

# WVDP 2018 Annual Site Environmental Report (ASER)

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Citizen Task Force Meeting

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## Major D&D Progress in 2018

Removal of Upper Portion of MPPB Stack



Demolition of Vitrification Facility



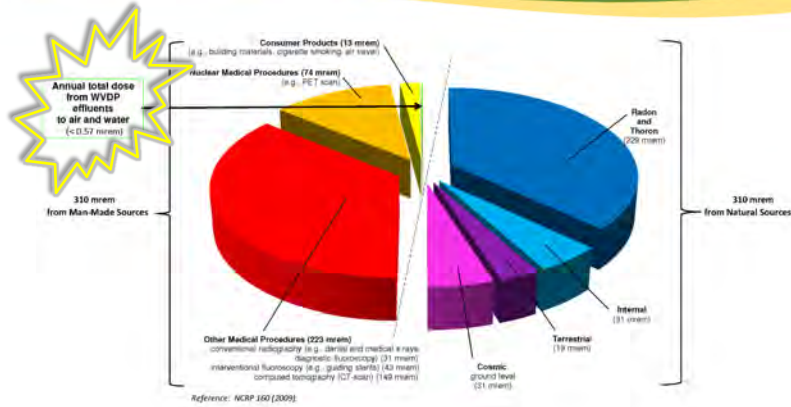
Demolition of Administration Building



The 2018 ASER environmental monitoring data confirmed that the public's health and safety and the environment continued to be protected while major demolition activities were occurring in 2018.

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## Comparison of Doses from Natural and Man-Made Sources to the Dose from the WVDP in 2018



- The public receives up to ~ 620 mrem/year from natural and manmade sources.
- DOE activities must be conducted so that public exposure does not exceed 100 mrem/year (per DOE Order 458.1).
- The total 2018 dose from the WVDP effluents to air and water was <math>< 0.57 \text{ mrem}</math>.

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## 2018 Air Monitoring

### Off-site Locations of Ambient Air Samplers



Samplers are located within 1 mile of the site.

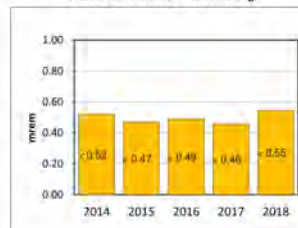
- Air was sampled on site at 4 active air emission stacks and 15 portable ventilation units (PVUs).

(The MPPB stack was in operation until August 2018.)

- Compliance to the 10 mrem annual air dose limit was demonstrated by off-site ambient air samplers.

- 2018 annual dose to the maximally exposed off-site individual (MEOSI) from air exposure: **<math>< 0.55 \text{ mrem}</math>** <math><< 10 \text{ mrem}</math> limit for air.

FIGURE 3-3  
Historical Airborne Dose  
Based on Ambient Air Monitoring



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## How Ambient Air Samplers Work

- Air flows continuously through a filter (collecting particulates) and through a charcoal canister (collecting gas).
- Power is monitored remotely. Text messages are sent if power is lost, minimizing down time.
- % Operation achieved in 2018 = 99%.
- Filters analyzed biweekly for gross alpha and gross beta.
- Charcoal canisters analyzed monthly for I-129.
- Compositing filters analyzed quarterly for radioisotopes.
- Network detection limit 40 to 70 times lower than NESHAP compliance limits.

### Ambient Air Sampler



sampler flow rate (3 ft<sup>3</sup>/min)

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## 2018 Surface Water Monitoring

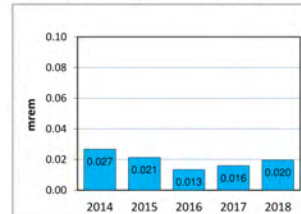
### Locations of Surface Water Samplers



- Surface water was monitored at 8 locations on site and 3 locations off site (one upstream and two downstream).
- There were 4 controlled releases of liquid effluent from lagoon 3, approved under the SPDES permit.
- Compliance with the 100 mrem all pathway dose limit was demonstrated by 2018 surface water samples and modeled dose conversion factors.
- 2018 annual dose to the MEOSI from water exposure:

**0.020 mrem** << 100 mrem DOE limit from all pathways.

Historical Waterborne Dose  
Based on Surface Water Monitoring and Modeling



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## How Composite Surface Water Samplers Work

- Surface water flows continuously by the sampler.  
A small volume of water is diverted into the sampler at timed intervals (i.e., every 30 minutes).
- Biweekly samples from the composite sampler are collected and analyzed for gross alpha, gross beta, and tritium at most locations , and are
- Composited monthly or quarterly and analyzed for radioisotopes.
- Sampling schedule varies by surface water location. (Details are specified in ASER Table A-2).
- Lagoon 3 is sampled before and during discharge under the specifications of the WVDP site New York State Pollutant Discharge Elimination System (SPDES) permit with pre-approval from the NYSDEC.
- On-site surface water sampling results are input to dose models.

Surface Water Sampler



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## Other 2018 Environmental Monitoring

Environmental samples were also collected in 2018 from:

- 69 groundwater wells/sampling points - quarterly
- 2 potable water supply wells + 3 sentinel wells - monthly and biweekly
- 6 deer and 1 dairy (milk) - annually  
(fish, crops, sediments, and additional milk - every 5 years [last collected 2017]).
- 10 onsite and 17 offsite direct radiation monitoring locations.

### 2018 SAMPLING RESULTS:

- No new groundwater concerns. Permeable Treatment Wall (PTW) update, to follow.
- No potable water exceedances.
- No radionuclides were detected in deer or milk samples statistically above background.
- Offsite direct radiation results were comparable to background.

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## 2018 ASER Summary

- The total estimated dose to the public from WVDP activities was  $<0.57$  mrem = ( $<0.55$  mrem) from air exposure and (0.020 mrem) from water exposure, well below the DOE public dose limit of 100 mrem/year.
- ASER results confirmed that the public's health and safety and the environment continued to be protected during 2018.
- The 2018 ASER is now available online at [www.wv.doe.gov](http://www.wv.doe.gov).



Red fox observed on site in 2018