

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH

OFFICE OF RADIOLOGICAL HEALTH
109 Governor Street, 7th Floor, Richmond, Virginia 23219
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**ENVIRONMENTAL
RADIATION
MONITORING
PROGRAM**

**2021
Final Report**



COMMONWEALTH OF VIRGINIA
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Sampling Locations

Sampling Locations for Surry & North Anna Nuclear Power Station



Surry Power Station



North Anna Power Station

Air

SPS-A-1	Surry Power Station	Beta Air Filter Gamma Charcoal & Filter
SPS-A-2	Jamestown	Beta Air Filter Gamma Charcoal & Filter
PSP-A-1	Pocahontas State Park	Beta Air Filter Gamma Charcoal & Filter
NAPS-A-1	Louisa (Outside North Anna Power Station)	Beta Air Filter Gamma Charcoal & Filter
NAPS-A-2	Bumpass	Beta Air Filter Gamma Charcoal & Filter

Water

SPS-W-1	Surry Power Station Discharge Canal	Gamma, Tritium
SPS-W-2	James River @ Robious Landing	Gamma, Tritium
SPS-W-3	James River @ Scotland Wharf	Gamma, Tritium
NAPS-W-1	North Anna Power Station Discharge Canal	Gamma, Tritium
NAPS-W-2	North Anna River @ Rt 651	Gamma, Tritium
NAPS-W-3	North Anna River @ Rt. 522	Gamma, Tritium

Sample Analysis Results for Surry & North Anna Power Stations

WEEK	FREQUENCY	PAGE	COMMENTS
Week 1: 12/31/18- 01/07/19	Weekly	12	
Week 2: 01/07/19 - 01/14/19	Weekly	13	
Week 3: 01/14/19 - 01/21/19	Weekly	14	
Week 4: 01/21/19 - 01/28/19	Weekly	15	
Week 5: 01/28/19 - 02/04/19	Weekly	16	
Week 6: 02/04/19 - 02/11/19	Weekly	17	
Week 7: 02/11/19 - 02/18/19	Weekly	18	
Week 8: 02/18/19 - 02/25/19	Weekly	19	
Week 9: 02/25/19 - 03/04/19	Weekly	20	
Week 10: 03/04/19 - 03/11/19	Weekly	21	
Week 11: 03/11/19 - 03/18/19	Weekly	22	
Week 12: 03/18/19 - 03/25/19	Weekly	23	
Week 13: 03/25/19 - 04/01/19	Weekly	24	
Week 14: 04/01/19 - 04/08/19	Weekly	25	
Week 15: 04/08/19 - 04/15/19	Weekly	26	
Week 16: 04/15/19 - 04/22/19	Weekly	27	
Week 17: 04/22/19 - 04/29/19	Weekly	28	
Week 18: 04/29/19 - 05/06/19	Weekly	29	
Week 19: 05/06/19 - 05/13/19	Weekly	30	
Week 20: 05/13/19 - 05/20/19	Weekly	31	
Week 21: 05/20/19 - 05/27/19	Weekly	32	
Week 22: 05/27/19 - 06/03/19	Weekly	33	
Week 23: 06/03/19 - 06/10/19	Weekly	34	
Week 24: 06/10/19 - 06/17/19	Weekly	35	
Week 25: 06/17/19 - 06/24/19	Weekly	36	
Week 26: 06/24/19 - 07/01/19	Weekly	37	
Week 27: 07/01/19 - 07/08/19	Weekly	38	
Week 28: 07/08/19 - 07/15/19	Weekly	39	
Week 29: 07/15/19 - 07/22/19	Weekly	40	
Week 30: 07/22/19 - 07/29/19	Weekly	41	
Week 31: 07/29/19 - 08/05/19	Weekly	42	
Week 32: 08/05/19 - 08/12/19	Weekly	43	
Week 33: 08/12/19 - 08/19/19	Weekly	44	
Week 34: 08/19/19 - 08/26/19	Weekly	45	
Week 35: 08/26/19 - 09/02/19	Weekly	46	
Week 36: 09/02/19 - 09/09/19	Weekly	47	
Week 37: 09/09/19 - 09/16/19	Weekly	48	

Sample Analysis Results for Surry & North Anna Power Stations

WEEK	FREQUENCY	PAGE	COMMENTS
Week 38: 09/16/19 - 09/23/19	Weekly	49	
Week 39: 09/23/19 - 09/30/19	Weekly	50	
Week 40: 09/30/19 - 10/07/19	Weekly	51	
Week 41: 10/07/19 - 10/14/19	Weekly	52	
Week 42: 10/14/19 - 10/21/19	Weekly	53	
Week 43: 10/21/19 - 10/28/19	Weekly	54	
Week 44: 10/28/19 - 11/04/19	Weekly	55	
Week 45: 11/04/19 - 11/11/19	Weekly	56	
Week 46: 11/11/19 - 11/18/19	Weekly	57	
Week 47: 11/18/19 - 11/25/19	Weekly	58	
Week 48: 11/25/19 - 12/02/19	Weekly	59	
Week 49: 12/02/19 - 12/09/19	Weekly	60	
Week 50: 12/09/19 - 12/16/19	Weekly	61	
Week 51: 12/16/19 - 12/23/19	Weekly	62	
Week 52: 12/23/19 - 12/30/19	Weekly	63	

Other Sample Locations

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<u>Surface Water</u>				
NNSB-W-1	James River - NNSB-Pier 1	Surface Water	Quarterly	64
NNSB-W-2	James River - NNSB-Shipway 11	Surface Water	Quarterly	64
NNSY-W-1	Elizabeth River - NNSY - Drydock #4	Surface Water	Quarterly	65
NNSY-W-2	Elizabeth River - NNSY - Drydock #8	Surface Water	Quarterly	66
NNSY-W-3	Elizabeth River - NNSY - Wet Slip #1	Surface Water	Quarterly	67
<u>Silt</u>				
NNSB-S-1	James River - NNSB - Pier 1	Silt	Quarterly	68
NNSB-S-2	James River - NNSB-Shipway 11	Silt	Quarterly	69
NNSY-S-1	Elizabeth River - NNSY - Drydock #4	Silt	Quarterly	70
NNSY-S-2	Elizabeth River - NNSY - Drydock #8	Silt	Quarterly	71
NNSY-S-3	Elizabeth River - NNSY - Wet Slip #1	Silt	Quarterly	72

Other Sample Types for Surry & North Anna Power Stations

Sample	Location	Description	Frequency	Page
SILT				
SPS-S-1	James River – 1 ½ Mile Off Discharge Canal	Silt	2x per year	73
NAPS-S-1	Waste Treatment Shoreline Soil	Soil	2x per year	73
FISH				
NAPS-F-1	North Anna Lake – Second Cooling Lagoon	Edible Fish	2x per year	74-75
SPS-F-1	James River – .5 miles off Discharge Canal	Edible Fish	2x per year	74-75
SPS-R-1	James River- Various Locations	Shellfish	Annually	76
MILK				
SPS-M-1	Surry County-Epps Dairy	Raw	Quarterly	77-78
VEGETATION				
SPS-V-1	Surry County – Local Farmers	Edible Vegetation	2x per year	79
NAPS-V-1	Louisa County – Local Farmers	Edible Vegetation	2x per year	79

Dosimetry Locations for Surry & North Anna Power Stations

Dosimetry	Station	Frequency	Description	Page
Jamestown – Historical site	SPS-D-1	Quarterly	Gamma in Air	80-83
Williamsburg – Airport	SPS-D-2	Quarterly	Gamma in Air	80-83
Williamsburg – Busch Gardens	SPS-D-3	Quarterly	Gamma in Air	80-83
Newport News - Lee Hall	SPS-D-4	Quarterly	Gamma in Air	80-83
Naval Weapons Station – 1	SPS-D-5	Quarterly	Gamma in Air	80-83
Newport News – Fort Eustis	SPS-D-6	Quarterly	Gamma in Air	80-83
Surry – Route 628	SPS-D-7	Quarterly	Gamma in Air	80-83
Surry – Lawnes Creek	SPS-D-8	Quarterly	Gamma in Air	80-83
Surry Power Station	SPS-D-9	Quarterly	Gamma in Air	80-83
Surry – Hog Point	SPS-D-10	Quarterly	Gamma in Air	80-83
Surry – Bacon’s Castle	SPS-D-11	Quarterly	Gamma in Air	80-83
Surry – Alliance	SPS-D-12	Quarterly	Gamma in Air	80-83
Surry – Scotland Wharf	SPS-D-13	Quarterly	Gamma in Air	80-83
Surry – Lebanon Baptist Church	SPS-D-14	Quarterly	Gamma in Air	80-83
Louisa County - Mineral	NAPS-D-1	Quarterly	Gamma in Air	80-83
Louisa County – Wares Crossroads	NAPS-D-2	Quarterly	Gamma in Air	80-83
Louisa County – Good Hope Church	NAPS-D-3	Quarterly	Gamma in Air	80-83
Spotsylvania – Route 713	NAPS-D-4	Quarterly	Gamma in Air	80-83
Spotsylvania Route 614	NAPS-D-5	Quarterly	Gamma in Air	80-83
Spotsylvania – Levy	NAPS-D-6	Quarterly	Gamma in Air	80-83
Louisa County – Bumpass Fire Dept.	NAPS-D-7	Quarterly	Gamma in Air	80-83
Louisa County – Fred Hall	NAPS-D-8	Quarterly	Gamma in Air	80-83
Louisa County – Aspen Hill	NAPS-D-9	Quarterly	Gamma in Air	80-83
Louisa County – Route 685	NAPS-D-10	Quarterly	Gamma in Air	80-83
Louisa County – Route 700	NAPS-D-11	Quarterly	Gamma in Air	80-83
North Anna Power Station	NAPS-D-12	Quarterly	Gamma in Air	80-83
Pocahontas State Park (Control)	PSP-D-1	Quarterly	Gamma in Air	80-83
Radiological Health	ORH-D-1	Quarterly	Gamma in Air	80-83
Radiological Health	ORH-D-2	Quarterly	Gamma in Air	80-83

Sampling Locations - Babcock & Wilcox

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<u>AIR</u>				
B&W-A-1	Eastern Site Boundary - Ballfield	Air Particulate	Quarterly	85
<u>SOIL</u>				
B&W-S-1	Eastern Site Boundary - Ballfield	Soil	Annually	86
B&W-S-2	James River Riverside Park	Soil	Annually	86
<u>SURFACE WATER</u>				
B&W-W-1	Eastern Site Boundary - Ballfield	Surface Water	Annually	86
B&W-W-2	James River Riverside Park	Surface Water	Annually	86
<u>VEGETATION</u>				
B&W-V-1	Eastern Site Boundary - Ballfield	Grass	Annually	87
B&W-V-2	James River Riverside Park	Grass	Annually	87

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NO DETECTABLE RESULTS "NDR"

In order for a nuclide to be identified in the spectrum and entered into this report, constraints set by the HPGe analysis software need to be satisfied and the results of the confidence index calculation must be greater than the threshold (usually 0.3).

For the maximum confidence index, the following conditions need to be met.

- The nuclide energy peak needs to be within the energy tolerance of the library lines for that nuclide.
- A nuclide with multiple lines, must match the library peaks in the spectrum.
- The number of half-lives that has elapsed, between when the sample was taken and when it was counted, must be less than 10 half-lives or the confidence in the identification is small.

If the confidence index threshold and/or any of the three criteria are not met, then the nuclide is deemed no detectable results, (NDR).

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Analytical Results

Virginia Department of Health
Week 1: 12/30/20 – 01/04/21¹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 2: 01/04/21– 01/11/21²

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

² Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 3: 01/11/21- 01/18/21³

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity - pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 4: 01/18/21– 01/25/21⁴

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 5: 01/25/21 – 02/01/21⁵

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 37	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁵ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 6: 02/01/21– 02/08/21⁶

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁶ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 7: 02/08/21– 02/15/21⁷

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 37	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁷ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 8: 02/15/21– 02/22/21⁸

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁸ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 9: 02/22/21 – 03/01/21⁹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁹ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 10: 03/01/21– 03/08/21¹⁰

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁰ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 11: 03/08/21 – 03/15/21¹¹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹¹ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 12: 03/15/21 - 03/22/21¹²

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹² Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 13: 03/22/21– 03/29/21¹³

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹³ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 14: 03/29/21 – 04/05/21¹⁴

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁴ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 15: 04/05/21 – 04/12/21¹⁵

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁵ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 16: 04/12/21 – 04/19/21¹⁶

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁶ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 17: 04/19/21 – 04/26/21¹⁷

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁷ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 18: 04/26/21 – 05/03/21¹⁸

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁸ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 19: 05/03/21 – 05/10/21¹⁹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

¹⁹ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 20: 05/10/21 - 05/17/21²⁰

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²⁰ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 21: 05/17/21 – 05/24/21²¹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²¹ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 22: 05/24/21 – 05/31/21²²

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

Virginia Department of Health

²² Due to Inspector 2000 hardware malfunction, samples were not collected.

Week 23: 05/31/21 - 06/07/21²³

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²³ Due to Inspector 2000 hardware malfunction, samples were not collected.

Virginia Department of Health
Week 24: 06/07/21 – 06/14/21

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1	NDR	NDR	NDR	0.02 +/- 0.003
SPS-A-2 ²⁴				
PSP-A-1 ²⁵				
NAPS-A-1	NDR	NDR	NDR	0.06 +/- 0.008
NAPS-A-2	NDR	NDR	NDR	0.05 +/- 0.007

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
SPS-W-4	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	3904 +/- 132
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
NAPS-W-4	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	3904 +/- 129

²⁴ Due to air sampler malfunction, no sample was collected.

²⁵ Due to air sampler malfunction, no sample was collected.

Virginia Department of Health
Week 25: 06/14/21 – 06/21/21²⁶

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²⁶ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 26: 06/21/21 - 06/28/21²⁷

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²⁷ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 27: 06/28/21 – 07/05/21²⁸

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²⁸ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 28: 07/05/21 – 07/12/21²⁹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

²⁹ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 29: 07/12/21 – 07/19/21³⁰

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³⁰ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 30: 07/19/21 – 07/26/21³¹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³¹ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 31: 07/26/21 - 08/02/21³²

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity - pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³² No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 32: 08/02/21 - 08/09/21³³

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity - pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³³ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 33: 08/09/21 - 08/16/21³⁴

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity - pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³⁴ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 34: 08/16/21 – 08/23/21³⁵

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³⁵ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 35: 08/23/21 - 08/30/21³⁶

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³⁶ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 36: 08/30/21 – 09/06/21³⁷

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³⁷ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 37: 09/06/21 – 09/13/21³⁸

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

³⁸ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 38: 09/13/21 – 09/20/21³⁹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-3											
NAPS-W-1											
NAPS-W-2											
NAPS-W-3											

³⁹ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 39: 09/20/21 – 09/27/21⁴⁰

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁰ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 40: 09/27/21 – 10/04/21⁴¹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴¹ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 41: 10/04/21 - 10/11/21⁴²

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity - pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											

⁴² No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 42: 10/11/20 – 10/18/21⁴³

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴³ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 43: 10/18/21 - 10/25/21⁴⁴

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity - pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁴ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 44: 10/25/21 – 11/01/21⁴⁵

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁵ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 45: 11/01/21 – 11/08/21⁴⁶

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁶ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 46: 11/08/21 – 11/15/21⁴⁷

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁷ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 47: 11/15/21 – 11/22/21⁴⁸

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁸ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 48: 11/22/21 – 11/29/21⁴⁹

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁴⁹ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 49: 11/29/21 – 12/06/21⁵⁰

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁵⁰ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health⁵¹
Week 50: 12/06/21 – 12/13/21

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁵¹ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 51: 12/13/21 - 12/20/21⁵²

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁵² No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
Week 52: 12/20/21 – 12/27/21⁵³

Air

Site	Gamma & Radiogas in Air			Air Particulate
	I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³	Gross Beta Activity pCi/meter ³
SPS-A-1				
SPS-A-2				
PSP-A-1				
NAPS-A-1				
NAPS-A-2				

Water

Site	Gamma and Tritium Activity – pCi/Liter										
	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	H3 Activity
SPS-W-1											
SPS-W-2											
SPS-W-4											
NAPS-W-1											
NAPS-W-2											
NAPS-W-4											

⁵³ No samples were collected due to on-going mechanical repairs to the MICL.

Virginia Department of Health
SURFACE WATER

January 1, 2021 through December 31, 2021

Newport News Shipbuilder⁵⁴

James River – Pier #1
NNSB-W-1

Qtr.	Date collected	Gamma Activity – pCi/liter					
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st							
2nd							
3rd							
4th							

James River – Shipway #11
NNSB-W-2

Qtr.	Date collected	Gamma Activity – pCi/liter					
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st							
2nd							
3rd							
4th							

⁵⁴ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health

SURFACE WATER

January 1, 2021 through December 31, 2021

Norfolk Naval Shipyard⁵⁵

Elizabeth River – Dry Dock #4
Norfolk Naval Shipyard NNSY-W-1

Qtr.	Date collected	Gamma Activity – pCi/liter					
1st		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
2nd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
3rd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
4th		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95

⁵⁵ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health

SURFACE WATER

January 1, 2021 through December 31, 2021

Norfolk Naval Shipyard⁵⁶

Elizabeth River – Dry Dock #8
Norfolk Naval Shipyard NNSY-W-2

Qtr.	Date collected	Gamma Activity – pCi/liter					
1st		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
2nd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
3rd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
4th		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95

⁵⁶ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health
SURFACE WATER

January 1, 2021 through December 31, 2021

Norfolk Naval Shipyard⁵⁷

Elizabeth River – Wet Slip #1
Norfolk Naval Shipyard NNSY-W-3

Qtr.	Date collected	Gamma Activity – pCi/liter					
1st		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
2nd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
3rd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
4rd		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95

⁵⁷ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health

SILT

January 1, 2021 through December 31, 2021

Newport News Shipbuilder⁵⁸

Location	Date Collected	Gamma Activity pCi/gram			
James River – Pier 1 NNSB-S-1		Cs-134	Cs-137	Co-58	Co-60
James River – Pier 1 NNSB-S-1		Cs-134	Cs-137	Co-58	Co-60
James River – Pier 1 NNSB-S-1		Cs-134	Cs-137	Co-58	Co-60
James River – Pier 1 NNSB-S-1		Cs-134	Cs-137	Co-58	Co-60

⁵⁸ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health

SILT

January 1, 2021 through December 31, 2021

Newport News Shipbuilder⁵⁹

Location	Date Collected	Gamma Activity pCi/gram			
James River – Shipway 11 NNSB-S-2		Cs-134	Cs-137	Co-58	Co-60
James River – Shipway 11 NNSB-S-2		Cs-134	Cs-137	Co-58	Co-60
James River – Shipway 11 NNSB-S-2		Cs-134	Cs-137	Co-58	Co-60
James River – Shipway 11 NNSB-S-2		Cs-134	Cs-137	Co-58	Co-60

⁵⁹ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health

SILT

January 1, 2021 through December 31, 2021

Norfolk Naval Shipyard⁶⁰

Location	Date Collected	Gamma Activity pCi/gram		
Elizabeth River Drydock #4				
NNSY-S-1	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #4				
NNSY-S-1	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #4				
NNSY-S-1	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #4				
NNSY-S-1	Cs134	Cs137	Co58	Co60

⁶⁰ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health SILT

January 1, 2021 through December 31, 2021

Norfolk Naval Shipyard⁶¹

Location	Date Collected	Gamma Activity pCi/gram		
Elizabeth River Drydock #8				
NNSY-S-2	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #8				
NNSY-S-2	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #8				
NNSY-S-2	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #8				
NNSY-S-2	Cs134	Cs137	Co58	Co60

⁶¹ Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health SILT

January 1, 2021 through December 31, 2021

Norfolk Naval Shipyard⁶²

Location	Date Collected	Gamma Activity pCi/gram		
Elizabeth River Wet Slip #1				
NNSY-S-3	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #8				
NNSY-S-3	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #8				
NNSY-S-3	Cs134	Cs137	Co58	Co60
Elizabeth River Drydock #8				
NNSY-S-3	Cs134	Cs137	Co58	Co60

⁶² Due to COVID19 water samples are not being collected until further notice.

Virginia Department of Health
SILT

January 1, 2021 through December 31, 2021

North Anna Power Station
Discharge Canal, North Anna River – NAPS-S-1

Date Collected	Gamma Activity pCi/gram			
N/A⁶³	Cs-134	Cs-137	Co-58	Co-60

Cs-134	Cs-137	Co-58	Co-60
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Surry Power Station
Discharge Canal SPS-S-1

Date Collected	Gamma Activity pCi/gram			
N/A⁶⁴	Cs-134	Cs-137	Co-58	Co-60

Cs-134	Cs-137	Co-58	Co-60
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Note: Silt samples are collected bi-annually.

⁶³ Silt samples could not be analyzed due to on-going repairs to analytical equipment.

⁶⁴ Silt samples could not be analyzed due to on-going repairs to analytical equipment.

Virginia Department of Health

FISH

January 1, 2021 through December 31, 2021

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna Cooling Lagoon	/18	Ba-140	<0.05
		Cs-134	<0.01
		Cs-137	<0.01
		Co-58	<0.01
NAPS- F-1	05/20/2021	Co-60	<0.01
(Fish)		I-131	<0.03
		Fe-59	<0.01
		Mn-54	<0.01
		Ru-106	<0.05
		Ag-110M	<0.01
		Zn-65	<0.01
		Nb-95	<0.01
Surry Discharge Canal			
		Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
SPS-F-1 ⁶⁵		I-131	
(Fish)		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110M	
		Zn-65	
		Nb-95	

Note: Fish samples collected bi-annually

⁶⁵ No sample collected.

Virginia Department of Health FISH

January 1, 2021 through December 31, 2021

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna Cooling Lagoon		Ba-140	<0.05
		Cs-134	<0.01
		Cs-137	<0.01
		Co-58	<0.01
		Co-60	<0.01
		I-131	<0.03
		Fe-59	<0.01
		Mn-54	<0.01
		Ru-106	<0.06
		Ag-110	<0.01
NAPS- F-1 (Fish)	11/05/2021	Zn-65	<0.01
		Nb-95	<0.01
Surry Discharge Canal		Ba-140	<0.02
		Cs-134	<0.01
		Cs-137	<0.01
		Co-58	<0.01
		Co-60	<0.01
		I-131	<0.01
		Fe-59	<0.01
		Mn-54	<0.01
		Ru-106	<0.03
		Ag-110M	<0.01
SPS-F-1 (Fish)	10/07/2021	Zn-65	<0.01
		Nb-95	<0.01

Note: Fish samples collected bi-annually

Virginia Department of Health

SHELLFISH⁶⁶

January 1, 2020 through December 31, 2020

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
Surry Power Station		Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
SPS-R-1		I-131	
(Clams and Oysters)		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110M	
		Zn-65	
		Nb-95	

Note: Shellfish are collected annually when available.

⁶⁶ No shellfish samples were collected.

Virginia Department of Health

Milk

January 1, 2021 through December 31, 2021^{67, 68}

Surry County - Epps Dairy SPS-M-1 1st Quarter Date: No sample collected this quarter	
Isotope Ba-140 Cs-134 Cs-137 K-40 I-131 Total Radiostrontium	Results - pCi/liter
Surry County - Epps Dairy SPS-M-1 2nd Quarter Date: 04-13-2021	
Isotope Ba-140 Cs-134 Cs-137 K-40 I-131 Total Radiostrontium	Results - pCi/liter <13.9 pCi/L <2.39 pCi/L <3.50 pCi/L 1.5 ± 0.1 g/L <5.18 pCi/L <5.16 pCi/L
Surry County - Epps Dairy SPS-M-1 3rd Quarter Date:	
Isotope Ba-140 Cs-134 Cs-137 K-40 I-131 Total Radiostrontium	Results - pCi/liter

⁶⁷ Due to VDACS staffing restrictions milk samples will be collected bi-annually.

⁶⁸ Beginning in 2021 Strontium results will be reported as total radiostrontium.

Virginia Department of Health

Milk

January 1, 2021 through December 31, 2021⁶⁹

Surry County - Epps Dairy	
SPS-M-1	
4th Quarter Date:	
Isotope	Results - pCi/liter
Ba-140	
Cs-134	
Cs-137	
K-40	
I-131	
Total Radiostrontium	

⁶⁹ Only one milk sample collected due to COVID-19 protocols.

Virginia Department of Health

VEGETATION⁷⁰

January 1, 2021 through December 31, 2021

Location	Date collected	Type	Isotope	Results pCi/Gram (wet weight)
Surry County				
Private garden	2nd Quarter	Mixed Greens	I-131	
SPS-V-1			Cs-134	
			Cs-137	
Louisa County				
Private Garden	2nd Quarter	Mixed Greens	I-131	
NAPS-V-1			Cs-134	
			Cs-137	
Surry County				
Private garden	4th Quarter	Mixed Greens	I-131	
SPS-V-1			Cs-134	
			Cs-137	
Louisa County				
Private Garden	4th Quarter	Mixed Greens	I-131	
NAPS-V-1			Cs-134	
			Cs-137	

Note: Vegetation is collected bi-annually when available.

⁷⁰ No samples collected due to on-going repairs to the MICL.

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

FIRST QUARTER

Location	Station	Net Exposure Rate		
		mR/Std Qtr	+/-	2S.D.
Jamestown – Historical site	SPS-D-1	34.87	+/-	11.81
Williamsburg – Airport	SPS-D-2	26.55	+/-	10.30
Williamsburg – Busch Gardens	SPS-D-3	37.25	+/-	12.21
Newport News - Lee Hall	SPS-D-4	40.15	+/-	12.67
Naval Weapons Station – 1	SPS-D-5	28.36	+/-	10.65
Newport News – Fort Eustis	SPS-D-6	32.77	+/-	11.45
Surry – Route 628	SPS-D-7	23.42	+/-	9.68
Surry – Lawnes Creek	SPS-D-8	31.18	+/-	11.17
Surry Power Station	SPS-D-9	33.49	+/-	11.57
Surry – Hog Point	SPS-D-10	30.96	+/-	11.13
Surry – Bacon's Castle	SPS-D-11	26.93	+/-	10.38
Surry – Alliance	SPS-D-12	32.26	+/-	11.36
Surry – Scotland Wharf	SPS-D-13	32.03	+/-	11.32
Surry – Lebanon Baptist Church	SPS-D-14	35.23	+/-	11.87
Louisa County - Mineral	NAPS-D-1	32.55	+/-	11.41
Louisa County – Wares Crossroads	NAPS-D-2	36.10	+/-	12.02
Spotsylvania – Good Hope Church	NAPS-D-3	40.73	+/-	12.76
Spotsylvania – Route 713	NAPS-D-4	31.18	+/-	11.17
Spotsylvania Route 614	NAPS-D-5	35.95	+/-	11.99
Spotsylvania – Levy	NAPS-D-6	34.72	+/-	11.78
Louisa County – Bumpass Fire	NAPS-D-7	38.63	+/-	12.43
Louisa County – Fred Hall	NAPS-D-8	27.20	+/-	10.43
Louisa County – Aspen Hill	NAPS-D-9	39.93	+/-	12.64
Louisa County – Route 685	NAPS-D-10	30.24	+/-	11.00
Louisa County – Route 700	NAPS-D-11	40.51	+/-	12.73
North Anna Power Station	NAPS-D-12	39.50	+/-	12.57
Pocahontas State Park (Control)	PSP-D-1	46.44	+/-	13.63
Radiological Health	ORH-D-1	18.66	+/-	8.64
Radiological Health	ORH-D-2	20.33	+/-	9.02

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

SECOND QUARTER

Location	Station	Net Exposure Rate		
		mR/Std Qtr	+/-	2S.D.
Jamestown – Historical site	SPS-D-1	17.84	+/-	8.45
Williamsburg – Airport	SPS-D-2	26.57	+/-	10.31
Williamsburg – Busch Gardens	SPS-D-3	25.03	+/-	10.01
Newport News - Lee Hall	SPS-D-4	31.00	+/-	11.13
Naval Weapons Station – 1	SPS-D-5	24.76	+/-	9.95
Newport News – Fort Eustis	SPS-D-6	21.74	+/-	9.32
Surry – Route 628	SPS-D-7	19.15	+/-	8.75
Surry – Lawnes Creek	SPS-D-8	23.94	+/-	9.79
Surry Power Station	SPS-D-9	23.69	+/-	9.73
Surry – Hog Point	SPS-D-10	22.32	+/-	9.45
Surry – Bacon’s Castle	SPS-D-11	22.26	+/-	9.44
Surry – Alliance	SPS-D-12	23.58	+/-	9.71
Surry – Scotland Wharf	SPS-D-13	21.43	+/-	9.26
Surry – Lebanon Baptist Church	SPS-D-14	22.09	+/-	9.40
Louisa County - Mineral	NAPS-D-1	26.85	+/-	10.36
Louisa County – Wares Crossroads	NAPS-D-2	22.17	+/-	9.42
Louisa County – Good Hope Church	NAPS-D-3	25.52	+/-	10.10
Spotsylvania – Route 713	NAPS-D-4	22.77	+/-	9.54
Spotsylvania Route 614	NAPS-D-5	22.86	+/-	9.56
Spotsylvania – Levy	NAPS-D-6	25.61	+/-	10.12
Louisa County – Bumpass Fire Dep	NAPS-D-7	25.43	+/-	10.08
Louisa County – Fred Hall	NAPS-D-8	24.41	+/-	9.88
Louisa County – Aspen Hill	NAPS-D-9	28.01	+/-	10.59
Louisa County – Route 685	NAPS-D-10	27.23	+/-	10.44
Louisa County – Route 700	NAPS-D-11	28.23	+/-	10.63
North Anna Power Station	NAPS-D-12	29.93	+/-	10.94
Pocahontas State Park (Control)	PSP-D-1	31.21	+/-	11.17
Radiological Health	ORH-D-1	19.06	+/-	8.73
Radiological Health	ORH-D-2	20.43	+/-	9.04

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

THIRD QUARTER

Location	Station	Net Exposure Rate		
		mR/Std Qtr	+/- 2S.D.	
Jamestown – Historical site	SPS-D-1	34.866	+/-	11.81
Williamsburg – Airport	SPS-D-2	26.547	+/-	10.30
Williamsburg – Busch Gardens	SPS-D-3	37.253	+/-	12.21
Newport News - Lee Hall	SPS-D-4	40.147	+/-	12.67
Naval Weapons Station – 1	SPS-D-5	28.356	+/-	10.65
Newport News – Fort Eustis	SPS-D-6	32.768	+/-	11.45
Surry – Route 628	SPS-D-7	23.419	+/-	9.68
Surry – Lawnes Creek	SPS-D-8	31.177	+/-	11.17
Surry Power Station	SPS-D-9	33.492	+/-	11.57
Surry – Hog Point	SPS-D-10	30.960	+/-	11.13
Surry – Bacon’s Castle	SPS-D-11	26.926	+/-	10.38
Surry – Alliance	SPS-D-12	32.262	+/-	11.36
Surry – Scotland Wharf	SPS-D-13	32.028	+/-	11.32
Surry – Lebanon Baptist Church	SPS-D-14	35.228	+/-	11.87
Louisa County - Mineral	NAPS-D-1	32.551	+/-	11.41
Louisa County – Wares Crossroads	NAPS-D-2	36.096	+/-	12.02
Louisa County – Good Hope Church	NAPS-D-3	40.725	+/-	12.76
Spotsylvania – Route 713	NAPS-D-4	31.177	+/-	11.17
Spotsylvania Route 614	NAPS-D-5	35.951	+/-	11.99
Spotsylvania – Levy	NAPS-D-6	34.721	+/-	11.78
Louisa County – Bumpass Fire Dept.	NAPS-D-7	38.627	+/-	12.43
Louisa County – Fred Hall	NAPS-D-8	27.198	+/-	10.43
Louisa County – Aspen Hill	NAPS-D-9	39.930	+/-	12.64
Louisa County – Route 685	NAPS-D-10	30.236	+/-	11.00
Louisa County – Route 700	NAPS-D-11	40.508	+/-	12.73
North Anna Power Station	NAPS-D-12	39.496	+/-	12.57
Pocahontas State Park (Control)	PSP-D-1	46.440	+/-	13.63
Radiological Health	ORH-D-1	18.663	+/-	8.64
Radiological Health	ORH-D-2		+/-	9.02

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

FOURTH QUARTER

Location	Station	Net Exposure Rate		
		mR/Std Qtr	+/-	2S.D.
Jamestown – Historical site	SPS-D-1	23.57	+/-	9.71
Williamsburg – Airport	SPS-D-2	34.94	+/-	11.82
Williamsburg – Busch Gardens	SPS-D-3	35.34	+/-	11.89
Newport News - Lee Hall	SPS-D-4	41.30	+/-	12.85
Naval Weapons Station – 1	SPS-D-5	30.96	+/-	11.13
Newport News – Fort Eustis	SPS-D-6	32.77	+/-	11.45
Surry – Route 628	SPS-D-7	23.78	+/-	9.75
Surry – Lawnes Creek	SPS-D-8	32.97	+/-	11.48
Surry Power Station	SPS-D-9	31.29	+/-	11.19
Surry – Hog Point	SPS-D-10	29.15	+/-	10.80
Surry – Bacon’s Castle	SPS-D-11	28.55	+/-	10.69
Surry – Alliance	SPS-D-12	29.50	+/-	10.86
Surry – Scotland Wharf	SPS-D-13	30.51	+/-	11.05
Surry – Lebanon Baptist Church	SPS-D-14	28.66	+/-	10.71
Louisa County - Mineral	NAPS-D-1	40.15	+/-	12.67
Louisa County – Wares Crossroads	NAPS-D-2	27.42	+/-	10.47
Louisa County – Good Hope Church	NAPS-D-3	37.52	+/-	12.25
Spotsylvania – Route 713	NAPS-D-4	Dosimeter	+/-	not located
Spotsylvania Route 614	NAPS-D-5	34.27	+/-	11.71
Spotsylvania – Levy	NAPS-D-6	34.43	+/-	11.74
Louisa County – Bumpass Fire Dept.	NAPS-D-7	33.69	+/-	11.61
Louisa County – Fred Hall	NAPS-D-8	26.48	+/-	10.29
Louisa County – Aspen Hill	NAPS-D-9	42.03	+/-	12.97
Louisa County – Route 685	NAPS-D-10	37.96	+/-	12.32
Louisa County – Route 700	NAPS-D-11	37.65	+/-	12.27
North Anna Power Station	NAPS-D-12	41.29	+/-	12.85
Pocahontas State Park (Control)	PSP-D-1	45.72	+/-	13.52
Radiological Health	ORH-D-1	17.98	+/-	8.48
Radiological Health	ORH-D-2	19.04	+/-	

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF HEALTH

OFFICE OF RADIOLOGICAL HEALTH

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BABCOCK & WILCOX

Virginia Department of Health

AIR PARTICULATE COMPOSITE SAMPLES

January 1, 2021 through December 31, 2021

Eastern Site Boundary – Ball field

FIRST QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
1st	01/06/2021	-	01/12/2021	0.002

SECOND QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
2nd	04/14/2021		04/20/2021	0.003

THIRD QUARTER REPORT⁷¹

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
3rd				

FOURTH QUARTER REPORT⁷²

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
4th				

⁷¹ Due to ongoing repairs to the MICL air sample could not be analyzed.

⁷² Due to ongoing repairs to the MICL air sample could not be analyzed.

Virginia Department of Health

SOIL⁷³

January 1, 2021 through December 31, 2021

Location	Date	Distance & Direction	Type	Alpha Activity Ppm
Eastern Site Boundary Ball field B&W-S-1		Site Boundary	Soil	
James River Shoreline Near Six Mile Bridge "control" B&W-S-2		1.5 miles SW	Soil	

Soil samples collected annually.

Note: Uranium separation followed by alpha counting.

SURFACE WATER⁷⁴

January 1, 2020 through December 31, 2020

Location	Date	Distance & Direction	Alpha Activity Ppb
James River Shoreline Near Ball field at eastern site boundary B&W-W-1		Approx. 3 miles downstream	
James River Shoreline Near Six Mile Bridge "control" B&W-W-2		Approx. 1.5 miles upstream	

Surface water samples collected annually.

Note: Uranium separation followed by alpha counting.

⁷³ No samples collected due to equipment failures and ongoing repairs to MICL.

⁷⁴ No samples collected due to equipment failures and ongoing repairs to MICL.

Virginia Department of Health

VEGETATION⁷⁵

January 1, 2021 through June 30, 2021

Eastern Site Boundary / James River Shoreline

Location	Date	Distance & Direction	Alpha Activity ppm
Eastern site boundary Ball field B&W-V-1		Approx. 3 miles downstream	
James River Shoreline off Rt. 460 “control” B&W-V-2		Approx. 4.5 Miles SW	

Vegetation collected annually.

Note: Uranium separation followed by alpha counting.

⁷⁵ No samples collected due to equipment failures and ongoing repairs to MICL.

COMMONWEALTH OF VIRGINIA
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EMERGENCY PREPAREDNESS

EMERGENCY PREPAREDNESS

The Office of Radiological Health (ORH) located within the Virginia Department of Health (VDH) is one of the lead response agencies for emergencies involving the potential or actual release of radioactive materials. Overall, state level emergency response is described in the Commonwealth of Virginia Radiological Emergency Response Plan (COVERERP), which is developed and maintained by the Virginia Department of Emergency Management (VDEM). In addition to generic guidelines for responding to any major radiological emergency, the response procedures contain segments addressing response to several specific types of radiological incidents. This includes sections which provide information needed for response to Licensee and Transportation accidents. Other sections contain background information and response guidance for accidents at fixed nuclear facilities. Plans are also being developed to respond to possible radiological terrorist attacks, which may include detonation of a radiological dispersion device (RDD aka “dirty bomb”), an improvised nuclear device (IND), or a military grade nuclear warhead.

When responding to any radiological emergency, the primary tasks of the Office of Radiological Health are to locate, identify, and predict the impact of any radioactive materials released to the environment. Based on the predicted or known impact, ORH then recommends appropriate measures to protect the public. ORH would also be tasked with helping to supervise the cleanup of radiological contamination and ensuring the proper disposal of radioactive waste. An ORH duty officer maintains 24-hour coverage to provide initial assessment/assistance for local responders and may also initiate the mobilization/deployment of other trained staff to respond to a radiological emergency when needed.

Under the provisions of current Federal Emergency Management Agency (FEMA) regulations, ORH conducts or participates in periodic drills that are designed to provide team training and to test emergency plans and procedures. The scope of these drills ranges from receiving and acknowledging simulated emergency communications to full-scale team deployment.

Federal regulations for commercial nuclear power generating facilities stipulate that a full-scale exercise involving appropriate local government participation and testing all significant response elements must be conducted and evaluated every other year. Because there are two such facilities, Surry and North Anna Nuclear Power Stations, Commonwealth of Virginia agencies will perform exercise activities on a yearly basis, alternating between the sites each year.