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Our ref: 12576482-LTR-5

January 31, 2025

Mr. Brian Rath
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Iowa Department of Natural Resources
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Des Moines, Iowa 50321

2024 IDNR Template Tables
Neal North Energy Center Coal Combustion Residual (CCR) Monofill
Sergeant Bluff, Iowa
Permit 97-SDP-12-95P

Dear Brian,

GHD has prepared Table 7 and Table 9 using the general format provided in the Iowa Department of Natural Resources' (IDNR's) *Annual Water Quality Report Template for Non-Municipal Landfills*. Table 7 and Table 9, provided in Attachment 1, are modified as approved in our January 23, 2025 telephone conversation with Geoffrey Spain (IDNR) and Josh Love of MidAmerican Energy Company. A comparison of the IDNR Action Levels from 567 Iowa Administrative Code (IAC) Chapter 103 to the criteria specified in the federal CCR rule (40 CFR §257) is provided in Attachment 2.

In Attachment 3, the 2024 groundwater monitoring results are compared to the Maximum Contaminant Level (MCL) or Health Advisory Lifetime (HAL) as described in 567 IAC Chapter 103, paragraph 103.1(4)d.

Attachment 4 provides a crosswalk table to reference the items provided in the Annual Groundwater Monitoring and Corrective Action Report prepared under the Federal CCR rule with the IDNR's *Annual Water Quality Report Template for Non-Municipal Landfills*.

If you have any questions regarding these tables, please contact Kevin Amstrong.

Sincerely,

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KA/ls/LTR-5

Copy to: Kenna Anderson, MidAmerican Energy Company
Josh Love, MidAmerican Energy Company

Attachments

Attachment 1

IDNR Template Table 7 and Table 9

Summary of Ongoing and Newly Identified Control Limit Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Active CCR Monofill
Permit No. 97-SDP-12-95P

Well	Constituent	Units	Most recent result	Background Standard	Groundwater Protection Standard 40 CFR §257.95(h)
MW-5R	None	N/A	N/A	N/A	N/A
MW-11	None	N/A	N/A	N/A	N/A
MW-19	Calcium	mg/L	419	248	None
	pH, lab	s.u.	6.6 J	6.87 J - 7.9 J	None
	Sulfate	mg/L	939	322.3	None
	Total Dissolved Solids	mg/L	2070	1160	None
	Cobalt	mg/L	0.0127	0.0067	0.006
	Lithium	mg/L	0.255	0.171	0.040
MW-21	Lithium	mg/L	0.205	0.171	0.040
MW-23	None	N/A	N/A	N/A	N/A
MW-25	Sulfate	mg/L	411	322.3	None
MW-57	Sulfate	mg/L	343	322.3	None
	Total Dissolved Solids	mg/L	1200	1160	None
MW-59S	None	N/A	N/A	N/A	N/A
MW-60S	None	N/A	N/A	N/A	N/A

Comments:
Statistics are based on the background concentration (95/95 Upper Tolerance Limit [UTL] Inter-well) developed in accordance with the Federal CCR rule.

Table 4.7 of the Annual Groundwater Monitoring and Corrective Action Report compares the MCL, GWPS, and background concentrations for the Appendix IV Parameters. The background concentration is used as the site-specific GWPS when higher than the MCL or GWPS.

Table 4.3 of the Annual Groundwater Monitoring and Corrective Action Report provides the 95/95 UTL background concentrations established for the Appendix III and IV analytes.

The following Appendix III/IV analyte(s) are compared to the 95/95 UTL background concentrations, no IDNR Action Level has been established: calcium, cobalt, and lithium.

The following Appendix III analyte(s) are compared to the 95/95 UTL background concentrations, which are higher than the IDNR Action Level: fluoride, sulfate, and TDS.

The following Appendix IV analyte(s) are compared to the 95/95 UTL background concentration, which is higher than the IDNR action level: arsenic, molybdenum, and selenium.

Table 9

Historic Control Limit & GWPS Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Active CCR Monofill
Permit No. 97-SDP-12-95P

Key: gray =CL; black =GWPS		March	May	September	February	May	July	October	March	June	September	March/April	September	March	June	September
Well	**Constituent**	**2020**	**2020**	**2020**	**2021**	**2021**	**2021**	**2021**	**2022**	**2022**	**2022**	**2023**	**2023**	**2024**	**2024**	**2024**
MW-5R	pH, lab															
	Sulfate														*na*	
	Barium	*na*	*na*								*na*	*na*			*na*	
MW-11	None														*ns*	
MW-13/MW-13R (Background)	Chloride		*ns*		*ns*	*ns*									*ns*	
	Barium		*ns*		*ns*	*ns*									*ns*	
	Thallium		*ns*		*ns*	*ns*									*ns*	
MW-19	Boron														*na*	
	Calcium														*na*	
	pH, lab		*na*													
	Sulfate														*na*	
	Total Dissolved Solids (TDS)														*na*	
	Cobalt	*na*	*na*								*na*	*na*			*na*	
	Lead	*na*	*na*								*na*	*na*			*na*	
	Lithium	*na*	*na*								*na*	*na*			*na*	
MW-21	Calcium		*na*												*na*	
	pH, lab															
	Fluoride														*na*	
	Sulfate		*na*												*na*	
	Total Dissolved Solids (TDS)		*na*												*na*	
	Lead	*na*	*na*								*na*	*na*			*na*	
	Lithium	*na*	*na*								*na*	*na*			*na*	
	Selenium		*na*								*na*	*na*			*na*	
MW-23	Calcium				*ns*	*ns*		*ns*		*na*					*ns*	
	pH, lab		*na*		*ns*	*ns*		*ns*							*ns*	
	Sulfate				*ns*	*ns*		*ns*		*na*					*ns*	
	Total Dissolved Solids (TDS)				*ns*	*ns*		*ns*		*na*					*ns*	
MW-25	Sulfate					*ns*		*ns*		*ns*					*ns*	
	Total Dissolved Solids (TDS)					*ns*		*ns*		*ns*					*ns*	
MW-27 (Background)	Lithium		*ns*												*ns*	
MW-29/MW-29R (Background)	Barium		*ns*		*ns*	*ns*									*ns*	
	Cobalt		*ns*		*ns*	*ns*									*ns*	
MW-57/MW-57R	Calcium				*ns*	*ns*		*ns*		*ns*					*na*	
	pH, lab		*na*		*ns*	*ns*		*ns*		*ns*					*na*	
	Sulfate				*ns*	*ns*		*ns*		*ns*					*na*	
	Total Dissolved Solids (TDS)				*ns*	*ns*		*ns*		*ns*						
MW-59S	None															
MW-60S	None															
MW-223S (Background)	Chloride		*ns*												*ns*	
	Barium		*ns*												*ns*	
MW-231S/MW-231SR (Background)	Chloride		*ns*												*ns*	
	Calcium		*ns*												*ns*	
	Sulfate		*ns*												*ns*	
	Total Dissolved Solids (TDS)		*ns*												*ns*	
	Cobalt		*ns*												*ns*	
	Thallium		*ns*												*ns*	
	Radium-226 & 228		*ns*												*ns*	

Table 9

Historic Control Limit & GWPS Exceedances
2024 Annual Water Quality Report
Neal North Energy Center - Active CCR Monofill
Permit No. 97-SDP-12-95P

Comments:

ns - No sample collected during this sampling event.

na - Constituent not analyzed.

Statistics are based on the background concentration (95/95 Upper Tolerance Limit [UTL] Inter-well) developed in accordance with the Federal CCR rule.

Table 4.7 of the Annual Groundwater Monitoring and Corrective Action Report compares the MCL, GWPS, and background concentrations for the Appendix IV Parameters. The background concentration is used as the site-specific GWPS when higher than the MCL or GWPS.

Table 4.3 of the Annual Groundwater Monitoring and Corrective Action Report provides the 95/95 UTL background concentrations established for the Appendix III and IV analytes.

The following Appendix III/IV analyte(s) are compared to the 95/95 UTL background concentrations, no IDNR Action Level has been established: calcium, cobalt, and lithium.

The following Appendix III analyte(s) are compared to the 95/95 UTL background concentrations, which are higher than the IDNR Action Level: fluoride, sulfate, and TDS.

The following Appendix IV analyte(s) are compared to the 95/95 UTL background concentration, which is higher than the IDNR action level: arsenic, molybdenum, and selenium.

Grey shading indicates exceedance of the 95/95 UTL background concentration; black shading indicates exceedance of the site-specific GWPS.

Attachment 2

Iowa CCR Rule and Federal CCR Rule Criteria Summary

Iowa CCR Rule and Federal CCR Rule Criteria Summary for Neal North Monofill Groundwater
MidAmerican Energy Company
Neal North CCR Monofill
Sergeant Bluff, Iowa

Analytes	Units	IDNR CCR Rule *567 IAC Chapter 103, paragraph 103.1(4)d* MCL [a]	HAL [b]	SDWR [c]	Federal CCR Rule *40 CFR 257.95(h)(1) - 40 CFR 257.95(h)(3)* MCL [a]	CCR Rule GWPS [d]	Site-Specific Background [e]	Site-Specific GWPS	Basis for Comparison on IDNR Template Tables
Appendix III									
Boron	mg/L	--	6	--	--	--	0.678	none	Use HAL.
Calcium	mg/L	--	--	--	--	--	**248**	none	**No MCL or HAL, so use background for comparison.**
Chloride	mg/L	--	--	250	--	--	28.8	none	Use secondary MCL.
pH, lab	s.u.	--	--	6.5-8.5	--	--	6.87 J - 7.9 J	none	Use secondary MCL.
Sulfate	mg/L	--	--	250	--	--	**322**	none	**Use background for comparison (higher than secondary MCL)**
TDS	mg/L	--	--	500	--	--	**1160**	none	**Use background for comparison (higher than secondary MCL)**
Appendix IV									
Antimony	mg/L	0.006	0.006	--	0.006	--	0.00200 U	0.006 [a]	Federal site-specific GWPS equal to the MCL and HAL.
Arsenic	mg/L	0.01	--	--	0.01	--	0.0679	**0.0679** [e]	**Federal site-specific GWPS based on background (higher than the MCL).**
Barium	mg/L	2.0	--	--	2.0	--	0.271	2.0 [a]	Federal site-specific GWPS equal to the MCL.
Beryllium	mg/L	0.004	--	--	0.004	--	0.00100 U	0.004 [a]	Federal site-specific GWPS equal to the MCL.
Cadmium	mg/L	0.005	0.005	--	0.005	--	0.000500 U	0.005 [a]	Federal site-specific GWPS equal to the MCL and HAL.
Chromium	mg/L	0.1	--	--	0.1	--	0.0681	0.1 [a]	Federal site-specific GWPS equal to the MCL.
Cobalt	mg/L	--	--	--	--	0.006	0.0067	**0.0067** [e]	**Federal site-specific GWPS based on background (no MCL or HAL).**
Fluoride	mg/L	4.0	--	--	4.0	--	6.49	**6.49** [e]	**Federal site-specific GWPS based on background (higher than the MCL).**
Lead	mg/L	0.015 [f]	--	2.0	--	0.015	0.00064	0.015 [d]	Federal site-specific GWPS equal to the MCL.
Lithium	mg/L	--	--	--	--	0.040	0.171	**0.171** [e]	**Federal site-specific GWPS based on background (no MCL or HAL).**
Mercury	mg/L	0.002	0.002	--	0.002	--	0.000200 U	0.002 [a]	Federal site-specific GWPS equal to the MCL and HAL.
Molybdenum	mg/L	--	0.04	--	--	0.100	0.0357	**0.100** [d]	**Federal GWPS (higher than the HAL).**
Radium-226 & 228	pCi/L	5	--	--	5	--	-0.0527 U - 1.79	5 [a]	Federal site-specific GWPS equal to the MCL.
Selenium	mg/L	0.05	0.05	--	0.05	--	0.144	**0.144** [e]	**Federal site-specific GWPS based on background (higher than the MCL).**
Thallium	mg/L	0.002	--	--	0.002	--	0.00122	0.002 [a]	Federal site-specific GWPS equal to the MCL.

Notes:

-- - Not applicable.

U - Not detected at the associated reporting limit.

[a] Maximum contaminant level (MCL) - used in both IDNR and Federal CCR rules.

[b] Drink Water Health Advisory - Lifetime (HAL).

[c] Secondary Drinking Water Regulation (SDWR).

[d] Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

[e] Background concentration (95/95UTL) developed in accordance with the Federal CCR rule, determined from baseline data set for MW-13, MW-27, MW-29, MW-223S, and MW-231S (40 CFR 257.95(h)(3)).

[f] Action level for lead (treatment technique).

248 Federal site-specific GWPS varies from state action levels (MCL, HAL, SDWR).

Attachment 3

MCL/HAL Comparison Table

2024 Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal North CCR Active Monofill
Sergeant Bluff, Iowa

Sample Location:					MW-5R	MW-5R	MW-5R	MW-11	MW-11	MW-11	MW-11	MW-13	MW-13	MW-19	MW-19	MW-19	MW-21	MW-21
Sample ID:					MW05R-GW-0324	MW05R-GW-0624	MW05R-GW-0924	MW11R-GW-0324	DP04-GW-0324	MW11R-GW-0924	DP04-GW-0924	MW13R-GW-0324	MW13R-GW-0924	MW19-GW-0324	MW19-GW-0624	MW19-GW-0924	MW21-GW-0324	MW21-GW-0624
Sample Date:		MCL [a]	HAL [b]	SDWR [c]	3/20/2024	6/5/2024	9/12/2024	3/19/2024	3/19/2024 (Duplicate)	9/17/2024	9/17/2024 (Duplicate)	3/18/2024	9/11/2024	3/21/2024	6/5/2024	9/13/2024	3/21/2024	6/5/2024
Parameters	**Units**																	
Appendix III																		
Boron	mg/L	--	6	--	0.298	--	0.310	0.157	0.162	0.164	0.157	0.163	0.100 U	0.606	--	0.538	0.366	--
Calcium	mg/L	--	--	--	145	--	162	173	175	182	169	119	138	316	--	419	510	--
Chloride	mg/L	--	--	250	11.4	--	11.1	5.32	5.00 U	5.30	5.65	9.26	10.5	16.8	--	19.4	6.98	--
Fluoride	mg/L	4.0	--	2.0	1.00 U	--	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	--	1.00 U	1.00 U	--
pH, lab	s.u.	--	--	6.5 - 8.5	8.0 J	7.4 J	7.2 J	7.8 J	7.8 J	7.2 J	7.2 J	7.3 J	7.1 J	7.8 J	6.8 J	6.6 J	7.8 J	7.0 J
Sulfate	mg/L	--	--	250	**264**	--	**275**	117	117	123	118	61.8	29.0	**715**	--	**939**	**1590**	--
Total dissolved solids (TDS)	mg/L	--	--	500	**868**	--	**696**	**684**	**684**	**606**	**640**	**522**	**566**	**1750**	--	**2070**	**2890**	--
Appendix IV																		
Antimony	mg/L	0.006	0.006	--	0.00200 U	--	0.00200 U	--	--	--	--	0.00200 U	0.00200 U	0.00200 U		0.00200 U	0.00200 U	--
Arsenic	mg/L	0.01	--	--	**0.0330**	--	**0.0291**	--	--	--	--	**0.0521**	**0.0426**	0.00458		0.00666	0.00200 U	--
Barium	mg/L	2.0	--	--	0.143	--	0.126	--	--	--	--	0.212	0.228	0.0202		0.0197	0.0133	--
Beryllium	mg/L	0.004	--	--	0.00100 U	--	0.00100 U	--	--	--	--	0.00100 U	0.00100 U	0.00100 U		0.00100 U	0.00100 U	--
Cadmium	mg/L	0.005	0.005	--	0.000200 U	--	0.000200 U	--	--	--	--	0.000200 U	0.000200 U	0.000200 U		0.000200 U	0.000200 U	--
Chromium	mg/L	0.1	--	--	0.00500 U	--	0.00500 U	--	--	--	--	0.00500 U	0.00500 U	0.00500 U		0.00500 U	0.00500 U	--
Cobalt	mg/L	--	--	--	0.000662	--	0.000694	--	--	--	--	0.000733	0.000874	0.00755		0.0127	0.000500 U	--
Lead	mg/L	0.015 [d]	--	--	0.000500 U	--	0.000500 U	--	--	--	--	0.000500 U	0.000500 U	0.000500 U		0.000500 U	0.000500 U	--
Lithium	mg/L	--	--	--	0.0734	--	0.0725	--	--	--	--	0.0884	0.0906	0.239		0.255	0.328	--
Mercury	mg/L	0.002	0.002	--	0.000200 U	--	0.000200 U	--	--	--	--	0.000200 U	0.000200 U	0.000200 U		0.000200 U	0.000200 U	--
Molybdenum	mg/L	--	0.04	--	0.00361	--	0.00357	--	--	--	--	0.00413	0.00362	0.00200 U		0.00200 U	0.00200 U	--
Radium-226 & 228	pCi/L	5	--	--	0.447 U	--	0.413	--	--	--	--	1.01	1.18	0.514 U		1.08	0.405 U	--
Selenium	mg/L	0.05	0.05	--	0.00500 U	--	0.00500 U	--	--	--	--	0.00500 U	0.00500 U	0.00932		0.00500 U	0.00500 U	--
Thallium	mg/L	0.002	--	--	0.00100 U	--	0.00100 U	--	--	--	--	0.00100 U	0.00100 U	0.00100 U		0.00100 U	0.00100 U	--

Notes:
[a] Maximum contaminant level (MCL) established in the 2018 Edition of the Drinking Water Standards and Health Advisories (EPA 822-F-18-001).
[b] Drink Water Health Advisory - Life-time established in the 2018 Edition of the Drinking Water Standards and Health Advisories (EPA 822-F-18-001).
[c] Secondary Drinking Water Regulation (SDWR) established in the 2018 Edition of the Drinking Water Standards and Health Advisories (EPA 822-F-18-001)..
[d] Action level for lead (treatment technique).
1.00 Value exceeds the MCL, or HAL/SDWR where MCL not established.
J - Estimated concentration.
U - Not detected at the associated reporting limit.

2024 Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal North CCR Active Monofill
Sergeant Bluff, Iowa

Sample Location:		MW-21	MW-23	MW-23	MW-25	MW-25	MW-27	MW-27	MW-27	MW-29	MW-29	MW-57	MW-57	MW-57	MW-59S	MW-59S	MW-59S
Sample ID:		**MW21-GW-0924**	**MW23R-GW-0324**	**MW23R-GW-0924**	**MW25-GW-0324**	**MW25-GW-0924**	**MW27-GW-0324**	**MW27-GW-0924**	**DP01-GW-0924**	**MW29R-GW-0324**	**MW29R-GW-0924**	**MW57R-GW-0324**	**MW57R-GW-0624**	**MW57R-GW-0924**	**MW59S-GW-0324**	**MW59S-GW-0624**	**MW59S-GW-0924**
Sample Date:		**9/13/2024**	**3/19/2024**	**9/17/2024**	**3/19/2024**	**9/17/2024**	**3/18/2024**	**9/10/2024**	**9/10/2024 (Duplicate)**	**3/18/2024**	**9/10/2024**	**3/19/2024**	**6/5/2024**	**9/17/2024**	**3/20/2024**	**6/5/2024**	**9/17/2024**
Parameters	**Units**																
Appendix III																	
Boron	mg/L	0.333	0.180	0.174	0.471	0.508	0.254	0.179	0.182	0.166	0.114	0.340	--	0.348	0.219	--	0.181
Calcium	mg/L	202	185	138	220	235	156	167	170	166	163	237	--	258	171	132	143
Chloride	mg/L	5.00 U	14.4	18.5	5.00 U	5.00 U	17.3	24.9	24.8	10.3	11.3	19.3	--	22.9	5.26	--	7.64
Fluoride	mg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	--	1.00 U	1.00 U	--	1.00 U
pH, lab	s.u.	7.2 J	7.7 J	7.2 J	7.5 J	6.9 J	7.2 J	7.0 J	7.0 J	7.2 J	7.0 J	7.6 J	--	7.1 J	7.6 J	7.2 J	7.1 J
Sulfate	mg/L	**316**	211	202	**412**	**411**	105	78.4	78.3	109	60.4	**340**	--	**343**	110	--	114
Total dissolved solids (TDS)	mg/L	**800**	**872**	**666**	**1190**	**1150**	**704**	**682**	**638**	**698**	**606**	**1280**	**1270**	**1200**	**722**	--	**564**
Appendix IV																	
Antimony	mg/L	0.00200 U	--	--	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	--	--	--	--
Arsenic	mg/L	0.00200 U	--	--	--	--	**0.0591**	**0.0663**	**0.0675**	**0.0311**	**0.0277**	--	--	--	--	--	--
Barium	mg/L	0.0420	--	--	--	--	0.156	0.176	0.181	0.228	0.206	--	--	--	--	--	--
Beryllium	mg/L	0.00100 U	--	--	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	--	--	--	--	--
Cadmium	mg/L	0.000200 U	--	--	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	--	--	--	--	--
Chromium	mg/L	0.00500 U	--	--	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	--	--	--	--	--
Cobalt	mg/L	0.000500 U	--	--	--	--	0.000537	0.000849	0.000867	0.00279	0.00217	--	--	--	--	--	--
Lead	mg/L	0.000500 U	--	--	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	--	--	--	--	--
Lithium	mg/L	0.205	--	--	--	--	0.126	0.105	0.105	0.103	0.0908	--	--	--	--	--	--
Mercury	mg/L	0.000200 U	--	--	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	--	--	--	--	--
Molybdenum	mg/L	0.00200 U	--	--	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200	0.00200 U	--	--	--	--	--	--
Radium-226 & 228	pCi/L	0.612	--	--	--	--	0.650	0.848	0.806	1.19	1.00	--	--	--	--	--	--
Selenium	mg/L	**0.191**	--	--	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	--	--	--	--	--
Thallium	mg/L	0.00100 U	--	--	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	--	--	--	--	--

2024 Monitoring Analytical Results Summary
MidAmerican Energy Company
Neal North CCR Active Monofill
Sergeant Bluff, Iowa

Sample Location:		**MW-60S**	**MW-60S**	**MW-223S**	**MW-223S**	**MW-223S**	**MW-231S**	**MW-231S**	**MW-231S**	**MW-231S**
Sample ID:		**MW60S-GW-0324**	**MW60S-GW-0924**	**MW223S-GW-0324**	**DP01-GW-0324**	**MW223S-GW-0924**	**MW231SR-GW-0124**	**MW231SR-GW-0224**	**MW231SR-GW-0324**	**MW231SR-GW-GW-0924**
Sample Date:		**3/20/2024**	**9/17/2024**	**3/19/2024**	**3/18/2024 (Duplicate)**	**9/10/2024**	**1/23/2024**	**2/20/2024**	**3/19/2024**	**9/10/2024**
Parameters	**Units**									
Appendix III										
Boron	mg/L	0.168	0.174	0.135	0.129	0.172	0.208	0.220 J	0.227	0.400
Calcium	mg/L	129	140	161	160	167	169	169	216	259
Chloride	mg/L	6.97	11.2	5.64	5.43	39.8	7.78	8.37	10.2	116
Fluoride	mg/L	1.00 U	1.00 U	0.200 U	1.00 U	0.200 U	1.00 U	1.00 U	0.200 U	0.200 U
pH, lab	s.u.	7.7 J	7.1 J	7.3 J	7.3 J	7.5 J	7.1 J	7.2 J	7.1 J	7.1 J
Sulfate	mg/L	119	151	214	217	120	121	154	**287**	177
Total dissolved solids (TDS)	mg/L	**606**	**584**	**702**	**698**	**594**	**628**	**694**	**898**	**960**
Appendix IV										
Antimony	mg/L	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	--	--	**0.0155**	**0.0164**	**0.0124**	0.00460	0.00746	**0.0112**	0.00200 U
Barium	mg/L	--	--	0.289	0.286	0.186	0.124	0.166	0.218	0.127
Beryllium	mg/L	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	--	--	0.000913	0.000901	0.000728	0.00251	0.00209	0.00347	0.00692
Lead	mg/L	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	--	--	0.0585	0.0575	0.0610	0.0905	0.0805 J	0.103	0.0951
Mercury	mg/L	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	--	--	0.00228	0.00238	0.00237	0.00222	0.00215	0.00248	0.00200 U
Radium-226 & 228	pCi/L	--	--	0.335 U	0.453 U	0.919	1.18	0.599	2.98	1.06
Selenium	mg/L	--	--	0.00500 U	0.00500 U	0.00500 U	0.00559	0.00500 U	0.00500 U	0.0117
Thallium	mg/L	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Attachment 4

IDNR Template to AGWMCAR Cross Reference Table

IDNR Template to AGWMCAR Cross Reference Table

Neal North Energy Center - Active CCR Monofill
Permit No. 97-SDP-12-95P

Annual Water Quality Report Template for Non-Municipal Landfills	Annual Groundwater Monitoring and Corrective Action Report	Notes
Table 1 Monitoring Program Summary	Table 2.1 Groundwater Monitoring Well Network	Lists all wells in monitoring network.
	Table 2.6 Summary of Groundwater Monitoring Events	Lists total number of samples from monitoring programs since December 2015.
	Table 4.5 Inter-Well Comparisons for Monitoring Data vs. Upgradient Background UTLs	Compares current reporting period's groundwater data to the pooled background data (control limit).
	Section 1.1 Purpose of this Report	States the current monitoring program.
	Section 2.1 Groundwater Monitoring Network	Describes the aquifer characteristics.
	Section 6.3 Recommendations	Provides recommended changes, if any, to the monitoring network.
Table 2 Monitoring Program Implementation Schedule	Table 2.6 Summary of Groundwater Monitoring Events	Provides summary of sampling events since December 2015.
Table 3 Monitoring Well Maintenance and Performance Revaluation Schedule	Section 2.2 Monitoring Well Inspection	States the frequency of total depth measurements (annually).
Table 4 Monitoring Well Maintenance and Performance Summary	Table 2.2 Well Construction Details	Provides well coordinates and elevations for TOC, original total depth, ground surface, top of screen, and bottom of screen.
	Table 2.3 Monitoring Well Screen Occlusion Evaluation	Provides TOC elevation, original total depth below TOC, screen length, annual total depth measurements, and percent of screen occluded.
	Table 3.1 Groundwater Elevation Data	Provides groundwater elevation data, past elevations through elevations during the current reporting period.
Table 5 Background Summary	Table 4.3 Inter-Well Comparison Values	Summary of inter-well evaluation from pooled background well data. Provides the baseline 95/95 UTL (background level).
Table 6 Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances	Table 4.5 Inter-Well Comparisons for Monitoring Data vs. Upgradient Background UTLs	Compares current reporting period's groundwater data to the pooled background data (control limit).
Table 7 Summary of Ongoing and Newly Identified Control Limit Exceedances	--	Table 7 is provided to IDNR.
Table 8 Analytical Data Summary	Table 4.1 Baseline Period Groundwater Monitoring Data	Provides groundwater analytical data from the baseline period at the CCR Monofill.
	Table 4.2 Monitoring Analytical Results Summary	Provides groundwater analytical data for the current reporting period at the CCR Monofill.
Table 9 Historic Control Limit & GWPS Exceedances	--	Table 9 is provided to IDNR.
Table 10 Groundwater Quality Assessment Plan Trend Analysis	Section 4 Groundwater Monitoring	Section 4 discusses trends in groundwater data, during baseline monitoring and current reporting period.
Table 11 Leachate Management Summary	Annual Leachate Report	The Annual Leachate Report documents the leachate management activities for the current reporting period. Provides analytical data, leachate head, and leachate volume measurements.
Table 12 Gas Monitoring Summary	NA	Not applicable since the CCR Monofill holds CCR and does not generate gas.