284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
Fax : 908 789 8922

DATA PACKAGE

GENERAL CHEMISTRY

PROJECT NAME : CTO WE13

TETRA TECH NUS, INC.

661 Andersen Drive

Suite 200

Pittsburgh, PA - 15220-2745

Phone No: 412-921-7090

ORDER ID : P4549

ATTENTION : Ernie Wu

Laboratory Certification ID # 20012

Table Of Contents for P4549

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
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Cover Page

Order ID : P4549

Project ID : CTO WE13

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
P4549-01	TT-TB-20241024
P4549-02	TT-067-IDWGW-20241024
P4549-03	TT-068-IDWGW-20241024
P4549-04	TT-069-IDWGW-20241024

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : N. N. Pandya

APPROVED

By Nimisha Pandya, QA/QC Supervisor at 2:26 pm, Nov 07, 2024

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE13
Project Manager : Ernie Wu
Chemtech Project # P4549
Test Name: pH

A. Number of Samples and Date of Receipt:
4 Water samples were received on 10/24/2024.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Mercury, Metals ICP-TAL, METALS-TAL, PCB, pH and VOCMS Group4. This data package contains results for pH.

C. Analytical Techniques:
The analysis of pH was based on method 9040C.

D. QA/ QC Samples:
The Holding Times were met for all samples except for TT-067-IDWGW-20241024 of pH, for TT-068-IDWGW-20241024 of pH.for TT-069-IDWGW-20241024 of pH as samples were receive out of holding time.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:
The laboratory certifies that the all-electronic diskette deliverable exactly match the data summary forms (i.e. Form Is).

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature N. N. Pandya

APPROVED
By Nimisha Pandya, QA/QC Supervisor at 2:26 pm, Nov 07, 2024

284 Sheffield Street, Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following " Results Qualifiers" are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers **"P"** for ICP instrument **"PM"** for ICP when Microwave Digestion is used **"CV"** for Manual Cold Vapor AA **"AV"** for automated Cold Vapor AA **"CA"** for MIDI-Distillation Spectrophotometric **"AS"** for Semi –Automated Spectrophotometric **"C"** for Manual Spectrophotometric **"T"** for Titrimetric **"NR"** for analyte not required to be analyzed
OR	Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time

QA Control # A3040961

ALLIANCE 284 Sheffield Street, Mountainside New Jersey 07092
NEW JERSEY LAB ID#: 20012: NEW YORK LAB ID#: 11376

GENERAL CHEMISTRY CONFORMANCE/NON-CONFORMANCE SUMMARY

CHEMTECH PROJECT NUMBER: P4549 MATRIX: Water

METHOD: 9040C

		NA	NO	YES
1.	Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
2.	Matrix Spike Duplicate Recoveries Met Criteria			✓
	If not met, list those compounds and their recoveries which fall outside the acceptable range.			
	The Blank Spike met requirements for all samples.			
3.	Sample Duplicate Analysis Met QC Criteria			✓
	If not met, list those compounds and their recoveries which fall outside the acceptable range.			
4.	Digestion Holding Time Met		✓	
	If not met, list number of days exceeded for each sample:			
	The Holding Times were met for all samples except for TT-067-IDWGW-20241024 of pH, for TT-068-IDWGW-20241024 of pH.for TT-069-IDWGW-20241024 of pH as samples were receive out of holding time.			

ADDITIONAL COMMENTS:

The laboratory certifies that the all-electronic diskette deliverable exactly match the data summary forms (i.e. Form Is).

S. M. Jodhani

QA REVIEW

REVIEWED
By Sohil Jodhani, QA/QC Director at 2:08 pm, Nov 07, 2024

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: P4549

	Completed
For thorough review, the report must have the following:	
GENERAL:	
Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)	✓
Check chain-of-custody for proper relinquish/return of samples	✓
Is the chain of custody signed and complete	✓
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	✓
Collect information for each project id from server. Were all requirements followed	✓
COVER PAGE:	
Do numbers of samples correspond to the number of samples in the Chain of Custody on login page	✓
Do lab numbers and client Ids on cover page agree with the Chain of Custody	✓
CHAIN OF CUSTODY:	
Do requested analyses on Chain of Custody agree with form I results	✓
Do requested analyses on Chain of Custody agree with the log-in page	✓
Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody	✓
Were the samples received within hold time	✓
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	✓
ANALYTICAL:	
Was method requirement followed?	✓
Was client requirement followed?	✓
Does the case narrative summarize all QC failure?	✓
All runlogs and manual integration are reviewed for requirements	✓
All manual calculations and /or hand notations verified	✓

QA Review Signature: SOHIL JODHANI **Date:** 11/05/2024

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LAB CHRONICLE

OrderID:	P4549	**OrderDate:**	10/24/2024 4:00:00 PM
Client:	Tetra Tech NUS, Inc.	**Project:**	CTO WE13
Contact:	Ernie Wu	**Location:**	K11,VOA Ref. #3 Water

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P4549-02	**TT-067-IDWGW-2024 1024**	**WATER**			**10/24/24 14:00**			**10/24/24**
			pH	9040C			10/25/24 10:20	
P4549-03	**TT-068-IDWGW-2024 1024**	**WATER**			**10/24/24 14:05**			**10/24/24**
			pH	9040C			10/25/24 10:25	
P4549-04	**TT-069-IDWGW-2024 1024**	**WATER**			**10/24/24 14:10**			**10/24/24**
			pH	9040C			10/25/24 10:30	

SAMPLE DATA

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/24 14:00
Project:	CTO WE13	Date Received:	10/24/24
Client Sample ID:	TT-067-IDWGW-20241024	SDG No.:	P4549
Lab Sample ID:	P4549-02	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.97	H	1	0	0	0	pH		10/25/24 10:20	9040C

Comments: pH result reported at temperature 20.7 °C

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/24 14:05
Project:	CTO WE13	Date Received:	10/24/24
Client Sample ID:	TT-068-IDWGW-20241024	SDG No.:	P4549
Lab Sample ID:	P4549-03	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.32	H	1	0	0	0	pH		10/25/24 10:25	9040C

Comments: pH result reported at temperature 20.6 °C

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/24 14:10
Project:	CTO WE13	Date Received:	10/24/24
Client Sample ID:	TT-069-IDWGW-20241024	SDG No.:	P4549
Lab Sample ID:	P4549-04	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.28	H	1	0	0	0	pH		10/25/24 10:30	9040C

Comments: pH result reported at temperature 20.2 °C

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

QC RESULT SUMMARY

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Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	P4549
Project:	CTO WE13	**RunNo.:**	LB133123

Analyte	Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID: **ICV**						
pH	pH	7.00	7	100	90-110	10/25/2024
Sample ID: **CCV1**						
pH	pH	2.01	2.00	101	90-110	10/25/2024
Sample ID: **CCV2**						
pH	pH	12.02	12.00	100	90-110	10/25/2024

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Duplicate Sample Summary

Client: Tetra Tech NUS, Inc.
SDG No.: P4549
Project: CTO WE13
Sample ID: P4549-04
Client ID: TT-069-IDWGW-20241024DUP
Percent Solids for Spike Sample: 0

Analyte	Units	Acceptance Limit	Sample Result	Conc. Qualifier	Duplicate Result	Conc. Qualifier	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	7.28		7.29		1	0.14		10/25/2024

RAW DATA

Reviewed By:Iwona
On:10/25/2024
10:35:20 AM
Inst Id :WC PH METER-1

Analytical Summary Report

Analysis Method: 9040C
Parameter: pH
Run Number: LB133123

Analyst By : jignesh
Supervisor Review By : Iwona
Slope : 98.6
pH Meter ID : WC PH METER-1

Calibration Standards	Chemtech Log#
PH 4 BUFFER SOLUTION	W3107
BUFFER PH 7.00 GREEN 1PINT PK6	W3093
PH 10.01 BUFFER,COLOR CD 475ML	W3094
buffer solution pH 7 yellow	W3071
Buffer Solution, PH2 (500ml)	W3005
Buffer Solution, PH12 (500ml)	W3072

True Value of ICV = 7.00 Control Limits[+/- 0.1].

True Value of CCV1 = 2.00 Control Limits[+/- 0.1].

True Value of CCV2 = 12.00 Control Limits[+/- 0.1].

Seq	LabID	DF	Matrix	Weight (gm)	Volume (ml)	Temperature (°C)	Result (pH)	Anal Date	Anal Time
1	CAL1	1	Water	NA	NA	20.3	4.01	10/25/2024	09:42
2	CAL2	1	Water	NA	NA	20.2	7.00	10/25/2024	09:43
3	CAL3	1	Water	NA	NA	20.2	10.02	10/25/2024	09:45
4	ICV	1	Water	NA	NA	20.2	7.00	10/25/2024	09:50
5	CCV1	1	Water	NA	NA	20.3	2.01	10/25/2024	10:00
6	P4548-01	1	Water	NA	NA	20.3	5.81	10/25/2024	10:10
7	P4548-03	1	Water	NA	NA	20.1	6.72	10/25/2024	10:15
8	P4548-05	1	Water	NA	NA	20.1	6.73	10/25/2024	10:17
9	P4548-07	1	Water	NA	NA	20.3	6.75	10/25/2024	10:19
10	P4549-02	1	Water	NA	NA	20.7	6.97	10/25/2024	10:20
11	P4549-03	1	Water	NA	NA	20.6	7.32	10/25/2024	10:25
12	P4549-04	1	Water	NA	NA	20.2	7.28	10/25/2024	10:30
13	P4549-04DUP	1	Water	NA	NA	20.3	7.29	10/25/2024	10:31
14	CCV2	1	Water	NA	NA	20.3	12.02	10/25/2024	10:35

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Instrument ID: WC PH METER-1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133123

Review By	jignesh	Review On	10/25/2024 10:14:40 AM
Supervise By	Iwona	Supervise On	10/25/2024 10:35:20 AM
SubDirectory	LB133123	Test	pH

STD. NAME	STD REF.#
ICAL Standard	N/A
ICV Standard	N/A
CCV Standard	N/A
ICSA Standard	N/A
CRI Standard	N/A
LCS Standard	N/A
Chk Standard	W3107,W3093,W3094,W3071,W3005,W3072

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	CAL1	CAL1	CAL	10/25/24 09:42		jignesh	OK
2	CAL2	CAL2	CAL	10/25/24 09:43		jignesh	OK
3	CAL3	CAL3	CAL	10/25/24 09:45		jignesh	OK
4	ICV	ICV	ICV	10/25/24 09:50		jignesh	OK
5	CCV1	CCV1	CCV	10/25/24 10:00		jignesh	OK
6	P4548-01	MW-1	SAM	10/25/24 10:10		jignesh	OK
7	P4548-03	MW-2	SAM	10/25/24 10:15		jignesh	OK
8	P4548-05	MW-3	SAM	10/25/24 10:17		jignesh	OK
9	P4548-07	MW-4	SAM	10/25/24 10:19		jignesh	OK
10	P4549-02	TT-067-IDWGW-2024	SAM	10/25/24 10:20		jignesh	OK
11	P4549-03	TT-068-IDWGW-2024	SAM	10/25/24 10:25		jignesh	OK
12	P4549-04	TT-069-IDWGW-2024	SAM	10/25/24 10:30		jignesh	OK
13	P4549-04DUP	TT-069-IDWGW-2024	DUP	10/25/24 10:31		jignesh	OK
14	CCV2	CCV2	CCV	10/25/24 10:35		jignesh	OK

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Prep Standard - Chemical Standard Summary

Order ID : P4549

Test : pH

Prepbatch ID :

Sequence ID/Qc Batch ID: LB133123,

Standard ID :

Chemical ID :
W3005,W3071,W3072,W3093,W3094,W3107,

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AL13850-1 / Buffer Solution, PH2 (500ml)	4212E45	12/31/2024	01/31/2023 / Iwona	01/31/2023 / Iwona	W3005

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AL14455-3 / buffer solution pH 7 yellow	4308H30	07/31/2025	01/02/2024 / JIGNESH	12/06/2023 / Iwona	W3071

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AL14940-1 / Buffer Solution, PH12 (500ml)	2310P21	04/30/2025	01/02/2024 / JIGNESH	12/07/2023 / Iwona	W3072

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	566002 / BUFFER PH 7.00 GREEN 1PINT PK6	44001f99	12/31/2025	04/03/2024 / jignesh	04/02/2024 / jignesh	W3093

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	1601-1 / PH 10.01 BUFFER,COLOR CD 475ML	4310g83	03/31/2025	04/03/2024 / jignesh	04/02/2024 / jignesh	W3094

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	AL14055-3 / PH 4 BUFFER SOLUTION	AL14055-3	02/27/2026	09/05/2024 / jignesh	05/13/2024 / jignesh	W3107

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W3071
Rec 12/6/23

Certificate of Analysis

Buffer, Reference Standard, pH 7.00 ± 0.01 at 25°C (Color Coded Yellow)

Lot Number: 4308H30 **Product Number:** 1551

Manufacture Date: AUG 09, 2023
Expiration Date: JUL 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	45	50
pH	7.12	7.09	7.06	7.04	7.02	7.00	6.99	6.98	6.98	6.97	6.97

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Phosphate Dibasic	7558-79-4	ACS
Potassium Dihydrogen Phosphate	7778-77-0	ACS
Preservative	Proprietary	
Yellow Dye	Proprietary	
Sodium Hydroxide	1310-73-2	Reagent

Test	Specification	Result	
Appearance	Yellow liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	7.002	0.02	186-I-g, 186-II-g, 191d

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer A	ASTM (D 5464)
Buffer A	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1551-2.5	10 L Cubitainer®	24 months
1551-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (08/09/2023)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

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W3072
rec. 12/01/23
12

Certificate of Analysis

Buffer, Reference Standard, pH 12.00 ± 0.01 at 25°C

Lot Number: 2310P21 **Product Number:** 1615

Manufacture Date: OCT 24, 2023
Expiration Date: APR 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.

°C	15	20	25	30	35	40
pH	12.35	12.17	11.99	11.78	11.62	11.46

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Chloride	7447-40-7	ACS
Sodium Hydroxide	1310-73-2	Reagent

Test	Specification	Result	
Appearance	Colorless liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	12.005	0.02	186-I-g, 186-II-g, 191d

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1615-1	4 L natural poly	18 months
1615-16	500 mL clear PET-G	18 months
1615-32	1 L natural poly	18 months
1615-5	20 L Cubitainer®	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Sharon Travers (10/24/2023)
Operations Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

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customerservice@riccachemical.com

W 3005 REC. 1/31/23 12

Certificate of Analysis

Buffer, Reference Standard, pH 2.00 ± 0.01 at 25°C

Lot Number: 4212E45 **Product Number:** 1493

Manufacture Date: DEC 20, 202[illegible]

Expiration Date: DEC 202[illegible]

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	10	15	20	25	30	35	40	45	50
pH	1.93	1.98	1.98	2.00	2.01	2.03	2.03	2.04	2.04

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Chloride	7447-40-7	ACS
Hydrochloric Acid	7647-01-0	ACS

Test	Specification	Result	
Appearance	Colorless liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	2.000	0.02	185i, 186-I-g, 186-II-g

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1493-1	4 L natural poly	24 months
1493-16	500 mL natural poly	24 months
1493-32	1 L natural poly	24 months
1493-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (12/20/2022)
Production Manager
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

RICCA CHEMICAL COMPANY®

1490 Lammers Pike
Batesville, IN 47006
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

W3093 0941 04/03/2024 LG

Certificate of Analysis

Buffer, Reference Standard, pH 7.00 ± 0.01 at 25°C (Color Coded Yellow)

Lot Number: 4401F99 **Product Number:** 1551

Manufacture Date: JAN 08, 2024
Expiration Date: DEC 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	45	50
pH	7.12	7.09	7.06	7.04	7.02	7.00	6.99	6.98	6.98	6.97	6.97

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Phosphate Dibasic	7558-79-4	ACS
Potassium Dihydrogen Phosphate	7778-77-0	ACS
Preservative	Proprietary	
Yellow Dye	Proprietary	
Sodium Hydroxide	1310-73-2	

Test	Specification	Result	
Appearance	Yellow liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	7.004	0.02	186-I-g, 186-II-g, 191d

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer A	ASTM (D 5464)
Buffer A	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1551-1	4 L natural poly	24 months
1551-1CT	4 L Cubitainer®	24 months
1551-2.5	10 L Cubitainer®	24 months
1551-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (01/08/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

RICCA CHEMICAL COMPANY®

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customerservice@riccachemical.com

W3094 78 exp: 04/03/2025

Certificate of Analysis

Buffer, Reference Standard, pH 10.00 ± 0.01 at 25°C (Color Coded Blue)

Lot Number: 4310G83 **Product Number:** 1601

Manufacture Date: OCT 09, 2023
Expiration Date: MAR 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	50
pH	10.31	10.23	10.17	10.11	10.05	10.00	9.95	9.91	9.87	9.81

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Carbonate	497-19-8	ACS
Sodium Bicarbonate	144-55-8	ACS
Sodium Hydroxide	1310-73-2	Reagent
Preservative	Proprietary	
Blue Dye	Proprietary	

Test	Specification	Result	
Appearance	Blue liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	10.003	0.02	186-I-g, 186-II-g, 191d

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer C	ASTM (D 5464)
Buffer C	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1601-16	500 mL natural poly	18 months
1601-5	20 L Cubitainer®	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (10/09/2023)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

RICCA CHEMICAL COMPANY®

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Batesville, IN 47006
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customerservice@riccachemical.com

W3107
36

Certificate of Analysis

Buffer, Reference Standard, pH 4.00 ± 0.01 at 25°C (Color Coded Red)

Lot Number: 4403F90 **Product Number:** 1501

Manufacture Date: MAR 09, 2024
Expiration Date: FEB 2026

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST Traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

°C	0	5	10	15	20	25	30	35	40	45	50
pH	4.00	4.00	4.00	4.00	4.00	4.00	4.01	4.02	4.03	4.04	4.06

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Acid Phthalate	877-24-7	Buffer
Preservative	Proprietary	Commercial
Red Dye	Proprietary	Purified

Test	Specification	Result	
Appearance	Red liquid	Passed	*Not a certified value.

Test	Certified Value	Uncertainty	NIST SRM#
pH at 25°C (Method: SQCP027, SQCP033)	4.000	0.02	185i, 186-I-g, 186-II-g

Specification	Reference
Commercial Buffer Solutions	ASTM (D 1293 B)
Buffer B	ASTM (D 5464)
Buffer B	ASTM (D 5128)

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1501-2.5	10 L Cubitainer®	24 months
1501-32	1 L natural poly	24 months
1501-5	20 L Cubitainer®	24 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Paul Brandon (03/09/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This product was tested in an ISO 17025 Accredited Laboratory

SHIPPING DOCUMENTS

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax: (908) 78-8922
www.chemtech.net

Chemtech Project Number: P4549

COC Number:

CLIENT INFORMATION	PROJECT INFORMATION	BILLING INFORMATION
COMPANY: Tetra Tech	PROJECT NAME: NWIRP Bethpage	BILL TO: SEE CONTRACT PO#
ADDRESS: 4433 Corporation Ln, Suite 300	PROJECT #: 112G08005-WE13 LOCATION: GW IDW	ADDRESS:
CITY: Virginia Beach STATE: VA ZIP: 23462	PROJECT MANAGER: Ernie Wu	CITY: STATE: ZIP:
ATTENTION: Ernie Wu	E-MAIL: ernie,wu@tetratech.com	ATTENTION: PHONE:
PHONE: 757-466-4901 FAX: 757-461-4148	PHONE: 757-466-4901 FAX: 757-461-4148	

DATA TURNAROUND INFORMATION

FAX:_____48hr_____ DAYS*
HARD COPY:_____48hr_____DAYS*
EDD_____48hr_____DAYS*
* TO BE APPROVED BY CHEMTECH
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

- ❑ RESULTS ONLY
- ❑ RESULTS + QC
- ❑ New Jersey REDUCED
- ❑ New Jersey CLP
- ❑ EDD Format_____
- ❑ USEPA CLP
- ❑ New York State ASP "B"
- ❑ New York State ASP "A"
- ❑ Other_____

ANALYSIS

	1	2	3	4	5	6	7	8	9
	VOC's (EPA 624)	pH	Total Metals	PCB's (EPA 8082)					

PRESERVATIVES

	A		B						
	1	2	3	4	5	6	7	8	9

COMMENTS

<-- Specify Preservatives
A-HCl B-HNO3
C-H2SO4 D-NaOH
E-ICE F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# of Bottles	1	2	3	4	5	6	7	8	9	COMMENTS
1.	TT-TB-20241024	QA		X	10/24/24	10:00	2	2									Trip Blank
2.	TT-067-IDWGW-20241024	AQ		X	10/24/24	14:00	5	2	1	1	1						
3.	TT-068-IDWGW-20241024	AQ		X	10/24/24	14:05	5	2	1	1	1						
4.	TT-069-IDWGW-20241024	AQ		X	10/24/24	14:10	5	2	1	1	1						
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PROSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER 1.	DATE/TIME 10/24/24 15:00	RECEIVED BY 1. 15:30 10.24.24
RELINQUISHED BY 2.	DATE/TIME	RECEIVED BY 2.
RELINQUISHED BY 3.	DATE/TIME 1905 10-24-2024	RECEIVED FOR LAB BY

Conditions of bottles or coolers at receipt: q Compliant q Non Compliant q Cooler Temp 3.0°C
MeOH extraction requires an additional 4oz. Jar for percent solid q Ice in Cooler?: Yes
Comments:
48hr TAT - CTO-WE13 Drilling GW IDW Sampling - Frac Tank #3291 (TT-050)

Page 1 of 1

SHIPPED VIA: CLIENT: ❑ Hand Delivered ❑ Overnight
CHEMTECH: ❑ Picked Up ❑ Overnight

Shipment Complete ❑ YES ❑ NO

WHITE - CHEMTECH COPYFOR RETURN TO CLIENT **YELLOW** - CHEMTECH COPY **PINK** - SAMPLER COPY

284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (L-A-B)	L2219
Maine	2024021
Maryland	296
New Hampshire	255423
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
Fax : 908 789 8922

LOGIN REPORT/SAMPLE TRANSFER

Order ID : P4549 TETR06
Client Name : Tetra Tech NUS, Inc.
Client Contact : Ernie Wu
Invoice Name : Tetra Tech NUS, Inc.
Invoice Contact : Ernie Wu

Order Date : 10/24/2024 4:00:00 PM
Project Name : CTO WE13
Receive DateTime : 10/24/2024 ~~12:00:00~~ 19:05 AM
Purchase Order :

Project Mgr :
Report Type : Level 4
EDD Type : ADAPT
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
P4549-01	TT-TB-20241024	Water	10/24/2024	10:00					
					VOCMS Group4		624.1		2 Bus. Days
P4549-02	TT-067-IDWGW-20241024	Water	10/24/2024	14:00					
					VOCMS Group4		624.1		2 Bus. Days
P4549-03	TT-068-IDWGW-20241024	Water	10/24/2024	14:05					
					VOCMS Group4		624.1		2 Bus. Days
P4549-04	TT-069-IDWGW-20241024	Water	10/24/2024	14:10					
					VOCMS Group4		624.1		2 Bus. Days

Relinguished By :
Date / Time : 10/25/24 0900

Received By :
Date / Time : 10/25/24 0900 Rgt 5

Storage Area : VOA Refridgerator Room