

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**

**2022
Fourth Quarter 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 @ Tyler's Beach	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	Pleasants Landing	Gamma, Tritium

Sample Analysis Results for Surry & North Anna Power Stations

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

Week 37: 09/19/22 – 09/26/22

WEEK	FREQUENCY	PAGE	COMMENTS
Week 38: 09/19/22 – 09/26/22	Weekly	49	
Week 39: 09/26/22 – 10/03/22	Weekly	50	
Week 40: 10/03/22 – 10/10/22	Weekly	51	
Week 41: 10/10/22 – 10/17/22	Weekly	52	
Week 42: 10/17/22 – 10/24/22	Weekly	53	
Week 43: 10/24/22 – 10/31/22	Weekly	54	
Week 44: 10/31/22 – 11/07/22	Weekly	55	
Week 45: 11/07/22 – 11/14/22	Weekly	56	
Week 46: 11/14/22 – 11/21/22	Weekly	57	
Week 47: 11/21/22 – 11/28/22	Weekly	58	
Week 48: 11/28/22 – 12/05/22	Weekly	59	
Week 49: 12/05/22 – 12/12/22	Weekly	60	
Week 50: 12/12/22 – 12/19/22	Weekly	61	
Week 51: 12/19/22 – 12/26/22	Weekly	62	
Week 52: 12/26/22 – 01/02/22	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	2x per year	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: 01/03/22 – 01/10/22¹

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											

¹ Due to vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 2: 01/10/22– 01/17/22²

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											

² Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 3: 01/17/22– 01/24/22³

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											

³ Due to continued vehicle and equipment failures, samples were not collected..

Virginia Department of Health
Week 4: 01/24/22– 01/31/22⁴

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											

⁴ Due to continued vehicle and equipment failures, samples were not collected..

Virginia Department of Health
Week 5: 01/31/22 – 02/07/22⁵

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-3											
NAPS-W-1											
NAPS-W-2											
NAPS-W-3											

⁵ Due to continued vehicle and equipment failures, samples were not collected..

Virginia Department of Health
Week 6: 02/07/22– 02/14/22⁶

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											

⁶ Due to continued vehicle and equipment failures, samples were not collected..

Virginia Department of Health
Week 7: 02/14/22– 02/21/22⁷

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-3											
NAPS-W-1											
NAPS-W-2											
NAPS-W-3											

⁷ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 8: 02/21/22– 02/28/22⁸

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											

⁸ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 9: 02/28/22 – 03/07/22⁹

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											

⁹ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 10: 03/07/22– 03/14/22¹⁰

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											

¹⁰ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 11: 03/14/22 – 03/21/22¹¹

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											

¹¹ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 12: 03/21/22 - 03/28/22¹²

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											

¹² Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 13: 03/28/22– 04/04/22¹³

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											

¹³ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 14: 04/04/22 – 04/11/22¹⁴

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											

¹⁴ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 15: 04/11/22 – 04/18/22¹⁵

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											

¹⁵ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 16: 04/18/22 – 04/25/22¹⁶

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											

¹⁶ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 17: 04/25/22 – 05/02/22¹⁷

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											

¹⁷ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 18: 05/02/22 – 05/09/22¹⁸

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											

¹⁸ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 19: 05/09/22 – 05/16/22¹⁹

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											

¹⁹ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 20: 05/16/22 - 05/23/22²⁰

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											

²⁰ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 21: 05/23/22 – 05/30/22²¹

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											

²¹ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 22: 05/30/22 – 06/06/22²²

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											

²² Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 23: 06/06/22 - 06/13/22²³

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											

²³ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 24: 06/13/22 – 06/20/22²⁴

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											

²⁴ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 25: 06/20/22 – 06/27/22²⁵

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											

²⁵ Due to continued vehicle and equipment failures, samples were not collected.

Virginia Department of Health
Week 26: 06/27/22 - 07/04/22²⁶

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											

²⁶ Due to scheduled field team training and the July 4 holiday samples were not collected

Virginia Department of Health
Week 27: 07/04/22 - 07/11/24²⁷

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											

²⁷ Due to scheduled training activities, samples were not collected.

Virginia Department of Health
Week 28: 07/11/22 - 07/18/22²⁸

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											

²⁸ Due to scheduled North Anna Power Station exercise activities, samples were not collected.

Virginia Department of Health
Week 29: 07/18/22 – 07/25/22²⁹

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											

²⁹ Due to scheduled North Anna Power Station exercise activities, samples were not collected.

Virginia Department of Health
Week 30: 07/25/22 – 08/01/22³⁰

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											

³⁰ Due to scheduled North Anna Power Station exercise activities, samples were not collected.

Virginia Department of Health
Week 31: 08/01/22 – 08/08/22³¹

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											

³¹Due to North Anna Power Station full-scale exercise and critique, no samples were collected.

Virginia Department of Health
Week 32: 08/08/22 - 08/15/22

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	NDR	NDR	NDR	0.02+/0.002
SPS-A-2	NDR	NDR	NDR	0.02+/0.003
PSP-A-1	NDR	NDR	NDR	0.02+/0.003
NAPS-A-1	NDR	NDR	NDR	0.05+/0.007
NAPS-A-2	NDR	NDR	NDR	0.04+/0.005

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	
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
SPS-W-3*											
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	

*SPS-W-3 not collected due to road closure

**Tritium analysis not performed due to equipment malfunction

Virginia Department of Health
Week 33: 08/15/22 - 08/22/22³³

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											

³³Due to staffing commitments, no samples were collected.

Virginia Department of Health

Week 34: 08/22/22 - 08/29/22

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	NDR	NDR	NDR	0.03+/0.004
PSP-A-1*				
NAPS-A-1	NDR	NDR	NDR	0.05+/0.007
NAPS-A-2	NDR	NDR	NDR	0.07+/0.008

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	
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	

*PSP-A-1 not collected due to equipment malfunction

**Tritium analysis not performed due to equipment malfunction

Virginia Department of Health
Week 35: 08/29/22 - 09/05/22

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	0.05+/0.008
SPS-A-2	NDR	NDR	NDR	0.07+/0.010
PSP-A-1*				
NAPS-A-1	NDR	NDR	NDR	0.14+/0.018
NAPS-A-2	NDR	NDR	NDR	0.18+/0.023

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	
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	

*PSP-A-1 not collected due to equipment malfunction

**Tritium analysis not performed due to equipment malfunction

Virginia Department of Health
Week 36: 09/05/22 – 09/12/22

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	0.03+/0.005
SPS-A-2	NDR	NDR	NDR	0.06+/0.008
PSP-A-1*				
NAPS-A-1	NDR	NDR	NDR	0.07+/0.009
NAPS-A-2	NDR	NDR	NDR	0.10+/0.013

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	375+/-99
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-243
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-243
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	13664+/-557
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-243
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	6532+/-385

*PSP-A-1 not collected due to equipment malfunction

Virginia Department of Health
Week 37: 09/12/22 - 09/19/22

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	0.04+/0.006
SPS-A-2	NDR	NDR	NDR	0.06+/0.008
PSP-A-1	NDR	NDR	NDR	0.06+/0.009
NAPS-A-1	NDR	NDR	NDR	0.06+/0.009
NAPS-A-2	NDR	NDR	NDR	0.06+/0.009

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	6456+/-384
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225+/-70
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225+/-70
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	7883+/-426
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	300+/-70
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8258+/-437

Virginia Department of Health
Week 38: 09/19/22 - 09/26/22

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	0.06+/0.009
SPS-A-2	NDR	NDR	NDR	0.09+/0.012
PSP-A-1	NDR	NDR	NDR	0.09+/0.012
NAPS-A-1	NDR	NDR	NDR	0.12+/0.016
NAPS-A-2	NDR	NDR	NDR	0.17+/0.022

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	1502+/-185
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150+/-70
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	1126+/-156
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	7658+/-425
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	676+/-121
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8408+/-436

Virginia Department of Health
Week 39: 09/26/22 - 10/03/22³⁹

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 Due to scheduled program activities, samples were not collected.

Virginia Department of Health
Week 40: 10/03/22 - 10/10/22⁴⁰

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											

⁴⁰ Due to scheduled program activities, samples were not collected.

Virginia Department of Health
Week 41: 10/10/22 – 10/17/22

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	0.04+/0.005
SPS-A-2	NDR	NDR	NDR	0.04+/0.006
PSP-A-1	NDR	NDR	NDR	0.06+/0.007
NAPS-A-1	NDR	NDR	NDR	0.06+/0.008
NAPS-A-2	NDR	NDR	NDR	0.08+/0.010

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	1201+/-171
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	751+/-121
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	751+/-140
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	21547+/-709
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	676+/-121
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	7508+/-413

Virginia Department of Health
Week 42: 10/17/22 – 10/24/22

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	0.05+/0.007
SPS-A-2	NDR	NDR	NDR	0.08+/0.010
PSP-A-1	NDR	NDR	NDR	0.07+/0.010
NAPS-A-1	NDR	NDR	NDR	0.07+/0.010
NAPS-A-2	NDR	NDR	NDR	0.07+/0.010

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	1201+/-157
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	375+/-99
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	1051+/-157
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	7282+/-410
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-211
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	9234+/-461

Virginia Department of Health
Week 43: 10/24/22 – 10/31/22

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	0.01+/0.003
SPS-A-2	NDR	NDR	NDR	0.05+/0.007
PSP-A-1	NDR	NDR	NDR	0.07+/0.010
NAPS-A-1	NDR	NDR	NDR	0.09+/0.013
NAPS-A-2	NDR	NDR	NDR	0.06+/0.008

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	901+/-140
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	300+/-70
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	601+/-121
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8559+/-448
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	526+/-99
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8483+/-448

Virginia Department of Health
Week 44: 10/31/22 – 11/07/22

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	0.05+/0.007
SPS-A-2	NDR	NDR	NDR	0.05+/0.007
PSP-A-1	NDR	NDR	NDR	0.07+/0.010
NAPS-A-1	NDR	NDR	NDR	0.10+/0.013
NAPS-A-2	NDR	NDR	NDR	0.08+/0.011

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	1126+/-158
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	526+/-100
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	676+/-122
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8333+/-440
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150+/-70
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8183+/-440

Virginia Department of Health
Week 45: 11/07/22 – 11/14/22⁴⁵

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											

⁴⁵ Due to the State Holiday's on November 8 and November 11, no samples were collected.

Virginia Department of Health

Week 46: 11/14/22 – 11/21/22

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	NDR	NDR	NDR	0.03+/0.004
PSP-A-1	NDR	NDR	NDR	0.04+/0.005
NAPS-A-1	NDR	NDR	NDR	0.03+/0.004
NAPS-A-2	NDR	NDR	NDR	0.03+/0.005

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	2628+/-243
SPS-W-2*											
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	751+/-122
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	10661+/-438
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	75+/-210
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8258+/-438

*SPS-W-2 not collected due to high water level at sampling site.

Virginia Department of Health
Week 47: 11/21/22 – 11/28/22⁴⁷

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											

⁴⁷ Due to the State Holiday's on November 24-25, no samples were collected.

Virginia Department of Health
Week 48: 11/28/22 - 12/05/22⁴⁸

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											

⁴⁸ Due to scheduled program activities, samples were not collected.

Virginia Department of Health
Week 49: 12/05/22 – 12/12/22

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	0.03+/0.005
SPS-A-2	NDR	NDR	NDR	0.05+/0.007
PSP-A-1	NDR	NDR	NDR	0.05+/0.008
NAPS-A-1*				
NAPS-A-2	NDR	NDR	NDR	0.07+/0.010

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	150+/-70
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-291
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-291
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	6832+/-399
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-291
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	6682+/-392

*No sample collected for NAPS-A-1 due to equipment malfunction.

Virginia Department of Health
Week 50: 12/12/22 - 12/19/22

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	0.03+/0.004
SPS-A-2	NDR	NDR	NDR	0.04+/0.006
PSP-A-1	NDR	NDR	NDR	0.05+/0.008
NAPS-A-1*				
NAPS-A-2	NDR	NDR	NDR	0.07+/0.010

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	2102+/-223
SPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	826+/-141
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	976+/-141
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8333+/-440
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-100
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	8408+/-440

*No sample collected for NAPS-A-1 due to equipment malfunction.

Virginia Department of Health
Week 51: 12/19/22 - 12/26/22

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	0.05+/0.008
SPS-A-2	NDR	NDR	NDR	0.02+/0.003
PSP-A-1	NDR	NDR	NDR	0.04+/0.006
NAPS-A-1*				
NAPS-A-2	NDR	NDR	NDR	0.04+/0.006

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	751+/-140
SPS-W-2**											
SPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	751+/-140
NAPS-W-1	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	7808+/-425
NAPS-W-2	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0+/-121
NAPS-W-3	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	7583+/-420

*No sample collected for NAPS-A-1 due to equipment malfunction.

**No sample collected for SPS-W-2 due to park closure.

Virginia Department of Health
Week 52: 12/26/22 - 01/02/23⁵²

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											

⁵² Due to the State Holiday on December 26 and staff vacation, no samples were collected.

Virginia Department of Health

SURFACE WATER

January 1, 2022 through December 31, 2022

Newport News Shipbuilder³¹

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							

³¹ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health

SURFACE WATER

January 1, 2022 through December 31, 2022

Norfolk Naval Shipyard³²

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				

³² Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health

SURFACE WATER

January 1, 2022 through December 31, 2022

Norfolk Naval Shipyard³³

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

³³ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health

SURFACE WATER

January 1, 2022 through December 31, 2022

Norfolk Naval Shipyard³⁴

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				

³⁴ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health

SILT

January 1, 2022 through December 31, 2022

Newport News Shipbuilder³⁵

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

³⁵ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health SILT

January 1, 2022 through December 31, 2022

Newport News Shipbuilder³⁶

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

³⁶ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health SILT

January 1, 2022 through December 31, 2022

Norfolk Naval Shipyard³⁷

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

³⁷ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health SILT

January 1, 2022 through December 31, 2022

Norfolk Naval Shipyard³⁸

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

³⁸ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health

SILT³⁹

January 1, 2022 through December 31, 2022

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

³⁹ Due to COVID19 Executive Order, water samples are not being collected until further notice. Sampling is scheduled to resume January of 2023.

Virginia Department of Health

SILT⁴⁰

January 1, 2022 through December 31, 2022

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

Date Collected	Gamma Activity pCi/gram			
	Cs-134	Cs-137	Co-58	Co-60
	Cs-134	Cs-137	Co-58	Co-60
10-25-2022	NDR	NDR	NDR	NDR

Surry Power Station Discharge Canal SPS-S-1

Date Collected	Gamma Activity pCi/gram			
	Cs-134	Cs-137	Co-58	Co-60
	Cs-134	Cs-137	Co-58	Co-60
9-8-2022	NDR	NDR	NDR	NDR

Note: Silt samples are collected bi-annually.

⁴⁰ No silt samples analyzed until after July 2022 due to vehicle and equipment failures.

Virginia Department of Health

FISH

January 1, 2022 through December 31, 2022

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna Cooling Lagoon	/18	Ba-140	<.120
		Cs-134	<.006
		Cs-137	<.007
		Co-58	<.008
		Co-60	<.005
NAPS- F-1 (Fish)	05/09/2022	I-131	<.112
		Fe-59	<.018
		Mn-54	<.006
		Ru-106	<.055
		Ag-110M	<.006
		Zn-65	<.012
		Nb-95	<.014
Surry Discharge Canal		Ba-140	<.096
		Cs-134	<.003
		Cs-137	<.004
		Co-58	<.005
		Co-60	<.004
		I-131	<.107
		Fe-59	<.012
		Mn-54	<.004
		Ru-106	<.034
		Ag-110M	<.004
SPS-F-1 (Fish)	10/12/2022	Zn-65	<.008
		Nb-95	<.009

Note: Fish samples collected bi-annually

Virginia Department of Health FISH

January 1, 2022 through December 31, 2022

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna Cooling Lagoon		Ba-140	<.079
		Cs-134	<.006
		Cs-137	<.007
		Co-58	<.007
		Co-60	<.006
		I-131	<.056
		Fe-59	<.016
		Mn-54	<.006
		Ru-106	<.06
		Ag-110	<.006
NAPS- F-1 (Fish)		Zn-65	<.014
		Nb-95	<.012
Surry Discharge Canal		Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
		I-131	
		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110M	
SPS-F-1 (Fish)		Zn-65	
		Nb-95	

Note: Fish samples collected bi-annually

Virginia Department of Health

SHELLFISH

January 1, 2022 through December 31, 2022

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
Surry Power Station		Ba-140	<102
		Cs-134	<2.92
		Cs-137	<3.40
		Co-58	<4.57
		Co-60	<2.65
SPS-R-1	03/01/2022	I-131	<122
(Clams and Oysters)		Fe-59	<9.95
		Mn-54	<3.27
		Ru-106	<31.5
		Ag-110M	<3.28
		Zn-65	<6.46
		Nb-95	<8.71

Note: Shellfish are collected annually when available.

Virginia Department of Health

Milk

January 1, 2022 through December 31, 2022

Surry County - Epps Dairy SPS-M-1 1st Quarter Date: No sample collected this quarter	
Isotope	Results - pCi/liter
Ba-140	
Cs-134	
Cs-137	
K-40	
I-131	
Sr-89	
Sr-90	
Surry County - Epps Dairy SPS-M-1 2nd Quarter Date: No sample collected this quarter	
Isotope	Results - pCi/liter
Ba-140	
Cs-134	
Cs-137	
K-40	
I-131	
Sr-89	
Sr-90	
Surry County - Epps Dairy SPS-M-1 3rd Quarter Date: No sample collected this quarter	
Isotope	Results - pCi/liter
Ba-140	
Cs-134	
Cs-137	
K-40	
I-131	
Sr-89	
Sr-90	

Virginia Department of Health

Milk

January 1, 2022 through December 31, 2022

Surry County - Epps Dairy	
SPS-M-1	
4th Quarter Date: No sample collected this quarter	
Isotope	Results - pCi/liter
Ba-140	
Cs-134	
Cs-137	
K-40	
I-131	
Sr-89	
Sr-90	

Virginia Department of Health

VEGETATION

January 1, 2022 through December 31, 2022⁴¹

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.

⁴¹ No samples collected due to ongoing vehicle and equipment failures.

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	30.743	+/-	11.09
Williamsburg – Airport	SPS-D-2	22.967	+/-	9.58
Williamsburg – Busch Gardens	SPS-D-3	31.991	+/-	11.31
Newport News - Lee Hall	SPS-D-4	33.564	+/-	11.59
Naval Weapons Station – 1	SPS-D-5	24.016	+/-	9.80
Newport News – Fort Eustis	SPS-D-6	24.594	+/-	9.92
Surry – Route 628	SPS-D-7	19.607	+/-	8.86
Surry – Lawnes Creek	SPS-D-8	28.229	+/-	10.63
Surry Power Station	SPS-D-9	27.506	+/-	10.49
Surry – Hog Point	SPS-D-10	25.589	+/-	10.12
Surry – Bacon's Castle	SPS-D-11	20.865	+/-	9.14
Surry – Alliance	SPS-D-12	28.717	+/-	10.72
Surry – Scotland Wharf	SPS-D-13	22.999	+/-	9.59
Surry – Lebanon Baptist Church	SPS-D-14	29.893	+/-	10.93
Louisa County - Mineral	NAPS-D-1	26.204	+/-	10.24
Louisa County – Wares Crossroads	NAPS-D-2	25.408	+/-	10.08
Spotsylvania – Good Hope Church	NAPS-D-3	31.864	+/-	11.29
Spotsylvania – Route 713	NAPS-D-4	25.480	+/-	10.10
Spotsylvania Route 614	NAPS-D-5	24.757	+/-	9.95
Spotsylvania – Levy	NAPS-D-6	28.229	+/-	10.63
Louisa County – Bumpass Fire	NAPS-D-7	33.817	+/-	11.63
Louisa County – Fred Hall	NAPS-D-8	24.920	+/-	9.98
Louisa County – Aspen Hill	NAPS-D-9	32.967	+/-	11.48
Louisa County – Route 685	NAPS-D-10	27.144	+/-	10.42
Louisa County – Route 700	NAPS-D-11	32.569	+/-	11.41
North Anna Power Station	NAPS-D-12	30.743	+/-	11.09
Pocahontas State Park (Control)	PSP-D-1	41.937	+/-	12.95
Radiological Health	ORH-D-1	18.030	+/-	8.49
Radiological Health	ORH-D-2	20.887	+/-	9.14

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	21.49	+/-	9.27
Williamsburg – Airport	SPS-D-2	28.54	+/-	10.68
Williamsburg – Busch Gardens	SPS-D-3	29.86	+/-	10.93
Newport News - Lee Hall	SPS-D-4	35.48	+/-	11.91
Naval Weapons Station – 1	SPS-D-5	28.05	+/-	10.59
Newport News – Fort Eustis	SPS-D-6	24.83	+/-	9.97
Surry – Route 628	SPS-D-7	20.91	+/-	9.15
Surry – Lawnes Creek	SPS-D-8	29.50	+/-	10.86
Surry Power Station	SPS-D-9	28.88	+/-	10.75
Surry – Hog Point	SPS-D-10	25.28	+/-	10.06
Surry – Bacon's Castle	SPS-D-11	24.34	+/-	9.87
Surry – Alliance	SPS-D-12	26.11	+/-	10.22
Surry – Scotland Wharf	SPS-D-13	25.66	+/-	10.13
Surry – Lebanon Baptist Church	SPS-D-14	24.68	+/-	9.94
Louisa County - Mineral	NAPS-D-1	34.09	+/-	11.68
Louisa County – Wares Crossroads	NAPS-D-2	23.18	+/-	9.63
Louisa County – Good Hope Church	NAPS-D-3	30.92	+/-	11.12
Spotsylvania – Route 713	NAPS-D-4	22.64	+/-	9.52
Spotsylvania Route 614	NAPS-D-5	28.90	+/-	10.75
Spotsylvania – Levy	NAPS-D-6	28.93	+/-	10.76
Louisa County – Bumpass Fire Dep	NAPS-D-7	33.02	+/-	11.49
Louisa County – Fred Hall	NAPS-D-8	25.44	+/-	10.09
Louisa County – Aspen Hill	NAPS-D-9	35.61	+/-	11.93
Louisa County – Route 685	NAPS-D-10	33.18	+/-	11.52
Louisa County – Route 700	NAPS-D-11	31.41	+/-	11.21
North Anna Power Station	NAPS-D-12	37.72	+/-	12.28
Pocahontas State Park (Control)	PSP-D-1	39.21	+/-	12.52
Radiological Health	ORH-D-1	14.68	+/-	7.66
Radiological Health	ORH-D-2	16.91	+/-	8.22

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	22.253	+/-	9.43
Williamsburg – Airport	SPS-D-2	22.453	+/-	9.48
Williamsburg – Busch Gardens	SPS-D-3	22.031	+/-	9.39
Newport News - Lee Hall	SPS-D-4	27.763	+/-	10.54
Naval Weapons Station – 1	SPS-D-5	19.469	+/-	8.82
Newport News – Fort Eustis	SPS-D-6	20.347	+/-	9.02
Surry – Route 628	SPS-D-7	19.348	+/-	8.80
Surry – Lawnes Creek	SPS-D-8	22.575	+/-	9.50
Surry Power Station	SPS-D-9	23.208	+/-	9.63
Surry – Hog Point	SPS-D-10	19.606	+/-	8.86
Surry – Bacon’s Castle	SPS-D-11	21.460	+/-	9.27
Surry – Alliance	SPS-D-12	20.292	+/-	9.01
Surry – Scotland Wharf	SPS-D-13	20.879	+/-	9.14
Surry – Lebanon Baptist Church	SPS-D-14	27.899	+/-	10.56
Louisa County - Mineral	NAPS-D-1	25.270	+/-	10.05
Louisa County – Wares Crossroads	NAPS-D-2	19.852	+/-	8.91
Louisa County – Good Hope Church	NAPS-D-3	32.101	+/-	11.33
Spotsylvania – Route 713	NAPS-D-4	22.513	+/-	9.49
Spotsylvania Route 614	NAPS-D-5	25.711	+/-	10.14
Spotsylvania – Levy	NAPS-D-6	24.398	+/-	9.88
Louisa County – Bumpass Fire Dept.	NAPS-D-7	27.946	+/-	10.57
Louisa County – Fred Hall	NAPS-D-8	23.582	+/-	9.71
Louisa County – Aspen Hill	NAPS-D-9	33.624	+/-	11.60
Louisa County – Route 685	NAPS-D-10	25.959	+/-	10.19
Louisa County – Route 700	NAPS-D-11	28.414	+/-	10.66
North Anna Power Station	NAPS-D-12	26.644	+/-	10.32
Pocahontas State Park (Control)	PSP-D-1	28.125	+/-	10.61
Radiological Health	ORH-D-1	12.515	+/-	7.08
Radiological Health	ORH-D-2	11.576	+/-	6.80

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	22.41	+/-	9.47
Williamsburg – Airport	SPS-D-2	32.10	+/-	11.33
Williamsburg – Busch Gardens	SPS-D-3	33.93	+/-	11.65
Newport News - Lee Hall	SPS-D-4	41.14	+/-	12.83
Naval Weapons Station – 1	SPS-D-5	29.02	+/-	10.77
Newport News – Fort Eustis	SPS-D-6	28.05	+/-	10.59
Surry – Route 628	SPS-D-7	23.46	+/-	9.69
Surry – Lawnes Creek	SPS-D-8	37.20	+/-	12.20
Surry Power Station	SPS-D-9	30.38	+/-	11.02
Surry – Hog Point	SPS-D-10	26.75	+/-	10.34
Surry – Bacon’s Castle	SPS-D-11	27.98	+/-	10.58
Surry – Alliance	SPS-D-12	27.81	+/-	10.55
Surry – Scotland Wharf	SPS-D-13	27.63	+/-	10.51
Surry – Lebanon Baptist Church	SPS-D-14	27.37	+/-	10.46
Louisa County - Mineral	NAPS-D-1	36.02	+/-	12.00
Louisa County – Wares Crossroads	NAPS-D-2	26.44	+/-	10.28
Louisa County – Good Hope Church	NAPS-D-3	35.57	+/-	11.93
Spotsylvania – Route 713	NAPS-D-4	22.29	+/-	9.44
Spotsylvania Route 614	NAPS-D-5	29.86	+/-	10.93
Spotsylvania – Levy	NAPS-D-6	28.45	+/-	10.67
Louisa County – Bumpass Fire Dept.	NAPS-D-7	35.25	+/-	11.87
Louisa County – Fred Hall	NAPS-D-8	22.57	+/-	9.50
Louisa County – Aspen Hill	NAPS-D-9	13.92	+/-	7.46
Louisa County – Route 685	NAPS-D-10	36.37	+/-	12.06
Louisa County – Route 700	NAPS-D-11	36.91	+/-	12.15
North Anna Power Station	NAPS-D-12	38.59	+/-	12.42
Pocahontas State Park (Control)	PSP-D-1	45.25	+/-	13.45
Radiological Health	ORH-D-1	14.09	+/-	7.51
Radiological Health	ORH-D-2	10.79	+/-	6.57

COMMONWEALTH OF VIRGINIA

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BABCOCK & WILCOX

Virginia Department of Health

AIR PARTICULATE COMPOSITE SAMPLES

January 1, 2022 through December 31, 2022

Eastern Site Boundary – Ball field

FIRST QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
1st	01/12/2022	-	01/19/2022	0.001

SECOND QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
2nd	04/13/2022	-	04/19/2022	0.0004

THIRD QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
3rd	07/06/2022	-	07/12/2022	0.0005

FOURTH QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
4th	10/05/2022		10/11/2022	0.0005

Virginia Department of Health

SOIL

January 1, 2022 through December 31, 2022

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. No sample collected for 2022.

Note: Uranium separation followed by alpha counting.

SURFACE WATER

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. No sample collected for 2022.

Note: Uranium separation followed by alpha counting.

Virginia Department of Health

VEGETATION

January 1, 2022 through June 30, 2022

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. No sample collected for 2022.

Note: Uranium separation followed by alpha counting.

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.