



WASTE DISPOSITION & RECYCLING SUBCOMMITTEE

MEETING SUMMARY

OCTOBER 9, 2012 • 4:00 P.M.

THE OHIO STATE UNIVERSITY ENDEAVOR CENTER
1862 SHYVILLE ROAD, PIKETON, OH 45661

SSAB Subcommittee Members Present: Richard Snyder, subcommittee chair; Frank Halstead, Brian Huber

SSAB Subcommittee Members Absent: Shirley Bandy, Al Don Cisco, Dan Minter, Connie Yeager, subcommittee vice chair

Other SSAB Members Present: Will Henderson, Board Chair; Gene Brushart, Sharon Manson

U.S. Department of Energy (DOE) and contractors: Greg Simonton, DOE; Rick Greene, Restoration Services, Inc. (RSI); Karen Price, J.D. Chiou, Fluor-B&W Portsmouth (FBP)

Liaisons: Maria Galanti, Melody Stewart, Ohio Environmental Protection Agency (EPA)

Support Staff: Eric Roberts, Julie Galloway, Cindy Lewis, EHI Consultants (EHI)

Public: Geoffrey Sea, Neighbors for Ohio Valley Alternative (NOVA)

Snyder opened the meeting.

1. Background Study Overview-J.D. Chiou, FBP

Soil Background Study Concept and Summary Briefing

- Overview of Soil Background Presentation
- What is Background?
- Uranium Background Levels in Ohio
- Radon Background Levels in Ohio
- Paducah Radionuclides – Background
- Fernald Radionuclides – Background
- What is Background?
- PORTS Soil Background Study
- Sampling and Analysis Approach

- Graphic of Sampling Locations
- Preliminary Calculation
- Schedule

Question/Comment:	Answer:
<p>Snyder: The uranium background is naturally occurring. It is not because of the plant site.</p> <p>Who determines the Preliminary Remediation Goals (PRG)?</p> <p>The upper bound has been set.</p> <p>On the sampling points for the Good Faith Estimate (GFE), this is what will go into the report to Ohio EPA? After the review, will this subcommittee get a chance to see the final report?</p> <p>Will this be incorporated into the Waste Acceptance Criteria (WAC)?</p>	<p>Chiou: That is correct. It is naturally occurring and not caused by the plant.</p> <p>Ohio EPA has the final approval.</p> <p>That does not mean that will be the final. EPA will make the final decision.</p> <p>Yes, it will. However, we did not test inside Perimeter Road.</p> <p>No, this is the numerical report. The WAC will be another number.</p>
<p>Roberts: How do you compare the natural background to the residential, agricultural, or industrial background?</p> <p>In the case of the site, do you have a map of uranium numbers at least loosely?</p> <p>There are 139 parameters, if the subcommittee was to keep track of a handful of parameters, which ones should they watch? What is a few they should track?</p>	<p>Chiou: For example uranium's acceptable residential background, it is about 50 parts per million (ppm), and several hundred ppm for industrial.</p> <p>We will have.</p> <p>Technetium-99, Mercury, Uranium, Trichloroethene (TCE)</p>
<p>Halstead: Who did the analysis?</p>	<p>Chiou: Southwest laboratory out of New Mexico. There are not many labs that can run the test.</p>
<p>Huber: When we visited the potential waste cell site, there was an archeological study in progress. Is that study completed and do you have the results of the study?</p> <p>I would like to see a presentation on the study given to the subcommittee or full</p>	<p>Chiou: We completed phase one, out of that there are five studies. Out of those, they recommended four go on to the next phase.</p>

board.	
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Snyder: Meeting adjourned

Next meeting: Tuesday, November 13, 2012

Action Items: None at this time

Soil Background Study Concept and Summary Briefing

JD Chiou

Fluor-B&W Portsmouth, LLC

SSAB Waste Disposition and Recycling Sub-Committee

October 9, 2012

Overview of Soil Background Presentation

1. What is Background?
2. PORTS Soil Background Study
3. Sampling and Analysis Approach
4. Graphic of Sampling Locations
5. Preliminary Calculation
6. Schedule

What is Background?

Background: refers to concentration of chemicals at locations that are unaffected by any current or past site activities involving the management, handling, treatment, storage or disposal of hazardous substances.

Background includes concentrations of both anthropogenic and naturally occurring chemicals.

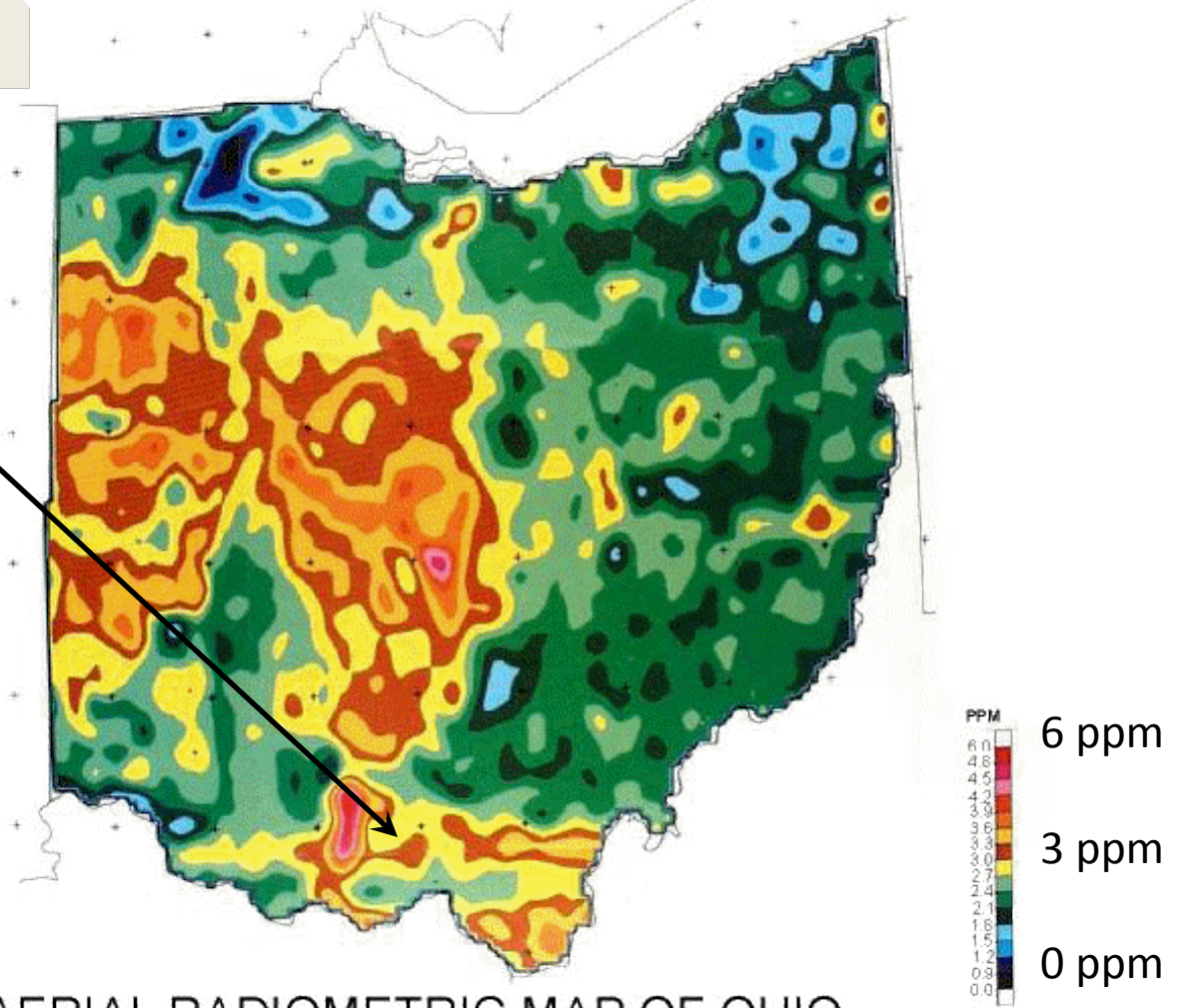
What is Background? (cont.)

- *Anthropogenic* – natural and human-made substances present in the environment as a result of human activities (not specifically related to the site in question).
- *Naturally occurring* – substances present in their unaltered form or altered solely through naturally occurring processes or phenomena, in a location where they are naturally found.

Uranium Background Levels in Ohio

Portsmouth Plant

3 to 4 ppm



AERIAL RADIOMETRIC MAP OF OHIO
SHOWING THE CONCENTRATION OF
URANIUM IN SURFICIAL SEDIMENTS
AND SOILS (in parts per million)

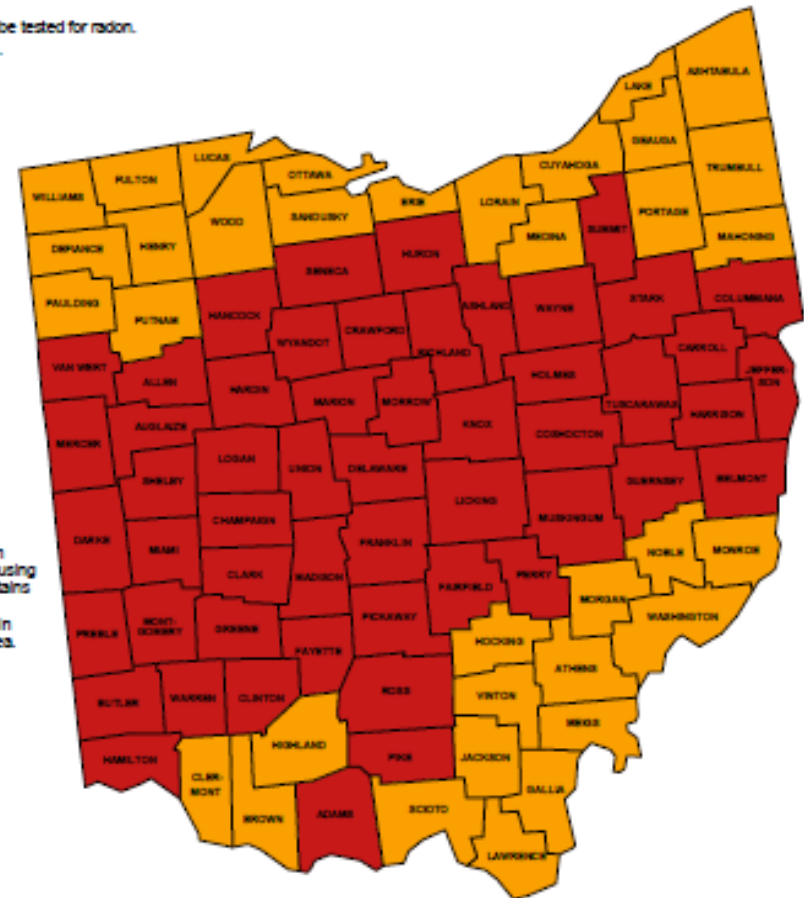
OHIO - EPA Map of Radon Zones

<http://www.epa.gov/radon/zonemap.html>

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

All homes should be tested, regardless of zone designation.



IMPORTANT: Consult the publication entitled "Preliminary Geologic Radon Potential Assessment of Ohio" (USGS Open-file Report 93-292-E) before using this map. <http://energy.cr.usgs.gov/radon/gpinfo.html> This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.



Zone 1: >4 pCi/L

Zone 2: 2-4 pCi/L

Zone 3: <2 pCi/L

Zone 3 is absent
in Ohio

Paducah Radionuclides - Background

Radionuclide	Surface (pCi/g)	Subsurface (pCi/g)
Neptunium-237	0.028	NA
Plutonium-238	0.004	NA
Plutonium-239	0.018	NA
Technetium-99	0.3	0.79
Thorium-228	2.3	2.3
Thorium-230	2.2	2.2
Thorium-232	2.2	2.2
Uranium-234	1.9	1.8
Uranium-235	0.11	0.11
Uranium-238	1.9	1.8
Total Uranium	7.6 ug/g	7.2 ug/g

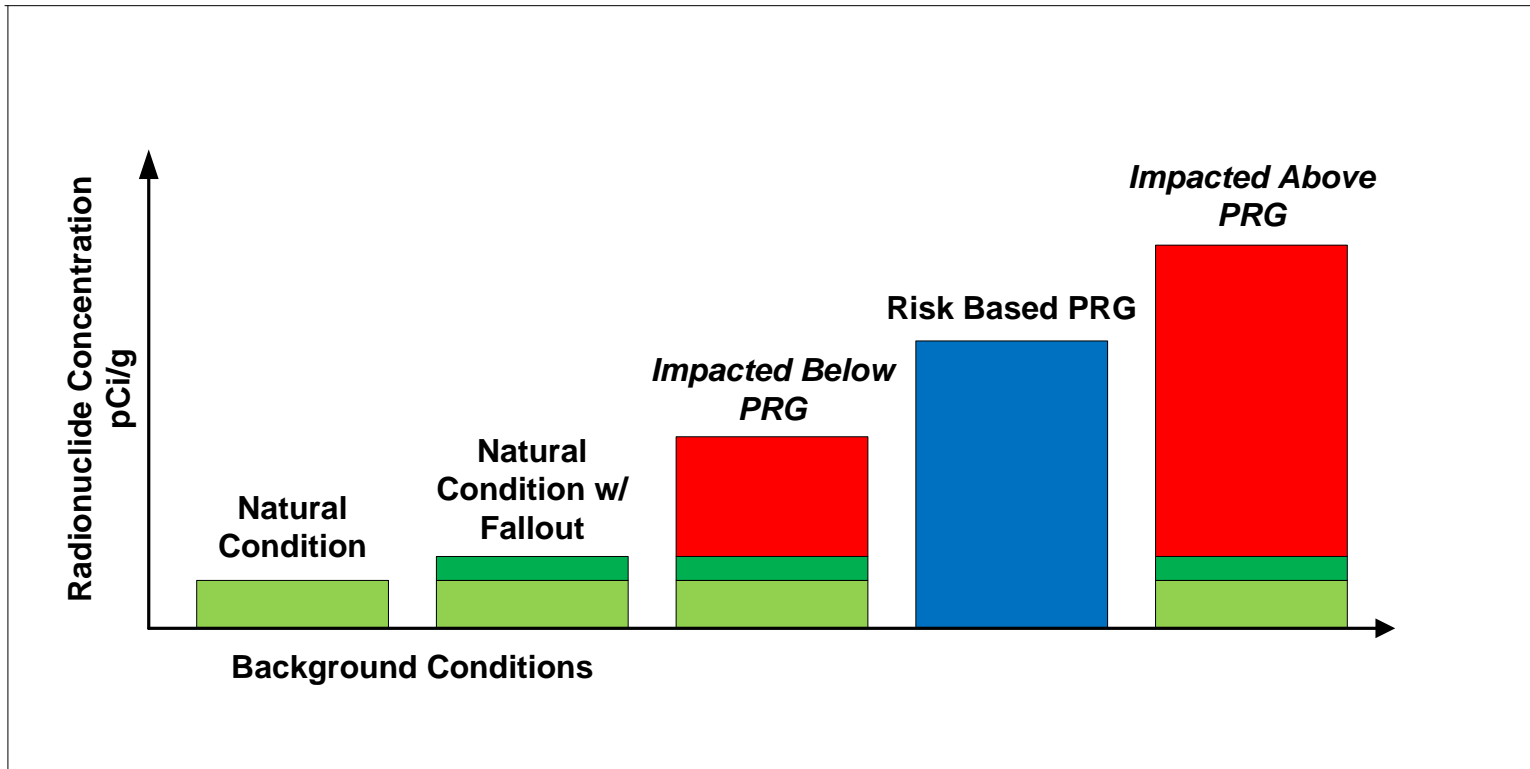
NA = not available

Fernald Radionuclides - Background

Radionuclide	Surface (pCi/g)	Subsurface (pCi/g)
Neptunium-237	NA	NA
Plutonium-238	NA	NA
Plutonium-239	NA	NA
Technetium-99	< 1	< 1
Thorium-228	1.4	1.4
Thorium-230	2.0	1.9
Thorium-232	1.4	1.3
Uranium-234	1.2	1.0
Uranium-235	0.16	0.15
Uranium-238	1.2	1.1
Total Uranium	3.7 ug/g	3.7 ug/g

What Is Background? (cont.)

Conceptual Comparison Of Background Conditions, PRG, and Impacted Conditions



- Goals and objectives from Data Quality Objectives workshop and technical meetings with Ohio EPA from June to September 2011.
- The Soil Background Study provides *representative background data* for each major soil formation on the DOE reservation, property easements and DOE leased property off the reservation to:
 - Help determine the extent of soil contamination.
 - Support development of risk-based soil clean up levels.
 - Support real property transfers under Section 120 (h) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) for a site reuse effort.

Sampling and Analysis Approach

Characterize concentrations of naturally occurring and anthropogenic constituents in surface and subsurface soils in and around the PORTS facility using the following criteria:

1. Areas not impacted by site operations where the geologic formations of interest are present.
2. Reasonable proximity to the PORTS facility.
3. Statistically sufficient number of soil samples from surface and subsurface formations.
4. Similar environment of deposition and geologic source material as PORTS.

Sampling and Analysis Approach (cont.)

Vertical Sampling Profile:

- A. Surface soils (0 to 1 foot bgs, Minford clay or soil over Cuyahoga),
- B. Unsaturated Minford clay (discrete samples 1 to 16 feet below ground surface),
- C. Saturated Minford clay/silt (discrete samples 16 feet below ground surface to immediately above the Minford/Gallia interface at about 25' to 70' below ground surface),
- D. Saturated Gallia formation (composited),
- E. Scioto River Valley unsaturated/unconsolidated surface soils (0 to 1 foot below ground surface) and subsurface materials (8 to 10 feet below ground surface) above the water table.

Sampling and Analysis Approach (cont.)

Sampling Areas

- Minford materials overlying Gallia deposits (east and south of the DOE reservation).
- Scioto River Valley soils and subsurface material.
- Surface soils on the western boundary of the DOE reservation.
- 200 ft. x 200 ft. sequentially numbered grids.
- Specific sampling locations randomly selected.
- 800 – 900 samples:
 - 60 subsurface sampling locations.
 - 120 surface sampling locations.

Sampling and Analysis Approach (cont.)

Analytical Parameters (139)

- 48 Semi-Volatile Organic Compounds (SVOC's)
- 17 Poly-Aromatic Hydrocarbons (PAH's)
- 8 Poly-Chlorinated Biphenyl's (PCB's)
- 28 Pesticides/Herbicides
- 27 Metals
- 11 Radionuclides
- 0 Volatile Organic Compounds (VOC's)

Graphic of Sampling Locations

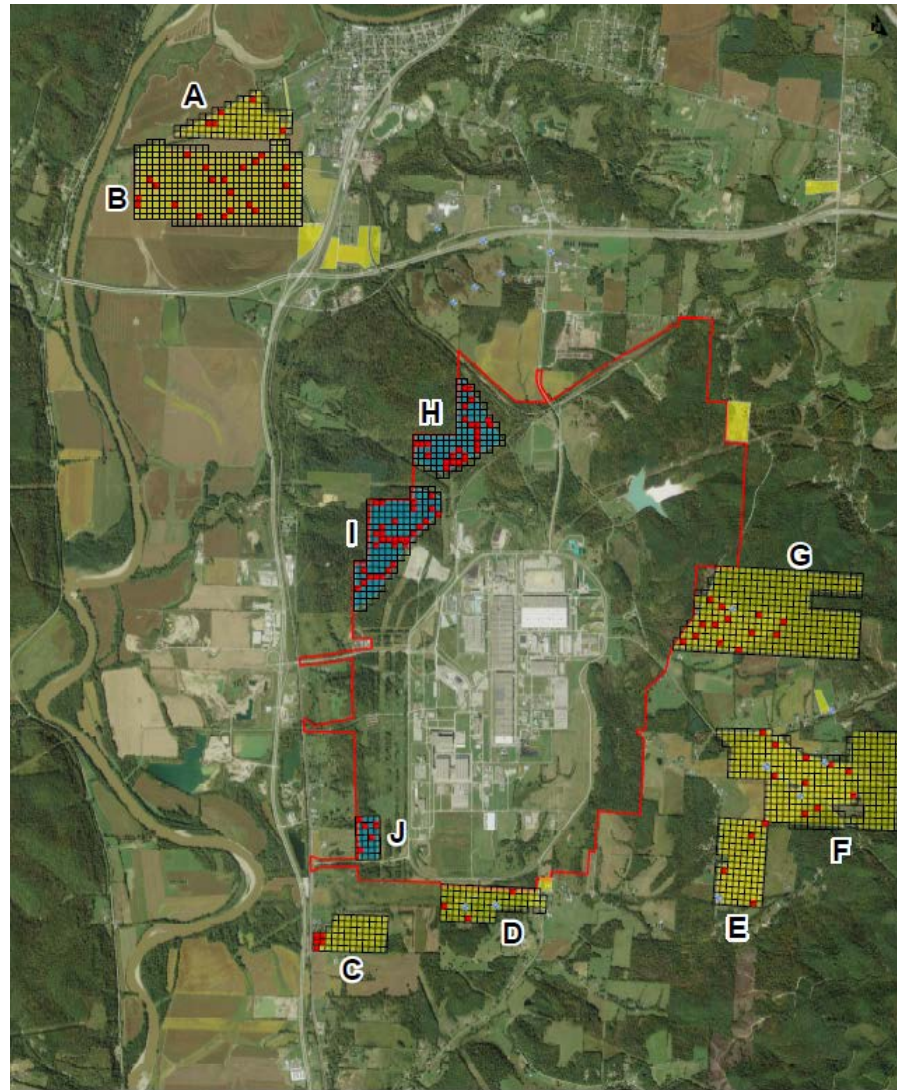
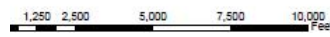


Plate 1. Background Study Sampling Areas/Locations on and Around the DOE Reservation

Legend

- Land Owner Parcel Agreement
- DOE Reservation On-Site Sampling Area
- Sample With (200-5-1000)
- DOE Reservation Boundary
- Background Groundwater Monitoring Well
- Sampling Location
- Study Area



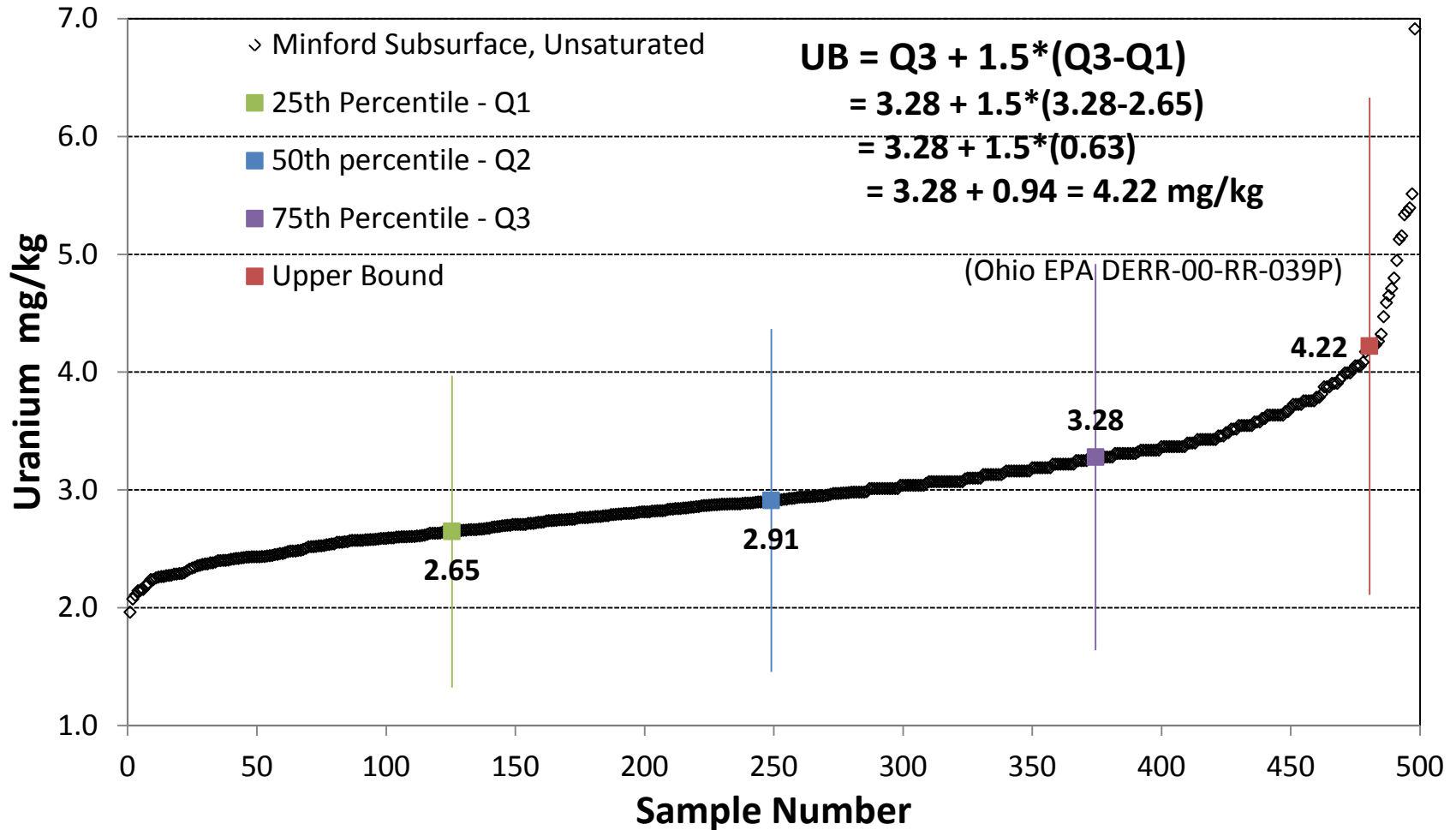
Preliminary Calculation

- Ohio EPA DERR-00-RR-039P provides statistical methodology for estimate of upper bound (UB).

$$UB = Q3 + 1.5*(Q3 - Q1)$$

- Background data set is ordered from lowest to highest value (e.g., 1.21, 1.38, 1.62, 1.71, 1.85, etc).
- Percentiles are calculated for the first quartile (Q1 = 25th percentile) and third quartile (Q3 = 75th percentile).
- Q1 (25th percentile) is the value where 25 percent of the samples are lower and 75 percent are higher.

Preliminary Calculation (cont.)



Schedule

- Sampling and Analysis Work Plan approved by Ohio EPA on March 1, 2012.
- Field sampling (120 sampling locations) completed June 21, 2012.
- Laboratory analysis of surface and subsurface soils (152,000 analytical results) completed.
- Background Study Report under review by DOE for delivery to Ohio EPA in November/December 2012.