its entirety in the Cuyahoga County Library Brooklyn Branch.

Comment No. 2 (meeting transcript, pages 40-41):
Mr. Cornett stated that additional investigations are required to address contaminants outside of the FUSRAP scope.
Response No. 2:
Comment noted.

Comment No. 3 (meeting transcript, page 41):
Mr. Cornett stated that the recent disturbance of the IA06 site, owing to the construction of a pipeline, renders the Corps characterization of the site outdated.
Response No. 3:
The property owner has confirmed that a BP pipeline runs along the eastern portion of the property. Aerial photo analysis indicates the existence of this pipeline prior to the Remedial Investigation. We have no evidence of a pipeline in the western portion having been installed following the Corps' investigation of the site.

Comment No. 4 (meeting transcript, page 42):
Mr. Cornett stated that the requirements of CERCLA were not met for the site as applicable, relevant and appropriate requirements were not addressed.
Response No. 4:
Following a Remedial Investigation, if an area poses no risk to reasonably anticipated future land uses, a No Further Action Proposed Plan under CERCLA is permitted. At that point in the process, comparison to established risk levels is the only requirement. Applicable or relevant and appropriate requirements (ARARs) would only be needed to be identified if the CERCLA risk range is exceeded. Since the CERCLA risk range was not exceeded in IA06 for FUSRAP-related contamination, no further action is required, and there is no need to establish remedial action objectives or ARARs. If unacceptable risk is established for a site undergoing investigation and remediation under CERLCA, then potential ARARs are identified and evaluated in the Feasibility Study phase and become final with the approval of the ROD. Since no unacceptable risk was found in IA06, the identification and evaluation of ARARs is not required.

Comment No. 5 (meeting transcript, pages 42, 63-64, 66-67):
Mr. Cornett stated that Corps documents should more clearly state the limitations of the FUSRAP investigations of the site with respect to other potential contaminants not included in the FUSRAP's scope. Mr. Cornett expresses concern that the FUSRAP investigations will be misinterpreted as comprehensive for all of the contaminant risks associated with the site.

Response No. 5:
FUSRAP sites do not fall under the Ohio Voluntary Action Program (Brownfield). The Harshaw RIR and IA06 Proposed Plan clearly state what constituents were analyzed and evaluated in the baseline risk assessment. We can only analyze and evaluate those constituents which fall under the Corps' authority when addressing FUSRAP sites. Materials present at the site that are a result of non-MED/AEC activities may be addressed under other clean-up programs administered by Ohio EPA. The Proposed Plan does indicate that the only potential risks calculated were those posed by FUSRAP-related materials. The ROD will further state this and future documents written for the Harshaw Site will be explicit on this point as well.

2. **Ann Kuula, (meeting transcript, page 43)**

Comment No. 1 (meeting transcript, pages 43-44):
Ms. Kuula stated support for the conclusions reached in the report, and with respect to the top 2 ft of soil on site being deemed appropriate for anticipated uses.
Response No. 1:
Comment acknowledged.
Of the hypothetical scenarios evaluated in the baseline risk assessment, the industrial and maintenance worker and recreational scenarios are assumed to only come in contact with soil in the first two feet below ground surface. There is no risk exceeding EPA established risk levels for these scenarios.

Comment No. 2 (meeting transcript, page 65):
In response to questions on the evaluation of possible residential uses of the site, Ms. Kuula stated that the site will be used as a recreational trail and thus have limited occupation by people.
Response No. 2:
Comment acknowledged.

3. **Chris Trepal, (meeting transcript, page 44)**

Comment No. 1 (meeting transcript, page 44):
Ms. Trepal questioned whether the Harshaw program had been included in FUSRAP prior to 1999.
Response No. 1 (meeting transcript, page 46):
Ms. Kolhoff responded that Harshaw has been in FUSRAP only since 1999. The Corps has no record of Harshaw having been included in FUSRAP prior to 1999.

Comment No 2 (meeting transcript, pages 44-45):
Ms. Trepal asked where elevated levels of Uranium are present on IA06.
Response No. 2 (meeting transcript, page 46):
Ms. Kolhoff indicated elevated sample locations on map.

Comment No. 3 (meeting transcript, page 45):
Ms. Trepal expressed disappointment with the lack of groundwater sampling in IA06.
Response No. 3 (meeting transcript, page 47):
Ms. Kolhoff replied that due to the influence of the Cuyahoga River, groundwater samples taken in IA06 would most likely be diluted/mixed with river water and not indicative of

subsurface conditions. Impacts to groundwater at the site were modeled using conservative site specific parameters.

Comment No. 4 (meeting transcript, page 45):
Ms. Trepal asked whether the site will have a deed restriction to prevent possible unacceptable uses of IA06 in the future.
Response No. 4 (meeting transcript, pages 49-50):
Congress has directed the Corps to follow the process outlined in CERCLA when addressing FUSRAP sites. As the guidance and regulations currently stand, the process is to determine the risk to the reasonably anticipated future land use and compare it against risk levels established by the US Environmental Protection Agency. Following this process, the Corps concluded that IA06 poses no potential risk above the established risk limit for the reasonably anticipated future land use (recreational). In addition, the Corps applied the guidance outlined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) in comparing results of sampling and analysis in IA06 to preliminary remediation goals developed in the remedial investigation for more restrictive land uses such as industrial, residential, and agricultural. This evaluation determined that no further action under FUSRAP is necessary for these land-use scenarios. There are no deed restriction or notation requirements.

Comment No. 5 (meeting transcript, page 45):
Ms. Trepal asked for a comparison of the criteria associated with ecological risk assessment with that of humans for the site.
Response No. 5 (meeting transcript, pages 48-49):
Dr. Keil responded that generally for radionuclide environmental contamination, human health criteria are protective of ecological receptors; however a separate ecological assessment was conducted for IA06, which showed no unacceptable risk.

Comment No. 6 (meeting transcript, pages 45-46):
Ms. Trepal asked where an area of high activity (500 counts per minute) along the Cuyahoga River is located with respect to IA06.
Response No. 6 (meeting transcript, page 50):
Ms. Kolhoff responded that the area with 500 counts per minute is located in IA05, which is separate from IA06.

Comment No. 7 (meeting transcript, pages 61-62):
Ms. Trepal asked what the lifetime cancer risk associated with the site is.
Response No. 7 (meeting transcript, pages 61-62):
Dr. Keil replied that lifetime cancer risks for different receptors and different land uses are presented in the Proposed Plan.

4. Jim Cox, (meeting transcript, page 50)

Comment No. 1 (meeting transcript, pages 50-52):
Mr. Cox asked questions on the current property owner, whether the site will be sold/transferred to the Ohio Canal Corridor, and whether the deed for the property will include environmental liability for future property owners. Mr. Cox states that there has to be assurances that any future property owner accepts environmental liability for the site.

Response No. 1 (meeting transcript, pages 50-52):
Mr. Lenhardt responded that IA06 is owned by Chevron Oil. The Corps has no regulatory role over transfers of the property and had no knowledge on the fate of the property with respect to ownership or future liability.

Comment No. 2 (meeting transcript, page 54):
Mr. Cox asked whether a human can exist on the property, as it currently stands, for a year without an unacceptable risk.
Response No. 2 (meeting transcript, pages 54-55):
Dr. Keil replied that the question refers to a situation similar to residential land use of the property, which showed no unacceptable risks.

5. **Kurt Kollar, (meeting transcript, page 52)**

Comment No. 1 (meeting transcript page 53):
Mr. Kollar stated that the Ohio EPA agrees with the Proposed Plan and encourages proper redevelopment of areas such as IA06.
Response No. 1:
Comment acknowledged.

Comment No. 2 (meeting transcript, pages 53-54):
Mr. Kollar stated that there is a high potential for the presence of contamination not addressed through FUSRAP, which will have to be addressed through other means.
Response No. 2:
Comment acknowledged.

Comment No. 3 (meeting transcript, page 58):
On the fate of historic buildings present on the Harshaw Site, Mr. Kollar emphasized that authorities outside of the Corps may be applicable.
Response No. 3:
Comment acknowledged.

6. **Ewazen, (meeting transcript, page 55)**

Comment (meeting transcript, pages 55-57):
Ms. Ewazen questioned the fate of buildings on the former Harshaw Site.
Response (meeting transcript, pages 55-58):
Ms. Kolhoff replied that the fate of historic buildings on the Harshaw Site will be evaluated during the Feasibility Study.

7. **Jerry Bularz, (meeting transcript, page 58)**

Comment No. 1 (meeting transcript, pages 58-60):
Mr. Bularz asked if the Harshaw Site was in the Superfund program and questioned the role of agencies outside of the Corps such as the EPA and Ohio EPA.

Response No. 1 (meeting transcript, pages 59-60):
Mr. Frothingham replied that the Harshaw Site is not in the superfund program. The FUSRAP project follows the same process as superfund sites. Mr. Kollar states that there is potential enforcement action from the EPA and Ohio EPA over residual contamination at the site.

Comment No. 2 (meeting transcript, page 60):
Mr. Bularz asked what exposure standards were used in the IA 06 evaluation.
Response No. 2 (meeting transcript, pages 60-61):
Ms. Kolhoff replied that for worker health and safety OSHA regulations were followed, along with Corps regulations. EPA risk limits were evaluated for the Proposed Plan.

8. Bill Brown, (meeting transcript, page 67)

Comment:
Mr. Brown stated support for the anticipated recreational use of the site.
Response:
Comment acknowledged.

9. Jerry Bularz, (meeting transcript, page 68)

Comment:
Mr. Bularz stated that with regard to anticipated fishing at the site another agency such as Ohio EPA may need to evaluate risks.
Response:
Comment acknowledged.

3.2 Responses to Written Comments

1. **Dennis Kucinich, Member of Congress**
Mr. Kucinich submitted a letter on May 12, 2010 with his comments on the Proposed Plan. A copy of the letter is attached. Specific comments are excerpted and paraphrased here so that they may be responded to individually.

Comment No. 1:
The Proposed Plan is not explicit and in plain language about what the risks to recreational users along the Towpath Trail are. While the report discusses cancer and non-cancer risks from the chemicals and radionuclides at the site, it does not go far enough in explaining what these risks mean to the people who would be reasonably expected to use the Towpath Trail, such as hikers, bikers, and other recreational users.
Response No. 1: For the recreational user, the hiker, biker, etc., the potential risk posed by FUSRAP-related materials in IA06 is 1E-06, or 1 in 1,000,000. This notation means that for a hypothetical population of one million people who are exposed to FUSRAP-related material in levels found in IA06, one extra cancer case would be expected to occur over a lifetime.
An "extra cancer case" means that one more person could get cancer than would normally be expected over all other causes. American Cancer Society estimates regarding the chance that someone will develop some kind of cancer over their lifetime are listed at the following link:

http://www.cancer.org/Cancer/CancerBasics/lifetime-probability-of-developing-or-dying-from-cancer. Because the amount of radioactivity in IA06 is so small and barely distinguishable from background, the potential cancer risk from exposure to this radioactivity is virtually indistinguishable from background rates of cancer which would be expected in the population. The Corps used risk assessment models established by the EPA under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.*,(CERCLA) in order to estimate what the potential risks could be for someone who is exposed to contamination resulting from FUSRAP contamination on the site. The process used to estimate the risks is explained on page 9 of the Proposed Plan. More information about the risk assessment process may be found on our risk assessment fact sheet, located at http://www.lrb.usace.army.mil/fusrap/docs/fusrap-fs-risk-2008-09.pdf. The EPA also has a fact sheet explaining the risk assessment process for the community, and that may be viewed at http://www.epa.gov/oswer/riskassessment/commeng.htm. Basically, risk is the chance that some harmful event will occur. In the case of environmental cleanups, risk is thought of as the potential for a negative health impact as a result of exposure to contamination. Risk assessment is the process used to determine the potential for a negative health effect to occur as a result of exposure to hazardous materials. A risk assessment should be able to answer the questions: "What is the problem, and how bad is it?" By comparing risk characterization results with the acceptable risk range established by the EPA under CERCLA in the National Contingency Plan, 40 CFR Part 300, we can determine whether the contamination at a site is great enough to warrant a cleanup or other remedial response. Because the excess lifetime cancer risks at the IA06 portion of the Harshaw Site are within the acceptable risk range and comparable to background, the Corps has determined that no further action is warranted in IA06 to address radioactive material.

Text to the Proposed Plan will not be updated based on this answer. However, the Responsiveness Summary is a public document and the information provided can be accessed by the public as a reference.

Comment No. 2:
I would like to see more outreach to other community organizations with knowledge about radioactive contamination risks, such as the Earth Day Coalition which has specifically sought such participation. It would be important to receive their input.
Response No. 2:
The Corps currently has several community groups on our mailing list who received copies of the Proposed Plan. Among these groups is the Earth Day Coalition who has provided comment on this Proposed Plan. For future mailings the list of addresses will be updated with any other citizens or groups requesting to be added.

Comment No. 3:
I suggest that other areas, which may or may not be the easiest to complete but for which there is a greater demand for reuse, be segmented, investigated and remediated sooner rather than later. Specifically, if the sections of IA03 and IA04, from the northern fence line to the southern railroad property line, could be the next area studied and remediated, construction of the Towpath Trail will be completed sooner. Taking this approach, the people can benefit from the outcomes of the FUSRAP program sooner while the Army Corps continues to study and clean up other sections of the Harshaw property. I remain quite concerned about possible adverse effects to health and the environment from the elevated levels and await your reassurance and action.

Response No. 3:
While the Corps will strive to complete the CERCLA analyses as efficiently and quickly as possible, it is by nature a thorough and time consuming process. The complex issues presented by some of these areas (i.e. impacted material found in the deep fill along the eastern edge of IA04) will likely have solutions which can be applied across the site such as the edges of IA05. Because of the similarity of the nature and disposition of the contamination across the balance of the site, there would be no time/cost advantage to breaking out portions of IA03 and IA04 for expedited Feasibility Study, Proposed Plan, Record of Decision (ROD) and Remedial Design/Remedial Action. If feasible alternatives are found through the Feasibility Study that provide efficiencies and potential remediation of some areas sooner than others, they will be considered when determining the appropriate alternatives for site remediation.

2. **Ohio Department of Health**

Comment No 1:
The Ohio Department of Health (ODH) reviewed the sampling methodology and results that were presented in the report and believe them to conform to CERCLA protocols. The results of the sampling analysis were presented in the table on page 6 of the report [Proposed Plan] and the average values were deemed acceptable.
Response No 1:
Comment acknowledged.

Comment No 2:
The average values in the aforementioned table were selected as parameters that were used as input to the computer code RESRAD, along with other exposure parameters that ODH deemed suitable for the purposes of estimating the dose to the population. The results compare favorably to values obtained and presented in the Risk Summary Table on page 10 of the report [Proposed Plan]. All values used resulted in a dose of less than 25 mrem/y.
Response No 2:
Comment acknowledged.

Comment No 3:
The above analysis, as well as the one presented in the Risk Summary Table, was based solely on exposure to contaminants from FUSRAP activities. Other contaminants were not included in the analysis.
Response No 3:
Comment acknowledged.

3. **Ohio Environmental Protection Agency**

Comment No 1:
The Ohio Environmental Protection Agency (Ohio EPA) recognizes and encourages the beneficial use of this and other “Brownfield” sites in Ohio. The release of Investigative Area-06 under a No Further Action (NFA) for the Formerly Utilized Sites Remedial Action Program (FUSRAP) related contamination is supported by the information presented by the United States Army Corps of Engineers.
Response No 1:
Comment acknowledged.

Comment No 2:
The Proposed Plan applies an upper bound excess lifetime carcinogenic risk goal of 1 in 10,000 (1E-04) for the upper bound range. To be consistent with Ohio EPA's cumulative risk and non-carcinogenic hazard goals, the upper bound excess lifetime carcinogenic risk goal should be changed to 1 in 100,000 (1E-05) to incorporate current program requirements.
Response No 2:
The Proposed Plan for Investigative Area – 06 identified Recreational as the most likely future land use. Under this scenario, IA06 meets the Ohio EPA's recommended cancer risk goal of 1 in 100,000. Under more restrictive land uses, the potential risk posed by FUSRAP-related materials is comparable to the risk posed by naturally occurring levels of those same materials. No change is recommended for the ROD regarding comparison of potential risks with risk goals and limits. The Corps, as lead federal agency for FUSRAP, is obligated to use the risk limits established for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The range of acceptable incremental lifetime cancer risks for CERCLA projects is specified in the National Oil and Hazardous Substances Contingency Plan (as 1 in 1,000,000 to 1 in 10,000). The use of 1 in 10,000 as the upper bound of the acceptable carcinogenic risk range is consistent with the promulgated standards that the Corps is obligated to follow.

Comment No 3:
The [Ohio Environmental Protection Agency] Division of Emergency and Remedial Response's (DERR) Remedial Response Program including the Federal Facilities Section has adopted a human health cumulative excess lifetime carcinogenic risk goal of 1 in 100,000 (1E-05) and cumulative non-cancer hazard index (HI) of 1, for all receptors and land uses. These goals are used both as the level of acceptable excess cancer risk or non-cancer hazard and for the development of remediation goals for a site. This is iterated in the Ohio EPA Technical Decision Compendium document titled "Human Health Cumulative Risk and Non-carcinogenic Hazard Goals for the DERR Remedial Response Program" available at the following web site:http://www.epa.state.oh.us/derr/rules/guidance.aspx
Response No 3:
The Proposed Plan for IA06 identified Recreational as the most likely future land use. Under this scenario, IA06 meets Ohio EPA's recommended risk goals for cancer and non-cancer health endpoints. Under more restrictive land uses, the potential risk posed by FUSRAP-related materials is comparable to the risk posed by naturally occurring levels of those same materials. A hazard index of 1 was used as the evaluation criterion in the Proposed Plan. For comparison to carcinogenic risk limits, the Corps, as lead federal agency for FUSRAP, is obligated to use those limits established for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The range of acceptable incremental lifetime cancer risks for CERCLA projects is specified in the National Oil and Hazardous Substances Contingency Plan (as 1 in 1,000,000 to 1 in 10,000). The use of 1 in 10,000 as the upper bound of the acceptable carcinogenic risk range is consistent with the federally promulgated standards that the Corps is obligated to follow.

Comment No 4:
As stated in the Proposed Plan, the mission of the FUSRAP is to identify, assess, and clean up or control sites with residual radioactivity resulting from early years of the Nation's atomic energy program. This program is limited to the contamination attributable to these activities and, therefore, this Proposed Plan only identifies and assesses the risk presented by FUSRAP

contaminants. Investigative Area-06 may have both non-FUSRAP radiological and non-FUSRAP non-radiological contamination that may exceed acceptable risk levels for a designated receptor. Before reuse of the area, additional environmental assessment is warranted.
Response No 4:
Comment acknowledged.

4. **Chris Trepal, Earth Day Coalition**
Ms. Trepal submitted an e-mail with comments on the Proposed Plan. A copy of the e-mail is attached. Specific comments are excerpted and paraphrased here so that they may be responded to individually.

Comment No. 1:
There are many reputable scientists who believe, based on their research, that there is no dose of ionizing radiation which is harmless. The Remedial Investigation Report of December 2009 stated constituents of potential concern include: Total uranium, Thorium-230, Lead-210 and Radium-226. In fact, these isotopes exceed background according to the range of detected results. Will there be a deed restriction or deed notation if you are going to release the site for no further action?
Response No. 1:
Congress has directed the Corps to follow the process outlined in CERCLA when addressing FUSRAP sites. As the guidance and regulations currently stand, the process is to determine the risk to the reasonably anticipated future land use and compare it against risk levels established by the US Environmental Protection Agency. Following this process, the Corps concluded that IA06 poses no potential risk above the established risk limit for the reasonably anticipated future land use (recreational). In addition, the Corps applied the guidance outlined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) in comparing results of sampling and analysis in IA06 to preliminary remediation goals developed in the remedial investigation for more restrictive land uses such as industrial, residential, and agricultural. This evaluation determined that no further action under FUSRAP is necessary for these land-use scenarios. There are no deed restriction or notation requirements.

Comment No. 2:
The average background baseline risk for a residential child or adult or a subsistence farmer exceed the upper acceptable risk range. This is argument enough to either clean up the hot spots to acceptable risk for all receptors or restrict the deed in perpetuity for these two classes of receptors. A hundred years ago this was agricultural land - a hundred years from now agricultural land use may return. Because the pending near future intended use of this site is recreational and will likely draw many more visitors than accounted for in the risk analysis, extreme caution should be undertaken.
Response No. 2:
The comparison to potential risk posed by naturally occurring levels of radionuclides (samples collected from Cleveland Metroparks where no processing/storage/disposal of radioactive materials occurred) show the highly conservative nature of the risk assessment inputs/modeling software. As shown in the risk summary table on page 10 of the Proposed Plan, the potential risk posed from exposure to radionuclides in IA06 is virtually indistinguishable from the risk posed by naturally occurring levels of radionuclides. Similarly stated, if the Corps were to remediate IA06 to background levels the 1 in 10,000 risk level would still be exceeded for the hypothetical residential or agricultural land use scenarios, as demonstrated by the potential risk

calculated using average background data. Therefore, based on the risk analysis, no remedial action of FUSRAP-related material or deed restrictions are warranted. Please also see the response to your first comment, which indicates that no further action or deed restrictions are warranted to prevent other uses of IA06 in the future. The parcel can be released for unrestricted use and unlimited exposure to FUSRAP-related constituents.

Comment No. 3:
It was stated that the risk assessment was the result of averaging the risk over the entire 6-acre area. The area that was identified as containing the elevated levels of contamination should be remediated or marked with signage and noted on the deed for permanent information because the cancer risks for a resident adult/child or subsistence adult farmer exceed the 1 in 10,000 upper bound.
Response No. 3:
Signage at this location is not required as there is no potential risk exceeding established risk limits resulting from FUSRAP-related materials. The area in question has a maximum result of U-238 at 36.2 pCi/g. The Corps applied the guidance outlined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) in comparing results of sampling and analysis in IA06 to preliminary remediation goals for more restrictive land uses, including an evaluation of areas of elevated concentration. This area of elevated activity was not sufficiently elevated to warrant remediation.

Comment No. 4:
Harshaw Chemical was one of the biggest producers of uranium compounds for the nation's nuclear weapons program for over 10 years (and had no dust catching ventilation systems) and released an estimated 4,000+ pounds of radioactive uranium dust into the air every year during the period 1943 to 1953. Where did the uranium dust go?
Response No. 4:
The release of processed radioactive materials from ventilation systems has been considered and incorporated into the conceptual site model for contamination of the Harshaw Site. Contamination currently present on building roofs is likely due to the dispersal of ventilated processing dusts. To determine if aerial deposition played a significant role in the contamination of site soils, an analysis comparing the results from the near surface 0-6 inch interval with the 0-2 foot interval was performed. Results of this analysis are presented in section 6.1.1.1 of the Remedial Investigation Report and indicate that conditions observed in 2003, when the samples were collected and analyzed, do not show a statistically significant bias towards the surface. However, the reworking of site soils performed throughout the intervening years, leaching of contamination to deeper soils, and weathering, could have contributed to lower surface soil results in 2003 than would have been present in the years immediately following the MED/AEC-related work.

Comment No. 5:
C-1: Harshaw delivered 1,702,335 kgU of RU to Oak Ridge. This material was received by Harshaw from Hanford. The assay rate for U235 is listed as 0.666% and 0.671%. Has any of the lost material from the Harshaw Site been identified? C-2: Officially, plutonium contamination in uranium was supposed to be maintained below 10 parts per billion. Was that limit exceeded in the materials sent to Harshaw? C-3: Is any of this recycled waste remaining in area IA 06?

Response No. 5:
R-1:Available records indicate that 1914 MTU of recycled uranium (RU) were shipped from Hanford to Harshaw during the period of 1952 to 1954. Harshaw delivered 1702 MTU of RU to Oak Ridge during this period. However, the 211 MTU difference is not considered to be "missing material", as the uranium was too valuable. As described in Section 2.2.1.3 of the RI, in 1953 the disposition of accumulated solids containing depleted uranium became a problem. To solve this, the accumulated solids were mixed with "good Hanford feed" running through the refinery. This left mainly contaminated solvent, which was dispositioned when the refinery shut down. Therefore, the recovered uranium was not accounted for in the main deliveries to Oak Ridge.

R-2: Analysis of RU received from Harshaw at Oak Ridge recorded an average plutonium concentration of 3.2 ppb (maximum 11 ppb) for shipments made in 1953 and an average of 5.0 ppb (maximum 9 ppb) for shipments received in 1954. Limited data available from Hanford indicate that the preponderance of RU UO_3 shipped to all sites had ≤ 5 ppb plutonium (DOE/RL 2000) in conformance with the prevailing 10 ppb standard. As noted in Sec 2.2.1.3 of the RI, an early shipment to Harshaw from Hanford in 1952 had 30 ppb plutonium, while Oak Ridge reported an average 13.7 ppb (maximum 40 ppb) plutonium in UO_3 received from Hanford in 1953. However, it is not possible to tell if these levels were representative of shipments to Harshaw.

R-3: During the fourth phase of our remedial investigation, four soil samples were analyzed for the presence of recycled uranium contaminants (technetium-99, europium-152, europium-154, neptunium-237, plutonium-238, and plutonium-239/240) in IA06. None of these constituents were detected in IA06 soils (see the table on page 6 of the Proposed Plan).

Comment No. 6:
Because this area is prone to erosion and flooding (so much that groundwater sampling could not be done as part of the risk analysis) has there been any testing of deep sediments deposits in the Cuyahoga River where contamination is likely to have washed out (during the 1943-1953 time period)?
Response No. 6:
In the initial phases of Remedial Investigation field work, the Corps sampled surface water and sediment in the Cuyahoga and Big Creek adjacent to the site. Analytical results indicated there was no risk posed by FUSRAP-related materials in these media. In later phases, samples were collected from surface water and sediment in the Cuyahoga River downstream of the Harshaw Site where sediments potentially exhibiting FUSRAP-related contamination would have likely settled out due to river flow patterns. These samples did not have any FUSRAP-related material results above laboratory instrument detection limits.

5. **Roger Kalbrunner**
Mr. Kalbrunner submitted a comment card with his comments on the Proposed Plan. A copy of the card is attached.

Comment:
The U.S. Army Corps of Engineers appears to have made a comprehensive investigation and testing of possible radioactive materials in IA 06. Personally, I appreciate that the corps made its testing, investigations and risk assessment promptly in order that the Ohio Canal Corridor can

continue its efforts to extend and complete an additional section of the Ohio-Erie Canal Towpath. Thank you.
Response:
Comment acknowledged

6. **Herbert W. Strong Jr.**
Mr. Strong submitted a comment card with his comments on the Proposed Plan. A copy of the card is attached.

Comment:
I am (retired) an applied chemist who graduated from the California Institute of Technology in 1946. I was employed as a development Engineer in February 1947 by the Harshaw Chemical Co, and worked in the Development Department on the South Side of Harvard Avenue, across from the warehouse until 1950, when I transferred to the main office on 97th street as assistant to the V.P. of Manufacturing, Charles Porke. I resigned in 1952 for another job. During my five year close association with the company, I had no contact with IA 06 and knew of no activity taking place on that area. Being across the river, it was inaccessible to any plant operations. I was familiar with Harshaw's Uranium processing in Plant C, and had a Q clearance, the second highest I was told.
Response:
Thank you for personal insights into the operation of the former Harshaw Chemical Company between 1947 and 1952. Your comments provide important confirmation of the historical record and inactivity of the IA06 parcel during this critical timeframe.

7. **Dean Van Farowe**
Mr. Farowe submitted an e-mail with comments on the Proposed Plan. A copy of the e-mail is attached.

Comment:
Thanks for your continued work on behalf of the people of this country. I heartily agree with my Ohio Congressman Dennis Kucinich in asking for a definition of the "risks" associated with extending the Towpath Trail in Cleveland through the old Harshaw plant area. This is an extremely worthwhile project, so let's do it right: let's make sure future users of the trail like myself and my family, have complete assurance that our health is not in danger. If the public is assured of safety, this also will increase the use of the trail. Thank you again for your hard work on our behalf.
Response:
The Corps used risk assessment models established by the EPA under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.*,(CERCLA) in order to estimate what the potential risks could be for someone who is exposed to contamination resulting from FUSRAP activities on the site. The process used to estimate the risks are explained on page 9 of the Proposed Plan. More information about the risk assessment process may be found on our risk assessment fact sheet, located at http://www.lrb.usace.army.mil/fusrap/docs/fusrap-fs-risk-2008-09.pdf. The EPA also has a fact sheet explaining the risk assessment process for the community, and that may be viewed at http://www.epa.gov/oswer/riskassessment/commeng.htm. Basically, risk is the chance that some harmful event will occur. In the case of environmental cleanups, we think of risk as the potential for a negative health impact as a result of exposure to contamination. Risk assessment

is the process used to determine the potential for a negative health effect to occur as a result of exposure to hazardous materials. A risk assessment should be able to answer the questions: "What is the problem, and how bad is it?" By comparing risk characterization results with the acceptable risk range established by the EPA under CERCLA in the National Contingency Plan, 40 CFR Part 300, we can determine whether the contamination at a site is great enough to warrant a cleanup or other remedial response. Because the excess lifetime cancer risks at the IA06 portion of the Harshaw Site were below the acceptable risk range and comparable to background, the Corps has determined that no further action is warranted in IA06 due to FUSRAP contamination. With regard to the "Old Harshaw Plant Area" (specifically investigation areas 03 and 04 proposed for extension of the trail), excessive lifetime cancer risks are above the acceptable range. Therefore, the Corps is conducting a Feasibility Study to assess the most appropriate remedial option(s) to cleanup this area to levels which provide the public the assurance that health safeguards are in place to protect from dangers associated with FUSRAP contaminants.

8. **James McCafferty, Cuyahoga County Administrator**
   Mr. McCafferty submitted a letter with his comments on the Proposed Plan. A copy of the letter is attached. Specific comments are excerpted and paraphrased here so that they may be responded to individually.

   Comment:
   At this time, we would like to again suggest, as was originally documented in a letter dated February 11, 2009, that sections of Investigative Area 03 and 04 be split along the southern property line of the CSX Railroad spur. Our request is two-fold: first, we have a potential use for the land; and from the study data, the test results are not at the levels that can be found in those areas of the near building G-1. By no means are we implying that these areas do not require remediation. We feel that this approach will allow people to benefit from the outcomes of the FUSRAP program sooner than later while the U.S. Army Corps of Engineers continues to study and clean up the other sections of the Harshaw property.
   Response:
   While the Corps will strive to complete the CERCLA analyses as efficiently and quickly as possible, it is by nature a thorough and time-consuming process. The complex issues presented by some of these areas (i.e. impacted material found in the deep fill along the eastern edge of IA04) will likely have solutions which can be applied across the site such as the edges of IA05. Because of the similarity of the nature and disposition of the contamination across the balance of the site, there would be no time/cost advantage to breaking out portions of IA03 and IA04 for expedited Feasibility Study, Proposed Plan, ROD and Remedial Design/Remedial Action. If feasible alternatives are found through the feasibility study that provides efficiencies and potential remediation of some areas sooner than others, they will be considered when determining the appropriate alternatives for site remediation.

9. **Claude Cornett**
   Mr. Cornett submitted a letter with his comments on the Proposed Plan. A copy of the letter is attached. Specific comments are excerpted and paraphrased here so that they may be responded to individually.

Comment No. 1:
The Proposed Plan states that ARARs have not been identified because unacceptable risk levels have not been identified. No exclusion from addressing ARARs exists for full CERCLA RI/FS studies. This explanation is not adequate to address related concerns.
Response No. 1
Applicable or relevant and appropriate requirements (ARARs) would only be needed to be identified if the CERCLA risk range is exceeded. Since the CERCLA risk range was not exceeded in IA06 for FUSRAP-related material, no further action is required, and there is no need to establish remedial action objectives or ARARs. If unacceptable risk is established for a site undergoing investigation and remediation under CERLCA, then potential ARARs are identified and evaluated in the Feasibility Study phase and become final with the approval of the ROD. Since no unacceptable risk was found in IA06, the Corps determined the identification and evaluation of ARARs is not required.

Comment No. 2:
The study only partially addresses the environmental and regulatory concerns by focusing on FUSRAP and petroleum related pollutants.
Response No. 2:
The Corps acknowledges that its authority extends only to FUSRAP-related material and does not make any conclusions concerning other contamination potentially found at the site.

Comment No. 3:
The Proposed Plan does not adequately cover chemical contamination, unless adequate samples were collected and analyzed for the OEPA and EPA target compound lists. Given the FUSRAP mission, why the Corps did not do this is understandable, but the FUSRAP team needs to summarize this and other limitations of their FUSRAP work in their public summaries and detailed reports.
Response No. 3:
Concur. Corps' mission limitations will be made clear in the ROD section 1.2, entitled USACE Authority at the Harshaw Site.

Comment No. 4:
P-6 Table: The depth of samples that should be specified when used to estimate risks from direct soil exposure under recreational use. Generally, such samples should be taken from the surface or at depths of 0-2 ft at most. However, the values tabulated may be adequate for screening level risk assessment.
Response No. 4:
The depth of samples obtained in IA06 ranged from 0-6 inches below ground surface, to greater than 13 feet below ground surface. Samples used for evaluating human and ecological risks varied from 0-2 feet below ground surface to 0-13 feet below ground surface, depending on the land use and type of receptor being evaluated. For the screening level ecological risk assessment and for potential land use involving only exposure to surface soils, such as for recreational use of the site, all samples obtained within the top 2 feet of ground surface were evaluated. Table 8-6 in the Remedial Investigation Report presents analytical results from the 0-2 foot soil interval as well as the 0-13 foot interval.

Comment No. 5:
Background samples should be tabulated as a range of values, and compared to the values in IA06 using appropriate statistical methods.
Response No. 5:
Table 1 of the ROD shows analytical results from IA06 with comparisons to the background value. The range of background sampling results can be found in Table 8-7 of the Remedial Investigation Report.

Comment No. 6:
The depth of the maximums in IA06 should be shown in a summary table in the detailed report.
Response No. 6:
The maximum detected sampling results from IA06 were obtained in a sample from 6 – 12 inches below ground surface. Sheets 18, 19, and 20 of the Harshaw Remedial Investigation Report present depth information for samples collected in IA06 for total uranium, thorium-230 and radium-226/lead-210.

Comment No. 7:
The radioactivity shown at Location P-7 is not unusual for construction debris. This debris should be picked up and appropriately disposed as part of the Towpath Trail Development Work.
Response No. 7:
The Corps determined no action was warranted at the site relating to FUSRAP-related materials.

Comment No. 8:
P-9: 8 hr per day 5 days per week for worker not reasonable max exposure. The plausible maximum is a 95% upper limit to comply with Ohio Voluntary Action Program and EPA Superfund Standards.
Response No. 8:
The definition of a reasonable maximum exposure is dependent on the land-use scenario being evaluated. An exposure of 8 hours per day for 5 days a week is consistent with USEPA guidance for default exposure parameter values under a reasonable maximum exposure for an industrial or commercial worker. The Ohio EPA Voluntary Action Program also uses these USEPA CERCLA risk assessment guidance recommendations in evaluating contaminated sites. Please note that the Harshaw Former Chemical Company FUSRAP Site is not part of the Ohio Voluntary Action Program.

Comment No. 9:
P-I0: The risk summary does not show if the values tabulated are plausible maximum or central values.
Response No. 9:
The risk summary table on page 9 of the Proposed Plan presents risk for the reasonable maximum exposure.

Comment No. 10:
The EPA guidance states that when incremental risks of 10^{-4} [1 in 10,000] above background are exceeded, remedial options should be evaluated for a range of alternatives that would reduce those risks to much lower limits, including 10^{-6} [1 in 1,000,000]. However, it is not clear that the 10^{-4} [1 in 10,000] trigger level for incremental risks has or has not been exceeded.

Response No. 10:
For the reasonable future land use (recreational), the incremental lifetime cancer risks (as presented in the summary table on page 10 of the Proposed Plan) are lower than 1 in 10,000, i.e., the trigger level for incremental cancer risk has not been exceeded, even when exposures to background levels of radionuclides are included in the risk characterization. This is the basis for the no further action decision in IA06. When exposures to only site-related FUSRAP constituents are considered, the above background risks are even lower. This can be determined by subtracting the "Average Background Baseline Risk" values from the "IA06 Baseline Risk" values presented in the table on page 10 of the Proposed Plan (this table will become Table 2 of the Record of Decision). For the reasonable future land use of IA06 (recreational), the above background, site-related risks from exposure to FUSRAP constituents would be below 10^{-6} (1 in 1,000,000), i.e., below the trigger level for action.

Comment No. 11:
P-11: How complete was the chemical evaluation in IA06? All I see is radionuclides, TPH, and kerosene.
Response No. 11:
Under the FUSRAP, only radionuclides, kerosene (in the form of total petroleum hydrocarbons – diesel range organics), lithium, and molybdenum were evaluated in IA06 because these chemicals were determined to be FUSRAP-related constituents of concern. This is explained on page 5 of the Proposed Plan. As explained in the Remedial Investigation Report and documented in Appendix 2A Table 2A.11, other chemicals were analyzed either during previous (non-Corps) sampling events and/or using field screening instrumentation (that is not considered to provide definitively quantitative results). Table 2A.11 of the Remedial Investigation Report presents a summary and screening of these other non-FUSRAP chemical results obtained throughout the former Harshaw Chemical Company Site.

Comment No. 12:
P12: The report does not address all applicable, relevant, and appropriate regulations (ARARs). Just because a risk threshold is not exceeded is not adequate grounds for not covering them, or at least specifying not covering ARARS as an important limitation of the FUSRAP study.
Response No. 12:
Applicable or relevant and appropriate requirements (ARARs) would only be needed to be identified if the CERCLA risk range is exceeded. Since the CERCLA risk range was not exceeded in IA06, no further action is required, and there is no need to establish remedial action objectives or ARARs. If unacceptable risk is established for a site undergoing investigation and remediation under CERLCA, then potential ARARs are identified and evaluated in the Feasibility Study phase and become final with the approval of the ROD. Since no unacceptable risk was found in IA06, the Corps determined the identification and evaluation of ARARs is not required.

Comment No. 13:
P12: In violation of pertinent rules, the only copy of the Former Harshaw Chemical Site, Remedial Investigation Report, at the Cuyahoga Public Library, Brooklyn Branch is Revision 0, dated September 22, 2006, instead of Revision 1, dated December 2009, etc. available on-line at http://www.1rb.usace.army.mil/fusraplharshawlharshaw-rivo12tables-2009-12.pdf
Furthermore, the library does not have Volume IV of the Remedial Investigation report or its appendices. Not having a hardcopy for review cripples the ability of reviewers to efficiently review the detailed methods, and results of the study.

Response No. 13:
A hard copy of the 2009 RIR was provided to the Cuyahoga Public Library Brooklyn Branch and is listed in their electronic card catalog. An electronic version of the entire Administrative Record File for the Harshaw Site was also provided to the library. Upon contacting the library, it was indicated that the 2009 report could not be found. A replacement copy of the report has been provided.

Comment No. 14:
British Petroleum installed a pipeline through the western portions of IA06, destroying much vegetation in the process --making its characterization of IA06 out of date.
Response No. 14:
The property owner has confirmed that a BP pipeline runs along the eastern portion of the property. Aerial photo analysis indicates the existence of this pipeline prior to the Remedial Investigation. We have no evidence of a pipeline in the western portion having been installed following the Corps' investigation of the site.

ATTACHMENT 1
LETTER FROM THE OFFICE OF CONGRESSMAN DENNIS KUCINICH
DATED MAY 12, 2010

DENNIS J. KUCINICH
10TH DISTRICT, OHIO

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Congress of the United States
House of Representatives

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CHAIRMAN,
SUBCOMMITTEE ON DOMESTIC POLICY

COMMITTEE ON OVERSIGHT AND
GOVERNMENT REFORM

COMMITTEE ON EDUCATION AND LABOR

May 12, 2010

Lieutenant Colonel Daniel Snead
Commander Buffalo District
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

Dear Lieutenant Colonel Snead:

Thank you for sending me the April 2010 report "Former Harshaw Chemical Company Proposed Plan for Closure and No Further Action at Investigative Area-06." I appreciate this opportunity to comment on this report.

I support the U.S. Army Corps of Engineers and its Formerly Utilized Sites Remedial Action Plan (FUSRAP) at the Harshaw Chemical site in the City of Cleveland in Ohio's 10th Congressional District. The FUSRAP is designed to clean up radioactive contamination at sites formerly used in the development of nuclear weapons as part of our nation's defense system. Today, sites like Harshaw need to be decontaminated and cleaned up to a safe and appropriate standard for reuse.

Recognizing that Investigative Area-06 (IA-06) is a small part of the larger area under FUSRAP jurisdiction, this section has had little use in the development of nuclear weapons. However, the Army Corps has determined that certain ground disturbance on the site constitutes evidence of construction-debris fill activities. Furthermore, there were some elevated radiation levels on the site. The Army Corps concluded that there is no unacceptable risk to current or reasonably anticipated future land users. Among such users would be recreational users along the Towpath Trail.

The report is not explicit and in plain language about what those risks are. While the report discusses cancer and non-cancer risks from the chemicals and radionuclides at the site, it does not go far enough in explaining what these risks mean to the people who would be reasonably expected to use the Towpath Trail, such as hikers, bikers, and other recreational users. Rather, the report might be more useful to individuals with a background in radiation health physics. Plain language about the risks will be even more important as the Army Corps goes on to study the other areas of the Harshaw site where higher radiation levels are expected.

The Army Corps is working with community groups, including the Ohio Canal Corridor, which advocates for future use of the site as part of our region's recreational infrastructure. I applaud

this outreach and seek that the Army Corps continue to work with this and other similarly situated organizations.

I would also like to see more outreach to other community organizations with knowledge about radioactive contamination risks, such as the Earth Day Coalition which has specifically sought such participation. It would be important to get such input as part of the Army Corps outreach and the FUSRAP process.

I appreciate that the Army Corps is seeking to remediate and dispose of the less work-intensive sections of the Harshaw site first. IA-06 may be the least contaminated parcel of the site, and it makes sense for the Army Corps to complete its work here first.

I would also suggest that other areas, which may or may not be the easiest to complete but for which there is a greater demand for reuse, be segmented, investigated and remediated sooner rather than later. Specifically, if the sections of IA-03 and IA-04, from the northern fence line to the southern railroad property line, could be the next area studied and remediated, construction of the Towpath Trail will be completed sooner. Taking this approach, the people can benefit from the outcomes of the FUSRAP program sooner while the Army Corps continues to study and clean up other sections of the Harshaw property.

I remain quite concerned about possible adverse effects to health and the environment from the elevated levels and await your reassurance and action.

Sincerely,

Dennis J. Kucinich
Member of Congress

DJK: mg

ATTACHMENT 2
LETTER FROM THE OHIO DEPT OF HEALTH AND ENVIRONMENTAL PROTECTION AGENCY
DATED MAY 26, 2010

PROPOSED PLAN FOR CLOSURE
AND NO FURTHER ACTION
AT INVESTIGATIVE AREA – 06
(May 26, 2010)

1. Commenting Organization: Ohio Dept. Health
Commenter: BRP

GENERAL COMMENT:

The Ohio Department of Health (ODH) reviewed the sampling methodology and results that were presented in the report and believe them to conform to CERCLA protocols. The results of the sampling analysis were presented in the table on page 6 of the report and the average values were deemed acceptable.

2. Commenting Organization: Ohio Dept. Health
Commenter: BRP

GENERAL COMMENT:

The average values in the aforementioned table were selected as parameters that were used as input to the computer code RESRAD, along with other exposure parameters that ODH deemed suitable for the purposes of estimating the dose to the population. The results compare favorably to values obtained and presented in the Risk Summary Table on page 10 of the report. All values used resulted in a dose of less than 25 mrem/y.

3. Commenting Organization: Ohio Dept. Health
Commenter: BRP

GENERAL COMMENT:

The above analysis, as well as the one presented in the Risk Summary Table, was based solely on exposure to contaminants from FUSRAP activities. Other contaminants were not included in the analysis.

4. Commenting Organization: Ohio Environmental Protection Agency
Commenter: Division of Emergency and Remedial Response

GENERAL COMMENT:

The Ohio Environmental Protection Agency (Ohio EPA) recognizes and encourages the beneficial use of this and other “Brownfield” sites in Ohio. The release of Investigative Area 06 under a No Further Action (NFA) for the Formerly Utilized Sites Remedial Action Program (FUSRAP) related contamination is supported by the information presented by the United States Army Corps of Engineers.

5. Commenting Organization: Ohio Environmental Protection Agency
Commenter: Division of Emergency and Remedial Response (DERR)

GENERAL COMMENT:

The Proposed Plan applies an upper bound excess lifetime carcinogenic risk goal of 1 in 10,000 (1E-04) for the upper bound range. To be consistent with Ohio EPA's cumulative risk and non-carcinogenic hazard goals, the upper bound excess lifetime carcinogenic risk goal should be changed to 1 in 100,000 (1E-05) to incorporate current program requirements.

The Division of Emergency and Remedial Response's (DERR) Remedial Response Program including the Federal Facilities Section has adopted a human health cumulative excess lifetime carcinogenic risk goal of 1 in 100,000 (1E-5) and a cumulative non-cancer hazard goal equal to a hazard index (HI) of 1, for all receptors and land uses. These goals are used as both the level of acceptable excess cancer risk or non-cancer hazard and for the development of remediation goals for a site. This is iterated in the Ohio EPA Technical Decision Compendium document titled "Human Health Cumulative Risk and Non-carcinogenic Hazard Goals for the DERR Remedial Response Program" available at the following web site:

http://www.epa.state.oh.us/derr/rules/guidance.aspx

6. Commenting Organization: Ohio Environmental Protection Agency
Commenter: Division of Emergency and Remedial Response (DERR)

GENERAL COMMENT:

As stated in the Proposed Plan, the mission of FUSRAP is to identify, assess, and clean up or control sites with residual radioactivity resulting from the early years of the Nation's atomic energy program. This program is limited to the contamination attributable to these activities and, therefore, this Proposed Plan only identifies and assesses the risk presented by FUSRAP contaminants. Investigative Area-06 may have both non-FUSRAP radiological and non-FUSRAP non-radiological contamination that may exceed acceptable risk levels for a designated receptor. Before reuse of the area, additional environmental assessment is warranted.

ATTACHMENT 3
E-MAIL FROM MS. CHRIS TREPAL

From: [redacted]
To: Fusrap, LRB
Subject: comments on Harshaw Site IA-06
Date: Wednesday, May 26, 2010 6:53:10 AM

May 26, 2010

Some comments in addition to comments/questions submitted orally at the May 12 meeting in Cleveland.

Harshaw IA 06 Proposed Plan:

There are many reputable scientists who believe, based on their research, that there is no dose of ionizing radiation which is harmless. The Remedial Investigation Report of December 2009 stated constituents of potential concern include: Total uranium, Thorium-230, Lead-210 and Radium-226. In fact, these isotopes exceed background according to the range of detected results. Will there be a deed restriction or deed notation if you are going to release the site for no further action?

The average background baseline risk for a residential child or adult or a subsistence farmer exceed the upper acceptable risk range. This is argument enough to either clean up the hot spots to acceptable risk for all receptors or restrict the deed in perpetuity for these two classes of receptors. A hundred years ago this was agricultural land - a hundred years from now agricultural land use may return. Because the pending near future intended use of this site is recreational and will likely draw many more visitors than accounted for in the risk analysis, extreme caution should be undertaken.

It was stated that the risk assessment was the result of averaging the risk over the entire 6-acre area. The area that was identified as containing the elevated levels of contamination should be remediated or marked with signage and noted on the deed for permanent information because the cancer risks for a resident adult/child or subsistence adult farmer exceed the 1 in 10,000 upper bound.

Harshaw Chemical was one of the biggest producers of uranium compounds for the nation's nuclear weapons program for over 10 years (and had no dust catching ventilation systems) and released an estimated 4,000+ pounds of radioactive uranium dust into the air every year during the period 1943 to 1953 ? that?s 40,000+ pounds ? where did the uranium dust go?

Harshaw delivered 1,702,335 kgU of RU to Oak Ridge. This material was received by Harshaw from Hanford. The assay rate for U235 is listed as 0.666% and 0.671%. Has any of the ?lost? material from the Harshaw site been identified? Officially, plutonium contamination in uranium was supposed to be maintained below 10 parts per billion. Was that limit exceeded in the materials sent to Harshaw? Is any of this recycled waste remaining in area IA 06?

Because this area is prone to erosion and flooding (so much that groundwater sampling could not be done as part of the risk analysis) has there been any testing of deep sediments deposits in the Cuyahoga River where contamination is likely to have washed out (during the 1943-1953 time period)?

Thank you.

Chris Trepal
Earth Day Coalition
3606 Bridge Avenue
Cleveland, OH 44113

ATTACHMENT 4
COMMENT CARD SUBMITTED BY MR. ROGER KALBRUNNER

Tear off sheet
Dear Harshaw FUSRAP Team,

I would like to provide you with the following comments on the IA06 Proposed Plan.

THE U.S. ARMY CORPS OF ENGINEERS APPEARS TO HAVE MADE A COMPREHENSIVE INVESTIGATION AND TESTING OF POSSIBLE RADIOACTIVE MATERIALS IN IA06.

PERSONALLY, I APPRECIATE THAT THE CORP MADE ITS TESTING, INVESTIGATIONS AND RISK ASSESSMENT PROMPTLY IN ORDER THAT THE OHIO CANAL CORRIDOR CAN CONTINUE ITS EFFORTS TO EXTEND AND COMPLETE AN ADDITIONAL SECTION OF THE OHIO-ERIE CANAL TOWPATH.

THANK YOU.

Submitted by:

Name: ROGER KALBRUNNER

Organization: [redacted]

Address: [redacted]

ATTACHMENT 5
COMMENT CARD SUBMITTED BY MR. HERBERT W. STRONG, JR.

Tear off sheet

Dear Harshaw FUSRAP Team,

I would like to provide you with the following comments on the IA06 Proposed Plan.

I am (retired) an Applied Chemist who graduated from the California Institute of Technology in 1946. I was employed as a Development Engineer in February 1947 by the Harshaw Chemical Co, and worked in the Development Department on the South side of Harvard Avenue, across from the warehouse until 1950, when I transferred to the Main Office on 97th Street as assistant to the V.P. of Manufacturing, Charles Parke. I resigned in 1952 for another job.

During my five year close association with the company, I had no contact with IA06 and knew of no activity taking place → (over)

Submitted by:

Name: [redacted]

Organization:

Address:

on that area. Being across the river, it was inaccessable to any plant operations.

I was familiar with Harshaw's Uranium processing in plant C, and had a Q clearance, the second highest I was told.

[redacted]

1st Fold here

Please Affix First Class Postage

US Army Corps of Engineers, Buffalo District
Environmental Project Management Team
1776 Niagara Street
Buffalo, NY 14207

2nd Fold here

Tape Closed Here

ATTACHMENT 6
E-MAIL FROM MR. DEAN VAN FAROWE

From: Kreusch, Arleen K LRB on behalf of Fusrap, LRB
To: dean van farowe
Subject: RE: Towpath Trail in Cleveland
Date: Wednesday, May 26, 2010 11:13:01 AM

Dear Mr. Van Farowe,
Thank you for your comments on the former Harshaw Chemical Company Site Proposed Plan for IA-06. Your comments have been forwarded to the team.
Sincerely,

Arleen K. Kreusch, APR
Outreach Program Specialist
US Army Corps of Engineers, Buffalo District
1776 Niagara Street
Buffalo, NY 14207

Phone: 800-833-6390 (Option 4)
Fax: 716-879-6305

-----Original Message-----
From: dean van farowe [mailto:malachidean@hotmail.com]
Sent: Thursday, May 13, 2010 9:29 AM
To: Fusrap, LRB
Subject: Towpath Trail in Cleveland

To whom it may concern,

Thanks for your continued work on behalf of the people of this country.

I heartily agree with my Ohio Congressman Dennis Kucinich in asking for a definition of the "risks" associated with extending the Towpath Trail in Cleveland through the old Harshaw plant area.

This is an extremely worthwhile project, so let's do it right: let's make sure future users of the trail like myself and my family, have complete assurance that our health is not in danger.
If the public is assured of safety, this also will increase the use of the trail.

Thank you again for your hard work on our behalf.

Dean Van Farowe

[redacted]

The New Busy think 9 to 5 is a cute idea. Combine multiple calendars with Hotmail. Get busy.
<http://www.windowslive.com/campaign/thenewbusy?tile=multicalendar&ocid=PID28326::T:WLMTAGL:ON:WL:en-US:WM_HMP:042010_5>

ATTACHMENT 7
LETTER FROM MR. JAMES MCCAFFERTY, CUYAHOGA COUNTY ADMINISTRATOR
DATED MAY 24, 2010

COMMISSIONERS
Jimmy Dimora
Timothy F. Hagan
Peter Lawson Jones

May 24, 2010

U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

Attention: Lieutenant Colonel Daniel Snead
Commander, Buffalo District

Re: Proposed Plan for Investigative Area 06 of the former Harshaw Chemical FUSRAP Site, Cleveland, Ohio

Dear Sir:

We are in receipt of the correspondence dated April 22, 2010 regarding the U.S. Army Corps of Engineers proposed plan for the former Harshaw Chemical Company's Site for Investigative Area 06. Cuyahoga County appreciates the opportunity to comment on this report.

As you may be aware, Cuyahoga County, working in conjunction with the City of Cleveland, the Cleveland Metroparks and the Ohio Canal Corridor are working on completing the last 6 miles of the Ohio and Erie Canalway Towpath Trail. Staff members from these agencies have met with representatives of the U.S. Army Corps of Engineers and the Ohio EPA over the past couple of years to understand the work required to clean up this site and update staff on our plans for the Towpath Trail Extension through this area.

Various staff members attended your public meeting held on May 12, 2010 at the Cleveland Metroparks Leonard Kreiger Canalway Center. Cuyahoga County supports the U.S. Army Corps of Engineer's "Formerly Utilized Sites Remedial Action Plan" (FUSRAP). It is our understanding that the FUSRAP is designed to clean up radioactive contamination at sites formerly used in the development of nuclear weapons as part of our nation's national defense systems. It is imperative that sites like the Harshaw Chemical Site be decontaminated and cleaned up to a safe and appropriate standard for reuse.

We appreciate the U.S. Army Corps of Engineers focus to remediate and dispose of less work-intensive sections of the Harshaw Site first. Our goal is to construct a recreation trail and associated greenway for both passive and active recreation. The preferred route of the Towpath Trail impacts Investigative Areas 03, 04 and 06. Therefore, we support your efforts as it relates to Investigative Site 06.

At this time, we would like to again suggest, as was originally documented in a letter dated February 11, 2009, that sections of Investigative Area 03 and 04 be split along the southern property line of the CSX Railroad spur. Our request is two-fold: first, we have a potential use for the land; and from the study data, the test results are not at the levels that can be found in those areas of the near building G-1.

By no means are we implying that these areas do not require remediation. We feel that this approach will allow people to benefit from the outcomes of the FUSRAP program sooner than later while the U.S. Army Corps of Engineers continues to study and clean up the other sections of the Harshaw property.

In conclusion, we are appreciative of the work the U.S. Army Corps of Engineer's has done to date to remediate this site and look forward to working with your agency in the future to find ways to remediate the site in the most expeditious way possible for the benefit of the Citizens of Cuyahoga County.

Please contact our Towpath Trail Project Manager Stan Kosilesky at (216) 348-3932 or email him at skosilesky@cuyahogacounty.us with any questions.

Sincerely,

[redacted]

James McCafferty, MSSA
Cuyahoga County Administrator

ATTACHMENT 8
LETTER FROM MR. CLAUDE CORNETT
DATED MAY 12, 2010

COMMENTS SUBMITTED BY CLAUDE CORNETT
AT TOWPATH TRAIL HARSHAW IA-6 CLOSURE MEETING
5/12/2010 6:30 pm at Cleveland Metroparks Canalway Center

Dear Harshaw FUSRAP Team,

I am providing the following comments on the IA06 Proposed Plan:

Mailed Cover Letter

* **States that ARARs have not been identified because unacceptable risk levels have not been identified. No exclusion from addressing ARARs exists for full CERCLA RI/FS studies. This explanation is not adequate to address related concerns.**
* **The study only partially addresses the environmental and regulatory concerns by focusing on FUSRAP and petroleum related pollutants**

APRIL 2010 12-Page Brochure

* Does not **adequately cover chemical contamination**, unless adequate samples were collected and analyzed for the OEPA and EPA target compound lists. Given the FUSRAP mission, why the Corps did not do this is understandable, but **the FUSRAP Team needs to summarize this and other limitations of their FUSRAP work in their public summaries and detailed reports**
* P-6 Table: The depth of samples that should be specified when used to estimate risks from direct soil exposure under recreational use. Generally, such samples should be taken from the surface or at depths of 0-2 ft at most. However, the values tabulated may be adequate for screening level risk assessment.
* **Background samples should be tabulated as a range of values, and compared to the values in IA-6 using appropriate statistical methods**
* The depth of the maximums in IA-6 should be shown in a summary table in the detailed report.
* The radioactivity shown at Location P-7 is not unusual for construction debris. This debris should be picked up and appropriately disposed as part of the Towpath Trail Development Work
* **P-9: 8 hr per day 5 days per week for worker not reasonable max exposure**. The plausible maximum is a 95% upper limit to comply with Ohio Voluntary Action Program and EPA Superfund Standards.
* P-10: The risk summary does not show if the values tabulated are plausible maximum or central values
* The EPA guidance states that when incremental risks of 10^{-4} above background are exceeded, remedial options should be evaluated for a range of alternatives that would reduce those risks to much lower limits, including 10^{-6}. However, it is not clear that the 10^{-4} trigger level for incremental risks has or has not been exceeded.
* P-11: **How complete was the chemical evaluation in IA-6? All I see is radionuclides, TPH, and kerosene**
* P12: The report **does not address all applicable, relevant, and appropriate regulations (ARARs). Just because a risk threshold is not exceeded is not adequate grounds for not covering them, or at least specifying not covering ARARS as an important limitation of the FUSRAP study**.
* P12: **In violation of pertinent rules, the only copy of the Former Harshaw Chemical Site, Remedial Investigation Report, at the Cuyahoga Public Library, Brooklyn Branch is Revision 0, dated September 22, 2006, instead of Revision 1, dated December 2009**, etc. available on-line at http://www.lrb.usace.army.mil/fusrap/harshaw/harshaw-ri-vol2tables-2009-12.pdf
  Furthermore, **the library does not have Volume IV of the Remedial Investigation report or its appendices.** Not having a hardcopy for review cripples the ability of reviewers to efficiently review the detailed methods, and results of the study
* **British Petroleum installed a pipeline through the western portions of IA-6, destroying much vegetation in the process --*making its characterization of IA-6 out of date.***

Submitted by:

Claude Lawrence Cornett, Jr.
Cornett Environmental Consulting
2460 W. 6 St., Apt UpS
Cleveland, OH 44113
(216) 583-0007 lcornett@en.com http://www.cornettenv.org/resume.htm http://www.cornettenv.org/OhioEnvLinks.htm

ATTACHMENT 9
TRANSCRIPTS FROM PUBLIC MEETING
MAY 12, 2010

FORMER HARSHAW CHEMICAL SITE

INVESTIGATIVE AREA (IA)-06

PROPOSED PLAN PUBLIC MEETING

MAY 12, 2010

- - -

Cleveland Metroparks

Leonard Krieger Canal Way Center

Cuyahoga Heights, Ohio

- - -

PRESENT:

Lieutenant Colonel Daniel Snead

Duane Lenhardt, Project Manager

Andrea Kolhoff, Project Engineer

Arleen Kreusch, Outreach Specialist

- - -

MS. KREUSCH: My name is Arleen Kreusch and I'm the Outreach Program Specialist for the Army Corps of Engineers, Buffalo District. Tonight's meeting, we will be having two parts. The first part is the Corps' IA-06 proposed plan presentation for the former Harshaw Chemical Company site, and then the Department of Labor will be speaking on the Energy Employees Occupational Illness Compensation Program.

I would like to introduce to you Lieutenant Colonel Daniel Snead, Commander of the Buffalo District.

LT. SNEAD: Good evening. The district that I cover, it's an interesting boundary to cover the lower Great Lakes, as far west as Toledo and as far east as Massena, doing the Eisenhower Lock of Saint Lawrence Seaway, and we deal with a lot of civil works projects, and one area that we deal with is this FUSRAP program. And this FUSRAP program is called -- it stands for the Formerly Used Sites Remedial Action Program. And for those that are involved in it, we understand that that's the radiological cleanup of sites that were used

under the Manhattan Engineer District way back when in preparation of developing the atomic bomb, and this is specifically one of those sites that we're looking at.

I'd like to thank you all for coming tonight. We had a public meeting at this actual venue reference Cleveland Harbor. Now, I don't know if any of you were there for that. I know that gets a lot of press in The Cleveland Plain Dealer about a new disposal facility, and that's the same district, Buffalo District, that's covering that as well as this project as well.

But, again, thank you for being here tonight. What we're going to talk about is this separate parcel from the Harshaw site. It's called the investigative area or IA-06, so that's a term you're going to hear throughout the presentation, IA-06, and the presenters Duane and Andrea will talk more specifics of this location, but it's essentially a separate parcel on the east side of the Cuyahoga separate from the main Harshaw site that we're talking about.

The big reason why we're here today is we understand that there is some interest in

the community to use this parcel potentially for something. So we expedited our processes and our studies in order to make sure that we gave something back to the community that could potentially be used for something better than what it's being used for right now.

I'd like to acknowledge elected officials, but I don't know if we've got anybody here representing any elected officials at this time. But if we do, we'll make sure that they're represented.

Also, I read I think it was a local article from, what's it called, The Independence, I think, so I think there's probably some folks here that are concerned about health-related issues in reference to the site when the site was active. So what we did -- even though that's not what we're focused on in reference to the parcel, what we did is we have some folks here from the Department of Labor. I'd like to introduce Saul Berzinskas. I don't know if I said it right, Saul. Forgive me if I did say it incorrectly. And Tina Smith. They're here representing the Department of Labor Energy Employees Occupational Illness

Compensation Program. So at the end of this, when you're done providing us comments, there is an opportunity for you to ask them specific questions related to that topic regarding their program.

Also, when you came in, hopefully you had an opportunity to fill out and return a sign-in card. And if you haven't, Arleen and Natalie -- Natalie is out there by the desk. Feel free to get with them so you can get signed in to the sign-on table to make sure that we can get your comments. So obviously we'll take questions, or if you have comments that you would like to make tonight, feel free to do that and we'll give you the opportunity to do that as well as written comments. Maybe there's something you think about that you need to absorb after you leave tonight that you might think, geez, this is probably something I'd like to make a comment on, so we give you that opportunity as well and we'll make sure that you have all the information available to do so.

Just a reminder also, when we put this out, it was initially released to the public on the 26th of April, and our comment

period ends on the 26th of May. So the 26th of May, make sure you do get your comments in before that.

Let's see if I can work this thing. In general, this is the agenda that we're going to follow this evening. I'll be followed by Duane Lenhardt, our Project Manager, who will talk more of the overview of the project, and he'll be followed by Andrea Kolhoff, who is the Project Engineer, that will get into more of the technical aspects of the proposed plan. And then at the end we'll have some question and answers opportunity for you all.

Also, I want to make sure that I point out some folks. We do have a lot of technical folks here today, so if you do have specific questions, I think we should be able to answer them.

First off, Traci Clever. She's our Director of Programs. She's my right-hand person essentially for our overall program for the Buffalo District. Colin Ozanne from our Office of Counsel. Bill Frederick, who is our lead for environmental projects that covers our overall FUSRAP program, not just the Harshaw

site. Dave Frothingham from our environmental engineering section. He's the team leader for that. Karen Keil, she's our Risk Assessor, so when we look at technical aspects of it, we assess it based on risk and impacts to the safety of us as well as human health. Hank Spector, he's our Health Physicist. I know he brought some little gizmos as well over there. If there's more specifics on sampling and such that he would be willing to show to you. And as I stated before, Arleen Kreusch and Natalie Watson who leads our outreach program for FUSRAP.

So with that, I'm going to hand it over to Mr. Lenhardt who will talk about kind of the overall sites and where we went with the proposed plan process. Duane.

MR. LENHARDT: Thank you, Colonel Snead. We appreciate your presence here tonight and your support of this program. It's a very important program for the Corps of Engineers.

Next slide, please. I'd like to describe the site to you. You've read about the site, and I do want to point out some information. On the left-hand side is a roadmap

that you'll identify for the Cleveland area, and that big red star is the -- formal name of the site was Former Harshaw Chemical site. That's where it's located, and it's approximately three miles from downtown Cleveland. And it's along an industrialized corridor that is along the Cuyahoga River, which flows north toward the -- here's the site, here's the Cuyahoga River, and it flows into Lake Erie. (Indicating.)

On the right-hand side is an aerial photo. The aerial photo is a photo as if you were in a plane looking down at the site and this is what you would see. It's relatively recent. It's pretty much what you would see looking down from an airplane. And if you look at that, there are some prominent features there that are found in this area of the Harshaw site. There's the Cuyahoga River that comes in here, meanders around past the site and up out of the top part of the photo toward Cleveland, it's flowing north. In addition to the Cuyahoga River, there's another river body and that's the Big Creek. Big Creek comes into the Cuyahoga River. So these are features you would recognize, waterways in the area.

And there are some other features there, bridges. Here is the Harvard/Dennison bridge that you would recognize that, you know, very well elevated, a very large bridge, and it crosses the Cuyahoga River, and Harvard Avenue, it moves east to west, east going to the west, and it also crosses the Cuyahoga River and it passes the site and the site is located at 1000 Harvard Avenue and continues on until it crosses and joins up with Jennings Road, which is the north/south road here.

Now, the Harvard site is -- you can follow it around starting here and follow the blue line that comes down and around across the road, comes down Jennings Road here way down here to the south, comes across along the river, comes around, and then if you cross the river, there's another portion over here in yellow, and then it comes back over on the blue line. So that's the Harshaw Chemical site. And it's approximately 55 acres. And one thing you may notice is that it's broken up into three distinct areas. There's three distinct areas to this former site. It's broken up by the river, Cuyahoga River flows here so you have this large

mass of the site over here. On the other side of the river you have this area here, so it's broken up that way. (Indicating.)

Now, the area that's west of -- this is west, west of the Cuyahoga River over here. This area here is also broken up, it's broken up by Big Creek. So you have a northern portion of the site here, which is north of Big Creek, extends almost to the Harvard/Dennison bridge, and this is the former process area. This is where various chemicals were manufactured between 1905 into the 1980s. And in this photo you'll see these features here. These are the buildings that exist today at the site. There were many more buildings in this area when it was in high production and they've been demolished.

I'll point out one building. This building right here, this is a building we spent a lot of attention on ourselves. It's called building G-1. This is a building where the Harshaw Chemical processed uranium ores for uranium between the years of 1944 and 1959. So this area here, this building has higher levels of radiological impacts in the area around and

it also to the area north of that toward the Harvard/Dennison bridge. This is the area where the highest levels of contamination are found. When you look at the proposals that we have here, you'll see dots which represent the levels of contamination and see there's lots of contamination concentrated in this area, radiological. (Indicating.)

So this is a former process area. If you go south of the Big Creek River to the southern portion of the site, this area was not used for production, it was used more for storage and during the operation, and you'll notice that there are features today that are here. These are recent features. They did not exist when the plant was in production. This is a large trucking depot. And if you go further down in this area here, what you see here is an indication of vegetation. It's shrubs and trees in this area here. So this is idle land today. (Indicating.)

So this is the main area of the plant site, and if you go across the river, you'll see this parcel here in yellow. And we put it in yellow because this is what we're concentrating

on tonight. This is the IA-06 area. As Colonel Snead indicated, IA-06 indicates investigative area 6. It's called that because during the investigations our designation for investigation in this area. Investigative Areas 2, 3, 4, 1 and so forth are on this side of the river, so this is investigative area 6 on the east side of the river, and this is our focus of the meeting tonight.

And the purpose that we're focusing on this area tonight is to present a plan to you. It's a proposed plan for further action to move this site forward. It's what we call renewal further action. In other words, this particular area, IA-06 is not designated for any remediation from what we call the FUSRAP program, as the Colonel mentioned earlier.

As far as the investigations that we've done on site, we can move beyond this stage, move it forward and concentrate on this area, and what we'll be doing is accommodating a request from the community to extend the towpath trail that you may have heard about. Right now I think it comes up from the south and ends right here south of Harvard Avenue. This is

Harvard Avenue. And the intent is to extend it further north along the IA-06 property. So by so-called releasing this property from FUSRAP consideration, Corps consideration, it gives the opportunity for the community to extend that towpath further north. (Indicating.)

This explains the CERCLA process. The mission of the Corps of Engineers is to investigate and to remediate sites that are impacted during the early days of the atomic energy program.

And our process for investigation, for remediation is a process that was not developed by the Corps. We followed the process that was well established and was established by the U.S. Environmental Protection Agency, and they developed this process to investigate hazardous waste sites, not just government sites, not radiological sites, but all hazardous waste sites.

And the laws that were enacted back in the '70s, you may have heard of these Superfund laws back in the '70s, 1974. Superfund laws were enacted by Congress to investigate and remediate hazardous waste sites,

and part of that process was the CERCLA process and that's what the Corps of Engineers follows.

Now, at the time that Congress enacted the Superfund laws back in '74, they also established the program to investigate and remediate radiologically contaminated sites, which is the FUSRAP program, which stands for Formerly Utilized Sites Remedial Action Program. It's got a beat to it, FUSRAP. And this program established back in 1974 originally was managed by the Department of Energy.

Now, the Harshaw site, Harshaw Chemical site is a relatively new site to the FUSRAP program. It was brought into the program in 1999, and about that same time in 1999 when Harshaw Chemical became a site on the FUSRAP investigatory list, about the same time that was occurring, the program was being transferred from the Department of Energy to the Corps of Engineers. So the Corps of Engineers has managed this program for approximately the last ten years.

Now, the process itself is a series of steps. This chart shows you the steps starting from the preliminary assessment working

down to investigations, studies, studying of the options for remediation, down to public comment and receiving public approval to final remedial design and remedial action. This chart also shows where we are for the Harshaw site in terms of the process. When the Harshaw site was entered in 1999, a preliminary assessment was done and it was found that there's contamination that needs to be assessed further. So we moved on to the next step, the investigatory step, remedial investigations.

Now, investigations that were conducted at the Harshaw site were conducted by the Corps of Engineers between 2001 and 2007, and samples were taken throughout the area and it was tested and the data that was collected from the samples was put together into a report, compiled into a report, which is the remedial investigation report. And that report was recently released in December 2009 to the public. And many of you were here in January when we had a public session to discuss the report. The remedial investigation report also includes assessment of current and long-term risks. In other words, we collected all this

data. Now what are we going to do with this data?

We assessed it in terms of what risks were there in terms of health risks, ecological risks. And what we found was basically that the area west of the Cuyahoga River where the processing was occurring, there were issues. There was a need to further study these areas in terms of remedial options. So we went from remedial investigation, which has been completed for the western areas west of the Cuyahoga River, down to feasibility study.

We are now in feasibility studies for the area west, which have contamination issues, looking at remediation, and we just begun this process, and eventually in the future you'll be sitting here again in another public meeting discussing the next step down, which is a proposed plan. In other words, we look at the area -- various options for remediating that area for the site and we determine what we best judge to be the remedial option. Then we come here and present it to you and receive your comments. That's the area west of the river.

Tonight we're here to discuss IA-06,

Investigative Area 6. What we've done is we've gone directly to the proposed plan, so there's no feasibility study. We're doing that because this area, based on the data that we collected as far as FUSRAP-related contaminants, has no significant impact so we can move beyond the feasibility study phase.

There's no need to study how this area will be remediated and we will move to a no further action proposed plan. So that's what we're going to present to you tonight, data from the investigations that were conducted in IA-06 and our plan, and then we hope to receive your comments tonight as well as over the next several weeks.

And once we receive your comments, we'll be able to proceed from the comment phase, respond to your comments, and go to what is called a record of decision, ROD. Here we document, it's a formal document, legal document, where we agree on what is going to be done for IA-06.

Now, the area that's west of the river, we're still in the process of studying that. We will also proceed to a proposed plan

and record of decision. At some point we'll get to remedial design and remedial action.

What I'll do now is turn this over to Andrea who will go over the studies and methods that we use and what we found at the site.

MS. KOLHOFF: Good evening, everybody, and thank you, Duane. I'm going to start with a brief description of Investigative Area 6. It is a small, approximate six-acre wooded lot on the west side of the Cuyahoga River. Much of this area is low lying and lies within the Cuyahoga River's floodplain. It is regularly inundated with floodwaters. Currently there is no use of this property by the property owner. It's zoned industrial. And after coordination with local community planning groups, such as The Ohio Canal Corridor, we've identified that it's reasonably anticipated future land use that it's going to be for recreational development.

To begin our investigation, as Duane showed, there's a process we followed and this is going to be a summary of remedial investigation. A remedial investigation has a few major components. We start by determining

the nature and extent of any potential contamination that might be at the site. What we mean by "nature" is we go out and we look for specific radionuclides and chemicals that were used as part of the MED process, Manhattan Engineer District process and then we evaluate its extent, where it is, both lateral, across the site and how deep it goes. So that's what we mean by "nature and extent."

We perform groundwater modeling, fate and transport modeling. Groundwater model is a predictive tool that's going to be used to help us evaluate the effectiveness of any remedial alternative. And the fate and transport result is going to serve as an input into the risk assessments to help us determine potential future risks.

We perform a human health risk assessment. This is where we take the nature and extent data and the predictive groundwater modeling data, and we determine based on current site conditions because remedial investigation, is a snapshot of what's going on at the site right now. It doesn't look at what was there. The risk assessments don't determine what risks

there was, it talks about what risk is there right now and what risks might exist later on down the road to a given population. And then we perform a screening level ecological risk assessment, and this is simply looking to see if there is a potential for a risk to plants and animals as a result of MED activities at the site.

To help us determine if radionuclide and chemical contamination is present at the site as a result of government activities that took place there, we first need to determine what is in the area naturally occurring. Uranium, metals and other elements are found naturally in the earth's crust. As a result of this, it can be found in rocks, soil, air and water. So we perform sampling in the vicinity of the site which would help us determine what is natural in the Cleveland area, but it's not there as a result of the activities that occurred at Harshaw.

As you can see, these levels, they vary across the country and it's because we have different type of geologic formations. Granite can be high in uranium. What you see here in

Ohio, that area over there, because of the Ohio shale and this area was literally formed, so as the glaciers receded, they scoured some of the Ohio shale, which as a result spread some of that naturally occurring uranium across the site.

A VOICE: What does that say, parts per million under that --

MS. KOLHOFF: The "U" is for uranium. That's to indicate natural uranium.

Bottom line, what we found in Investigative Area 6 is that there are no short-term or long-term risks that are posed to reasonably anticipated future land uses as a result of any activities that might have occurred there. And after sampling the Cuyahoga River and Big Creek, both the water and sediments, we didn't see any significant impact from MED-related activities there either.

Now how we got to those conclusions. Just wanted to show a few pictures so you can see the type of activities we perform. Up here, that's the Cuyahoga River from the north area looking south. We did site clearing over here by going out and clearing and grubbing the site.

We were able to get large pieces of equipment and people out there to do the investigation.

We did civil surveys which helped us map and plot all of our sampling locations. We had survey control lines to help marry up our different methods of doing investigation to each other. And this is an example of a geoprobe. Geoprobe is a type of drilling method. It's nice because it doesn't produce a lot of extra waste, we're collecting a lot of just what we need for the samples.

The investigation began with non-intrusive fieldwork. Before we went into the site and started punching holes, we wanted to get a better idea of where we should place those holes, get a good idea of what was going on in the subsurface, things that we couldn't see on the ground.

We performed EM-31. That's electromagnetic terrain conductivity. We basically generate an electric current. We measured the conductivity between the two and a lot of times that is performed to help determine where there's fill material in relation to natural occurring -- the natural type of soils

and sands and clays that you might find there. And we performed gamma walkover surveys. That's this guy down here. You can see the equipment that we used for that. The large antenna is a GPS so we get X-Y location coordinates for all this data. And that piece down there is the detector itself.

Geophysical survey. When we go out with the EM-31, it comes back and we evaluate the data, we color code it and we look for trends. What you're seeing here from the red down to the blue is a relative change in conductivity of soil types. It can see differences in clays, sands. This has nothing to do with chemicals or metals or any type of contamination, this is helping us look for areas to investigate.

As you can see, we did identify a few anomalies up here. Anomaly A where you see this red area to a blue area is where we went back to our historical records and we could see this was an area where the natural shore line of IA-06 had been eroded, and the different colors is where they came in and placed dredge material to try to reclaim some of that area. (Indicating.)

Up here, this is one of the few -- the only manmade structure we did notice in IA-06. It's a bit of a sheet pile wall, which best we can tell from historical information that there used to be a shore line closer up here, and we assume that they put those in there to try to help prevent further erosion of the area. Anomalies C and B, I don't think they really had visual characteristics that we could see. And we did investigate them further and we found they had no radiological signature either. (Indicating.)

This is the results of the gamma walkover survey. The gray area represents background values; that's this naturally occurring that we're talking about. Since background is an average, when you look at the data you're always going to see half above, half below. What you're looking for are these trends, where we have these red and yellow dots, that told us we might have elevated levels of radioactivity in those areas, so we did target those for intrusive sampling. So the gamma walkover surveys and geophysical surveys, that's what helped us determine where we were going to

put holes, in addition to a few random ones to see if there's something there that our instruments didn't pick up.

So these are the locations where we collected soil samples. We have 113 soil samples in this little six-acre plot collected from 41 different soil locations. What that means is that for each soil boring we installed, we collected a sample from various depths within it to help give us a better idea of where the contamination might be present vertically. (Indicating.)

This area here is the same area on this map where we had that cluster of red and yellow dots. So wherever we did see that, we took numerous samples to make sure we were looking for it, and if it was there, we were going to find it. This area up here is where we investigated this up here to make sure what we were seeing in this change in conductivity wasn't a result of MED activity, and it was not. (Indicating.)

Once we had all this data, we performed a baseline risk assessment. There are some major inputs into a baseline risk

assessment. First we evaluate the data and we look at the numbers themselves and we determine if that is there as a result of MED, FUSRAP, government-related activities. So we ask ourselves, is it above naturally occurring levels.

Then we do an exposure assessment. An exposure assessment asks the questions, who was at the site? Are people at the site because they're riding on a bike path? Are they there because they work there? Do they live there? Do they farm there? These are all different types of land receptors, land uses that we look at in this investigation. How long are people there? How much are they exposed to it? Do they spend eight hours a day there, one hour a day there? Those are the questions we ask ourselves in the exposure.

And then we perform a toxicity assessment. Using numbers that the USEPA has generated, we look at how each of the different radionuclides and chemicals might have an impact on the body, and all of these three inputs come together to tell us how much risk is there, how much risk to a population and what potential

dose has to do with the radiological input you might have.

To help us with the exposure assessment, we develop conceptual site models. This is just an example of a conceptual site model. This is not specific to the Harshaw site, because as you can see we have cows there. We don't have cows in IA-06. But it is a potential way that people could get exposed to contamination at a site. You know, you could have contaminated water where fish grow in and people ingest that. That's an exposure. That's a way you might get contamination in you. So we look at this and we determine specifically for the site what pathways are complete. We cross out the cows. We don't have cows. That's not a complete pathway.

So the result of our FUSRAP risk summary, any potential risk that might be at the site from FUSRAP-related materials, for several land-use scenarios. We did look at industrial, the recreational, the residential and the construction workers. Based on that we do not exceed risk limits that have been established by the USEPA and that we don't see a potential for

ecological risks. As far as that's concerned, IA-06 falls within a heavily industrialized area. We didn't identify any habitats that would require specific concern and there weren't any threatened or endangered species identified in this area.

And with that I'm going to turn it back over to Duane to close it up and present the proposed plan.

MR. LENHARDT: Thank you, Andrea, for the well prepared and interesting presentation.

I'd like to focus back on the fact that we're here tonight to discuss the IA-06 proposed plan. And the plan that we're proposing for this area is a no further action plan. And what that means is there is no need for mediation related to -- let me emphasize this, the FUSRAP related chemicals or compounds that may have been associated with the previous operations at the main site. Now, this proposed plan and moving this forward is consistent with the community's request for an early release or an acceleration of release of this area for the towpath trail, extension further northward.

Now, what's next? The proposed plan was released on April 26th and there's a 30-day comment period that's required and we solicit your comments on the plan. The plan was handed out in your packets and it was available online from April 26 and 30 days would make the close of the comment period May 26, so we're talking a two-week period from now that we would ask that if you have comments, to provide those comments to us. Now it's up to you to provide your comments and for us to respond to those comments. Once you provide us your comments by May 26th, we will respond to your comments and we'll reach a decision that we can all agree upon for this area.

Once we've agreed on the proposed plan, we put together, according to the CERCLA, a record of decision, which is the ROD, and this will include the transcript from tonight and it will also include your comments and our responses, and it will document the final decision. In other words, we're proposing a no further action, let's move forward with this parcel of land, and that's hopefully the final decision. However, before we can reach that

decision, we need to have your comments and we need to resolve those comments. We don't just steamroll the decision, we ask for your input. And the record of decision as well as the proposed plan and the earlier report I referred to, remedial investigation report, these are all included in what we call the administrative record file.

This is additional information. This is all the information. The administrative record file includes all the documents that we use to arrive at the decision, and, again, we're talking about the IA-06 area at this time. If you want to see the record of decision as well as -- and included in that, the investigation report and all the investigations that Andrea was talking about, then go to the Cuyahoga County Public Library, Brooklyn Branch, Ridge Road in Cleveland.

There is additional information you can get online if you want to go online and look up the Buffalo site for the Harshaw site. You can use this web site and you'll find quite a bit of information on there, the proposed plan, investigation report, you can also find other

information related to IA-06 as well as the rest of the Harshaw site posted on the web site.

How do you submit your comments? You can do it tonight and you can do it by verbal comment. After this formal session is over with, we're going to have a comment session where we'll open it up to comments, and I think on your way in you were asked to provide some indication that you were going to provide a comment to us, so it would be helpful to us to know you were going to provide a comment and would encourage you to do so. So you can comment.

Now, everything is being recorded by a court reporter. The transcripts of this meeting, again, they'll be in the administrative record file, and these records -- this transcript will also record your comment. So if you have a comment that you've written down that you're going to present to us, if you've written it down, we would appreciate at the end of the meeting if you would give it to the court reporter here so that she can get exactly what you wanted to say in the transcript.

Now, there are different ways that

you can provide comment. There is a sheet that was provided to you on the way in. It's a comment sheet and you can write down your comments and you fold up the sheet. On the way out you can put it in the comment box. There's a box that you can submit your comments. However, if you wish to provide comment later, you can do so. At the end of the last page on the proposed plan there's a sheet and that is also a comment sheet. You can tear that off the proposed plan that you've been handed out and put your comments down, fold it up, tape it, staple it somehow so it doesn't come apart and you'll see there's an address for the Corps and you can mail it to us. Make sure you put a stamp on it. You can mail it in that way. Or you can reach us by simply going to our e-mail address that's given here. Again, written comments, please postmark by the 26th of May. That's when the 30-day comment period ends. Or send it to us electronically by the 26th of May.

Now, your participation is important to us so we'd like to hear from you, and we've given here information -- again, it gives our e-mail address, our web site, our mailing

address and we encourage you to contact us. I know lots of people oftentimes will want to talk to a real person, not just communicate by e-mail. You can do so. We have a telephone number. You can telephone us and that will get you through to our Outreach Specialist, Arleen, that's back there or maybe Natalie and they'll take your question or your concern and they'll channel it to whoever needs to address that comment or concern and we'll get back to you. There's a phone number that you can reach us. Make sure you dial option 4.

Now, this concludes our formal presentation at this point. However, there is the comment session, but Arleen will be facilitating. And as Colonel Snead indicated, after that the court reporter will stop recording and the representatives from the Department of Labor, Saul and Tina, they will present information on the Energy Employees Compensation Program that some of you may be interested in. And once they're through, we'll break up. And you can see we have these banners around with information on it. We welcome you to go around and look at information. The

members of the Corps that are here encourage you to come up and talk to us, whatever you'd like to talk about, questions or you just want to talk to us and see -- get to know us, you're welcome to come up and talk to us after the meeting.

In addition, Hank Spector, our Health Physicist, has brought some equipment over there, and the purpose is to show you how the equipment works for one thing, but also to show you that there are substances that we use every day that have natural radioactivity associated with them. And he'll show you, for instance, there's salt over there, and this is emphasized that background levels do have natural concentrations of radioactivity. So at this point, Arleen, I'll turn the meeting over to you.

MS. KREUSCH: Thank you. Just a few ground rules for the comments part of the meeting. As Duane mentioned, there's a court reporter here tonight to record your comments. Please one person speaking at a time. Please try to make your comments pertain to the proposed plan for IA-06. And as you can see,

you need to state your name and where you live when you start speaking. Dave Frothingham will be bringing a microphone to you, so I have people that signed up to comment, and then we will be taking comments from the rest of you if you've decided that you want to say something.

First I would like to introduce Marty Gelfand, and he is from Congressman Dennis Kucinich's office.

MR. GELFAND: Thank you. Lieutenant Colonel Snead, Duane, Andrea and everybody else from the Army Corps of Engineers who are here and members of the public and Councilman Frank Pignatelli, whose I believe new ward includes this area that we're talking about at the Harshaw Chemical. And this is my daughter, Eden. She was here at the last meeting. She was a little younger. And welcome to the Tenth Congressional District, which is where we're sitting right now and where the Harshaw Chemical site is.

I appreciate your being here, Colonel Snead. It says a lot that, you know, being the commander of the entire Buffalo District that you came out for this public meeting, and I

believe it's an important meeting. I do have a letter from the Congressman about where we are right now in the process and where he thinks that we need to direct this, and I'll just read it as quickly as I can.

"Dear Lieutenant Colonel Snead: Thank you for sending me the most recent report about IA-06. I appreciate this opportunity to comment on the report. I support the U.S. Corps of Engineers and its Formerly Utilized Sites Remedial Action Plan or FUSRAP at the Harshaw Chemical site in the City of Cleveland in Ohio's 10th Congressional District. The FUSRAP is designed to clean up radioactive contamination at sites formerly used in the development of nuclear weapons as part of our nation's defense system. Today, sites like Harshaw need to be decontaminated and cleaned up to a safe and appropriate standard for reuse.

"Recognizing that IA-06 is a small part of the larger area under FUSRAP jurisdiction, this section has had little use in the development of nuclear weapons. However, the Army Corps has determined that certain ground disturbance on the site constitutes

evidence of construction-debris fill activities. Furthermore, there were some elevated radiation levels on the site. The Army Corps concluded that there is no unacceptable risk to current or reasonably anticipated future land users. Among such users would be recreational users along the Towpath Trail.

"The report is not explicit and in plain language about what those risks are. While the report discusses cancer and non-cancer risks from the chemicals and radionuclides at the site, it does not go far enough in explaining what these risks mean to the people who would be reasonably expected to use the Towpath Trail, such as hikers, bikers, and other recreational users. Rather, the report might be more useful to individuals with a background in radiation health physics. Plain language about the risks will be even more important as the Army Corps goes on to study the other areas at the Harshaw site where higher radiation levels are expected.

"The Army Corps is working with community groups, including the Ohio Canal Corridor, which advocates for future use of the

site as part of our region's recreational infrastructure. I applaud this outreach and seek that the Army Corps continue to work with this and other similarly situated organizations.

"I would also like to see more outreach to other community organizations with knowledge about radioactive contamination risks, such as the Earth Day Coalition, which has specifically sought such participation. It would be important to get such input as part of the Army Corps outreach and the FUSRAP process.

"I appreciate that the Army Corps is seeking to remediate and dispose of the less work-intensive sections of the Harshaw site first. IA-06 may be the least contaminated parcel of the site, and it makes sense for the Army Corps to complete its work here first?

"I would also suggest that other areas, which may or may not be the easiest to complete but for which there is a greater demand for reuse, be segmented, investigated and remediated sooner rather than later.

"Specifically, if the sections of IA-03 and IA-04, from the northern fence line to the southern railroad property line, could be

the next area studied and remediated, construction of the Towpath Trail will be completed sooner. Taking this approach, the people can benefit from the outcomes of the FUSRAP program sooner while the Army Corps continues to study and clean up other sections of the Harshaw property.

"I remain quite concerned about the possible adverse effects to health and the environment from the elevated levels and await your reassurance and action.

"Sincerely, Dennis J. Kucinich, Member of Congress."

So this is the letter that I handed the Colonel just a few minutes after I walked in, and we will be following up on this. And, again, the Congressman appreciates all the public participation in this process and will continue to follow up with both the public and the Army Corps.

MS. KREUSCH: The next person speaking Mr. Claude Cornett.

MR. CORNETT: I reviewed the documents that were mailed to people in the community and went to the library to see if I

could get the more detailed documents, and found that the only documents available were the 2006 remedial investigation reports and related documents, which crippled my ability to get into the underlying assumptions behind your summary. I believe that as part of your responsibilities to the public, you need to make the hard copy available somewhere in Cleveland. I understand it may have gotten hung up at the library, but it needs to be available because it's clumsy to work with the Internet.

MS. KREUSCH: We were told by the library that it was in place in the library.

MR. CORNETT: Go there and check it out. All they had was 2006 available at that branch.

LT. SNEAD: We'll make sure we get the right one.

MR. CORNETT: Now, there's a number of limitations to the FUSRAP study. You're only addressing the contaminants associated with the nuclear programs that FUSRAP has a mission to address. And the analysis that was provided addresses those contaminants, but the summary as presented is as if it's a

complete circle of study. And there are many other potential contaminants that could be present at the site that weren't addressed by the FUSRAP study, and at least a phase 1 and phase 2 investigation under the Ohio brownfields laws are needed in order to ensure that there aren't other chemical contaminants on the site that could present a hazard for recreational and other use.

Now, personally, I go to the Towpath Trail and I would love to see the pathway completed through IA-06, but I want to make sure it's safe. Yesterday I visited the Towpath Trail area south of IA-06 as usual and took a look at IA-06 across the street and saw that the formerly vegetated area had been bulldozed and a British Petroleum pipeline installed through the upper western portions of IA-06. I have photographs on my camera, I haven't printed them out, that I took yesterday to show that. So your characterization of the site is a bit out of date, as often happens between writing and publication. I have many more technical comments that I could read into the record, but I don't want to bore people with a lot of

details about some of the points.

I'd say that your write-off of applicable, relevant and appropriate requirements because the risk levels under FUSRAP weren't exceeded was inadequate under the CERCLA program. At least you need to address that there are other requirements and not try to use just the risks for the FUSRAP to act like you've done what's necessary or what needs to be done has been done. I realize the FUSRAP program has a limited mission and you're operating within your mission. But you have to adequately cover the limitations of your mission and make sure that's sufficiently prominent in your summary so that your reports are not misused to give the impression that all the possible chemical contamination problems were addressed. You've only addressed part of them. And that's the most important comments I have and the rest I have in written comments.

MS. KREUSCH: Thank you very much, Mr. Cornett. The next person I have is Ann Kuula, and forgive me if I pronounced it wrong. Could you give the court reporter your address?

MS. KUULA: It's on the form that I filled out and I'm on the mailing list, which I'm very happy because I was able to take the time to read the report.

My name is Ann Kuula. I live in Old Brooklyn, which is just up the hill. I've been in the area for about eight years. I'm very involved and see some very familiar faces in the audience. I am involved in an environmental group, Friends of Big Creek, as well as the Canal Way Trail plan. And I'm very excited having read the report to see that the IA-06 can be used for the continuation of the Canal Way Trail.

I do not have a degree in chemistry or physics. My degree is in psychology and art, but my late father was a geologist, a registered geologist, so I figure I know a little bit, and his expertise was in geothermal steam. And if he were alive, he would be 92 and he would be really on top of what's going on for us in the green world.

I'm very impressed by what I read. And, also, I couldn't quite find what page it was on, but I read that two feet down would be

safe, that the above two feet, the ground is very safe. So for a trail to be made with the regulations of what the Metroparks require for their trails for biking and walking would certainly seem to be appropriate per all the different things that I identified in the excellent report. That's all I have to say.

MS. KREUSCH: Thank you very much.

Is there anyone else that did not sign up to speak that would like to speak? Chris Trepal.

MS. TREPAL: I just had a number of questions and I'll rattle them off.

MS. KREUSCH: Can you do one at a time?

MS. TREPAL: You mentioned that the site entered the FUSRAP program in 1999. I thought I had read somewhere that it had been in the FUSRAP program and then was out of the FUSRAP program. I'm not sure if that was correct, so I'd like to check on that.

In your summary of results, there are a couple of spots for uranium-234 and 238 that have a relatively high range of detected

results, 36 parts versus background of 2.4. So I wondered if on the site if somebody could point out where these testings were identified, especially since 238 has, I think, a billion for the half. So it would be good to know where on IA-06 these elevated levels are for uranium.

I was a little disappointed to hear that there were no groundwater samplings. I thought that was interesting. I did have a question. If the risk results were based on the average over the entire six-acre site, if that's how the assessment is done, will there be a deed restriction or a note on the deed that there are residual radionuclide contamination? And to our standards in 2010 they might be acceptable, but in 100 years maybe things may be different and that site might be used for other purposes.

Under our brownfield laws, the ecological risk is actually somewhat stricter than the human exposure, and I didn't know if that was the same for the FUSRAP program, so that would be another question.

And then my final one was looking at the summary from the assessment. Found were some soil cutting trails where there were

readings of 500 counts per minute versus 50 gross counts per minute, and that was taken on the upper banks of the Cuyahoga River and Big Creek. So I assume that is not near the site, but I didn't know that, so that's another question I'd like to have answered, if those elevated readings from Eco, were they in IA-06? I couldn't tell.

MS. KREUSCH: We might have to ask you to repeat some of those so we can take them one at a time.

LT. SNEAD: Can we answer some of those now? We may need you to ask the question again.

MS. KOLHOFF: As far as Harshaw coming in and out of the FUSRAP program, that didn't happen. Those areas in IA-06 where you saw elevated levels of 234 and uranium-238 are right here in the same area where we saw that on the gamma walkover survey. The total uranium level was 109 micrograms per gram, and that is about one-third of the residential cleanup values. So though 100 might sound high, it is significantly lower than what we were seeing in the order of like 2,000 up here in this area.

(Indicating.)

No, we did not collect groundwater data in IA-06. Because of the strong hydraulic connectivity between the river and the groundwater here, we weren't confident what we would pull out of the groundwater wells would actually be indicative of the groundwater at the site, that we could be pulling groundwater from the Cuyahoga and actually have diluted results. So what we did was we used kind of like an analogy of the groundwater results we had here, so we used all the same parameters and assumptions that went into the groundwater model here and we used our soil data here to model what type of contamination we would see in groundwater in IA-06, and that's what we used as our input to the risk assessment. We felt we were more conservative in that manner because it would assume a worst case scenario, not the dilution effect that we might see from pulling river water.

As far as performing the risk assessment, we did not take an average of all of our samples.

MS. KEIL: We did.

MS. KOLHOFF: But it was the exposure point concentration.

MS. KEIL: Which is the average. Upper estimate of an average, so it's basically an average over the -- because future venues, recreational, we try to use the area that's representative of what the activity might be. And it's conceivable that somebody might be hiking, or bird watching, or biking across the entire area, so we looked at the estimated that someone might spend four hours a week during the six warmer months of the year and spend that much time on the parcel as a whole, so we did average over the area of the parcel.

You asked a question about ecological risk, how the human health assessment compared to the ecological assessment. I mean, the general premise for potential of ecological risk is that for radionuclides, if you protect against human health, you're going to be protected for ecological receptors, except in the case where you have a threatened major species, and we have neither in IA-06.

But we did do a separate

comprehensive screening level of ecological assessment on IA-06 and we used the standards that were available and we used the same dose limit criteria that the International Atomic Energy Commission uses -- International Atomic Energy uses for protection of ecological receptors, we use their same criteria in IA-06 and we did not find any issues. The levels of radioactivity on the site we found in that little spot, it's just barely above background. It's not like what Andrea said where the processing happened and near G-1, there's much greater levels of contamination there. We really didn't find very much at all in IA-06.

I think you also asked a question about deed restrictions. Although the site is being released under a recreational land use because that's the identified future land use, we did look at also comparing standards that would be appropriate for a more conservative land use, residential or agricultural land use if the land would be suitable for that, which it really isn't because it's in a floodplain, but we saw that the levels are so low that it would not preclude other activities on the site,

construction, commercial activity, long-term worker exposure or even residential or potentially gardening or farming.

MS. KOLHOFF: And then the last question, Big Creek, Cuyahoga River, that would be Investigative Area 5 where you read the 500 count per minute report, so we're up here.

MS. KREUSCH: For the court reporter, the person from our team in the back was Karen Keil. She's a Risk Assessor.

Jim Cox.

MR. COX: Hi. I'm Jim Cox. I represent the Flats Industry Association.

Can you tell me who owns the property now?

MR. LENHARDT: The property is owned by Chevron Oil.

MR. COX: Will the property be sold to the Ohio Canal Corridor or transferred to the Ohio Canal Corridor or another non-profit organization?

MS. KREUSCH: We really can't speak toward what will happen to the property.

LT. SNEAD: That's probably a question for the Ohio Canal Corridor. We don't

involve ourselves in that decision.

MR. COX: Whoever the property is transferred to, will the deed include liability -- acceptance of liability for future health issues or contamination issues?

MS. KEIL: We are only releasing the site relative to the FUSRAP main constituents that we've investigated and evaluated. So, you know, the uranium, other chemicals related to the FUSRAP process. That's all that we are doing. So anything else on the site is outside of our purview.

MR. FROTHINGHAM: If there is a transfer of property, that's business between the property owner and who is receiving the property.

MS. KEIL: We are not the property owner.

MR. COX: Well, as part of public responsibility and government, will government require that Chevron and whoever gets the deed to the property will assume the same liability issues that Chevron has now?

MS. KREUSCH: Colin, is there an answer that you want to provide?

MR. COX: Well, there has to be a public guaranty I would guess that if there are liability issues or health issues or contamination issues that are discovered later, that the person or entity accepting the property assumes the liability that Chevron has right now.

MR. OZANNE: Since we're not an owner of the property and we're not a regulator in the State of Ohio, the Corps of Engineers did not require that based on our findings.

MR. COX: I would suggest that any draft agreement between Chevron or whoever owns the property before it is transferred and the entity taking the property, that the draft deed or sale document be reviewed by the public just as we're here today listening to the work that -- the research work that you've done.

MS. KREUSCH: Thank you. Anyone else that has additional comment? Kurt Kollar from the Ohio EPA.

MR. KOLLAR: Thank you. Kurt Kollar with the Ohio Environmental Protection Agency. I'm also Site Coordinator with this

project.

A couple points. Number one, I do thank the Corps of Engineers for moving forward on this proposed plan. The Ohio EPA does encourage proper redevelopment of areas throughout Ohio, especially in the Cleveland area for beneficial use for its citizens.

The one thing we do and have expressed concern with over in the FUSRAP project, we agree in this proposed plan in moving forward with IA-06. We do have concerns and disagreements with the Corps for the overall project, as we have our mechanisms as we review documents to ensure the public and the environmental health is protected.

One thing we want to note on this issue is the Corps has stressed that they are dealing with FUSRAP contaminants and that the risk base is solely dealing with FUSRAP contaminants. There is a high potential for other contamination present from private industries at that property on both sides of the river. One thing in a risk and a re-use area of that either through brownfield mechanism or private cleanup through potential enforcement

action with the current property owners or past is that the overall risk, both from FUSRAP and non-FUSRAP related contamination is addressed so that it would be safe for whatever intended and designated use. So that's something we will be looking into as well.

MR. COX: Jim Cox with the Flats Industry Association. From your tests, does it show that a human of any age could exist on that property 24/7 for a year?

MS. KEIL: That's close to the residential. We pretty much look at a full-time scenario. We looked at adults and children in a residential setting and the risk levels were not unacceptable.

MR. COX: As it is now without any --

MS. KEIL: For the FUSRAP-related chemicals being utilized, things that we evaluated, we did not see that imposing a risk in a residential setting.

MR. COX: That's not my question. As the property is now undisturbed or whatever you want to call it, could someone sit on it, someone of any age 24/7 for a year and be

guaranteed that there are no health issues?

MR. FROTHINGHAM: If you're talking about with respect to the constituents that we looked at, then she's saying the answer is no. But there are other things to consider.

MR. COX: Thank you.

MS. EWAZEN: Are any of the other buildings going to be destroyed or taken away that are on that area?

MS. KREUSCH: We need you to state your name first, if you could, please.

MS. EWAZEN: Ewazen. I just wanted to know if any of the other buildings -- because when you ride by there, because I live near there, there's so many building on that property, are those buildings going to be gone or is it just IA-06 is going to be used and the rest of them are going to be standing there? There is enough buildings there. You can't deny that. If you take a ride down Jennings Road, anybody can see that there's so much old buildings it isn't funny.

MS. KOLHOFF: The next phase of the project is a feasibility study. During that phase, we're going to look at all of the

buildings and any contamination that's in them, and we're going to determine the best way to address that contamination. There are different ways we could do that. We could deconstruct the building, take it apart, take it away. Or sometimes if the contamination is on the surface, we can scrape away at it and just remove the contaminated portions. We're not there yet, so I can't tell you what the ultimate disposition of those buildings is going to be, but we are going address the buildings on the site.

MS. EWAZEN: That one building that you've got there that's supposed to be so contaminated, 1-A --

MS. KOLHOFF: Building G-1, Plant C.

MS. EWAZEN: What are they going to do with that building?

MS. KOLHOFF: We haven't determined that yet. We haven't gotten far enough into that study yet. We have to do what's most appropriate, what falls within our authority.

MS. EWAZEN: The building where

the garage is, that's going to be gone, too?

MS. KOLHOFF: I can't say that right now.

MS. EWAZEN: That's close to where you were working at. So I was wondering what are they going to do with that?

MS. KOLHOFF: We're not sure. We have to look at where the contamination is in it. If we can leave the building there and just remove the portions of the building that are contaminated but leave it there, that's what we're going to do. If it doesn't make sense to do that, if we would remove so much of the building that it would be building bones left, then we'll take away the building as well. But we won't get to that determination until the end of the feasibility study, which will probably be about two years from now.

MR. FROTHINGHAM: Tonight we're just talking about that area across the river.

MS. EWAZEN: I know. But I was just wondering if in the future those other buildings are going to be gone or if they're going to be standing there for the next 20 years.

MR. FROTHINGHAM: We're evaluating that in the next phase of the feasibility study.

MS. KREUSCH: Additional input? Kurt again.

MR. KOLLAR: Again, Kurt Kollar, Ohio EPA.

One thing, again, the statement to bring forth is that the Army Corps of Engineers is here to address government-related contamination. That does not leave, again, the property owners both current and past from their obligations from environmental liabilities. So even though as it's being brought up buildings could be torn down or not, it's not the Corps' sole responsibility in this instance. There's other entities involved, there's other laws that will apply to them, maybe more stringent than would apply to the Corps.

MS. KREUSCH: There is a gentleman over here that wanted to speak.

MR. BULARZ: Jerry Bularz, Tri-C student.

I understand that the Corps was given this because of the Superfund, correct? It was your jurisdiction to come in and do these

assessments?

MR. LENHARDT: The problem originally was with the Department of Energy back -- in the year that the Superfund law was passed in '74, Congress also considered radiological sites that needed to be addressed, and they set up this separate program, which is called FUSRAP, and the FUSRAP program --

MR. BULARZ: You stated that. Because I guess what I was getting at, I was wondering, as the gentleman from the Ohio EPA why the USEPA didn't step in first. You said that the Ohio EPA will be doing further study on this?

MR. KOLLAR: Do you want an active exchange?

It is public knowledge, or at least public record that there is potential enforcement action due to the federal government USEPA's hazardous waste against one of the companies. So as that falls out, we'll see whether or not the state will take further enforcement action for residual contamination.

MR. FROTHINGHAM: And, sir, just for further clarification, this is not a Superfund

site. We follow the same process as they do in the Superfund, which is the CERCLA process, but it's not a Superfund site, though.

MR. BULARZ: It was listed that way on your site.

MR. FROTHINGHAM: We'll have to verify that, but it is not a Superfund site.

MR. BULARZ: Interesting.

When you guys did the soil sampling and stuff, to me it looked like you were doing a pretty darn good representative take of the soil samples. Were you using some of the OSHA or Ohio EPA standards for exposure limits like the young lady was talking about?

MS. KOLHOFF: To protect worker health and safety?

MR. BULARZ: Not only for workers, but the proposed recreational. Like the gentleman said, if someone is going to sit there for 24/7, God bless you if you want to, but --

MS. KOLHOFF: For worker health and safety, we do comply with OSHA regs. Army Corps, we have our own set of regulations also. And as far as the standards, we compare this

against established risk limits from the U.S. Environmental Protection Agency.

MR. BULARZ: It sounded familiar. That's why -- thank you.

MS. KREUSCH: Does anyone else have comments for the IA-06 proposed plan?

MS. TREPAL: I have one more question. Is the lifetime cancer risk one in 10,000 or one in a million or what is it?

MS. KREUSCH: That will be a Karen Keil question.

MS. KEIL: This is off the top of my head, but in the proposed plan there's a table that outlines what the lifetime cancer risks are from different receptors that we looked at, and also the same -- same risk if you were being exposed to background or naturally occurring levels in the area. And for most receptors the levels are pretty much consistent with the background. I would have to check the table exactly, but I think for the recreational land use it's on the order of one in a million. Residential is closer to one in 10,000. Again, I would refer back to the tables in the proposed plan.

MS. KUULA: On page 10.

MS. TREPAL: What is the number?

MS. KEIL: It's a scientific notation, 1E minus 4 is the same as 1 in 10,000.

MS. TREPAL: I got that, but what is the lifetime cancer risk for the IA-06, six-acre site?

MS. KEIL: That's in the table on page 10. For the recreational land use, it's on the order of one in a million. For residential, it's on the order of one in 10,000. I'm quoting from the table. I didn't check the table for the exact numbers. Is that clear?

MS. TREPAL: I think so.

MS. KREUSCH: We will be turning this over to the Department of Labor shortly, but I want to make sure that there are no more questions on the IA-06 proposed plan. It sounds like Karen wants to say something additional.

MS. KEIL: We never addressed the first gentleman's question. If I could take an opportunity to address his question right now. One of the questions you had asked was similar to the question, that we were only addressing FUSRAP constituents.

It's unfortunate that the library didn't have the latest version of the remedial investigation report that was updated and should have been out there in the last few months. If you look at that version you'll see that we took some more time to explain in there that there are other constituents out there, and in more recent phases of the investigation, we used screening level detection methods to look at uranium that also detects metals, for example. So we started compiling data we gathered, and we also looked at historical data from the site that we have in our database and provided an appendix with the summary of that other information.

So although we didn't quantify risks to everything on the site, we focussed on what we are responsible under the FUSRAP. We do, I think, acknowledge that there are other things that may be on the site and we try to provide some of that information in the appendix form. We're going to be evaluating the metals further in the feasibility study.

MR. CORNETT: Well, my concern would concern the adequacy of the analysis for

the broad range of chemical constituents in the target compound list under CERCLA or that Ohio requires to be assessed as part of its brownfield program. That is more than just metals. And I did see some total petroleum hydrocarbon and kerosene data, but I certainly didn't see an adequate characterization under the Ohio brownfield laws for the other chemical constituents that may or may not be present, and so that's a concern that I have. It goes a little bit beyond the FUSRAP program, but I just wish that they had taken a few samples of that to save the cost of such sampling to address those chemical constituents for the Towpath Trail. Otherwise, I'll talk to Ohio EPA about what's going on.

MS. KREUSCH: Thank you. Additional comments or questions on the IA-06 proposed plan?

MS. KUULA: I was going to say to answer also to contribute on page 11 of the second paragraph about the human health risk, the last sentence, "The hazard index for a teenager who might visit IA-06 in the future for recreational purposes was estimated to be 0.005.

These results show that there are no unacceptable non-cancer risks for IA-06."

Does that answer?

MS. KEIL: What you said was not a cancer risk. Cancer risk is measured -- quantified in terms of a probability of obtaining cancer. Other risks -- other health facts that are not a cause of cancer, for example, uranium can cause kidney damage. There is assumed to be a threshold below which the exposure will not cause any harm, so that threshold is quantified as level 1. So anything below 1 is considered not harmful. So the value you quoted was level 1, 0.005, so there's no harm of getting kidney disease from exposure to uranium.

MS. KUULA: And IA-06 as a future continual use for the trail, the already established trail is mainly used by people who are walking or biking. So no one is going to set up a tent, no one is going to sit on the property. We grab our water bottles and our bikes and we walk or bird watch, checking things out, and so if no one is sleeping there 24/7, it's mainly for a trail.

MR. CORNETT: Well, I and some friends commonly go off the trail itself and into some of the vegetation to commune with nature, and we sometimes are there appreciable amounts of time during park hours. Beyond that, it's really important that you understand, everybody understand when they're giving these hazard indices, that's for the FUSRAP-related contaminants only. And the summaries and the body of the report often makes blanket statements about risks and hazard indices without stating very explicitly and repeating it so it doesn't get misunderstood and misused that it's only the FUSRAP-related contaminants that those statements cover.

There could be all kinds of other substances that could present an imminent hazard that were not addressed in the FUSRAP studies, and it's important that those chemicals or potential chemicals be looked for to determine whether or not they're present in sufficient quantities to cause any problems, and that, I believe, is a job between Ohio EPA and the Towpath Trail people. But people should not point to this FUSRAP study as conclusive

regarding the safety of that site IA-06 for the Towpath Trail; it only addresses part of the problem.

MS. KREUSCH: Thank you. Additional comments or questions on the IA-06 proposed plan?

MR. BROWN: My name is Bill Brown. I work up in Valley View. And all this concern about cancer risk and so forth, have we been able to put that in perspective with the risks that we face every day in our lives: automobile traffic, accidents, et cetera? I would guess that your biggest concern on the towpath for contamination would be from fecal matter from our family pets if the towpath down here is any indication of what we can expect. So go ahead and build that towpath, would you, please?

MS. KREUSCH: Additional comments or questions?

MR. BULARZ: Jerry Bularz. It's my understanding that the course that -- because there's going to be construction going on, so to answer your questions, ma'am, somebody might -- I don't know why, but I'm sure there's going to

be somebody that might want to sit there and fish.

MS. KUULA: There's fishing already being done.

MR. BULARZ: I don't think them staying for one night fishing is going to give them cancer. I just don't. Because I've studied environmental health and safety field for three years. I'm no expert at it, but I've got a pretty darn good background on what Andrea said about the testing that they've done, and it seems like it's right in gear with what we were told in the classrooms. So as far as I think, you know, you may have a good comment there about the Ohio EPA stepping in, but, again, I don't think that's the Corps' job. That should be taken up with Ohio EPA and Ohio Erie Canal or Metroparks. Thank you.

MS. KREUSCH: Going, going, gone. Is there anybody else that would like to comment on the IA-06 proposed plan? Thank you. As you know, you can fill out a comment card in the back of the proposed plan and mail it to us. You can fill it out tonight and put it in the comment box or you can send it in or e-mail it

to us.

The Department of Labor is now going to come up. You're welcome to stay because the team will be available to answer questions one-on-one with the panel. I would like to now introduce Saul Berzinskas and Tina Smith.

(Thereupon, a discussion was held off the record.)

LT. SNEAD: In closing, I would like to thank Marty Gelfand. He stepped in right after my introduction, so I wasn't able to welcome him here and his lovely daughter as well. And thanks for all of your participation, and I think there's some good comments. What I want to let you know is that we will respond to all of those comments as part of this record of decision.

So all comments, we see them as equals. I mean, we had over 179 pages of comments about the new potential disposal facility out in Cleveland Harbor and we responded to every single one of those, so we will do the same here as well. So, again, thank you for being here. As has Arleen stated, our staff will remain. So if you've got any

specific questions that you would like to ask them, feel free, and, again, have a good evening. Thank you.

(Thereupon, the proceedings were concluded at 8:10 o'clock p.m.)

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C E R T I F I C A T E

STATE OF OHIO,)
) SS:
SUMMIT COUNTY,)

I, Stephanie R. Dean, a Court Reporter and Notary Public within and for the State of Ohio, duly commissioned and qualified, do hereby certify that these proceedings were taken by me and reduced to Stenotypy, afterwards prepared and produced by means of Computer-Aided Transcription and that the foregoing is a true and correct transcription of the proceedings so taken as aforesaid.

I do further certify that these proceedings were taken at the time and place in the foregoing caption specified.

I do further certify that I am not a relative, employee of or attorney for any party or counsel, or otherwise financially interested in this action.

I do further certify that I am not, nor is the court reporting firm with which I am affiliated, under a contract as defined in Civil Rule 28(D).

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Akron, Ohio on this 14th day of May, 2010.

_____
Stephanie R. Dean

My commission expires August 30, 2010.

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