

Chemical Analysis Report

CEN-DIST-2023-11-02-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2023-07-31-07**
Customer: **CEN-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Date Certified: 15-NOV-2023 09:16



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 groups are included in this report: Nutrients and Pesticides.

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: Tiger Lake - Center

Collection Date/Time: 11/01/2023 11:42

Field ID: HABCE0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2448373	DEP SOP: NU-094-1	Color (true)	50		PCU	P437295	
2448374	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P437346	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P437411	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P437605	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P437306	
2448375	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P437302	
2448376	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P437194	
		Cylindrospermopsin	0.10	U	ug/L	P437193	
		Desmethyl microcystin LR	0.25	U	ug/L	P437193	
		Microcystin HiLR	0.25	U	ug/L	P437193	
		Microcystin HtyR	0.25	U	ug/L	P437193	
		Microcystin LA	0.10	I	ug/L	P437193	
		Microcystin LF	0.10	U	ug/L	P437193	
		Microcystin LR	0.25	U	ug/L	P437193	
		Microcystin LW	0.25	U	ug/L	P437193	
		Microcystin LY	0.10	U	ug/L	P437193	
		Microcystin RR	0.10	U	ug/L	P437193	
		Microcystin WR	0.50	U	ug/L	P437193	
		Neosaxitoxin	0.50	U	ug/L	P437194	
		Microcystin YR	0.25	U	ug/L	P437193	
		Saxitoxin	0.50	U	ug/L	P437194	
		Nodularin-R	0.10	U	ug/L	P437193	

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P437295

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437411

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437306

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P437302

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P437193

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1LR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P437194

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P437295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437306

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P437302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	102		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P437193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	93.8		P	40 - 160
Desmethyl microcystin LR	92.3		P	40 - 160
Microcystin H1LR	90.2		P	40 - 160
Microcystin HtyR	90.8		P	40 - 160
Microcystin LA	95.0		P	40 - 160
Microcystin LF	85.5		P	40 - 160
Microcystin LR	86.5		P	40 - 160
Microcystin LW	74.9		P	40 - 160
Microcystin LY	80.8		P	40 - 160
Microcystin RR	86.2		P	40 - 160
Microcystin WR	90.5		P	40 - 160
Microcystin YR	80.0		P	40 - 160
Nodularin-R	92.0		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P437194

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	91.2		P	40 - 150
Neosaxitoxin	88.3		P	40 - 150
Saxitoxin	91.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448272	Ammonia-N	98.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448183	Kjeldahl Nitrogen	106	114	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448374	NO2NO3-N	96.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448386	Total-P	97.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P437302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448253	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P437193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447835	Cylindrospermopsin	90.3	85.2	P/P	40 - 160
2447835	Desmethyl microcystin LR	88.7	81.7	P/P	40 - 160
2447835	Microcystin HiLR	82.1	78.0	P/P	40 - 160
2447835	Microcystin HtyR	81.7	73.4	P/P	40 - 160
2447835	Microcystin LA	86.5	79.5	P/P	40 - 160
2447835	Microcystin LF	83.1	82.5	P/P	40 - 160
2447835	Microcystin LR	82.3	77.3	P/P	40 - 160
2447835	Microcystin LW	68.7	71.2	P/P	40 - 160
2447835	Microcystin LY	73.4	67.1	P/P	40 - 160
2447835	Microcystin RR	84.4	77.9	P/P	40 - 160
2447835	Microcystin WR	86.3	79.4	P/P	40 - 160
2447835	Microcystin YR	78.8	69.7	P/P	40 - 160
2447835	Nodularin-R	87.0	82.9	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P437194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447835	Anatoxin-a	98.2	91.1	P/P	40 - 150
2447835	Neosaxitoxin	69.8	69.6	P/P	40 - 150
2447835	Saxitoxin	74.3	79.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P437295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448251	Color (true)	3.32	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448272	Ammonia-N	0.955	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448183	Kjeldahl Nitrogen	4.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448374	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448386	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P437302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448253	O-Phosphate-P	1.74	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P437193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447835	Cylindrospermopsin	5.76	Spike	P	0 - 30
2447835	Desmethyl microcystin LR	8.26	Spike	P	0 - 30
2447835	Microcystin HtIR	5.09	Spike	P	0 - 30
2447835	Microcystin HtyR	10.7	Spike	P	0 - 30
2447835	Microcystin LA	8.38	Spike	P	0 - 30
2447835	Microcystin LF	0.766	Spike	P	0 - 30
2447835	Microcystin LR	6.28	Spike	P	0 - 30
2447835	Microcystin LW	3.59	Spike	P	0 - 30
2447835	Microcystin LY	9.01	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P437193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447835	Microcystin RR	8.03	Spike	P	0 - 30
2447835	Microcystin WR	8.44	Spike	P	0 - 30
2447835	Microcystin YR	12.3	Spike	P	0 - 30
2447835	Nodularin-R	4.81	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P437194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447835	Anatoxin-a	7.48	Spike	P	0 - 30
2447835	Neosaxitoxin	0.279	Spike	P	0 - 30
2447835	Saxitoxin	6.64	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2448376
Field Sample ID: HABCE0185

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	101	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	88.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A122518
Included Lab Sample IDs: 2448376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	101	89.7	P/P	50 - 160
Neosaxitoxin	103	94.2	P/P	50 - 160
Saxitoxin	104	102	P/P	50 - 160

Reference Method: DEP SOP: NU-094-1
Run ID: A122524
Included Lab Sample IDs: 2448373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A122527
Included Lab Sample IDs: 2448375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.9	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A122528
Included Lab Sample IDs: 2448376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	97.2	96.0	P/P	60 - 160
Desmethyl microcystin LR	88.0	91.7	P/P	50 - 160
Microcystin HILR	89.5	86.9	P/P	60 - 160
Microcystin HtyR	88.7	87.9	P/P	60 - 160
Microcystin LA	92.7	92.9	P/P	50 - 160
Microcystin LF	80.3	93.3	P/P	60 - 160
Microcystin LR	84.6	86.0	P/P	60 - 160
Microcystin LW	75.0	90.4	P/P	60 - 160
Microcystin LY	78.0	80.8	P/P	60 - 160
Microcystin RR	90.2	88.3	P/P	60 - 160
Microcystin WR	93.0	93.4	P/P	60 - 160
Microcystin YR	81.6	77.2	P/P	60 - 160
Nodularin-R	91.5	91.4	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A122551
Included Lab Sample IDs: 2448374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A122579
Included Lab Sample IDs: 2448374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122601

Included Lab Sample IDs: 2448374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122638

Included Lab Sample IDs: 2448374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	98.0	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 SMP	MS
					LCS	
DEP SOP: NU-094-1	Color (true)	98.4			3.32	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	98.0	99.8		0.955
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.4	106	114		4.45
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	96.5	97.5		1.03
EPA 365.1 Rev. 2.0	Total-P	104	97.8	101		1.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	102	104		1.74
EPA 8321B	Anatoxin-a	91.2	98.2	91.1		7.48
	Cylindrospermopsin	93.8	90.3	85.2		5.76
	Desmethyl microcystin LR	92.3	88.7	81.7		8.26
	Microcystin HiLR	90.2	82.1	78.0		5.09
	Microcystin HtyR	90.8	81.7	73.4		10.7
	Microcystin LA	95.0	86.5	79.5		8.38
	Microcystin LF	85.5	83.1	82.5		0.766
	Microcystin LR	86.5	82.3	77.3		6.28
	Microcystin LW	74.9	68.7	71.2		3.59
	Microcystin LY	80.8	73.4	67.1		9.01
	Microcystin RR	86.2	84.4	77.9		8.03
	Microcystin WR	90.5	86.3	79.4		8.44
	Microcystin YR	80.0	78.8	69.7		12.3
	Neosaxitoxin	88.3	69.8	69.6		0.279
	Nodularin-R	92.0	87.0	82.9		4.81
	Saxitoxin	91.9	74.3	79.4		6.64

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2448373
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2448374
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2448374
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2448374
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2448374
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2448375
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2448376
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2448376

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	11/02/2023			11/02/2023 15:17	Anna M. Plaviak	2448373
EPA 350.1 Rev. 2.0	11/02/2023			11/03/2023 13:10	Khloe J Berg	2448374
EPA 351.2 Rev. 2.0	11/02/2023	11/06/2023 13:00	Simonne.V. Calhoun	11/07/2023 14:30	Samantha L Bates	2448374
EPA 353.2 Rev. 2.0	11/02/2023			11/08/2023 13:42	Fadila Guebre	2448374
EPA 365.1 Rev. 2.0	11/02/2023	11/03/2023 14:23	Adam P Silver	11/06/2023 13:49	Chandler E Cox	2448374
EPA 365.1 Rev. 2.0 dissolved	11/02/2023			11/02/2023 17:31	Adam P Silver	2448375
EPA 8321B	11/02/2023	11/02/2023 11:00	Tae K Lee	11/02/2023 14:37	Hana Lee	2448376
	11/02/2023	11/02/2023 11:00	Tae K Lee	11/02/2023 18:04	Hana Lee	2448376