

Chemical Analysis Report

SE-DIST-2021-04-27-01

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

Event Description: **SMP - Okeechobee Monthly 04/21**

Request ID: **RQ-2021-04-12-53**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

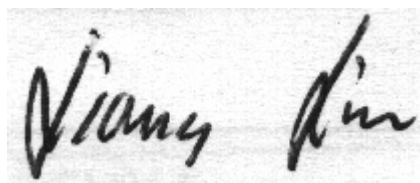
FL Dept. of Environmental Protection
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For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-MAY-2021 14:55

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: Lemkin Creek @ 78

Collection Date/Time: 04/26/2021 14:30

Field ID: G1SE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2242997	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P397269	
	EPA 300.0 Rev. 2.1	Chloride	200		mg Cl/L	P398189	
		Sulfate	140		mg SO4/L	P398193	
		Color (true)	40		PCU	P397264	
	SM 2320 B-2011	Total Alkalinity	133		mg CaCO3/L	P397395	
	SM 2540 C-2011	TDS	686		mg/L	P397783	
	SM 2540 D-2011	TSS	10		mg/L	P397591	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P397397	
2242998	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P397723	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P397467	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P397274	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P397340	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P397480	
2242999	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P397259	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: 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: P397269

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398189

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398193

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397723

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397467

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397274

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397340

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397259

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

Reference Method: SM 2120 B-2011
Batch ID: P397264

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P397395

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P397783

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397591

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P397397

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397480

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398189

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398193

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397723

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: P397467

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397274

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: P397340

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P397264

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P397395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P397397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P397480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2242699	Chloride	98.5		P	90 - 110
2243040	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243040	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2242930	Ammonia-N	97.6	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2242930	Kjeldahl Nitrogen	108	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2242733	NO2NO3-N	91.4	91.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243043	O-Phosphate-P	98.2	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P397397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243040	Fluoride	99.5	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P397480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243059	Organic Carbon	94.7	95.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P397269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242688	Turbidity	3.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242699	Chloride	0.266	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242699	Sulfate	0.564	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242930	Ammonia-N	0.240	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242930	Kjeldahl Nitrogen	5.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242733	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242930	Total-P	1.96	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243043	O-Phosphate-P	0.379	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P397264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242699	Color (true)	0.289	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P397395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243040	Total Alkalinity	0.909	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P397783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243007	TDS	3.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P397397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243040	Fluoride	0.467	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P397480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243059	Organic Carbon	0.879	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105022

Included Lab Sample IDs: 2242998

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A105024

Included Lab Sample IDs: 2242999

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

Reference Method: SM 2120 B-2011

Run ID: A105027

Included Lab Sample IDs: 2242997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A105028

Included Lab Sample IDs: 2242997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A105080

Included Lab Sample IDs: 2242997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A105080

Included Lab Sample IDs: 2242997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105103

Included Lab Sample IDs: 2242998

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

Reference Method: SM 5310 B-2011

Run ID: A105109

Included Lab Sample IDs: 2242998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105136

Included Lab Sample IDs: 2242998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	95.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105202

Included Lab Sample IDs: 2242998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	99.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A105392

Included Lab Sample IDs: 2242997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	101	102	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.23	
EPA 300.0 Rev. 2.1	Chloride	99.2	98.5	100		0.266	
	Sulfate	100	101			0.564	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	97.6	98.0			0.240
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	108	100			5.35
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	91.4	91.4			0.0
EPA 365.1 Rev. 2.0	Total-P	107					1.96
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	98.2	98.7			0.379
SM 2120 B-2011	Color (true)	102				0.289	
SM 2320 B-2011	Total Alkalinity	100				0.909	
SM 2540 C-2011	TDS					3.33	
SM 4500 F-C-2011	Fluoride	95.9	99.5	100			0.467
SM 5310 B-2011	Organic Carbon	95.3	94.7	95.8			0.879

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2242997
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2242997
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2242997
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2242998
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2242998
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2242998
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2242998
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2242999
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2242997
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2242997
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2242997
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2242997
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2242997
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2242998

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	04/27/2021			04/27/2021 15:48	Yen Ta	2242997
EPA 300.0 Rev. 2.1	04/27/2021			05/13/2021 22:37	Lipi Saha	2242997
EPA 350.1 Rev. 2.0	04/27/2021			05/05/2021 18:55	Ping Hua	2242998
EPA 351.2 Rev. 2.0	04/27/2021	04/30/2021 13:52	Benjamin T. Nordmann	05/03/2021 11:56	Virginia P. Brown	2242998
EPA 353.2 Rev. 2.0	04/27/2021			04/27/2021 14:59	Touraj Touran	2242998
EPA 365.1 Rev. 2.0	04/27/2021	04/28/2021 14:55	Yen Ta	04/29/2021 12:49	Shengyu Ding	2242998
EPA 365.1 Rev. 2.0 dissolved	04/27/2021			04/27/2021 15:26	Blanca Fach	2242999
SM 2120 B-2011	04/27/2021			04/27/2021 16:07	Sarah A Nixon	2242997
SM 2320 B-2011	04/27/2021			04/29/2021 02:14	Dale L. Simmons	2242997
SM 2540 C-2011	04/27/2021			04/30/2021 15:21	Yijie Li	2242997
SM 2540 D-2011	04/27/2021			04/30/2021 15:17	Yijie Li	2242997
SM 4500 F-C-2011	04/27/2021			04/29/2021 02:14	Dale L. Simmons	2242997
SM 5310 B-2011	04/27/2021			04/29/2021 20:58	Madeline Gruver	2242998