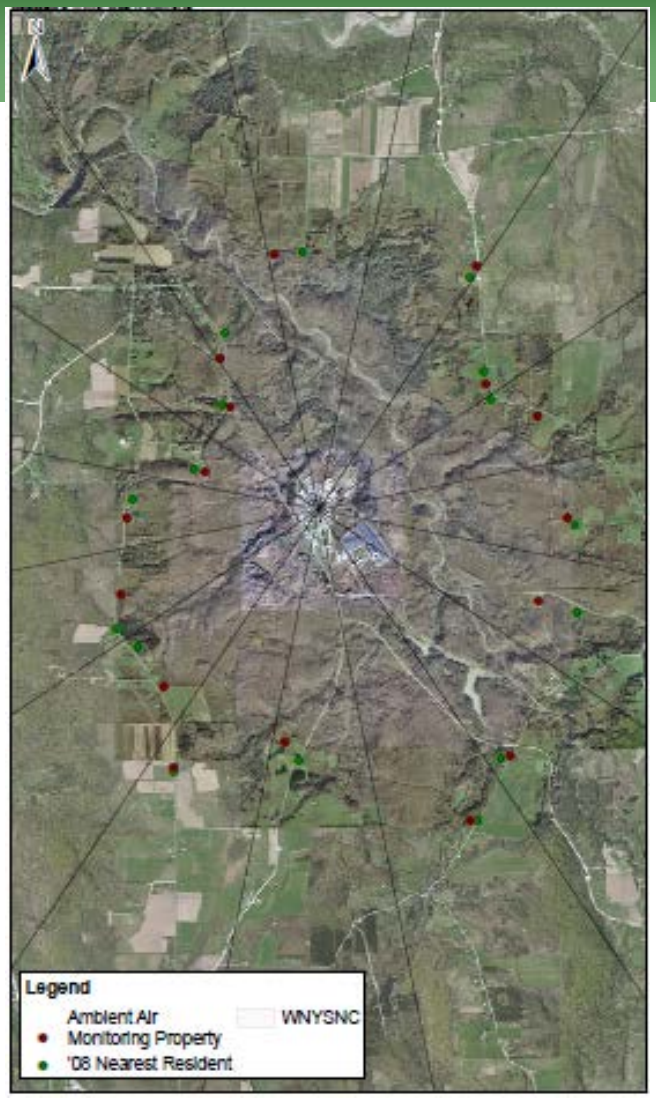


West Valley Demonstration Project

Air Monitoring Program Update

Presented by:

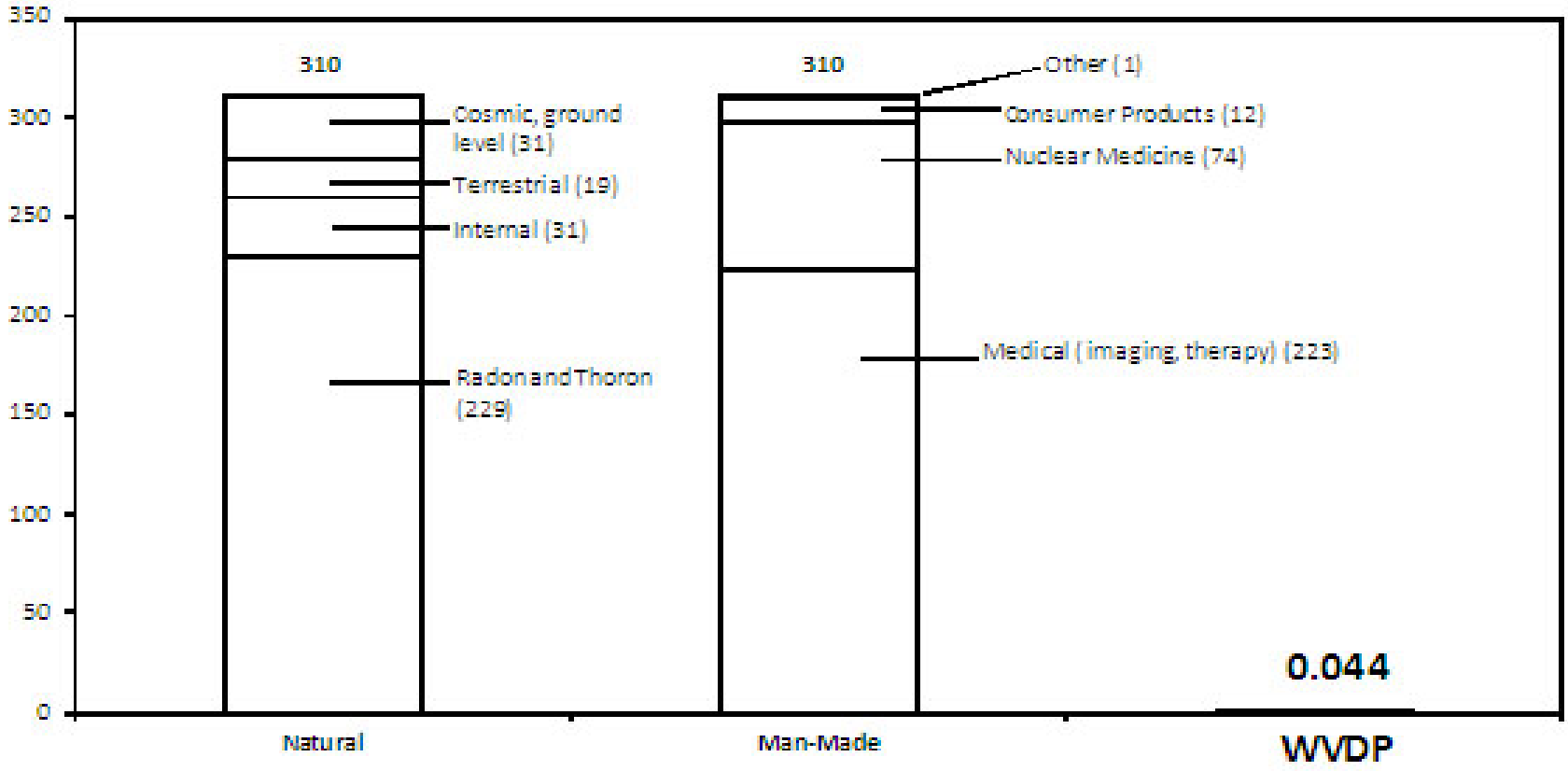
John Rendall, Regulatory Strategy Manager

May 22, 2013

Types of Air Monitoring

- Point Source
  - Stack Monitoring
  - Real Time Results at Source
- Demolition Support Monitoring
  - 01-14
  - Worker Safety & Work Area Control
- Ambient Air
  - Ambient Air Network
  - Background Station
  - Documents Compliance
- Continuous Sampling

Comparison of Dose From Natural and Man-Made Sources[a] to the Dose From 2011 WVDP Effluents (Figure 3-1 of ASER)



[a] Source: National Council on Radiation Protection and Measurements (NCRP) Report Number 160, 2009.

Point Source Air Monitoring

Plant Ventilation Stacks

- 7 Stacks
  - Continuous Air Monitor (CAM)
    - gross alpha/beta
  - Continuous Sampling
    - gross alpha/beta
    - isotopic
- 15 Portable Ventilation Units
  - continuous sampling
- Extremely Low Emissions (less than 0.03% of standard for 2012)
- 0.0027 mrem/yr vs 10 mrem/yr standard (for maximum exposed offsite Individual, MEOSI)
- Stack Data in Appendix C of AESR

RHWF Stack Monitoring System

Demolition Support Monitoring

Worker Safety & Control of Work Area

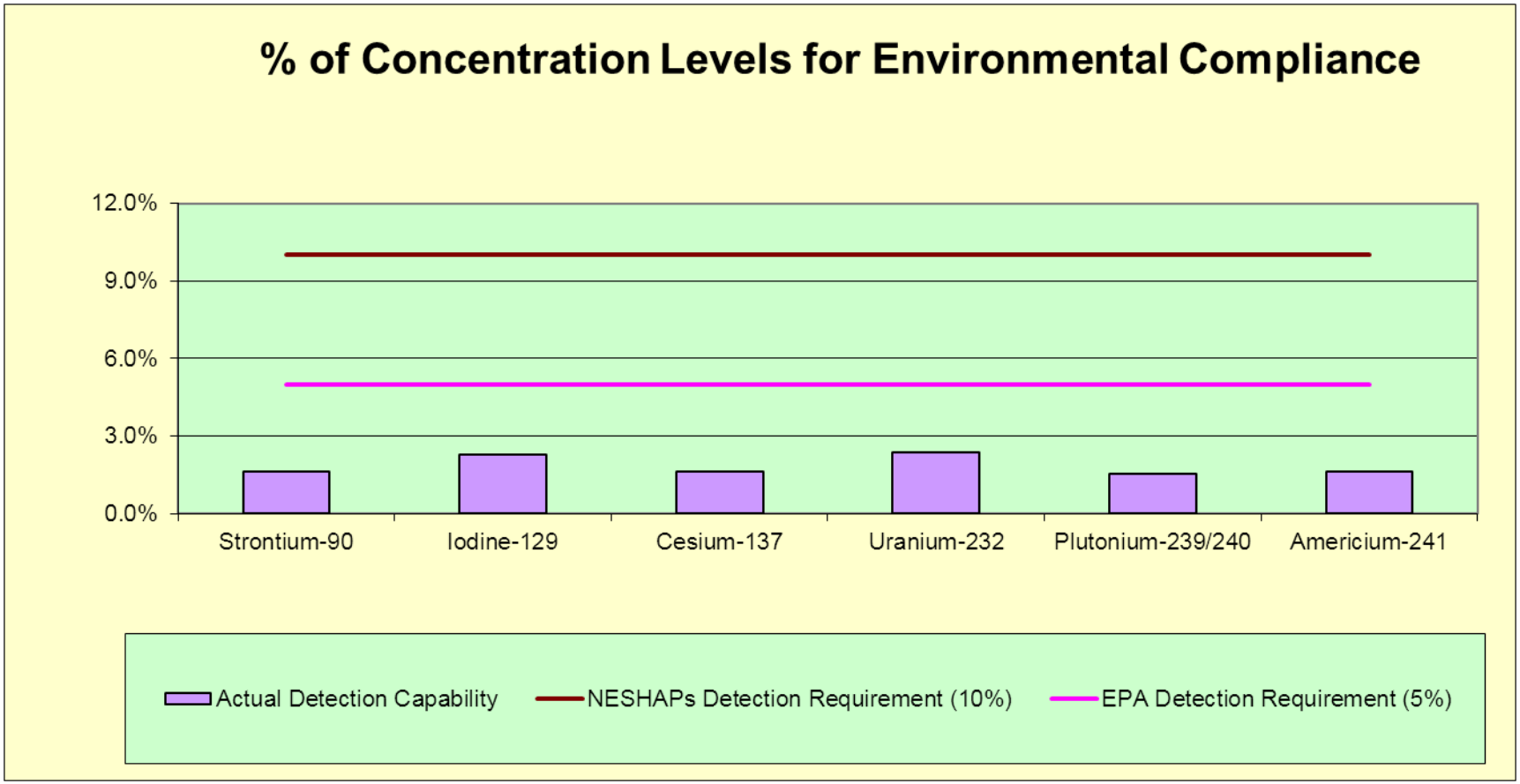
- Low Volume Air Samplers and Continuous Air Monitors Located at the Perimeter of Demolition Site and inside MPPB. Breathing Zone Air Sampler in Cab of Track Hoe.
  - 12 Total Typically Used for 01-14 Demolition Support
- Dust Monitoring Performed by Health and Safety Personnel
- Air Samples Monitored Frequently (Approximately Every 30 Minutes) During Demolition and Compared to Established Alpha and Beta Background + 2 Sigma Charts
- Gross Alpha Beta Counting Performed on Air Sample Filters at the end of Each Shift
- Previous Days Air Sample Results Evaluated Prior to Start of Each Shift
- Contamination Surveys Performed Frequently (Approximately Every 30 Minutes) at Perimeter Points During Demolition
- Final Gross Alpha Beta Counts Performed on Air Sample Filters Seven Days After Pulled to Allow For Decay of Normally Occurring Radioactive Material (NORM)
- 01-14 Demolition: No Observed Levels of Concern

Ambient Monitoring Program

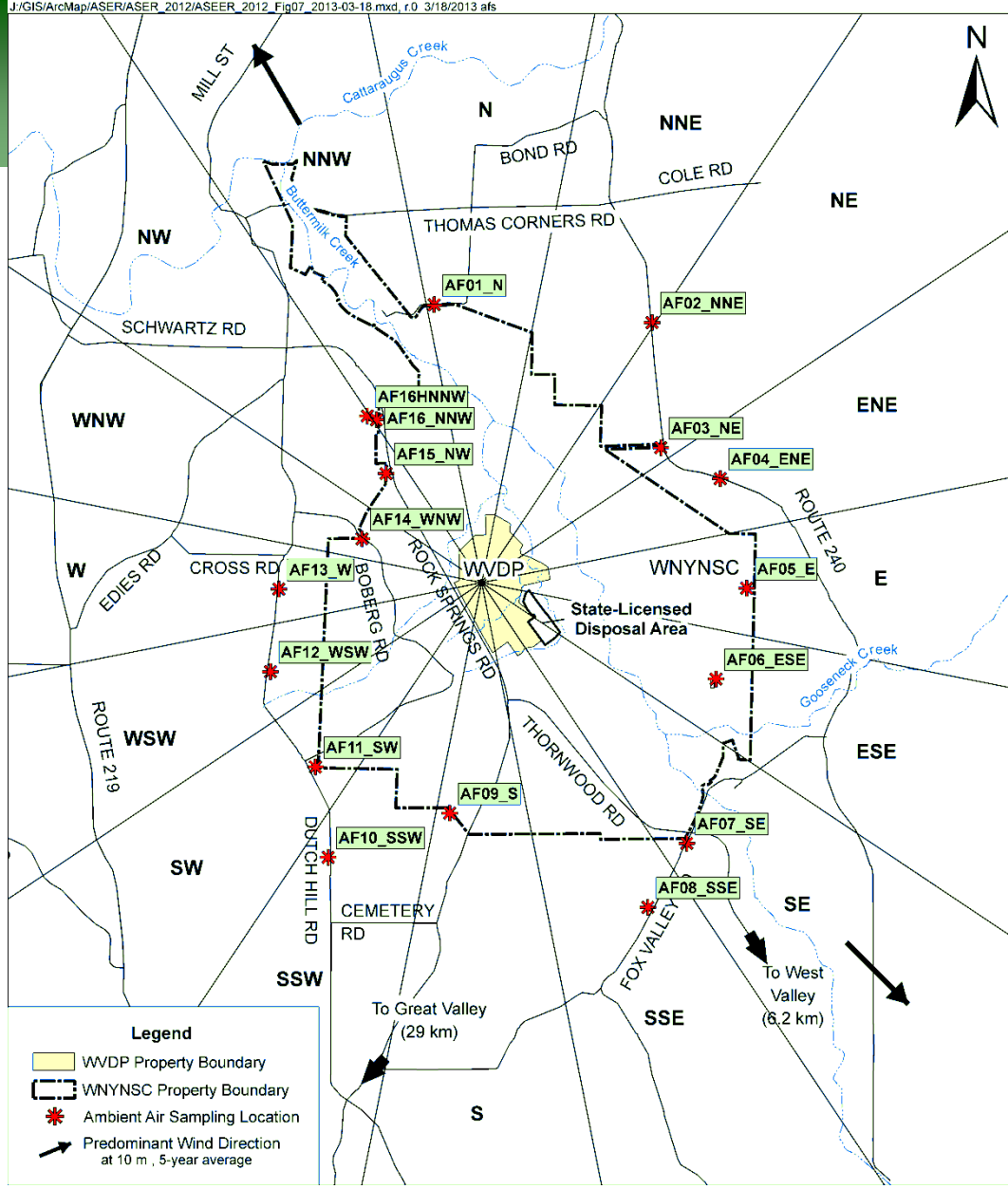
Monitoring Program

- Background and 16 stations
- Continuous Sampling
- Biweekly gross alpha and beta
- Quarterly isotopic for key WVDP isotopes
- Glass fiber filters – typical particle retention – 99.98%
- Charcoal cartridge for I-129
- Minimum of 80% continuous monitoring
- Compare Ambient Data to monitor and model approach
- No Observed Levels of Concern; Consistent with Background

WVDP Ambient Air Network Detection Capability



Ambient Air Network Monitoring Locations



Ambient Air Summary

4th Quarter 2012 Ambient Air Summary

Radionuclide	Regulatory NESHAP Compliance Limit (µCi/mL)	Monitoring Network Detection Limit (µCi/mL)	Results at MEOSI Location (AF16_NNW, December 2012) (µCi/mL) Single result	% Compliance Limit	Average Results - all 16 sectors (December 2012) (µCi/mL) Single result	% Compliance Limit	Maximum Results - all 16 sectors (December 2012) (µCi/mL) Single result	% Compliance Limit
Strontium-90	1.9E-14	3.1E-16	< 1.09E-16	0.6%	< 1.24E-16	0.7%	2.04E-16 [a]	1.1%
Iodine-129	9.1E-15	2.1E-16	< 7.19E-17	0.8%	< 8.62E-17	0.9%	< 1.26E-16	1.4%
Cesium-137	1.9E-14	3.1E-16	< 8.45E-17	0.4%	< 1.09E-16	0.6%	< 1.40E-16	0.7%
Uranium-232	1.3E-15	3.1E-17	< 7.59E-18	0.6%	< 9.28E-18	0.7%	< 1.16E-17	0.9%
Plutonium-238	2.1E-15	3.1E-17	< 5.87E-18	0.3%	< 5.94E-18	0.3%	< 9.14E-18	0.4%
Plutonium-239/240	2.0E-15	3.1E-17	< 7.04E-18	0.4%	< 7.17E-18	0.4%	< 1.12E-17	0.6%
Americium-241	1.9E-15	3.1E-17	< 3.26E-18	0.2%	< 6.9E-18	0.4%	< 9.04E-18	0.5%

[a] Result is below the Minimum Detectable Activity (MDA).