November 18, 2021

Deidra McClendon
Columbia, MO Water & Light
1501 Business Loop 70E
Columbia, MO 65201

RE: Columbia Special Samples

Dear Deidra McClendon:

Please find enclosed the analytical results for the **2** sample(s) the laboratory received on **11/10/21 2:00 pm** and logged in under work order **EK02455**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Amy Holmes
Project Manager
(314) 595-7336
aholmes@pdclab.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order EK02455

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

ANALYTICAL RESULTS

Sample: EK02455-01
Name: DW 537.1
Matrix: Drinking Water - Grab

Sampled: 11/09/21 08:25
Received: 11/10/21 14:00
PO #: 20220468

Parameter	Result	Unit	Qualifier	Dilution	MDL	MRL	Analyzed	Analyst	Method
Semivolatile Organics - PFAS - PIA									
PFOA	< 2.0	ng/L		1	0.6	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFOS	< 2.0	ng/L		1	0.7	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFBS	< 2.0	ng/L		1	1.0	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFHpA	< 2.0	ng/L		1	0.4	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFHxS	< 2.0	ng/L		1	0.8	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFNA	< 2.0	ng/L		1	1.0	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFDA	< 2.0	ng/L		1	0.7	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFHxA	< 2.0	ng/L		1	0.9	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFDoA	< 2.0	ng/L		1	0.6	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFTrDA	< 2.0	ng/L		1	0.5	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFUnA	< 2.0	ng/L		1	0.5	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
NETFOSAA	< 2.0	ng/L		1	1.1	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
NMEFOSAA	< 2.0	ng/L		1	0.9	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
HFPO-DA	< 2.0	ng/L		1	0.5	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
ADONA	< 2.0	ng/L		1	0.7	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
9Cl-PF3ONS	< 2.0	ng/L		1	0.6	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
11Cl-PF3OUdS	< 2.0	ng/L		1	1.5	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1
PFTeDA	< 2.0	ng/L		1	1.0	2.0	11/16/21 17:57	PSB	EPA 537.1 REV1

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B148564 - EPA 537.1 - EPA 537.1 REV1									
Blank (B148564-BLK1)				Prepared & Analyzed: 11/16/21					
PFOA	< 2.0	ng/L							
PFOS	< 2.0	ng/L							
PFBS	< 2.0	ng/L							
PFHpA	< 2.0	ng/L							
PFHxS	< 2.0	ng/L							
PFNA	< 2.0	ng/L							
PFDA	< 2.0	ng/L							
PFHxA	< 2.0	ng/L							
PFDoA	< 2.0	ng/L							
PFTrDA	< 2.0	ng/L							
PFUnA	< 2.0	ng/L							
NETFOSAA	< 2.0	ng/L							
NMEFOSAA	< 2.0	ng/L							
HFPO-DA	< 2.0	ng/L							
ADONA	< 2.0	ng/L							
9Cl-PF3ONS	< 2.0	ng/L							
11Cl-PF3OUdS	< 2.0	ng/L							
PFTeDA	< 2.0	ng/L							
Surrogate: 13C2-PFHxA	*34.2*	*ng/L*		*40.00*		*86*	*70-130*		
Surrogate: 13C2-PFDA	*36.3*	*ng/L*		*40.00*		*91*	*70-130*		
Surrogate: d5-NEtFOSAA	*152*	*ng/L*		*160.0*		*95*	*70-130*		
Surrogate: 13C3-HFPO-DA	*33.6*	*ng/L*		*40.00*		*84*	*70-130*		
LCS (B148564-BS1)				Prepared & Analyzed: 11/16/21					
PFOA	70	ng/L		80.00		87	70-130		
PFOS	64	ng/L		80.00		79	70-130		
PFBS	78	ng/L		80.00		98	70-130		
PFHpA	63	ng/L		80.00		78	70-130		
PFHxS	80	ng/L		80.00		100	70-130		
PFNA	76	ng/L		80.00		95	70-130		
PFDA	70	ng/L		80.00		88	70-130		
PFHxA	67	ng/L		80.00		84	70-130		
PFDoA	65	ng/L		80.00		81	70-130		
PFTrDA	66	ng/L		80.00		82	70-130		
PFUnA	65	ng/L		80.00		81	70-130		
NETFOSAA	75	ng/L		80.00		94	70-130		
NMEFOSAA	72	ng/L		80.00		90	70-130		
HFPO-DA	67	ng/L		80.00		83	70-130		
ADONA	70	ng/L		80.00		87	70-130		
9Cl-PF3ONS	67	ng/L		80.00		84	70-130		
11Cl-PF3OUdS	69	ng/L		80.00		87	70-130		
PFTeDA	76	ng/L		80.00		95	70-130		
Surrogate: 13C2-PFHxA	*33.8*	*ng/L*		*40.00*		*84*	*70-130*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B148564 - EPA 537.1 - EPA 537.1 REV1									
LCS (B148564-BS1)				Prepared & Analyzed: 11/16/21					
Surrogate: 13C2-PFDA	*33.7*	*ng/L*		*40.00*		*84*	*70-130*		
Surrogate: d5-NEtFOSAA	*139*	*ng/L*		*160.0*		*87*	*70-130*		
Surrogate: 13C3-HFPO-DA	*33.4*	*ng/L*		*40.00*		*83*	*70-130*		
Duplicate (B148564-DUP1)	**Sample: EK01228-03**			Prepared & Analyzed: 11/16/21					
PFOA	1	ng/L			2			1	30
PFOS	< 2.0	ng/L			ND				30
PFBS	< 2.0	ng/L			ND				30
PFHpA	0.6	ng/L			0.6			2	30
PFHxS	< 2.0	ng/L			ND				30
PFNA	< 2.0	ng/L			ND				30
PFDA	< 2.0	ng/L			ND				30
PFHxA	< 2.0	ng/L			ND				30
PFDoA	< 2.0	ng/L			ND				30
PFTrDA	< 2.0	ng/L			ND				30
PFUnA	< 2.0	ng/L			ND				30
NETFOSAA	< 2.0	ng/L			ND				30
NMEFOSAA	< 2.0	ng/L			ND				30
HFPO-DA	< 2.0	ng/L			ND				30
ADONA	< 2.0	ng/L			ND				30
9Cl-PF3ONS	< 2.0	ng/L			ND				30
11Cl-PF3OUdS	< 2.0	ng/L			ND				30
PFTeDA	< 2.0	ng/L			ND				30
Surrogate: 13C2-PFHxA	*30.6*	*ng/L*		*34.93*		*88*	*70-130*		
Surrogate: 13C2-PFDA	*31.7*	*ng/L*		*34.93*		*91*	*70-130*		
Surrogate: d5-NEtFOSAA	*141*	*ng/L*		*139.7*		*101*	*70-130*		
Surrogate: 13C3-HFPO-DA	*28.6*	*ng/L*		*34.93*		*82*	*70-130*		
Matrix Spike (B148564-MS1)	**Sample: EK01228-01**			Prepared & Analyzed: 11/16/21					
PFOA	65	ng/L		67.96	1	94	70-130		
PFOS	59	ng/L		67.96	ND	86	70-130		
PFBS	42	ng/L	Q1	67.96	ND	61	70-130		
PFHpA	60	ng/L		67.96	0.5	87	70-130		
PFHxS	77	ng/L		67.96	ND	114	70-130		
PFNA	66	ng/L		67.96	ND	98	70-130		
PFDA	61	ng/L		67.96	ND	89	70-130		
PFHxA	61	ng/L		67.96	ND	90	70-130		
PFDoA	55	ng/L		67.96	ND	81	70-130		
PFTrDA	54	ng/L		67.96	ND	80	70-130		
PFUnA	56	ng/L		67.96	ND	83	70-130		
NETFOSAA	64	ng/L		67.96	ND	95	70-130		
NMEFOSAA	60	ng/L		67.96	ND	88	70-130		
HFPO-DA	56	ng/L		67.96	ND	82	70-130		
ADONA	65	ng/L		67.96	ND	96	70-130		
9Cl-PF3ONS	60	ng/L		67.96	ND	88	70-130		
11Cl-PF3OUdS	62	ng/L		67.96	ND	91	70-130		
PFTeDA	63	ng/L		67.96	ND	92	70-130		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B148564 - EPA 537.1 - EPA 537.1 REV1									
Matrix Spike (B148564-MS1)	**Sample: EK01228-01**			Prepared & Analyzed: 11/16/21					
Surrogate: 13C2-PFHxA	*29.9*	*ng/L*		*33.98*		*88*	*70-130*		
Surrogate: 13C2-PFDA	*29.1*	*ng/L*		*33.98*		*86*	*70-130*		
Surrogate: d5-NEtFOSAA	*121*	*ng/L*		*135.9*		*89*	*70-130*		
Surrogate: 13C3-HFPO-DA	*27.2*	*ng/L*		*33.98*		*80*	*70-130*		

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

Q1 Matrix Spike failed % recovery acceptance limits. The associated blank spike recovery was acceptable.

Amy F. Holmes

Certified by: Amy Holmes, Project Manager

PDC LABORATORIES, INC.
WWW.PDCLAB.COM

REGULATORY PROGRAM (Check one:)		NPDES	
MORBCA	☐	RCRA	☐
CCDD	☐	TACO: RES OR IND/COMM	☐

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	PROJECT LOCATION	PURCHASE ORDER #
Columbia Water & Light	Drinking Water		
ADDRESS	**PHONE NUMBER**	**E-MAIL**	**DATE SHIPPED**
1501 Business Loop 70E	(573) 874-6242	deidra.mcclendon@como.gov	11.9.21
CITY STATE ZIP	**SAMPLER (PLEASE PRINT)**		**MATRIX TYPES:**
Columbia, MO 65201	Howard Loftis		WW- WASTEWATER DW- DRINKING WATER GW- GROUND WATER WWSL- SLUDGE NAS- NON AQUEOUS SOLID LCHT-LEACHATE OIL-OIL SO-SOIL SOL-SOLID
CONTACT PERSON	**SAMPLER'S SIGNATURE**		
Deidra McClendon			

2 SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE (CLIENT PROVIDED)	3 ANALYSIS REQUESTED: M537.1	REMARKS
Drinking Water Grab	11-9-2021	0825	X		DW	1	7	X	
Drinking Water Field Blank*	11-9-2021	0825	X		DW	2	7	X	*Only analyze if hits on sample.
									*DI water for field blank sample should be
									transferred to preserved bottle in the field.

4 (FOR LAB USE ONLY)
LOGIN # EK02455-02
LOGGED BY: KEO
CLIENT:
PROJECT:
PROJ. MGR.:
CUSTODY SEAL #:

CHEMICAL PRESERVATION CODES:	1 – HCL	2 – H2SO4	3 – HNO3	4 – NAOH	5 – NA2S2O3	6 – UNPRESERVED	7 – OTHER

5 TURNAROUND TIME REQUESTED (PLEASE CHECK) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE) ☒ NORMAL ☐ RUSH — DATE RESULTS NEEDED
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL ☐ PHONE ☐
EMAIL IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*
PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

7	DATE	TIME	8 COMMENTS: (FOR LAB USE ONLY)
RELINQUISHED BY: (SIGNATURE) Deidra McClendon	11-9-2021	1530	
RECEIVED BY: (SIGNATURE) FEDEX	11/10/21	0932	
RELINQUISHED BY: (SIGNATURE)	11/10/21		
RECEIVED BY: (SIGNATURE)	11/10/21	11:00	
RELINQUISHED BY: (SIGNATURE)	11/10/21	14:00	
RECEIVED BY: (SIGNATURE)	11/10/21	1400	

SAMPLE TEMPERATURE UPON RECEIPT 5.9 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____