RECEIVED
By TK at 9:51 am, Jul 02, 2025

June 27, 2025

South Dakota Department of Agriculture and Natural Resources
Inspection, Compliance, and Remediation Program
523 East Capitol Avenue
Pierre, South Dakota 57501-3181

Attn: Ms. Trish Kindt
Email: trish.kindt@state.sd.us

RE: Deadwood Surface Water Sampling
Deadwood, South Dakota
AET Project No. P-0044500
SDDANR Case No. 2025.073

Dear Ms. Kindt:

American Engineering Testing, Inc. (AET) has prepared this letter report regarding the surface water sampling recently conducted in Deadwood, South Dakota (SD) in association with SD Department of Agriculture and Natural Resources (DANR) case number 2025.073. AET provided environmental services as requested by the DANR in accordance with our proposal agreement dated June 11, 2025, and signed authorization from the DANR received on June 16, 2025.

Background Information

According to information provided by the DANR, an incident occurred on June 6, 2025, involving the release of an unidentified blue substance onto multiple streets and paved areas within the city limits of Deadwood, SD. The source of the substance was traced to a dumpster located at 402 Main Street. It is believed that an unknown blue material was discarded into the dumpster and upon collection of the dumpster by a waste management vehicle, the blue material mixed with other liquids inside the truck hopper bin and subsequently leaked onto various paved surfaces throughout the city. At the request of the DANR, AET was contacted to collect sample(s) of the blue stained surface water for further analysis.

Sampling Activities

On June 6, 2025, AET mobilized to collect surface water samples from potentially impacted areas within the city limits of Deadwood, SD. A total of two samples were collected by AET, these included one from the paved surface behind the Deadwood Hospital where blue surface water run-off had been reported, and one from a downgradient location on Whitewood Creek near the Deadwood Fairgrounds. The sample collected behind the hospital exhibited a bright blue coloration consistent with the reported release. The sample from Whitewood Creek showed no visible signs of impact or contamination. At the request of the DANR, only the sample collected from behind the hospital was submitted for analytical testing to attempt to identify the constituents of the unknown blue substance.

Photos taken during the assessment of the release and photos of the water samples are included within the photo log in Appendix A.

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Analytical Results

Upon collection of the samples, the DANR instructed AET to submit the surface water sample collected from behind the hospital building (Sample ID: SW-H) for laboratory analysis of copper, sulfate, and nitrate + nitrite. AET submitted the sample to Midcontinent Testing Laboratories in Rapid City, SD for chemical analysis. The laboratory analytical report and chain-of-custody record are provided in Appendix C. Samples were collected in accordance with AET's Quality Assurance/Quality Control (QA/QC) guidelines.

The laboratory analytical results for the collected sample are presented in Table 1, below. For comparison, the table also includes typical untreated surface water concentration ranges, Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs) for drinking water and the EPA Secondary MCL (SMCL) for sulfate.

TABLE 1
ANALYTICAL RESULTS[1]

Sample ID	Nitrate + Nitrite	Sulfate	Copper
SW-H	0.542	29.4	0.038
Normal Surface Water Concentration Range	**0.0 - 1.0[2]**	**0.0 - 630.0[3]**	**0.0002 - 0.03000[2]**
EPA MCLs/SMCLs	**Nitrate (10.0)[4] Nitrite (1.0)[4]**	**250[5]**	**1.3[4]**

[1] All values are in mg/kg, which is equivalent to parts per million, unless otherwise noted.
[2] Concentration range taken from literature published by the EPA.
[3] Concentration range taken from literature published by the World Health Organization.
[4] EPA MCL.
[5] EPA SMCL.

Review of the analytical results for the sample indicate that all concentrations are within range or nearly within range of normal concentrations for untreated surface water. In addition, all concentrations for the sampled analytes are below their respective EPA MCLs and SMCL.

Certification/Review

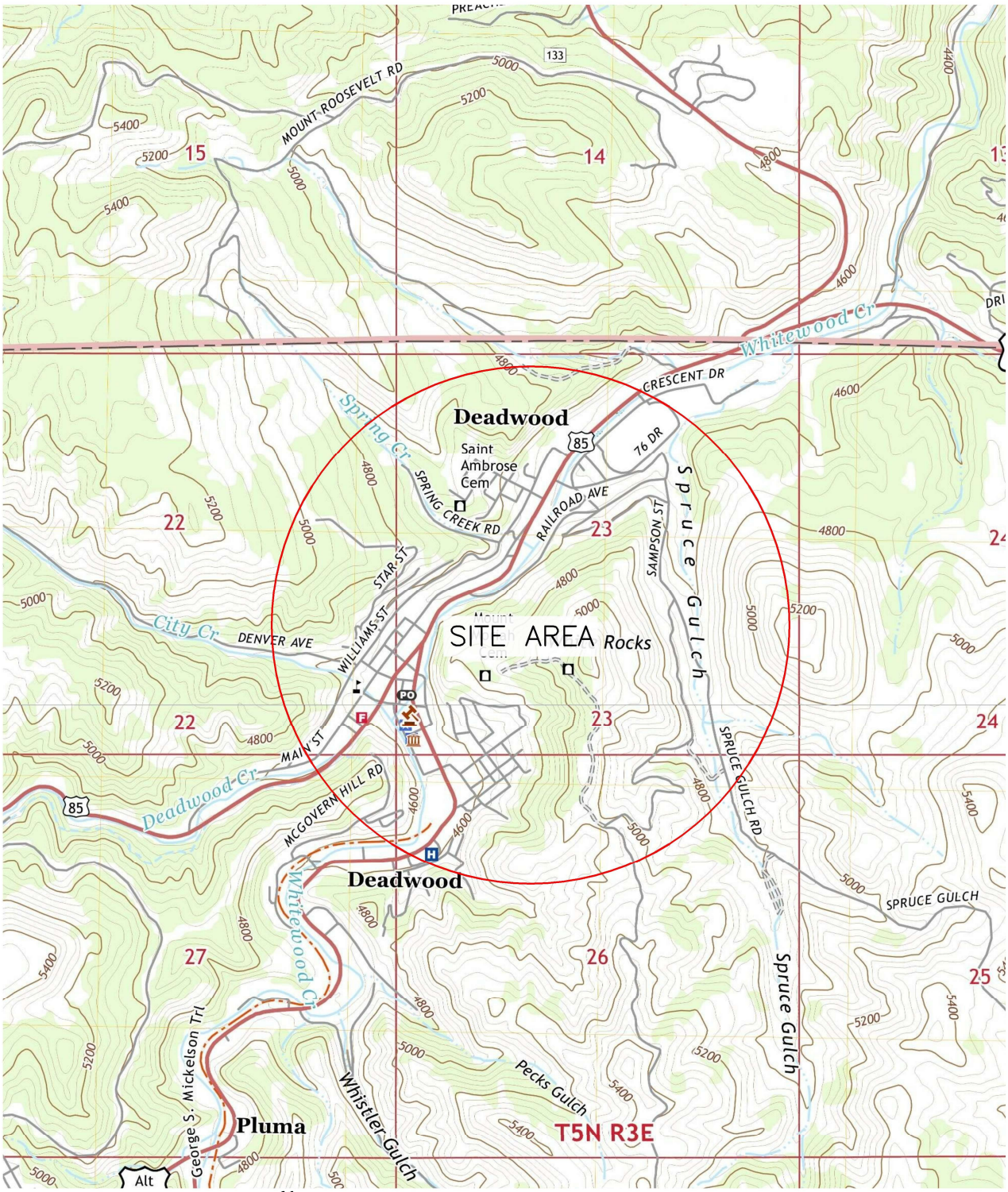
We appreciate the opportunity to have been of service to you on this project. If you have any questions regarding the information presented in this report or if we can be of additional assistance, please contact us.

Sincerely,
American Engineering Testing

Jeremy J. Huot, CPRR
Environmental Project Manager

Bradley P. Bishop, CPRR
Senior Environmental Project Manager

Attachments: Figure 1. Site Location Map
Figure 2. Aerial with Source and Sample Locations
Appendix A. Photo Log
Appendix B. Laboratory Analytical Reports



SCALE (FEET)
0 2,000

N

USGS TOPOGRAPHIC MAP
PROVIDED BY USGS DATABASE
DATED: 2021 SCALE: 1:24,000

AMERICAN ENGINEERING TESTING

PROJECT: DEADWOOD SURFACE WATER SAMPLING DEADWOOD, SOUTH DAKOTA		PROJECT NO.: P–0044500
SUBJECT: SITE LOCATION TOPO MAP	DRAWN BY: JJH	DATE: JUNE 24, 2025
SCALE: 1 INCH = 2,000 FEET	REVIEWED BY: BPB	FIGURE: 1



AMERICAN ENGINEERING TESTING	PROJECT: DEADWOOD SURFACE WATER SAMPLING DEADWOOD, SOUTH DAKOTA		PROJECT NO. P-0044500
	SUBJECT: AERIAL WITH SOURCE AND SAMPLE LOCATIONS	DRAWN BY: JJH	DATE: JUNE 24, 2025
	SCALE: 1 INCH = 1000 FEET	REVIEWED BY: BPB	FIGURE: 2

APPENDIX A
Photo Log

PHOTOGRAPHS

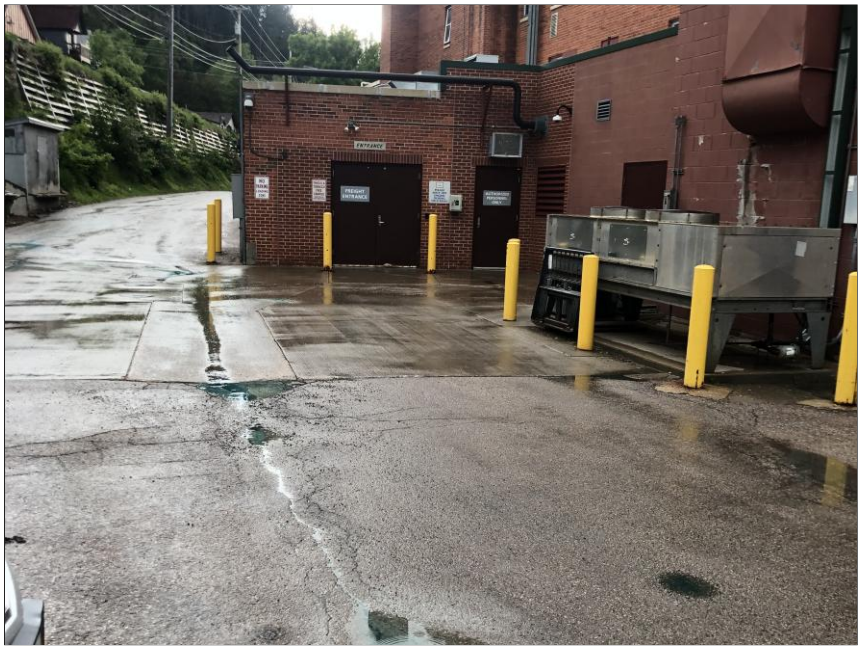


Photo 1:	**View of hospital pavement upgradient toward dumpster.**
Photo 2:	**View of hospital pavement downgradient from dumpster.**



PHOTOGRAPHS



Photo 3:	**Creek outfall at Burnham Avenue.**
Photo 4:	**View of creek at Burnham Avenue.**



PHOTOGRAPHS



Photo 5:	**View of creek at rodeo grounds.**
Photo 6:	**View of creek at sample location.**



PHOTOGRAPHS



Photo 7:	**Source dumpster located at 402 Main Street.**
Photo 8:	**View of pavement downgradient from source dumpster.**



PHOTOGRAPHS



Photo 9:	**Pavement surface water at hospital.**
Photo 10:	**Creek surface water at rodeo grounds.**



APPENDIX B
Laboratory Analytical Report

MIDCONTINENT
TESTING LABORATORIES, INC.

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 -- www.thechemistrylab.com

REVIEWED
By Jeremy Huot at 2:25 pm, Jun 24, 2025

AET
1745 SAMCO ROAD
RAPID CITY, SD 57702

Sample Site:	SW-H
Project Name:	Deadwood Surface Water
Project Number:	P-0044500
Sampled:	06/06/25 at 06:00 PM by Bradley Bishop
Sample Matrix:	Liquid
Lab ID#:	20250609521
Received:	06/09/25 at 03:27 PM by Shela Carpenter
Account:	W1202 - AET - Rapid City

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date	
Non-Metallics								
Nitrate + Nitrite	0.542	mg/L	10	0.088	0.500	SM 4500-NO3F	BLL	06/11/25
Sulfate (SO4)	29.4	mg/L	1	0.607	10.0	SM 4500-SO4 E	BLL	06/11/25
Metals - Total								
Copper (Cu)	0.038	mg/L	50	0.002	0.025	EPA 200.8	TNA	06/13/25

Quality Control Data

Parameter	Result	Limits	DF	Method	Analyst/Date	
Total Metals - Internal Std						
Bismuth (Bi)	89.9 %	(60.0 - 125.0) %	50	EPA 200.8	TNA	06/13/25
Germanium (Ge72)	93.3 %	(60.0 - 125.0) %	50	EPA 200.8	TNA	06/13/25
Germanium (Ge74)	93.9 %	(60.0 - 125.0) %	50	EPA 200.8 DRC	TNA	06/13/25
Indium (In)	95.5 %	(60.0 - 125.0) %	50	EPA 200.8	TNA	06/13/25
Scandium (Sc)	84.4 %	(60.0 - 125.0) %	50	EPA 200.8	TNA	06/13/25

Notes:
Samples preserved 6/9/2025

Report Approved By:

Report Approved On: 6/19/2025 11:49:19 AM

MIDCONTINENT
TESTING LABORATORIES, INC.

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 -- www.thechemistrylab.com

Lab Numbers: 20250609521 - 20250609521

QC Sample Report

Parameter	Lab#	QC Value	Smp Value	Spike	DF	Result	Limits	Method
Spike								
N, Nitrate	0609106	6.35	4.38	0.400	5	98.6 %	(84.67) - (113.3)	SM 4500-NO3 F
N, Nitrate	0609887	0.824	0.396	0.400	1	107.0 %	(84.67) - (113.3)	SM 4500-NO3 F
N, Nitrate	0610101	0.421	0.013	0.400	1	102.0 %	(84.67) - (113.3)	SM 4500-NO3 F
N, Nitrate	0610112	2.76	2.01	0.400	2	93.0 %	(84.67) - (113.3)	SM 4500-NO3 F
N, Nitrate	0610313	1.67	1.30	0.400	1	91.8 %	(84.67) - (113.3)	SM 4500-NO3 F
N, Nitrate	0610211	1.41	0.997	0.400	1	102.3 %	(84.67) - (113.3)	SM 4500-NO3 F
Nitrate+Nitrite	0610101	0.421	0.013	0.400	1	102.0 %	(90.15) - (112.6)	SM 4500-NO3F
Nitrate+Nitrite	0609887	0.824	0.396	0.400	1	107.0 %	(90.15) - (112.6)	SM 4500-NO3F
Sulfate	0610104	303	220	19.2	5	95.3 %	(87.55) - (115.8)	SM 4500-SO4 E
Sulfate	0611112	305	211	19.2	5	107.3 %	(87.55) - (115.8)	SM 4500-SO4 E
Sulfate	0610213	319	233	19.2	5	100.1 %	(87.55) - (115.8)	SM 4500-SO4 E
Copper - D	0613311	0.261	0.013	0.025	10	99.2 %	(81.81) - (106.3)	EPA 200.8
Copper - T	0612113	0.319	0.063	0.025	10	102.7 %	(84.63) - (111.3)	EPA 200.8
Copper - T	0613305	0.538	0.281	0.025	10	102.8 %	(84.63) - (111.3)	EPA 200.8
Copper - TR	0611301	0.243	< 0.005	0.025	10	97.3 %	(88.45) - (109.7)	EPA 200.8
Copper - TR	0610308	0.491	< 0.010	0.025	20	98.3 %	(88.45) - (109.7)	EPA 200.8
Copper - TR	0613104	0.228	< 0.005	0.025	10	91.2 %	(88.45) - (109.7)	EPA 200.8
Matrix Spike Duplicate								
N, Nitrate	0609887	0.826	0.824		1	0.242%	(-6.951) - (5.152)	SM 4500-NO3 F
N, Nitrate	0610211	1.38	1.41		1	-1.58%	(-6.951) - (5.152)	SM 4500-NO3 F
N, Nitrate	0610313	1.65	1.67		1	-1.21%	(-6.951) - (5.152)	SM 4500-NO3 F
N, Nitrate	0610101	0.426	0.421		1	1.18%	(-6.951) - (5.152)	SM 4500-NO3 F
N, Nitrate	0610112	2.74	2.76		2	-0.582%	(-6.951) - (5.152)	SM 4500-NO3 F
N, Nitrate	0609106	6.36	6.35		5	0.142%	(-6.951) - (5.152)	SM 4500-NO3 F
Nitrate+Nitrite	0610101	0.426	0.421		1	1.18%	(-7.458) - (7.213)	SM 4500-NO3F
Nitrate+Nitrite	0609887	0.826	0.824		1	0.242%	(-7.458) - (7.213)	SM 4500-NO3F
Sulfate	0610213	324	319		5	1.36%	(-7.748) - (5.895)	SM 4500-SO4 E
Sulfate	0610104	307	303		5	1.47%	(-7.748) - (5.895)	SM 4500-SO4 E
Sulfate	0611112	299	305		5	-2.04%	(-7.748) - (5.895)	SM 4500-SO4 E
Copper - D	0613311	0.259	0.261		10	-0.531%	(-7.091) - (6.491)	EPA 200.8
Copper - T	0613305	0.560	0.538		10	4.01%	(-10.47) - (12.80)	EPA 200.8
Copper - T	0612113	0.306	0.319		10	-4.13%	(-10.47) - (12.80)	EPA 200.8
Copper - TR	0613104	0.237	0.228		10	4.04%	(-4.667) - (4.568)	EPA 200.8
Copper - TR	0610308	0.476	0.491		20	-3.06%	(-4.667) - (4.568)	EPA 200.8
Copper - TR	0611301	0.246	0.243		10	1.29%	(-4.667) - (4.568)	EPA 200.8

Lab Numbers: **20250609521 - 20250609521**

Parameter	Lab#	QC Value	Smp Value	Spike	DF	Result	Limits	Method
Duplicate								
Sulfate	0611112	212	211		5	0.483%	(-6.932) - (6.416)	SM 4500-SO4 E
Sulfate	0610104	215	220		5	-2.27%	(-6.932) - (6.416)	SM 4500-SO4 E
Sulfate	0610213	230	233		5	-1.22%	(-6.932) - (6.416)	SM 4500-SO4 E
Initial Calibration Verification								
N, Nitrate		1.02	1.00		1	2.10%	(-0.3088) - (6.039)	SM 4500-NO3 F
Nitrate+Nitrite		1.02	1.00		1	2.10%	(-1.028) - (6.128)	SM 4500-NO3F
Sulfate		52.6	50.0		1	5.16%	(0.8157) - (9.400)	SM 4500-SO4 E
Copper - D		0.051	0.050		1	1.90%	(-7.453) - (7.357)	EPA 200.8
Continuing Calibration Verification								
N, Nitrate		1.04	1.00		1	4.30%	(-13.11) - (15.58)	SM 4500-NO3 F
N, Nitrate		1.02	1.00		1	1.80%	(-13.11) - (15.58)	SM 4500-NO3 F
N, Nitrate		1.04	1.00		1	4.30%	(-13.11) - (15.58)	SM 4500-NO3 F
N, Nitrate		1.04	1.00		1	4.30%	(-13.11) - (15.58)	SM 4500-NO3 F
N, Nitrate		1.04	1.00		1	4.10%	(-13.11) - (15.58)	SM 4500-NO3 F
N, Nitrate		1.05	1.00		1	4.60%	(-13.11) - (15.58)	SM 4500-NO3 F
Nitrate+Nitrite		1.04	1.00		1	4.30%	(-4.366) - (12.86)	SM 4500-NO3F
Nitrate+Nitrite		1.02	1.00		1	1.80%	(-4.366) - (12.86)	SM 4500-NO3F
Sulfate		52.0	50.0		1	4.04%	(-0.0619) - (9.060)	SM 4500-SO4 E
Sulfate		52.1	50.0		1	4.22%	(-0.0619) - (9.060)	SM 4500-SO4 E
Sulfate		51.2	50.0		1	2.44%	(-0.0619) - (9.060)	SM 4500-SO4 E
Copper - D		0.050	0.050		1	0.420%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.050	0.050		1	-0.560%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.049	0.050		1	-1.46%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.049	0.050		1	-2.80%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.051	0.050		1	1.20%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.048	0.050		1	-4.26%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.049	0.050		1	-2.92%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.049	0.050		1	-1.24%	(-8.521) - (9.583)	EPA 200.8
Copper - D		0.048	0.050		1	-5.00%	(-8.521) - (9.583)	EPA 200.8
Initial Calibration Blank								
N, Nitrate		- 0.002	0.00		1	0.002	(-0.0086) - (0.0172)	SM 4500-NO3 F
Nitrate+Nitrite		- 0.002	0.00		1	0.002	(-0.0133) - (0.0262)	SM 4500-NO3F
Sulfate		1.86	0.00		1	1.86	(0.2610) - (2.989)	SM 4500-SO4 E
Continuing Calibration Blank								
N, Nitrate		0.008	0.00		1	0.008	(-0.0089) - (0.0221)	SM 4500-NO3 F
N, Nitrate		0.022	0.00		1	0.022	(-0.0089) - (0.0221)	SM 4500-NO3 F
N, Nitrate		0.011	0.00		1	0.011	(-0.0089) - (0.0221)	SM 4500-NO3 F
N, Nitrate		0.019	0.00		1	0.019	(-0.0089) - (0.0221)	SM 4500-NO3 F
N, Nitrate		0.015	0.00		1	0.015	(-0.0089) - (0.0221)	SM 4500-NO3 F
N, Nitrate		0.018	0.00		1	0.018	(-0.0089) - (0.0221)	SM 4500-NO3 F
Nitrate+Nitrite		0.022	0.00		1	0.022	(-0.0089) - (0.0263)	SM 4500-NO3F
Nitrate+Nitrite		0.018	0.00		1	0.018	(-0.0089) - (0.0263)	SM 4500-NO3F

Lab Numbers: **20250609521 - 20250609521**

Parameter	Lab#	QC Value	Smp Value	Spike	DF	Result	Limits	Method
Continuing Calibration Blank								
Sulfate		1.57	0.00		1	1.57	(0.2548) - (4.092)	SM 4500-SO4 E
Sulfate		1.53	0.00		1	1.53	(0.2548) - (4.092)	SM 4500-SO4 E
Sulfate		1.65	0.00		1	1.65	(0.2548) - (4.092)	SM 4500-SO4 E
Copper - D		0.00	0.00		1	0	(0.0000) - (0.0000)	EPA 200.8

Approved By: 

Approved On: 06/19/2025 11:49 AM

AMERICAN ENGINEERING TESTING, INC.

☐ St. Paul Office
550 Cleveland Ave. N.
St. Paul, MN 55114
651-659-9001
651-659-1379 (fax)

☒ OTHER RAPID CITY, SD

ADDRESS: 1745 SAMCO RD.
RC, SD 57702

PHONE: (605) 388-0029

16239

PAGE 1 OF 1

AET PROJECT NUMBER P-0044500

PROJECT NAME/LOCATION DANR RSR - DEADWOOD SURFACE WATER SAMPLING

AET PROJECT MANAGER BRAD BISHOP

SEND REPORT TO BRAD BISHOP

SAMPLED BY (PRINT) BRADLEY P. BISHOP

SAMPLER SIGNATURE Bradley P. Bishop

REQUESTED TURNAROUND TIME: ☒ NORMAL ☐ RUSH

DATE NEEDED BY:

ITEM#	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	PRESERVATIVES: MeOH	PRESERVATIVES: HCL	PRESERVATIVES: H_2SO_4	PRESERVATIVES: HNO_3	FIELD FILTERED Y/N	ANALYSIS: COPPER - T	ANALYSIS: SULFATE	ANALYSIS: NITRATE/NITRITE	REMARKS
1	SW-H	6/6	1800	WATER	3	1			1	1	N	X	X	X	20250609521

NOTE:
0.3°C

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
1	Bradley P. Bishop /AET		6/9/25	1527

MIDCONTINENT

SAMPLE RECEIPT CHECKLIST

Company Name AET

Date/Time Received 6/9/25 (Date) / 1527 (Time)

Project DANRRSB-Deadwood

Received by Sheila

Lab Number(s) 202506095 21

Carrier Name Hand Delivered

UNPACKING

Yes	No		Initials
☑	☐	1. Shipping container in good condition?	
☐	☑	2. Custody seals present on shipping container? Condition: Intact ☐ Broken ☐	
☑	☐	3. Ice / Blue Ice (circle one) present in shipping container? Container(s) Temp. 1. 0.3°C 2. _____ 3. _____ 4. _____	
☐	☑	4. Bottles broken and/or leaking? (Photograph broken bottles.)	
☐	☑	5. Custody seals on sample bottles? Condition: Intact ☐ Broken ☐	

LABELING

Yes	No		Initials
☑	☐	6. Chain of custody Present?	
☑	☐	7. Chain of custody includes signatures, dates, and times when relinquished and received?	
☑	☐	8. Chain of custody agrees with bottle count?	
☑	☐	9. Chain of custody agrees with labels?	
☑	☐	10. Samples received within holding times?	
☑	☐	11. Samples in proper container?	
☑	☐	12. Sufficient sample volume for indicated tests?	

PRESERVATIVE

Yes	No		Initials	Yes	No		Initials
☑	☐	13. Metals bottle(s) pH < 2?		☐	☐	17. TOC bottle(s) pH < 2?	
☑	☐	14. Nutrient bottle(s) pH < 2?		☐	☐	18. Oil & Grease bottle(s) pH < 2?	
☐	☐	15. Cyanide bottle(s) pH > 12?		☐	☐	19. Volatiles pH < 2?	
☐	☐	16. Sulfide bottle(s) pH > 9?					

COMMENTS: Collected 6/6/25, preserved 6/9/25