



SVP-24-024

10 CFR 50.36a

April 5, 2024

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Subject: Corrected Radioactive Effluent Release Report for 2022

Reference: Letter from Brian Wake (Constellation Energy Generation, LLC) to the U.S. NRC (Regional Administrator, Region III), "Radioactive Effluent Release Report for 2022," dated April 28, 2023.

Pursuant to Technical Specifications Section 5.6.3 and 10 CFR 50.36a, enclosed is the Quad Cities Nuclear Power Station Radioactive Effluent Release Report for January through December 2022. This follow-up information is the second submittal of errata for the 2022 Annual Radioactive Effluent Release Report. Data will replace the Radioactive Effluent Release Report submitted under the April 28, 2023 letter.

Should you have any questions concerning this letter, please contact Blake Young at (309) 227-3200.

Respectfully,

A handwritten signature in black ink that reads "Doug Hild".

Doug Hild  
Site Vice President  
Quad Cities Nuclear Power Station

Attachments:

1. Corrected 2022 Annual Radioactive Effluent Release Report

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

**Attachment 1**

**Corrected 2022 Annual Radioactive Effluent Release Report**

**Errata/Correction to the 2022 Annual Radioactive Effluent Release Report**

## Errata/Correction to the 2022 ARERR

The following paragraph explains the errata data that has been identified for the 2022 ARERR:

Multiple data errors were identified in the 2022 Annual Radiological Effluent Release Report for the summation of all gaseous releases, as well as batch liquid releases. The data errors were observed in the following sections of the report:

All four quarters of fission and activation gases and the associated annual total, 1<sup>st</sup> Quarter gaseous particulates and associated annual totals, 4<sup>th</sup> Quarter Tritium and Carbon-14 results and associated annual totals, and 3<sup>rd</sup> and 4<sup>th</sup> Quarters percent of organ dose limit.

The 2<sup>nd</sup> Quarter batch liquid release was updated to include Fe-55 results and the updated annual totals.

Information for the total liquid batch releases were updated including, total time, maximum time, average time, and minimum time.

To reflect the updates for the continuous gaseous releases, Total Body dose, Organ dose, and Carbon-14 dose to total body and organ and percentages were all updated for Gaseous Dose to a Member of the Public.

The updates to both the gaseous and liquid data also updated the 40 CFR 190 Direct Radiation Dose to a Member of the Public for Total Body, Organ, and Thyroid dose and the associated 40CFR190 percent of limits.

All updates listed above reflect the changes in the 10CFR20.1301(a)(1) Compliance Assessment. Unit 1, Quarter 3 and associated Percent of Limit and Unit 2, Quarter 4, Year Total, and associated Percent of Limit were updated.

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Gaseous Effluents – Summation of all Releases

Period: January – December 2022

Unit: 1 & 2

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	1.22E+01	1.43E+01	1.88E+01	1.58E+01	6.11 E+01	12.7
2. Average release rate for the period	μCi/sec	1.57E+00	1.82E+00	2.36E+00	1.99E+00		
3. Percent of ODCM limit <sup>(1)</sup>	%γ	2.24E-03	2.19E-03	2.65E-03	2.52E-03		
	%β	1.37E-04	2.35E-04	5.20E-04	3.45E-04		

B. Iodine							
1. Total Iodine – 131	Ci	1.22E-05	<LLD(4)	<LLD(4)	2.36E-05	3.58E-05	41.7
2. Average release rate for the period	μCi/sec	1.57E-06	<LLD(4)	<LLD(4)	2.97E-06		
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A		

C. Particulates <sup>(3)</sup>							
1. Particulates with half-lives >8 days	Ci	4.87E-04	4.21E-04	1.00E-04	2.10E-04	1.22E-03	32.2
2. Average release rate for the period	μCi/sec	6.26E-05	5.36E-05	1.26E-05	2.64E-05		
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A		
4. Gross alpha radioactivity	Ci	<LLD(4)	<LLD(4)	<LLD(4)	<LLD(4)		

D. Tritium							
1. Total Release	Ci	1.67E+01	1.84E+01	2.24E+01	1.50E+01	7.25E+01	6.3
2. Average release rate for the period	μCi/sec	2.15E+00	2.34E+00	2.81E+00	1.88E+00		
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A		

E. Carbon – 14							
1. Total Release	Ci	6.76E+00	6.44E+00	7.48E+00	5.24E+00	2.59E+01	
2. Average release rate for the period	μCi/sec	8.69E-01	8.19E-01	9.41E-01	6.59E-01		
3. Percent of ODCM Limit	%	N/A	N/A	N/A	N/A		

F. Iodine 131 & 133, Tritium, Particulate, and C-14							
1. Percent of ODCM Organ Dose Limit	%	6.34E-01	6.05E-01	6.96E-01	5.59E-01		

- (1) % Noble gas gamma/noble gas beta dose limits
- (2) Percent of ODCM Limit is captured in aggregate in section F
- (3) Nuclides with less than 8-day half-lives are not included per the ODCM, with the exception of La-140 and Mo-99
- (4) Gaseous Effluent LLDs reported on page 9 of 78

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Gaseous Effluents – Summation of all Releases

Period: January – December 2022

Unit: 1 & 2

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	1.26E+01	1.44E+01	1.91E+01	2.01E+01	6.61E+01	12.7
2. Average release rate for the period	μCi/sec	1.62E+00	1.83E+00	2.34E+00	2.53E+00		
3. Percent of ODCM limit <sup>(1)</sup>	%γ	4.46E-03	4.40E-03	5.32E-03	5.28E-03		
	%β	2.77E-04	4.71E-04	1.04E-03	1.16E-03		

B. Iodine							
1. Total Iodine – 131	Ci	1.22E-05	<LLD(4)	<LLD(4)	2.36E-05	3.58E-05	41.7
2. Average release rate for the period	μCi/sec	1.57E-06	<LLD(4)	<LLD(4)	2.97E-06		
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A		

C. Particulates <sup>(3)</sup>							
1. Particulates with half-lives >8 days	Ci	3.98E-04	4.21E-04	1.00E-04	2.10E-04	1.22E-03	32.2
2. Average release rate for the period	μCi/sec	6.26E-05	5.36E-05	1.26E-05	2.64E-05		
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A		
4. Gross alpha radioactivity	Ci	<LLD(4)	<LLD(4)	<LLD(4)	<LLD(4)		

D. Tritium							
1. Total Release	Ci	1.67E+01	1.84E+01	2.24E+01	2.00E+01	7.75E+01	6.3
2. Average release rate for the period	μCi/sec	2.15E+00	2.34E+00	2.81E+00	1.88E+00		
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A		

E. Carbon – 14							
1. Total Release	Ci	6.76E+00	6.44E+00	7.48E+00	7.44E+00	2.81E+01	
2. Average release rate for the period	μCi/sec	8.69E-01	8.19E-01	9.41E-01	9.36E-01		
3. Percent of ODCM Limit	%	N/A	N/A	N/A	N/A		

F. Iodine 131 & 133, Tritium, Particulate, and C-14							
1. Percent of ODCM Organ Dose Limit	%	6.34E-01	6.05E-01	6.91E-01	6.92E-01		

- (1) % Noble gas gamma/noble gas beta dose limits
- (2) Percent of ODCM Limit is captured in aggregate in section F
- (3) Nuclides with less than 8-day half-lives are not included per the ODCM, with the exception of La-140 and Mo-99
- (4) Gaseous Effluent LLDs reported on page 9 of 78

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Gaseous Effluents Release Point Main Chimney (Elevated) Continuous Mode

Period: January – December 2022

Unit: 1 & 2

Continuous Mode					
Nuclides Released	Jan – Mar 2022	Apr – Jun 2022	Jul – Sep 2022	Oct – Dec 2022	Total
<b>1. FISSION AND ACTIVATION GASES: Curies</b>					
Ar-41	7.85E-01	3.63E-01	1.12E+00	3.74E-01	2.64E+00
Kr-85m	6.03E-02	1.82E-01	1.75E-01	1.34E-01	5.51E-01
Kr-85	<LLD <sup>(1)</sup>	2.69E+00	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	2.69E+00
Kr-87	2.56E-01	5.01E-01	4.27E-01	3.89E-01	1.57E+00
Kr-88	1.58E-01	4.97E-01	4.05E-01	3.15E-01	1.38E+00
Xe-133m	<LLD <sup>(1)</sup>	1.36E-03	1.39E-03	5.84E-04	3.33E-03
Xe-133	2.02E-01	1.84E-01	1.07E+00	1.32E+00	2.78E+00
Xe-135m	1.66E+00	1.67E+00	1.87E+00	1.99E+00	7.19E+00
Xe-135	2.98E+00	7.08E-01	6.47E-01	5.09E-01	4.84E+00
Xe-138	6.10E+00	5.89E+00	6.46E+00	7.19E+00	2.56E+01
Total for Period	1.22E+01	1.27E+01	1.22E+01	1.22E+01	4.93E+01
<b>2. IODINES: Curies</b>					
I-131	1.22E-05	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	2.36E-05	3.58E-05
I-133	1.51E-04	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	1.71E-04	3.22E-04
I-135	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	1.63E-04	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	1.95E-04	3.58E-04
<b>3. PARTICULATES WITH HALF-LIVES &gt; 8 DAYS <sup>(2)</sup>: Curies</b>					
Cr-51	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Mn-54	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Fe-55	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Fe-59	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Co-58	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Co-60	3.00E-05	8.87E-05	7.90E-06	2.34E-05	1.50E-04
Ni-63	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Zn-65	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Sr-89	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Sr-90	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Zr/Nb-95(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Mo-99	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ag-110m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Cs-134	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Cs-137	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ba/La -140(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ce-141	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ce-144	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	3.00E-05	8.87E-05	7.90E-06	2.34E-05	1.50E-04
<b>4. CARBON – 14: Curies</b>					
C-14	6.55E+00	6.25E+00	7.25E+00	5.02E+00	2.51E+01
<b>5. TRITIUM: Curies</b>					
H-3	1.45E+01	1.56E+01	1.97E+01	1.16E+01	6.14E+01
<b>6. GROSS ALPHA: Curies</b>					
Gross Alpha	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>

(1) Gaseous LLDs reported on page 9 of 78

(2) Includes La-140 and Mo-99 per the ODCM

(3) Equilibrium assumed, i.e., value for each nuclide is 1/3 of total

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Gaseous Effluents Release Point Main Chimney (Elevated) Continuous Mode

Period: January – December 2022

Unit: 1 & 2

Continuous Mode					
Nuclides Released	Jan – Mar 2022	Apr – Jun 2022	Jul – Sep 2022	Oct – Dec 2022	Total
<b>1. FISSION AND ACTIVATION GASES: Curies</b>					
Ar-41	7.85E-01	3.63E-01	1.12E+00	3.74E-01	2.64E+00
Kr-85m	6.03E-02	1.82E-01	1.76E-01	1.34E-01	5.52E-01
Kr-85	3.92E-01	2.69E+00	3.08E-01	2.07E-01	3.60E+00
Kr-87	2.56E-01	5.35E-01	4.29E-01	3.89E-01	1.61E+00
Kr-88	1.58E-01	4.97E-01	4.06E-01	3.15E-01	1.38E+00
Xe-133m	<LLD <sup>(1)</sup>	2.17E-03	2.46E-03	1.45E-03	6.08E-03
Xe-133	2.02E-01	1.84E-01	1.07E+00	1.32E+00	2.78E+00
Xe-135m	1.66E+00	1.67E+00	1.87E+00	1.99E+00	7.19E+00
Xe-135	2.98E+00	7.08E-01	6.49E-01	5.09E-01	4.85E+00
Xe-138	6.07E+00	5.89E+00	6.49E+00	7.19E+00	2.56E+01
Total for Period	1.26E+01	1.27E+01	1.25E+01	1.24E+01	5.02E+01
<b>2. IODINES: Curies</b>					
I-131	1.22E-05	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	2.36E-05	3.58E-05
I-133	1.51E-04	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	2.13E-04	3.64E-04
I-135	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	1.63E-04	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	2.37E-04	4.00E-04
<b>3. PARTICULATES WITH HALF-LIVES &gt; 8 DAYS <sup>(2)</sup>: Curies</b>					
Cr-51	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Mn-54	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Fe-55	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Fe-59	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Co-58	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Co-60	3.00E-05	8.69E-05	7.90E-06	2.34E-05	1.48E-04
Ni-63	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Zn-65	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Sr-89	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Sr-90	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Zr/Nb-95(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Mo-99	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ag-110m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Cs-134	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Cs-137	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ba/La -140(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ce-141	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Ce-144	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	3.00E-05	8.69E-05	7.90E-06	2.34E-05	1.48E-04
<b>4. CARBON – 14: Curies</b>					
C-14	6.55E+00	6.25E+00	7.25E+00	7.22E+00	2.73E+01
<b>5. TRITIUM: Curies</b>					
H-3	1.45E+01	1.56E+01	1.97E+01	1.66E+01	6.64E+01
<b>6. GROSS ALPHA: Curies</b>					
Gross Alpha	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>

(1) Gaseous LLDs reported on page 9 of 78

(2) Includes La-140 and Mo-99 per the ODCM

(3) Equilibrium assumed, i.e., value for each nuclide is 1/3 of total



Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Gaseous Effluents Release Point Reactor Vent (Mixed Mode) Continuous Mode

Period: January – December 2022

Unit: 1 & 2

Continuous Mode					
Nuclides Released	Jan – Mar 2022	Apr – Jun 2022	Jul – Sep 2022	Oct – Dec 2022	Total
<b>1. FISSION AND ACTIVATION GASES: Curies</b>					
Ar-41	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-85m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-85	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-87	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-88	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Xe-133	<LLD <sup>(1)</sup>	1.65E+00	6.61E+00	3.56E+00	1.18E+01
Xe-135m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Xe-135	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Xe-138	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	<LLD <sup>(1)</sup>	1.65E+00	6.61E+00	3.56E+00	1.18E+01
<b>2. IODINES: Curies</b>					
I-131	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
I-133	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
I-135	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
<b>3. PARTICULATES WITH HALF-LIVES &gt; 8 DAYS (2): Curies</b>					
Cr-51	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Mn-54	1.00E-04	8.33E-05	1.28E-05	2.12E-05	2.17E-04
Fe-55	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Fe-59	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Co-58	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Co-60	2.68E-04	2.49E-04	7.97E-05	1.65E-04	7.62E-04
Ni-63	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Zn-65	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Sr-89	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Sr-90	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Zr/Nb-95(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Mo-99	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ag-110m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Cs-134	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Cs-137	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ba/La-140(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ce-141	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ce-144	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Total for Period	3.68E-04	3.32E-04	9.25E-05	1.86E-04	9.79E-04
<b>4. CARBON – 14: Curies</b>					
C-14	1.98E-01	2.26E-01	2.28E-01	2.22E-01	8.74E-01
<b>5. TRITIUM: Curies</b>					
H-3	2.22E+00	2.85E+00	2.70E+00	3.39E+00	1.12E+01
<b>6. GROSS ALPHA: Curies</b>					
Gross Alpha	<LLD (1)	<LLD (1)	<LLD (1)	<LLD (1)	<LLD (1)

- (1) Gaseous LLDs reported on page 9 of 78
- (2) Includes La-140 and Mo-99 per the ODCM
- (3) Equilibrium assumed, i.e., value for each nuclide is 1/2 of total

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Gaseous Effluents Release Point Reactor Vent (Mixed Mode) Continuous Mode

Period: January – December 2022

Unit: 1 & 2

Continuous Mode					
Nuclides Released	Jan – Mar 2022	Apr – Jun 2022	Jul – Sep 2022	Oct – Dec 2022	Total
<b>1. FISSION AND ACTIVATION GASES: Curies</b>					
Ar-41	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-85m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-85	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-87	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Kr-88	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Xe-133	<LLD <sup>(1)</sup>	1.65E+00	6.61E+00	7.64E+00	1.59E+01
Xe-135m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Xe-135	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Xe-138	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	<LLD <sup>(1)</sup>	1.65E+00	6.61E+00	7.64E+00	1.59E+01
<b>2. IODINES: Curies</b>					
I-131	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
I-133	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
I-135	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
Total for Period	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>
<b>3. PARTICULATES WITH HALF-LIVES &gt; 8 DAYS (2): Curies</b>					
Cr-51	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Mn-54	1.00E-04	8.33E-05	1.28E-05	2.12E-05	2.17E-04
Fe-55	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Fe-59	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Co-58	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Co-60	2.68E-04	2.49E-04	7.97E-05	1.65E-04	7.62E-04
Ni-63	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Zn-65	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Sr-89	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Sr-90	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Zr/Nb-95(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Mo-99	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ag-110m	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Cs-134	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Cs-137	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ba/La-140(3)	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ce-141	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Ce-144	<LLD <sup>(1)</sup>	<LLD <sup>(1)</sup>	<LLD (1)	<LLD (1)	<LLD (1)
Total for Period	3.68E-04	3.32E-04	9.25E-05	1.86E-04	9.79E-04
<b>4. CARBON – 14: Curies</b>					
C-14	2.03E-01	1.93E-01	2.24E-01	2.24E-01	8.44E-01
<b>5. TRITIUM: Curies</b>					
H-3	2.22E+00	2.85E+00	2.70E+00	3.39E+00	1.12E+01
<b>6. GROSS ALPHA: Curies</b>					
Gross Alpha	<LLD (1)	<LLD (1)	<LLD (1)	<LLD (1)	<LLD (1)

- (1) Gaseous LLDs reported on page 9 of 78
- (2) Includes La-140 and Mo-99 per the ODCM
- (3) Equilibrium assumed, i.e., value for each nuclide is ½ of total

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**

Liquid Effluents Release Point Mississippi River Batch Mode River Discharge Tank

Period: January – December 2022

Unit: 1 & 2

<b>Batch Mode <sup>(2)</sup></b>					
Nuclides Released	Jan- Mar 2022	Apr – Jun 2022	Jul – Sep 2022	Oct – Dec 2022	Total
<b>1. FISSION AND ACTIVATION PRODUCTS: Curies</b>					
Cr-51	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Mn-54	N/A (2)	8.11E-04	N/A (2)	N/A (2)	8.11E-04
Fe-55	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Co-58	N/A (2)	6.50E-05	N/A (2)	N/A (2)	6.50E-05
Co-60	N/A (2)	1.59E-03	N/A (2)	N/A (2)	1.59E-03
Ni-63	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Sb-124	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Sb-125	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Zn-65	N/A (2)	5.73E-04	N/A (2)	N/A (2)	5.73E-04
Sr-89	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Sr-90	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Zr/Nb-95	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Mo-99	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Ag-110m	N/A (2)	4.71E-04	N/A (2)	N/A (2)	4.71E-04
Cs-134	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Cs-137	N/A (2)	3.51E-04	N/A (2)	N/A (2)	3.51E-04
Ba/La-140	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Ce-141	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Ce-144	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Total for Period	N/A (2)	3.86E-03	N/A (2)	N/A (2)	3.86E-03
<b>2. DISSOLVED AND ENTRAINED NOBLE GASES: Curies</b>					
Xe-133	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Xe-135	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Total for Period	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
<b>3. TRITIUM: Curies</b>					
H-3	N/A (2)	5.35E-01	N/A (2)	N/A (2)	5.35E-01
Total for Period	N/A (2)	5.35E-01	N/A (2)	N/A (2)	5.35E-01

(1) Liquid LLDs reported on page 10 of 78

(2) No River Discharges performed in Q1, Q3, or Q4

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

**Effluent & Waste Disposable Summary**  
Liquid Effluents Release Point Mississippi River Batch Mode River Discharge Tank

Period: January – December 2022

Unit: 1 & 2

<b>Batch Mode <sup>(2)</sup></b>					
Nuclides Released	Jan- Mar 2022	Apr – Jun 2022	Jul – Sep 2022	Oct – Dec 2022	Total
<b>1. FISSION AND ACTIVATION PRODUCTS: Curies</b>					
Cr-51	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Mn-54	N/A (2)	8.11E-04	N/A (2)	N/A (2)	8.11E-04
Fe-55	N/A (2)	3.12E-03	N/A (2)	N/A (2)	3.12E-03
Co-58	N/A (2)	6.50E-05	N/A (2)	N/A (2)	6.50E-05
Co-60	N/A (2)	1.59E-03	N/A (2)	N/A (2)	1.59E-03
Ni-63	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Sb-124	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Sb-125	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Zn-65	N/A (2)	5.73E-04	N/A (2)	N/A (2)	5.73E-04
Sr-89	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Sr-90	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Zr/Nb-95	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Mo-99	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Ag-110m	N/A (2)	4.71E-04	N/A (2)	N/A (2)	4.71E-04
Cs-134	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	N/A (2)
Cs-137	N/A (2)	3.51E-04	N/A (2)	N/A (2)	3.51E-04
Ba/La-140	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Ce-141	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Ce-144	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Total for Period	N/A (2)	6.98E-03	N/A (2)	N/A (2)	6.98E-03
<b>2. DISSOLVED AND ENTRAINED NOBLE GASES: Curies</b>					
Xe-133	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Xe-135	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
Total for Period	N/A (2)	< LLD (1)	N/A (2)	N/A (2)	< LLD (1)
<b>3. TRITIUM: Curies</b>					
H-3	N/A (2)	5.35E-01	N/A (2)	N/A (2)	5.35E-01
Total for Period	N/A (2)	5.35E-01	N/A (2)	N/A (2)	5.35E-01

(1) Liquid LLDs reported on page 10 of 78

(2) No River Discharges performed in Q1, Q3, or Q4

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

f. Estimated Total Error Percent

The estimated total error percents were calculated by taking the square root of the sum of the squares of errors for sampling and measurement parameters.

g. Less than the Lower Limit of detection (<LLD)

Samples are analyzed such that the Technical Specification LLD requirements are met. When a nuclide is not detected during the quarter, then <LLD is reported. The most conservative LLD's used for counting effluent samples are included in this report.

5. Batch Releases

a. Liquid

- |                         |                         |
|-------------------------|-------------------------|
| 1. Number of releases:  | 2 releases              |
| 2. Total Time:          | 1.63E+02 minutes        |
| 3. Maximum Time:        | 8.75E+01 minutes        |
| 4. Average Time:        | 8.17E+01 minutes        |
| 5. Minimum Time:        | 7.58E+01 minutes        |
| 6. Average Stream Flow: | 63.7 gallons per minute |

b. Gaseous

1. NONE

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

f. Estimated Total Error Percent

The estimated total error percents were calculated by taking the square root of the sum of the squares of errors for sampling and measurement parameters.

g. Less than the Lower Limit of detection (<LLD)

Samples are analyzed such that the Technical Specification LLD requirements are met. When a nuclide is not detected during the quarter, then <LLD is reported. The most conservative LLD's used for counting effluent samples are included in this report.

5. Batch Releases

a. Liquid

- |                         |                         |
|-------------------------|-------------------------|
| 1. Number of releases:  | 2 releases              |
| 2. Total Time:          | 1.63E+03 minutes        |
| 3. Maximum Time:        | 8.75E+02 minutes        |
| 4. Average Time:        | 8.17E+02 minutes        |
| 5. Minimum Time:        | 7.58E+02 minutes        |
| 6. Average Stream Flow: | 63.7 gallons per minute |

b. Gaseous

1. NONE

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

During the period that the wells were routed to the discharge bay, only tritium was detected in the well discharge at levels above the required limit of detection. A total of 3.62E+00 Ci of tritium was released to the Mississippi River via this abnormal release. The associated dose impact to members of the public from this abnormal release was calculated to be 2.65E-07 mRem to the Child/Liver dose pathway. The total body dose associated with this abnormal release was calculated to be 2.65E-07 mRem to the Child Total Body. The associated curies and doses due to this release were included in the 2021 Annual Radiological Effluent Release Report Summation of All Releases Table (page 6 of the 2021 ARERR), Mississippi River Continuous Mode (page 7 of the 2021 ARERR) and Radiological Impact on Man (page 18 of the 2021 ARERR).

Remediation of MW-R-2D2 continued through the 2022 calendar year, from January 1<sup>st</sup> through December 31<sup>st</sup>, 2022. A total of 1.65E+07 gallons were released to the Discharge Bay Outfall. Starting January 3<sup>rd</sup>, 2022, sampling frequency was reduced to once every two weeks. Samples have been consistently less than detectible values for Tritium (H-3) and all other analytes. Monthly composite samples continue to be analyzed for gross alpha, Fe-55, Ni-63, Sr-89, and Sr-90. LLDs and sampling requirements for this monitored abnormal release are identical to the requirements listed in the ODCM for routine liquid effluent analysis.

- b. Gaseous
  - 1. NONE

7. Radiological Impact on Man

a. Liquid Dose to a Member of the Public for 2022

- b.
  - Total Body: 4.04E-05 mRem (Adult)
  - Organ: 6.78E-05 mRem (Teen/Liver)

b. Gaseous Dose to a Member of the Public for 2022

- Total Body: 4.05E-02 mRem (Child)
- Noble Gas Skin Dose: 1.12E-03 mRem/year
- Organ (Particulate/Iodine/C-14/Tritium): 1.86E-01 mrem (Child/Bone)

The Quad Cities calculated annual doses from Carbon-14 releases have been calculated using the methodologies outlines in the ODCM. The resultant estimated releases of Carbon-14 resulted in a dose contribution of 1.84E-01mRem to organ dose (98.7%) and 3.67E-02 mrem to total body dose (90.7%).

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

During the period that the wells were routed to the discharge bay, only tritium was detected in the well discharge at levels above the required limit of detection. A total of 3.62E+00 Ci of tritium was released to the Mississippi River via this abnormal release. The associated dose impact to members of the public from this abnormal release was calculated to be 2.65E-07 mRem to the Child/Liver dose pathway. The total body dose associated with this abnormal release was calculated to be 2.65E-07 mRem to the Child Total Body. The associated curies and doses due to this release were included in the 2021 Annual Radiological Effluent Release Report Summation of All Releases Table (page 6 of the 2021 ARERR), Mississippi River Continuous Mode (page 7 of the 2021 ARERR) and Radiological Impact on Man (page 18 of the 2021 ARERR).

Remediation of MW-R-2D2 continued through the 2022 calendar year, from January 1<sup>st</sup> through December 31<sup>st</sup>, 2022. A total of 1.65E+07 gallons were released to the Discharge Bay Outfall. Starting January 3<sup>rd</sup>, 2022, sampling frequency was reduced to once every two weeks. Samples have been consistently less than detectable values for Tritium (H-3) and all other analytes. Monthly composite samples continue to be analyzed for gross alpha, Fe-55, Ni-63, Sr-89, and Sr-90. LLDs and sampling requirements for this monitored abnormal release are identical to the requirements listed in the ODCM for routine liquid effluent analysis.

- b. Gaseous
  - 1. NONE

7. Radiological Impact on Man

- a. Liquid Dose to a Member of the Public for 2022

- b.
  - Total Body: 4.04E-05 mRem (Adult)
  - Organ: 6.78E-05 mRem (Teen/Liver)

- b. Gaseous Dose to a Member of the Public for 2022

- Total Body: 4.25E-02 mRem (Child)
- Noble Gas Skin Dose: 1.12E-03 mRem/year
- Organ (Particulate/Iodine/C-14/Tritium): 1.97E-01 mrem (Child/Bone)

The Quad Cities calculated annual doses from Carbon-14 releases have been calculated using the methodologies outlines in the ODCM. The resultant estimated releases of Carbon-14 resulted in a dose contribution of 1.94E-01mRem to organ dose (98.7%) and 3.88E-02 mrem to total body dose (91.2%).



Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

c. 40 CFR 190 Direct Radiation Dose to a Member of the Public for 2022

**Total Body:** 7.53E+00 mrem

3.01E+01% of 40CFR190 Limit of 25 mrem/year (Total Body)

**Organ Dose:** 1.86E-01 mrem Child/Bone

7.44E-01% of 40CFR190 Limit of 25 mrem/year (Organ Dose)

**Thyroid Dose:** 4.38E-02 mrem Infant/Thyroid

5.84E-02% of 40CFR190 Limit of 75 mrem/year (Thyroid Dose)

d. Total Body Doses to the Population and Average Doses to Individuals in the Population from All Receiving-Water-Related-Pathways:

Not applicable for QCNPS. Not required per Quad Cities ODCM.

e. Total Body Doses to the Population and Average Doses to Individuals in the Population from Gaseous effluents to a distance of 50 miles:

Not applicable for QCNPS. Not required per Quad Cities ODCM.

f. Doses From Liquid and Gaseous Effluent to Members of the Public Due to Their Activities Inside the Site Boundary for the Record Period:

Not applicable for QCNPS. Any member of the public that is onsite for a significant period will be issued a dosimeter.

g. Liquid and Gaseous Effluent Radiation Monitors and Instrumentation Unavailability for the Period Beyond the Requirements of the ODCM, Including Sampling Deviation:

On May 11, 2022, the Main Chimney High Range Noble Gas Monitor was declared inoperable. On May 31, 2022, the Main Chimney High Range Noble Gas Monitor was declared operable following repairs and successful calibration and functional tests. The inoperability of the Main Chimney High Range Noble Gas Monitor required entry into ODCM Section 12.2.2, "Radioactive Gaseous Effluent Monitoring Instrumentation Report," Condition F, due to less than the minimum number of OPERABLE channels of the Main Chimney High Range Noble Gas Monitor. Action F.1 requires establishment of the preplanned alternate method of monitoring within 72 hours. This action was completed on May 11, 2022, via the Main Chimney GE monitors. Action F.2 requires the instrument channel to be restored to OPERABLE status within 7 days. The 7-day time requirement was reached on May 18, 2022 without the monitor being restored to operable. Resolution of this issue within the 7-day requirement was not feasible due to multiple failures associated with the high range detector and electronics.

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c. 40 CFR 190 Direct Radiation Dose to a Member of the Public for 2022

**Total Body:** 7.55E+00 mrem

3.00E+01% of 40CFR190 Limit of 25 mrem/year (Total Body)

**Organ Dose:** 1.97E-01 mrem Child/Bone

7.88E-01% of 40CFR190 Limit of 25 mrem/year (Organ Dose)

**Thyroid Dose:** 4.57E-02 mrem Infant/Thyroid

6.09E-02% of 40CFR190 Limit of 75 mrem/year (Thyroid Dose)

d. Total Body Doses to the Population and Average Doses to Individuals in the Population from All Receiving-Water-Related-Pathways:

Not applicable for QCNPS. Not required per Quad Cities ODCM.

e. Total Body Doses to the Population and Average Doses to Individuals in the Population from Gaseous effluents to a distance of 50 miles:

Not applicable for QCNPS. Not required per Quad Cities ODCM.

f. Doses From Liquid and Gaseous Effluent to Members of the Public Due to Their Activities Inside the Site Boundary for the Record Period:

Not applicable for QCNPS. Any member of the public that is onsite for a significant period will be issued a dosimeter.

g. Liquid and Gaseous Effluent Radiation Monitors and Instrumentation Unavailability for the Period Beyond the Requirements of the ODCM, Including Sampling Deviation:

On May 11, 2022, the Main Chimney High Range Noble Gas Monitor was declared inoperable. On May 31, 2022, the Main Chimney High Range Noble Gas Monitor was declared operable following repairs and successful calibration and functional tests. The inoperability of the Main Chimney High Range Noble Gas Monitor required entry into ODCM Section 12.2.2, "Radioactive Gaseous Effluent Monitoring Instrumentation Report," Condition F, due to less than the minimum number of OPERABLE channels of the Main Chimney High Range Noble Gas Monitor. Action F.1 requires establishment of the preplanned alternate method of monitoring within 72 hours. This action was completed on May 11, 2022, via the Main Chimney GE monitors. Action F.2 requires the instrument channel to be restored to OPERABLE status within 7 days. The 7-day time requirement was reached on May 18, 2022 without the monitor being restored to operable. Resolution of this issue within the 7-day requirement was not feasible due to multiple failures associated with the high range detector and electronics.

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**10CFR20.1301(a)(1) Compliance Assessment**

Quad Cities Station Unit One and Unit Two

Assessment Period 01/01/2022-01/01/2023

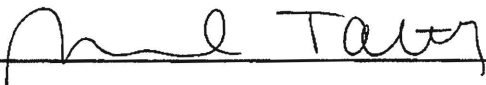
10CFR20.1301(a)(1) Limit 100.00 mrem/year

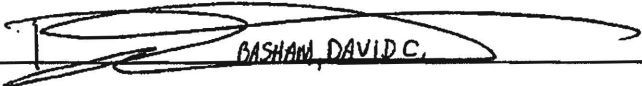
**Quad Cities Unit 1**

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Year Total	% of Limit
TEDE (mrem)	1.01E+00	9.95E-01	9.99E-01	1.03E+00	4.03E+00	4.03%

**Quad Cities Unit 2**

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Year Total	% of Limit
TEDE (mrem)	8.30E-01	7.33E-01	9.62E-01	9.79E-01	3.50E+00	3.50%

Submitted by:  Date: 4-27-23  
Miranda A. Taity

Technical Review by:  BASHAM, DAVID C. Date: 27 APR 2023  
David C. Basham

Reviewed by:  Date: 4/21/23  
Justin Ashland

Quad Cities Nuclear Power Station  
2022 Annual Radioactive Effluent Release Report

## 10CFR20.1301(a)(1) Compliance Assessment

Quad Cities Station Unit One and Unit Two

Assessment Period 01/01/2022-01/01/2023

10CFR20.1301(a)(1) Limit 100.00 mrem/year

### Quad Cities Unit 1

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Year Total	% of Limit
TEDE (mrem)	1.01E+00	9.95E-01	1.00E+00	1.03E+00	4.04E+00	<b>4.04%</b>

### Quad Cities Unit 2

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Year Total	% of Limit
TEDE (mrem)	8.30E-01	7.33E-01	9.62E-01	9.80E-01	3.51E+00	<b>3.51%</b>

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

Miranda A. Talty

Technical Review by: \_\_\_\_\_ Date: \_\_\_\_\_

David C. Basham

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

Justin Ashland