Chemical Analysis Report

NW-DIST-2021-10-12-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Bayou Chico BMAP DEP Chemistry/OV-Micro**
Request ID: **RQ-2021-10-11-03**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 02-NOV-2021 10:34

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Bayou Chico at Navy Blvd. Bridge **Collection Date/Time: 10/11/2021 14:10**

Field ID: 3302JE20 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282684	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P404944	
2282687	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P405234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P405320	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.70		mg N/L	P405036	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P405306	

Sample Location: Bayou Chico at W St. Bridge **Collection Date/Time: 10/11/2021 14:30**

Field ID: 33020JF1 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282685	EPA 180.1 Rev. 2.0	Turbidity	7.7		NTU	P404944	
2282688	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P405236	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P405341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P405095	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P405180	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Bayou Chico at Mandalay Drive **Collection Date/Time: 10/11/2021 11:20**

Field ID: 33020JD4 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282686	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P404944	
2282689	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P405234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P405320	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P405036	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P405254	

Sample Location: Pensacola Bay at Sanders Beach **Collection Date/Time: 10/11/2021 10:50**

Field ID: 33020J10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282692	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P404944	
2282694	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P405234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P405320	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P405036	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P405254	

Sample Location: Pensacola Bay at Sanders Beach **Collection Date/Time: 10/11/2021 10:55**

Field ID: EB_10112021 Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282693	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P404945	
2282695	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P405236	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P405341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P405095	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P405180	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Jackson Creek at New Warrington Road **Collection Date/Time: 10/11/2021 12:20**

Field ID: 33020222 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282690	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P404944	
2282691	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P405236	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P405341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P405095	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P405180	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404944

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404945

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405234

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405236

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405320

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405341

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405036

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405095

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405180

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405254

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405254

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282189	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282691	Ammonia-N	96.6	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282133	Kjeldahl Nitrogen	92.9	91.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282133	NO2NO3-N	99.4	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282714	NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282658	Total-P	108	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283419	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283500	Total-P	99.7	98.8	P/P	90 - 110

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282572	Turbidity	1.14	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282444	Turbidity	2.51	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282189	Ammonia-N	0.183	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282691	Ammonia-N	0.314	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282133	Kjeldahl Nitrogen	1.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282716	Kjeldahl Nitrogen	3.87	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282133	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282714	NO2NO3-N	0.509	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282658	Total-P	1.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283419	Total-P	0.773	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283500	Total-P	0.873	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A108293
Included Lab Sample IDs: 2282684, 2282685, 2282686, 2282690, 2282692, 2282693

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108330
Included Lab Sample IDs: 2282687, 2282689, 2282694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108349
Included Lab Sample IDs: 2282688, 2282691, 2282695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108403
Included Lab Sample IDs: 2282688

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108406
Included Lab Sample IDs: 2282691, 2282695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A108412
Included Lab Sample IDs: 2282687, 2282688, 2282689, 2282691, 2282694, 2282695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.8	P/P	90 - 110
Ammonia-N	98.9	99.2	P/P	90 - 110
Ammonia-N	99.3	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108435
Included Lab Sample IDs: 2282689

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	106	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108438
Included Lab Sample IDs: 2282687, 2282689, 2282694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108451
Included Lab Sample IDs: 2282694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108465
Included Lab Sample IDs: 2282688, 2282691, 2282695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108494
Included Lab Sample IDs: 2282687

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.8	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.14	
	Turbidity					2.51	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	103	103			0.183
	Ammonia-N	97.4	97.0	96.6			0.314
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	92.9	91.5			1.04
	Kjeldahl Nitrogen	101					3.87
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.4	99.4			0.0
	NO2NO3-N	98.0	98.0	98.5			0.509
EPA 365.1 Rev. 2.0	Total-P	106	108	110			1.07
	Total-P	107	101	102			0.773
	Total-P	98.7	99.7	98.8			0.873

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2282684, 2282685, 2282686, 2282690, 2282692, 2282693
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2282687, 2282688, 2282689, 2282691, 2282694, 2282695
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2282687, 2282688, 2282689, 2282691, 2282694, 2282695
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2282687, 2282688, 2282689, 2282691, 2282694, 2282695
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2282687, 2282688, 2282689, 2282691, 2282694, 2282695

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	10/12/2021			10/12/2021 17:02	Khloe J Berg	2282684, 2282685, 2282686, 2282690, 2282692, 2282693
EPA 350.1 Rev. 2.0	10/12/2021			10/19/2021 13:07	Ping Hua	2282687
	10/12/2021			10/19/2021 13:08	Ping Hua	2282689
	10/12/2021			10/19/2021 13:09	Ping Hua	2282694
	10/12/2021			10/19/2021 14:03	Ping Hua	2282688
	10/12/2021			10/19/2021 14:04	Ping Hua	2282691
	10/12/2021			10/19/2021 14:43	Ping Hua	2282695
EPA 351.2 Rev. 2.0	10/12/2021	10/19/2021 11:59	Benjamin T. Nordmann	10/20/2021 12:31	Alexandra J Mattheus	2282687
	10/12/2021	10/19/2021 11:59	Benjamin T. Nordmann	10/20/2021 12:33	Alexandra J Mattheus	2282689
	10/12/2021	10/19/2021 11:59	Benjamin T. Nordmann	10/20/2021 12:34	Alexandra J Mattheus	2282694
	10/12/2021	10/20/2021 12:20	Benjamin T. Nordmann	10/21/2021 11:23	Alexandra J Mattheus	2282688
	10/12/2021	10/20/2021 12:20	Benjamin T. Nordmann	10/21/2021 11:24	Alexandra J Mattheus	2282691
	10/12/2021	10/20/2021 12:20	Benjamin T. Nordmann	10/21/2021 11:26	Alexandra J Mattheus	2282695
EPA 353.2 Rev. 2.0	10/12/2021			10/14/2021 11:08	Beverly Y. Sanders	2282687
	10/12/2021			10/14/2021 11:09	Beverly Y. Sanders	2282689
	10/12/2021			10/14/2021 11:10	Beverly Y. Sanders	2282694
	10/12/2021			10/15/2021 10:20	Beverly Y. Sanders	2282688
	10/12/2021			10/15/2021 10:21	Beverly Y. Sanders	2282691
	10/12/2021			10/15/2021 10:23	Beverly Y. Sanders	2282695
EPA 365.1 Rev. 2.0	10/12/2021	10/18/2021 13:17	Simonne.V. Calhoun	10/19/2021 11:56	Lipi Saha	2282688
	10/12/2021	10/18/2021 13:17	Simonne.V. Calhoun	10/19/2021 12:38	Lipi Saha	2282691
	10/12/2021	10/18/2021 13:17	Simonne.V. Calhoun	10/19/2021 12:39	Lipi Saha	2282695
	10/12/2021	10/19/2021 16:46	Simonne.V. Calhoun	10/20/2021 12:29	Lipi Saha	2282689
	10/12/2021	10/19/2021 16:46	Simonne.V. Calhoun	10/20/2021 16:00	Lipi Saha	2282694
	10/12/2021	10/20/2021 14:17	Simonne.V. Calhoun	10/22/2021 14:17	Lipi Saha	2282687