APPENDIX A

WATERSHED ANALYTICAL REPORTS

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5A27146

Project: Lake Elsinore/Canyon Lake Nutrient Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 2/28/2025
Received Date: 1/27/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:16

Sample Condition

Temperature	1.20 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-03-012725	Nicholas Poser	5A27146-01	Water	01/27/25 07:00	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:16

Sample Results

Sample: S-03-012725

Sampled: 01/27/25 7:00 by Nicholas Poser

5A27146-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4			**Instr:** UVVIS05				
Batch ID: W5B0598	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/08/25 10:08				**Analyst:** jls
Chemical Oxygen Demand	**29**	2.9	5.0	mg/l	1	02/13/25	
Method: SM 5210B			**Instr:** PH13				
Batch ID: W5A1720	**Preparation:** _NONE (WETCHEM)		**Prepared:** 01/28/25 08:44				**Analyst:** jls
Biochemical Oxygen Demand	**15**	2.0	2.0	mg/l	1	02/02/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:16

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A1720 - SM 5210B											
Blank (W5A1720-BLK1)				**Prepared: 01/28/25 Analyzed: 02/02/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5A1720-BLK2)				**Prepared: 01/28/25 Analyzed: 02/02/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5A1720-BLK3)				**Prepared: 01/28/25 Analyzed: 02/02/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
LCS (W5A1720-BS1)				**Prepared: 01/28/25 Analyzed: 02/02/25**							
Biochemical Oxygen Demand	169	2.0	2.0	mg/l	198		85	85-115			
Duplicate (W5A1720-DUP1)	**Source: 5A27141-01**			**Prepared: 01/28/25 Analyzed: 02/02/25**							
Biochemical Oxygen Demand	8.70	2.0	2.0	mg/l		8.03			8	20	
Batch: W5B0598 - EPA 410.4											
Blank (W5B0598-BLK1)				**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	ND	2.9	5.0	mg/l							
LCS (W5B0598-BS1)				**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	188	12	20	mg/l	200		94	90-110			
Duplicate (W5B0598-DUP1)	**Source: 5A24002-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	317	5.8	10	mg/l		336			6	15	
Matrix Spike (W5B0598-MS1)	**Source: 5A29102-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	211	12	20	mg/l	200	24.3	93	90-110			
Matrix Spike (W5B0598-MS2)	**Source: 5A24002-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	2190	12	20	mg/l	2000	336	93	90-110			
Matrix Spike Dup (W5B0598-MSD1)	**Source: 5A29102-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	206	12	20	mg/l	200	24.3	91	90-110	2	15	
Matrix Spike Dup (W5B0598-MSD2)	**Source: 5A24002-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	2190	12	20	mg/l	2000	336	93	90-110	0	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:16

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5A28134

Project: Lake Elsinore/Canyon Lake Nutrient Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 2/28/2025
Received Date: 1/28/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:18

Sample Condition

Temperature	1.80 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-04-012825	Matt Muilenburg	5A28134-01	Water	01/28/25 09:30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:18

Sample Results

Sample: S-04-012825

Sampled: 01/28/25 9:30 by Matt Muilenburg

5A28134-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4			**Instr:** UVVIS05				
Batch ID: W5B0598 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/08/25 10:08				**Analyst:** jls
Chemical Oxygen Demand	**75**	2.9	5.0	mg/l	1	02/13/25	
Method: SM 5210B			**Instr:** PH13				
Batch ID: W5A1875 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/29/25 09:35				**Analyst:** jls
Biochemical Oxygen Demand	**17**	2.0	2.0	mg/l	1	02/03/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:18

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A1875 - SM 5210B											
Blank (W5A1875-BLK1)				**Prepared: 01/29/25 Analyzed: 02/03/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5A1875-BLK2)				**Prepared: 01/29/25 Analyzed: 02/03/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5A1875-BLK3)				**Prepared: 01/29/25 Analyzed: 02/03/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
LCS (W5A1875-BS1)				**Prepared: 01/29/25 Analyzed: 02/03/25**							
Biochemical Oxygen Demand	196	2.0	2.0	mg/l	198		99	85-115			
Duplicate (W5A1875-DUP1)	**Source: 5A28134-01**			**Prepared: 01/29/25 Analyzed: 02/03/25**							
Biochemical Oxygen Demand	18.3	2.0	2.0	mg/l		17.4			5	20	
Batch: W5B0598 - EPA 410.4											
Blank (W5B0598-BLK1)				**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	ND	2.9	5.0	mg/l							
LCS (W5B0598-BS1)				**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	188	12	20	mg/l	200		94	90-110			
Duplicate (W5B0598-DUP1)	**Source: 5A24002-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	317	5.8	10	mg/l		336			6	15	
Matrix Spike (W5B0598-MS1)	**Source: 5A29102-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	211	12	20	mg/l	200	24.3	93	90-110			
Matrix Spike (W5B0598-MS2)	**Source: 5A24002-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	2190	12	20	mg/l	2000	336	93	90-110			
Matrix Spike Dup (W5B0598-MSD1)	**Source: 5A29102-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	206	12	20	mg/l	200	24.3	91	90-110	2	15	
Matrix Spike Dup (W5B0598-MSD2)	**Source: 5A24002-02**			**Prepared: 02/08/25 Analyzed: 02/13/25**							
Chemical Oxygen Demand	2190	12	20	mg/l	2000	336	93	90-110	0	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 02/28/2025 17:18

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5A28135

Project: Lake Elsinore and Canyon Lake Nutrient TMDL

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 3/06/2025
Received Date: 1/28/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Sample Condition

Temperature	1.80 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice	✓	Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-03-D12725	Nicholas Poser	5A28135-01	Water	01/27/25 14:00	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Sample Results

Sample: S-03-D12725

Sampled: 01/27/25 14:00 by Nicholas Poser

5A28135-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 02/04/25 11:58			**Analyst:** YMT	
Nitrogen, Total	**4.2**	0.036	0.20	mg/l		02/06/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 02/04/25 17:16			**Analyst:** YMT	
Organic Nitrogen, Total	**2.1**	0.017	0.10	mg/l		02/06/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B0231 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/04/25 17:16			**Analyst:** YMT	
Ammonia as N	**0.51**	0.017	0.10	mg/l	1	02/05/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B0169 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/04/25 11:58			**Analyst:** YMT	
TKN	**2.6**	0.13	0.20	mg/l	1	02/06/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5A1840 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/28/25 17:52			**Analyst:** ATN	
Nitrate as N	**1.4**	0.040	0.20	mg/l	1	01/28/25 19:14	FILT
Nitrite as N	**100**	42	100	ug/l	1	01/28/25 19:14	FILT
NO2+NO3 as N	**1600**	36	200	ug/l	1	01/28/25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5A1934 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/29/25 11:35			**Analyst:** rob	
o-Phosphate as P	**0.44**	0.0071	0.010	mg/l	1	01/29/25 13:21	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5A2033 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/30/25 10:33			**Analyst:** rob	
Phosphorus as P, Total	**0.76**	0.013	0.020	mg/l	1	02/03/25	M-02
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5A1974 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/29/25 15:34			**Analyst:** ism	
Total Dissolved Solids	**99**	4.0	10	mg/l	1	01/30/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5A2011 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/30/25 09:36			**Analyst:** dig	
Total Suspended Solids	**93**	5	5	mg/l	1	01/30/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 01/29/25 13:11			**Analyst:** kvm	
Hardness as CaCO3, Total	**56.9**	0.264	3.31	mg/l		01/31/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5A1949 **Preparation:** EPA 200.2			**Prepared:** 01/29/25 13:11			**Analyst:** kvm	
Calcium, Total	**15.7**	0.0240	0.500	mg/l	1	01/31/25	
Magnesium, Total	**4.29**	0.0495	0.500	mg/l	1	01/31/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Sample Results

(Continued)

Sample: S-03-D12725

Sampled: 01/27/25 14:00 by Nicholas Poser

5A28135-01 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7				**Instr:** ICP03			
Batch ID: W5A1949	**Preparation:** EPA 200.2			**Prepared:** 01/29/25 13:11		**Analyst:** kvm	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A1840 - EPA 353.2											
Blank (W5A1840-BLK1)					**Prepared & Analyzed: 01/28/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
LCS (W5A1840-BS1)					**Prepared & Analyzed: 01/28/25**						
Nitrate as N	1.00	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1030	42	100	ug/l	1000		103	90-110			
NO2+NO3 as N	1000	36	200	ug/l	1000		100	90-110			
Matrix Spike (W5A1840-MS1)	**Source: 5A28127-01**				**Prepared & Analyzed: 01/28/25**						
Nitrate as N	3.49	0.040	0.20	mg/l	2.00	1.33	108	90-110			
Nitrite as N	1180	42	100	ug/l	1000	131	105	90-110			
NO2+NO3 as N	3490	36	200	ug/l	2000	1460	102	90-110			
Matrix Spike Dup (W5A1840-MSD1)	**Source: 5A28127-01**				**Prepared & Analyzed: 01/28/25**						
Nitrate as N	3.49	0.040	0.20	mg/l	2.00	1.33	108	90-110	0	20	
Nitrite as N	1180	42	100	ug/l	1000	131	105	90-110	0	20	
NO2+NO3 as N	3490	36	200	ug/l	2000	1460	102	90-110	0	20	
Batch: W5A1934 - EPA 365.3											
Blank (W5A1934-BLK1)					**Prepared & Analyzed: 01/29/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5A1934-BS1)					**Prepared & Analyzed: 01/29/25**						
o-Phosphate as P	0.199	0.0071	0.010	mg/l	0.200		100	88-111			
Matrix Spike (W5A1934-MS1)	**Source: 5A23002-01**				**Prepared & Analyzed: 01/29/25**						
o-Phosphate as P	0.460	0.0071	0.010	mg/l	0.200	0.257	102	85-112			
Matrix Spike Dup (W5A1934-MSD1)	**Source: 5A23002-01**				**Prepared & Analyzed: 01/29/25**						
o-Phosphate as P	0.464	0.0071	0.010	mg/l	0.200	0.257	104	85-112	0.9	20	
Batch: W5A1974 - SM 2540C											
Blank (W5A1974-BLK1)					**Prepared: 01/29/25 Analyzed: 01/30/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5A1974-BS1)					**Prepared: 01/29/25 Analyzed: 01/30/25**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5A1974-DUP1)	**Source: 5A08002-01**				**Prepared: 01/29/25 Analyzed: 01/30/25**						
Total Dissolved Solids	960	4.0	10	mg/l		971			1	10	
Batch: W5A2011 - SM 2540D											
Blank (W5A2011-BLK1)					**Prepared & Analyzed: 01/30/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5A2011-BS1)					**Prepared & Analyzed: 01/30/25**						
Total Suspended Solids	68.0	5	5	mg/l	67.8		100	90-110			
Duplicate (W5A2011-DUP1)	**Source: 5A27086-01**				**Prepared & Analyzed: 01/30/25**						
Total Suspended Solids	99.0	5	5	mg/l		92.0			7	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A2011 - SM 2540D (Continued)											
Duplicate (W5A2011-DUP1)	**Source: 5A27086-01**			**Prepared & Analyzed: 01/30/25**							
Batch: W5A2033 - EPA 365.3											
Blank (W5A2033-BLK1)				**Prepared: 01/30/25 Analyzed: 02/03/25**							
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5A2033-BS1)				**Prepared: 01/30/25 Analyzed: 02/03/25**							
Phosphorus as P, Total	0.201	0.0067	0.010	mg/l	0.200		100	90-110			
Matrix Spike (W5A2033-MS1)	**Source: 5A23002-01**			**Prepared: 01/30/25 Analyzed: 02/03/25**							
Phosphorus as P, Total	0.824	0.013	0.020	mg/l	0.400	0.438	96	90-110			
Matrix Spike Dup (W5A2033-MSD1)	**Source: 5A23002-01**			**Prepared: 01/30/25 Analyzed: 02/03/25**							
Phosphorus as P, Total	0.830	0.013	0.020	mg/l	0.400	0.438	98	90-110	0.7	20	
Batch: W5B0169 - EPA 351.2											
Blank (W5B0169-BLK1)				**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	ND	0.065	0.10	mg/l							
Blank (W5B0169-BLK2)				**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	ND	0.065	0.10	mg/l							
LCS (W5B0169-BS1)				**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	0.979	0.065	0.10	mg/l	1.00		98	90-110			
LCS (W5B0169-BS2)				**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	0.948	0.065	0.10	mg/l	1.00		95	90-110			
Matrix Spike (W5B0169-MS1)	**Source: 5A27158-01**			**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	4.15	0.13	0.20	mg/l	2.00	2.39	88	90-110			MS-02
Matrix Spike (W5B0169-MS2)	**Source: 5A28135-01**			**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	4.73	0.13	0.20	mg/l	2.00	2.63	105	90-110			
Matrix Spike Dup (W5B0169-MSD1)	**Source: 5A27158-01**			**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	4.17	0.13	0.20	mg/l	2.00	2.39	89	90-110	0.5	10	MS-02
Matrix Spike Dup (W5B0169-MSD2)	**Source: 5A28135-01**			**Prepared: 02/04/25 Analyzed: 02/06/25**							
TKN	4.75	0.13	0.20	mg/l	2.00	2.63	106	90-110	0.4	10	
Batch: W5B0231 - EPA 350.1											
Blank (W5B0231-BLK1)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5B0231-BLK2)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5B0231-BS1)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.248	0.017	0.10	mg/l	0.250		99	90-110			
LCS (W5B0231-BS2)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.249	0.017	0.10	mg/l	0.250		100	90-110			
Matrix Spike (W5B0231-MS1)	**Source: 4H22003-03**			**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.319	0.017	0.10	mg/l	0.250	0.0817	95	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Quality Control Results (Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0231 - EPA 350.1 (Continued)											
Matrix Spike (W5B0231-MS2)	**Source: 5A29036-01**			**Prepared: 02/04/25**		**Analyzed: 02/05/25**					
Ammonia as N	0.764	0.017	0.10	mg/l	0.250	0.520	97	90-110			
Matrix Spike Dup (W5B0231-MSD1)	**Source: 4H22003-03**			**Prepared: 02/04/25**		**Analyzed: 02/05/25**					
Ammonia as N	0.321	0.017	0.10	mg/l	0.250	0.0817	96	90-110	0.6	15	
Matrix Spike Dup (W5B0231-MSD2)	**Source: 5A29036-01**			**Prepared: 02/04/25**		**Analyzed: 02/05/25**					
Ammonia as N	0.762	0.017	0.10	mg/l	0.250	0.520	97	90-110	0.2	15	

Quality Control Results (Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A1949 - EPA 200.7											
Blank (W5A1949-BLK1)				**Prepared: 01/29/25**		**Analyzed: 01/31/25**					
Calcium, Total	ND	0.0240	0.500	mg/l							
Magnesium, Total	ND	0.0495	0.500	mg/l							
LCS (W5A1949-BS1)				**Prepared: 01/29/25**		**Analyzed: 01/31/25**					
Calcium, Total	50.1	0.0240	0.500	mg/l	50.2		100	85-115			
Magnesium, Total	50.2	0.0495	0.500	mg/l	50.2		100	85-115			
Matrix Spike (W5A1949-MS1)	**Source: 4L13003-01**			**Prepared: 01/29/25**		**Analyzed: 01/31/25**					
Calcium, Total	124	0.0240	0.500	mg/l	50.2	76.5	94	70-130			
Magnesium, Total	63.7	0.0495	0.500	mg/l	50.2	14.3	98	70-130			
Matrix Spike (W5A1949-MS2)	**Source: 4L13003-06**			**Prepared: 01/29/25**		**Analyzed: 01/31/25**					
Calcium, Total	123	0.0240	0.500	mg/l	50.2	76.1	94	70-130			
Magnesium, Total	63.9	0.0495	0.500	mg/l	50.2	14.2	99	70-130			
Matrix Spike Dup (W5A1949-MSD1)	**Source: 4L13003-01**			**Prepared: 01/29/25**		**Analyzed: 01/31/25**					
Calcium, Total	115	0.0240	0.500	mg/l	50.2	76.5	77	70-130	7	30	
Magnesium, Total	62.2	0.0495	0.500	mg/l	50.2	14.3	95	70-130	2	30	
Matrix Spike Dup (W5A1949-MSD2)	**Source: 4L13003-06**			**Prepared: 01/29/25**		**Analyzed: 01/31/25**					
Calcium, Total	124	0.0240	0.500	mg/l	50.2	76.1	96	70-130	0.9	30	
Magnesium, Total	63.9	0.0495	0.500	mg/l	50.2	14.2	99	70-130	0.07	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore and Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 03/06/2025 18:21

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
[CALC]	An automated calculation using unrounded values then rounding the final result (scientific rounding rules). Calculations do not contain direct qualifiers; please refer to the individual components of the calculation for any qualifiers

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Hardness as CaCO3, Total consist of the following components Magnesium, Total; and Calcium, Total

Nitrogen, Total consist of the following components NO2+NO3 as N; and TKN

Organic Nitrogen, Total consist of the following components TKN; and Ammonia as N

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5A29093

Project: Lake Elsinore/Canyon Lake TMDL Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 3/06/2025
Received Date: 1/29/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Sample Condition

Temperature	0.90 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
5-04-012925	Matt Millenburg	5A29093-01	Water	01/29/25 10:00	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Sample Results

Sample: 5-04-012925

Sampled: 01/29/25 10:00 by Matt Millenburg

5A29093-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 02/11/25 09:17			**Analyst:** YMT	
Nitrogen, Total	**4.4**	0.036	0.10	mg/l		02/13/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 02/11/25 09:17			**Analyst:** YMT	
Organic Nitrogen, Total	**2.6**	0.017	0.10	mg/l		02/13/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B0232 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/04/25 17:23			**Analyst:** YMT	
Ammonia as N	**0.056**	0.017	0.10	mg/l	1	02/05/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B0751 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/11/25 09:17			**Analyst:** YMT	
TKN	**2.6**	0.065	0.10	mg/l	1	02/13/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5A2043 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/30/25 12:05			**Analyst:** ATN	
Nitrate as N	**1.6**	0.040	0.20	mg/l	1	01/30/25 12:48	FILT
Nitrite as N	**160**	42	100	ug/l	1	01/30/25 12:48	FILT
NO2+NO3 as N	**1700**	36	200	ug/l	1	01/30/25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5A2009 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/30/25 09:35			**Analyst:** rob	
o-Phosphate as P	**0.52**	0.0071	0.010	mg/l	1	01/30/25 12:53	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5B0368 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/05/25 16:39			**Analyst:** rob	
Phosphorus as P, Total	**0.69**	0.013	0.020	mg/l	1	02/10/25	M-06
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5A1974 **Preparation:** _NONE (WETCHEM)			**Prepared:** 01/29/25 15:34			**Analyst:** ism	
Total Dissolved Solids	**560**	4.0	10	mg/l	1	01/30/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5B0055 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/03/25 13:11			**Analyst:** dig	
Total Suspended Solids	**17**	5	5	mg/l	1	02/03/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 01/30/25 14:37			**Analyst:** kvm	
Hardness as CaCO3, Total	**216**	0.264	3.31	mg/l		02/04/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5A2067 **Preparation:** EPA 200.2			**Prepared:** 01/30/25 14:37			**Analyst:** kvm	
Calcium, Total	**58.2**	0.0240	0.500	mg/l	1	02/04/25	
Magnesium, Total	**17.1**	0.0495	0.500	mg/l	1	02/04/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Sample Results

(Continued)

Sample: 5-04-012925

Sampled: 01/29/25 10:00 by Matt Millenburg

5A29093-01 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7				**Instr:** ICP03			
Batch ID: W5A2067	**Preparation:** EPA 200.2			**Prepared:** 01/30/25 14:37			**Analyst:** kvm

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A1974 - SM 2540C											
Blank (W5A1974-BLK1)				**Prepared: 01/29/25 Analyzed: 01/30/25**							
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5A1974-BS1)				**Prepared: 01/29/25 Analyzed: 01/30/25**							
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5A1974-DUP1)	**Source: 5A08002-01**			**Prepared: 01/29/25 Analyzed: 01/30/25**							
Total Dissolved Solids	960	4.0	10	mg/l		971			1	10	
Batch: W5A2009 - EPA 365.3											
Blank (W5A2009-BLK1)				**Prepared & Analyzed: 01/30/25**							
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5A2009-BS1)				**Prepared & Analyzed: 01/30/25**							
o-Phosphate as P	0.202	0.0071	0.010	mg/l	0.200		101	88-111			
Matrix Spike (W5A2009-MS1)	**Source: 5A29092-03**			**Prepared & Analyzed: 01/30/25**							
o-Phosphate as P	7.02	0.14	0.20	mg/l	4.00	3.02	100	85-112			
Matrix Spike Dup (W5A2009-MSD1)	**Source: 5A29092-03**			**Prepared & Analyzed: 01/30/25**							
o-Phosphate as P	7.04	0.14	0.20	mg/l	4.00	3.02	100	85-112	0.3	20	
Batch: W5A2043 - EPA 353.2											
Blank (W5A2043-BLK1)				**Prepared & Analyzed: 01/30/25**							
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
LCS (W5A2043-BS1)				**Prepared & Analyzed: 01/30/25**							
Nitrate as N	0.969	0.040	0.20	mg/l	1.00		97	90-110			
Nitrite as N	1040	42	100	ug/l	1000		104	90-110			
NO2+NO3 as N	969	36	200	ug/l	1000		97	90-110			
Matrix Spike (W5A2043-MS1)	**Source: 5A29093-01**			**Prepared & Analyzed: 01/30/25**							
Nitrate as N	3.62	0.040	0.20	mg/l	2.00	1.56	103	90-110			
Nitrite as N	1210	42	100	ug/l	1000	165	104	90-110			
NO2+NO3 as N	3620	36	200	ug/l	2000	1720	95	90-110			
Matrix Spike Dup (W5A2043-MSD1)	**Source: 5A29093-01**			**Prepared & Analyzed: 01/30/25**							
Nitrate as N	3.59	0.040	0.20	mg/l	2.00	1.56	102	90-110	0.8	20	
Nitrite as N	1210	42	100	ug/l	1000	165	104	90-110	0	20	
NO2+NO3 as N	3590	36	200	ug/l	2000	1720	94	90-110	0.8	20	
Batch: W5B0055 - SM 2540D											
Blank (W5B0055-BLK1)				**Prepared & Analyzed: 02/03/25**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5B0055-BS1)				**Prepared & Analyzed: 02/03/25**							
Total Suspended Solids	61.0	5	5	mg/l	58.6		104	90-110			
Duplicate (W5B0055-DUP1)	**Source: 5A30107-02**			**Prepared & Analyzed: 02/03/25**							
Total Suspended Solids	48.0	5	5	mg/l		47.0			2	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0055 - SM 2540D (Continued)											
Duplicate (W5B0055-DUP1)	**Source: 5A30107-02**			**Prepared & Analyzed: 02/03/25**							
Batch: W5B0232 - EPA 350.1											
Blank (W5B0232-BLK1)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5B0232-BLK2)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5B0232-BS1)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.242	0.017	0.10	mg/l	0.250		97	90-110			
LCS (W5B0232-BS2)				**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.252	0.017	0.10	mg/l	0.250		101	90-110			
Matrix Spike (W5B0232-MS1)	**Source: 5A30064-03**			**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	4.84	0.085	0.50	mg/l	1.25	3.70	91	90-110			
Matrix Spike (W5B0232-MS2)	**Source: 5B04126-01**			**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.257	0.017	0.10	mg/l	0.250	0.0189	95	90-110			
Matrix Spike Dup (W5B0232-MSD1)	**Source: 5A30064-03**			**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	4.87	0.085	0.50	mg/l	1.25	3.70	93	90-110	0.6	15	
Matrix Spike Dup (W5B0232-MSD2)	**Source: 5B04126-01**			**Prepared: 02/04/25 Analyzed: 02/05/25**							
Ammonia as N	0.257	0.017	0.10	mg/l	0.250	0.0189	95	90-110	0.3	15	
Batch: W5B0368 - EPA 365.3											
Blank (W5B0368-BLK1)				**Prepared: 02/05/25 Analyzed: 02/10/25**							
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5B0368-BS1)				**Prepared: 02/05/25 Analyzed: 02/10/25**							
Phosphorus as P, Total	0.195	0.0067	0.010	mg/l	0.200		97	90-110			
Matrix Spike (W5B0368-MS1)	**Source: 5A30003-01**			**Prepared: 02/05/25 Analyzed: 02/10/25**							
Phosphorus as P, Total	0.828	0.013	0.020	mg/l	0.400	0.442	96	90-110			
Matrix Spike Dup (W5B0368-MSD1)	**Source: 5A30003-01**			**Prepared: 02/05/25 Analyzed: 02/10/25**							
Phosphorus as P, Total	0.836	0.013	0.020	mg/l	0.400	0.442	98	90-110	1	20	
Batch: W5B0751 - EPA 351.2											
Blank (W5B0751-BLK1)				**Prepared: 02/11/25 Analyzed: 02/13/25**							
TKN	ND	0.065	0.10	mg/l							
Blank (W5B0751-BLK2)				**Prepared: 02/11/25 Analyzed: 02/13/25**							
TKN	ND	0.065	0.10	mg/l							
LCS (W5B0751-BS1)				**Prepared: 02/11/25 Analyzed: 02/13/25**							
TKN	1.00	0.065	0.10	mg/l	1.00		100	90-110			
LCS (W5B0751-BS2)				**Prepared: 02/11/25 Analyzed: 02/13/25**							
TKN	0.974	0.065	0.10	mg/l	1.00		97	90-110			
Matrix Spike (W5B0751-MS1)	**Source: 5B07102-01**			**Prepared: 02/11/25 Analyzed: 02/13/25**							
TKN	3.19	0.065	0.10	mg/l	1.00	2.12	107	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Quality Control Results (Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0751 - EPA 351.2 (Continued)											
Matrix Spike (W5B0751-MS2)	**Source: 5B07102-02**			**Prepared: 02/11/25**		**Analyzed: 02/13/25**					
TKN	3.09	0.065	0.10	mg/l	1.00	2.36	73	90-110			MS-02
Matrix Spike Dup (W5B0751-MSD1)	**Source: 5B07102-01**			**Prepared: 02/11/25**		**Analyzed: 02/13/25**					
TKN	3.27	0.065	0.10	mg/l	1.00	2.12	115	90-110	2	10	MS-02
Matrix Spike Dup (W5B0751-MSD2)	**Source: 5B07102-02**			**Prepared: 02/11/25**		**Analyzed: 02/13/25**					
TKN	3.17	0.065	0.10	mg/l	1.00	2.36	81	90-110	3	10	MS-02

Quality Control Results (Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5A2067 - EPA 200.7											
Blank (W5A2067-BLK1)				**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	ND	0.0240	0.500	mg/l							
Magnesium, Total	ND	0.0495	0.500	mg/l							
LCS (W5A2067-BS1)				**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	50.4	0.0240	0.500	mg/l	50.2		100	85-115			
Magnesium, Total	52.2	0.0495	0.500	mg/l	50.2		104	85-115			
Duplicate (W5A2067-DUP1)	**Source: 5A27142-02**			**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	17.4	0.0240	0.500	mg/l		17.5			0.9	30	
Magnesium, Total	4.48	0.0495	0.500	mg/l		4.54			1	30	
Matrix Spike (W5A2067-MS1)	**Source: 4L23138-03**			**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	50.5	0.0240	0.500	mg/l	50.2	0.0294	100	70-130			
Magnesium, Total	52.3	0.0495	0.500	mg/l	50.2	ND	104	70-130			
Matrix Spike (W5A2067-MS2)	**Source: 5A29036-01**			**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	135	0.0240	0.500	mg/l	50.2	88.5	92	70-130			
Magnesium, Total	73.1	0.0495	0.500	mg/l	50.2	20.8	104	70-130			
Matrix Spike Dup (W5A2067-MSD1)	**Source: 4L23138-03**			**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	50.6	0.0240	0.500	mg/l	50.2	0.0294	101	70-130	0.3	30	
Magnesium, Total	52.4	0.0495	0.500	mg/l	50.2	ND	104	70-130	0.2	30	
Matrix Spike Dup (W5A2067-MSD2)	**Source: 5A29036-01**			**Prepared: 01/30/25**		**Analyzed: 02/04/25**					
Calcium, Total	135	0.0240	0.500	mg/l	50.2	88.5	93	70-130	0.4	30	
Magnesium, Total	72.6	0.0495	0.500	mg/l	50.2	20.8	103	70-130	0.6	30	

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 03/06/2025 14:31

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
M-06	Due to the high concentration of analyte inherent in the sample, sample was diluted prior to preparation and/or analysis. The MDL and MRL were raised due to this dilution.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
[CALC]	An automated calculation using unrounded values then rounding the final result (scientific rounding rules). Calculations do not contain direct qualifiers; please refer to the individual components of the calculation for any qualifiers

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Hardness as CaCO3, Total consist of the following components Magnesium, Total; and Calcium, Total

Nitrogen, Total consist of the following components NO2+NO3 as N; and TKN

Organic Nitrogen, Total consist of the following components TKN; and Ammonia as N

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C07092

Project: Lake Elsinore/Canyon Lake TMDL Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/10/2025
Received Date: 3/7/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Sample Condition

Temperature	2.30 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
5-03-030725	Sam Brogadir	5C07092-01	Water	03/07/25 12:00	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring
Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Sample Results

Sample: 5-03-030725
Sampled: 03/07/25 12:00 by Sam Brogadir

5C07092-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/26/25 11:03			**Analyst:** YMT	
Nitrogen, Total	**2.1**	0.036	0.10	mg/l		03/28/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/26/25 11:03			**Analyst:** YMT	
Organic Nitrogen, Total	**0.89**	0.017	0.10	mg/l		03/28/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1130 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/14/25 15:31			**Analyst:** YMT	
Ammonia as N	**0.19**	0.017	0.10	mg/l	1	03/18/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5C2015 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/26/25 11:03			**Analyst:** YMT	
TKN	**1.1**	0.065	0.10	mg/l	1	03/28/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C0556 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/07/25 14:30			**Analyst:** ATN	
Nitrate as N	**0.96**	0.040	0.20	mg/l	1	03/07/25 17:16	FILT
Nitrite as N	**58**	42	100	ug/l	1	03/07/25 17:16	FILT, J
NO2+NO3 as N	**1000**	36	200	ug/l	1	03/07/25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C0567 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/07/25 16:38			**Analyst:** rob	
o-Phosphate as P	**0.21**	0.0071	0.010	mg/l	1	03/07/25 19:09	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.30**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C0783 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:18			**Analyst:** ism	
Total Dissolved Solids	**93**	4.0	10	mg/l	1	03/11/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00			**Analyst:** dig	
Total Suspended Solids	**33**	5	5	mg/l	1	03/11/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/12/25 12:03			**Analyst:** kvm	
Hardness as CaCO3, Total	**47.5**	0.264	3.31	mg/l		03/17/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C0926 **Preparation:** EPA 200.2			**Prepared:** 03/12/25 12:03			**Analyst:** kvm	
Calcium, Total	**13.8**	0.0240	0.500	mg/l	1	03/17/25	
Magnesium, Total	**3.14**	0.0495	0.500	mg/l	1	03/17/25	

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Sample Results

(Continued)

Sample: 5-03-030725

Sampled: 03/07/25 12:00 by Sam Brogadir

5C07092-01 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7				**Instr:** ICP03			
Batch ID: W5C0926	**Preparation:** EPA 200.2			**Prepared:** 03/12/25 12:03			**Analyst:** kvm

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0556 - EPA 353.2											
Blank (W5C0556-BLK1)					**Prepared & Analyzed: 03/07/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
Blank (W5C0556-BLK2)					**Prepared & Analyzed: 03/07/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
LCS (W5C0556-BS1)					**Prepared & Analyzed: 03/07/25**						
Nitrate as N	1.03	0.040	0.20	mg/l	1.00		103	90-110			
Nitrite as N	1020	42	100	ug/l	1000		102	90-110			
NO2+NO3 as N	1030	36	200	ug/l	1000		103	90-110			
LCS (W5C0556-BS2)					**Prepared & Analyzed: 03/07/25**						
Nitrate as N	1.03	0.040	0.20	mg/l	1.00		103	90-110			
Nitrite as N	1040	42	100	ug/l	1000		104	90-110			
NO2+NO3 as N	1030	36	200	ug/l	1000		103	90-110			
Matrix Spike (W5C0556-MS1)	**Source: 5C07046-03**				**Prepared & Analyzed: 03/07/25**						
Nitrate as N	2.05	0.040	0.20	mg/l	2.00	ND	102	90-110			
Nitrite as N	1040	42	100	ug/l	1000	ND	104	90-110			
NO2+NO3 as N	2050	36	200	ug/l	2000	ND	102	90-110			
Matrix Spike (W5C0556-MS2)	**Source: 5C07048-05**				**Prepared & Analyzed: 03/07/25**						
Nitrate as N	2.04	0.040	0.20	mg/l	2.00	ND	102	90-110			
Nitrite as N	1030	42	100	ug/l	1000	ND	103	90-110			
NO2+NO3 as N	2040	36	200	ug/l	2000	ND	102	90-110			
Matrix Spike Dup (W5C0556-MSD1)	**Source: 5C07046-03**				**Prepared & Analyzed: 03/07/25**						
Nitrate as N	2.05	0.040	0.20	mg/l	2.00	ND	102	90-110	0	20	
Nitrite as N	1050	42	100	ug/l	1000	ND	105	90-110	1	20	
NO2+NO3 as N	2050	36	200	ug/l	2000	ND	102	90-110	0	20	
Matrix Spike Dup (W5C0556-MSD2)	**Source: 5C07048-05**				**Prepared & Analyzed: 03/07/25**						
Nitrate as N	2.04	0.040	0.20	mg/l	2.00	ND	102	90-110	0	20	
Nitrite as N	1030	42	100	ug/l	1000	ND	103	90-110	0	20	
NO2+NO3 as N	2040	36	200	ug/l	2000	ND	102	90-110	0	20	
Batch: W5C0567 - EPA 365.3											
Blank (W5C0567-BLK1)					**Prepared & Analyzed: 03/07/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5C0567-BS1)					**Prepared & Analyzed: 03/07/25**						
o-Phosphate as P	0.205	0.0071	0.010	mg/l	0.200		102	88-111			
Matrix Spike (W5C0567-MS1)	**Source: 5C07085-01**				**Prepared & Analyzed: 03/07/25**						
o-Phosphate as P	13.4	0.14	0.20	mg/l	4.00	9.48	97	85-112			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0567 - EPA 365.3 (Continued)											
Matrix Spike Dup (W5C0567-MSD1)	**Source: 5C07085-01**				**Prepared & Analyzed: 03/07/25**						
o-Phosphate as P	13.4	0.14	0.20	mg/l	4.00	9.48	99	85-112	0.4	20	
Batch: W5C0775 - SM 2540D											
Blank (W5C0775-BLK1)					**Prepared & Analyzed: 03/11/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5C0775-BS1)					**Prepared & Analyzed: 03/11/25**						
Total Suspended Solids	59.1	5	5	mg/l	61.6		96	90-110			
Duplicate (W5C0775-DUP1)	**Source: 5C07024-01**				**Prepared & Analyzed: 03/11/25**						
Total Suspended Solids	630	5	5	mg/l		588			7	10	
Batch: W5C0783 - SM 2540C											
Blank (W5C0783-BLK1)					**Prepared & Analyzed: 03/11/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5C0783-BS1)					**Prepared & Analyzed: 03/11/25**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5C0783-DUP1)	**Source: 5C07048-02**				**Prepared & Analyzed: 03/11/25**						
Total Dissolved Solids	832	4.0	10	mg/l		817			2	10	
Batch: W5C1130 - EPA 350.1											
Blank (W5C1130-BLK1)					**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5C1130-BLK2)					**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5C1130-BS1)					**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	0.246	0.017	0.10	mg/l	0.250		98	90-110			
LCS (W5C1130-BS2)					**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	0.250	0.017	0.10	mg/l	0.250		100	90-110			
Matrix Spike (W5C1130-MS1)	**Source: 5B27018-02**				**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	3.38	0.017	0.10	mg/l	0.250	3.16	88	90-110			MS-02
Matrix Spike (W5C1130-MS2)	**Source: 5C05098-04**				**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	0.591	0.017	0.10	mg/l	0.250	0.349	97	90-110			
Matrix Spike Dup (W5C1130-MSD1)	**Source: 5B27018-02**				**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	3.40	0.017	0.10	mg/l	0.250	3.16	95	90-110	0.5	15	
Matrix Spike Dup (W5C1130-MSD2)	**Source: 5C05098-04**				**Prepared: 03/14/25 Analyzed: 03/18/25**						
Ammonia as N	0.593	0.017	0.10	mg/l	0.250	0.349	98	90-110	0.3	15	
Batch: W5C1465 - EPA 365.3											
Blank (W5C1465-BLK1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5C1465-BS1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.191	0.0067	0.010	mg/l	0.200		96	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1465 - EPA 365.3 (Continued)											
Matrix Spike (W5C1465-MS1)	**Source: 5C03031-01**			**Prepared: 03/19/25**		**Analyzed: 03/24/25**					
Phosphorus as P, Total	0.846	0.013	0.020	mg/l	0.400	0.456	98	90-110			
Matrix Spike Dup (W5C1465-MSD1)	**Source: 5C03031-01**			**Prepared: 03/19/25**		**Analyzed: 03/24/25**					
Phosphorus as P, Total	0.860	0.013	0.020	mg/l	0.400	0.456	101	90-110	2	20	
Batch: W5C2015 - EPA 351.2											
Blank (W5C2015-BLK1)				**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	ND	0.065	0.10	mg/l							
Blank (W5C2015-BLK2)				**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	ND	0.065	0.10	mg/l							
LCS (W5C2015-BS1)				**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	0.974	0.065	0.10	mg/l	1.00		97	90-110			
LCS (W5C2015-BS2)				**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	1.02	0.065	0.10	mg/l	1.00		102	90-110			
Duplicate (W5C2015-DUP1)	**Source: 5C07092-01**			**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	1.12	0.065	0.10	mg/l		1.08			4	10	
Matrix Spike (W5C2015-MS1)	**Source: 5C19108-01**			**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	4.21	0.13	0.20	mg/l	2.00	2.33	94	90-110			
Matrix Spike (W5C2015-MS2)	**Source: 5C19108-02**			**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	4.76	0.13	0.20	mg/l	2.00	2.88	94	90-110			
Matrix Spike Dup (W5C2015-MSD1)	**Source: 5C19108-01**			**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	4.26	0.13	0.20	mg/l	2.00	2.33	97	90-110	1	10	
Matrix Spike Dup (W5C2015-MSD2)	**Source: 5C19108-02**			**Prepared: 03/26/25**		**Analyzed: 03/28/25**					
TKN	4.65	0.13	0.20	mg/l	2.00	2.88	89	90-110	2	10	MS-01

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0926 - EPA 200.7											
Blank (W5C0926-BLK1)				**Prepared: 03/12/25 Analyzed: 03/17/25**							
Calcium, Total	ND	0.0240	0.500	mg/l							
Magnesium, Total	ND	0.0495	0.500	mg/l							
LCS (W5C0926-BS1)				**Prepared: 03/12/25 Analyzed: 03/17/25**							
Calcium, Total	49.1	0.0240	0.500	mg/l	50.2		98	85-115			
Magnesium, Total	51.1	0.0495	0.500	mg/l	50.2		102	85-115			
Matrix Spike (W5C0926-MS1)	**Source: 5B12011-03**			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Calcium, Total	96.1	0.0240	0.500	mg/l	50.2	48.2	95	70-130			
Magnesium, Total	54.9	0.0495	0.500	mg/l	50.2	4.68	100	70-130			
Matrix Spike (W5C0926-MS2)	**Source: 5B12011-07**			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Calcium, Total	132	0.0240	0.500	mg/l	50.2	110	44	70-130			MS-02
Magnesium, Total	59.3	0.0495	0.500	mg/l	50.2	19.6	79	70-130			
Matrix Spike Dup (W5C0926-MSD1)	**Source: 5B12011-03**			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Calcium, Total	96.9	0.0240	0.500	mg/l	50.2	48.2	97	70-130	0.8	30	
Magnesium, Total	55.5	0.0495	0.500	mg/l	50.2	4.68	101	70-130	1	30	
Matrix Spike Dup (W5C0926-MSD2)	**Source: 5B12011-07**			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Calcium, Total	150	0.0240	0.500	mg/l	50.2	110	80	70-130	13	30	
Magnesium, Total	67.9	0.0495	0.500	mg/l	50.2	19.6	96	70-130	13	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:26

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
[CALC]	An automated calculation using unrounded values then rounding the final result (scientific rounding rules). Calculations do not contain direct qualifiers; please refer to the individual components of the calculation for any qualifiers

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Hardness as CaCO3, Total consist of the following components Magnesium, Total; and Calcium, Total

Nitrogen, Total consist of the following components NO2+NO3 as N; and TKN

Organic Nitrogen, Total consist of the following components TKN; and Ammonia as N

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C07093

Project: Lake Elsinore/Canyon Lake Nutrient Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/10/2025
Received Date: 3/7/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:23

Sample Condition

Temperature	2.30 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CLS-030725	Sam Brogadir	5C07093-01	Water	03/07/25 06:55	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:23

Sample Results

Sample: CLS-030725

Sampled: 03/07/25 6:55 by Sam Brogadir

5C07093-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4			**Instr:** UVVIS05				
Batch ID: W5C1951 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 16:57				**Analyst:** jls
Chemical Oxygen Demand	**22**	2.9	5.0	mg/l	1	03/28/25	
Method: SM 5210B			**Instr:** PH13				
Batch ID: W5C0500 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/07/25 12:25				**Analyst:** jls
Biochemical Oxygen Demand	**3.9**	2.0	2.0	mg/l	1	03/12/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:23

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0500 - SM 5210B											
Blank (W5C0500-BLK1)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C0500-BLK2)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C0500-BLK3)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
LCS (W5C0500-BS1)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	192	2.0	2.0	mg/l	198		97	85-115			
Duplicate (W5C0500-DUP1)	**Source: 5C06057-04**			**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l		ND				20	
Batch: W5C1951 - EPA 410.4											
Blank (W5C1951-BLK1)				**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	ND	2.9	5.0	mg/l							
LCS (W5C1951-BS1)				**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	191	12	20	mg/l	200		96	90-110			
Duplicate (W5C1951-DUP1)	**Source: 5B24035-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	1440	23	40	mg/l		1350			7	15	
Matrix Spike (W5C1951-MS1)	**Source: 5B24010-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	192	12	20	mg/l	200	ND	96	90-110			
Matrix Spike (W5C1951-MS2)	**Source: 5C11040-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	2360	12	20	mg/l	2000	559	90	90-110			
Matrix Spike Dup (W5C1951-MSD1)	**Source: 5B24010-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	189	12	20	mg/l	200	ND	95	90-110	1	15	
Matrix Spike Dup (W5C1951-MSD2)	**Source: 5C11040-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	2360	12	20	mg/l	2000	559	90	90-110	0	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:23

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C10116

Project: Lake Elsinore/Canyon Lake Nutrient TMDL

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/10/2025
Received Date: 3/10/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported:
04/10/2025 16:31

Sample Condition

Temperature	1.30 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-04-030925-01	Matt M.	5C10116-01	Water	03/09/25 13:00	
S-04-030925-02	Matt M.	5C10116-02	Water	03/09/25 13:00	
S-04-031025-03	Matt M.	5C10116-03	Water	03/10/25 10:30	
CLS-031025-01	Matt M.	5C10116-04	Water	03/10/25 12:00	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Sample Results

Sample: S-04-030925-01

Sampled: 03/09/25 13:00 by Matt M.

5C10116-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Nitrogen, Total	**1.8**	0.036	0.10	mg/l		03/28/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Organic Nitrogen, Total	**0.87**	0.017	0.10	mg/l		03/28/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1467 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:46			**Analyst:** YMT	
Ammonia as N	**0.049**	0.017	0.10	mg/l	1	03/20/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5C2093 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
TKN	**0.92**	0.065	0.10	mg/l	1	03/28/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C0677 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 16:11			**Analyst:** ATN	
Nitrate as N	**0.77**	0.040	0.20	mg/l	1	03/10/25 18:17	
Nitrite as N	**75**	42	100	ug/l	1	03/10/25 18:17	J
NO2+NO3 as N	**850**	36	200	ug/l	1	03/10/25	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C0695 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 18:16			**Analyst:** rob	
o-Phosphate as P	**0.22**	0.0071	0.010	mg/l	1	03/10/25 18:44	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.32**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C0783 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:18			**Analyst:** ism	
Total Dissolved Solids	**170**	4.0	10	mg/l	1	03/11/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00			**Analyst:** dig	
Total Suspended Solids	**31**	5	5	mg/l	1	03/11/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	
Hardness as CaCO3, Total	**80.2**	0.264	3.31	mg/l		03/21/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	
Calcium, Total	**23.2**	0.0240	0.500	mg/l	1	03/21/25	
Magnesium, Total	**5.42**	0.0495	0.500	mg/l	1	03/21/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Sample Results (Continued)

Sample: S-04-030925-01 — Sampled: 03/09/25 13:00 by Matt M.

5C10116-01 (Water) (Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	

Sample Results (Continued)

Sample: S-04-030925-02 — Sampled: 03/09/25 13:00 by Matt M.

5C10116-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Nitrogen, Total	**1.9**	0.036	0.10	mg/l		03/28/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Organic Nitrogen, Total	**1.0**	0.017	0.10	mg/l		03/28/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1467 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:46			**Analyst:** YMT	
Ammonia as N	**0.050**	0.017	0.10	mg/l	1	03/20/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5C2093 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
TKN	**1.1**	0.065	0.10	mg/l	1	03/28/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C0677 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 16:11			**Analyst:** ATN	
Nitrate as N	**0.78**	0.040	0.20	mg/l	1	03/10/25 18:18	
Nitrite as N	**67**	42	100	ug/l	1	03/10/25 18:18	J
NO2+NO3 as N	**850**	36	200	ug/l	1	03/10/25	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C0695 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 18:16			**Analyst:** rob	
o-Phosphate as P	**0.23**	0.0071	0.010	mg/l	1	03/10/25 18:45	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.35**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C0783 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:18			**Analyst:** ism	
Total Dissolved Solids	**170**	4.0	10	mg/l	1	03/11/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00			**Analyst:** dig	
Total Suspended Solids	**25**	5	5	mg/l	1	03/11/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Sample Results

(Continued)

Sample: S-04-030925-02

Sampled: 03/09/25 13:00 by Matt M.

5C10116-02 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)							
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00				**Analyst:** dig
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/18/25 14:04				**Analyst:** kvm
Hardness as CaCO3, Total	**82.0**	0.264	3.31	mg/l		03/21/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04				**Analyst:** kvm
Calcium, Total	**23.7**	0.0240	0.500	mg/l	1	03/21/25	
Magnesium, Total	**5.55**	0.0495	0.500	mg/l	1	03/21/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Sample Results

(Continued)

Sample: S-04-031025-03

Sampled: 03/10/25 10:30 by Matt M.

5C10116-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Nitrogen, Total	ND	0.036	0.10	mg/l		03/28/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Organic Nitrogen, Total	ND	0.017	0.10	mg/l		03/28/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1467 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:46			**Analyst:** YMT	
Ammonia as N	ND	0.017	0.10	mg/l	1	03/20/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5C2093 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
TKN	ND	0.065	0.10	mg/l	1	03/28/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C0677 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 16:11			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	03/10/25 18:06	
Nitrite as N	ND	42	100	ug/l	1	03/10/25 18:06	
NO2+NO3 as N	ND	36	200	ug/l	1	03/10/25	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C0695 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 18:16			**Analyst:** rob	
o-Phosphate as P	**0.011**	0.0071	0.010	mg/l	1	03/10/25 18:45	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	ND	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C0783 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:18			**Analyst:** ism	
Total Dissolved Solids	ND	4.0	10	mg/l	1	03/11/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00			**Analyst:** dig	
Total Suspended Solids	ND	5	5	mg/l	1	03/11/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	
Hardness as CaCO3, Total	ND	0.264	3.31	mg/l		03/21/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	
Calcium, Total	ND	0.0240	0.500	mg/l	1	03/21/25	
Magnesium, Total	ND	0.0495	0.500	mg/l	1	03/21/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Sample Results (Continued)

Sample: S-04-031025-03 — Sampled: 03/10/25 10:30 by Matt M.

5C10116-03 (Water) (Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	

Sample Results (Continued)

Sample: CLS-031025-01 — Sampled: 03/10/25 12:00 by Matt M.

5C10116-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Nitrogen, Total	**0.99**	0.036	0.10	mg/l		03/28/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
Organic Nitrogen, Total	**0.90**	0.017	0.10	mg/l		03/28/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1467 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:46			**Analyst:** YMT	
Ammonia as N	**0.023**	0.017	0.10	mg/l	1	03/20/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5C2093 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/27/25 09:00			**Analyst:** YMT	
TKN	**0.93**	0.065	0.10	mg/l	1	03/28/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C0677 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 16:11			**Analyst:** ATN	
Nitrate as N	**0.060**	0.040	0.20	mg/l	1	03/10/25 18:12	J
Nitrite as N	ND	42	100	ug/l	1	03/10/25 18:12	
NO2+NO3 as N	**60**	36	200	ug/l	1	03/10/25	J
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C0695 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/10/25 18:16			**Analyst:** rob	
o-Phosphate as P	**0.014**	0.0071	0.010	mg/l	1	03/10/25 18:43	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.098**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C0783 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:18			**Analyst:** ism	
Total Dissolved Solids	**530**	4.0	10	mg/l	1	03/11/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00			**Analyst:** dig	
Total Suspended Solids	**9**	5	5	mg/l	1	03/11/25	

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Sample Results

(Continued)

Sample: CLS-031025-01

Sampled: 03/10/25 12:00 by Matt M.

5C10116-04 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)							
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C0775 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/11/25 11:00				**Analyst:** dig
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/18/25 14:04				**Analyst:** kvm
Hardness as CaCO3, Total	**263**	0.264	3.31	mg/l		03/21/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04				**Analyst:** kvm
Calcium, Total	**65.7**	0.0240	0.500	mg/l	1	03/21/25	
Magnesium, Total	**23.9**	0.0495	0.500	mg/l	1	03/21/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0677 - EPA 353.2											
Blank (W5C0677-BLK1)					**Prepared & Analyzed: 03/10/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
Blank (W5C0677-BLK2)					**Prepared & Analyzed: 03/10/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
LCS (W5C0677-BS1)					**Prepared & Analyzed: 03/10/25**						
Nitrate as N	1.06	0.040	0.20	mg/l	1.00		106	90-110			
Nitrite as N	1060	42	100	ug/l	1000		106	90-110			
NO2+NO3 as N	1060	36	200	ug/l	1000		106	90-110			
LCS (W5C0677-BS2)					**Prepared & Analyzed: 03/10/25**						
Nitrate as N	1.06	0.040	0.20	mg/l	1.00		106	90-110			
Nitrite as N	1060	42	100	ug/l	1000		106	90-110			
NO2+NO3 as N	1060	36	200	ug/l	1000		106	90-110			
Matrix Spike (W5C0677-MS1)	**Source: 5C10116-03**				**Prepared & Analyzed: 03/10/25**						
Nitrate as N	2.02	0.040	0.20	mg/l	2.00	ND	101	90-110			
Nitrite as N	1050	42	100	ug/l	1000	ND	105	90-110			
NO2+NO3 as N	2020	36	200	ug/l	2000	ND	101	90-110			
Matrix Spike (W5C0677-MS2)	**Source: 5C10116-04**				**Prepared & Analyzed: 03/10/25**						
Nitrate as N	2.12	0.040	0.20	mg/l	2.00	0.0597	103	90-110			
Nitrite as N	1090	42	100	ug/l	1000	ND	109	90-110			
NO2+NO3 as N	2120	36	200	ug/l	2000	59.7	103	90-110			
Matrix Spike Dup (W5C0677-MSD1)	**Source: 5C10116-03**				**Prepared & Analyzed: 03/10/25**						
Nitrate as N	2.03	0.040	0.20	mg/l	2.00	ND	102	90-110	0.5	20	
Nitrite as N	1050	42	100	ug/l	1000	ND	105	90-110	0	20	
NO2+NO3 as N	2030	36	200	ug/l	2000	ND	102	90-110	0.5	20	
Matrix Spike Dup (W5C0677-MSD2)	**Source: 5C10116-04**				**Prepared & Analyzed: 03/10/25**						
Nitrate as N	2.12	0.040	0.20	mg/l	2.00	0.0597	103	90-110	0	20	
Nitrite as N	1070	42	100	ug/l	1000	ND	107	90-110	2	20	
NO2+NO3 as N	2120	36	200	ug/l	2000	59.7	103	90-110	0	20	
Batch: W5C0695 - EPA 365.3											
Blank (W5C0695-BLK1)					**Prepared & Analyzed: 03/10/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5C0695-BS1)					**Prepared & Analyzed: 03/10/25**						
o-Phosphate as P	0.206	0.0071	0.010	mg/l	0.200		103	88-111			
Matrix Spike (W5C0695-MS1)	**Source: 5C10116-04**				**Prepared & Analyzed: 03/10/25**						
o-Phosphate as P	0.215	0.0071	0.010	mg/l	0.200	0.0140	100	85-112			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0695 - EPA 365.3 (Continued)											
Matrix Spike Dup (W5C0695-MSD1)	**Source: 5C10116-04**				**Prepared & Analyzed: 03/10/25**						
o-Phosphate as P	0.222	0.0071	0.010	mg/l	0.200	0.0140	104	85-112	3	20	
Batch: W5C0775 - SM 2540D											
Blank (W5C0775-BLK1)					**Prepared & Analyzed: 03/11/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5C0775-BS1)					**Prepared & Analyzed: 03/11/25**						
Total Suspended Solids	59.1	5	5	mg/l	61.6		96	90-110			
Duplicate (W5C0775-DUP1)	**Source: 5C07024-01**				**Prepared & Analyzed: 03/11/25**						
Total Suspended Solids	630	5	5	mg/l		588			7	10	
Batch: W5C0783 - SM 2540C											
Blank (W5C0783-BLK1)					**Prepared & Analyzed: 03/11/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5C0783-BS1)					**Prepared & Analyzed: 03/11/25**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5C0783-DUP1)	**Source: 5C07048-02**				**Prepared & Analyzed: 03/11/25**						
Total Dissolved Solids	832	4.0	10	mg/l		817			2	10	
Batch: W5C1465 - EPA 365.3											
Blank (W5C1465-BLK1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5C1465-BS1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.191	0.0067	0.010	mg/l	0.200		96	90-110			
Matrix Spike (W5C1465-MS1)	**Source: 5C03031-01**				**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.846	0.013	0.020	mg/l	0.400	0.456	98	90-110			
Matrix Spike Dup (W5C1465-MSD1)	**Source: 5C03031-01**				**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.860	0.013	0.020	mg/l	0.400	0.456	101	90-110	2	20	
Batch: W5C1467 - EPA 350.1											
Blank (W5C1467-BLK1)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5C1467-BLK2)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5C1467-BS1)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	0.259	0.017	0.10	mg/l	0.250		104	90-110			
LCS (W5C1467-BS2)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	0.248	0.017	0.10	mg/l	0.250		99	90-110			
Duplicate (W5C1467-DUP1)	**Source: 5C07048-01**				**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	0.265	0.017	0.10	mg/l		0.263			0.4	15	
Matrix Spike (W5C1467-MS1)	**Source: 5B28005-03**				**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	1.20	0.017	0.10	mg/l	0.250	0.966	93	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1467 - EPA 350.1 (Continued)											
Matrix Spike (W5C1467-MS2)	**Source: 5C06118-01**			**Prepared: 03/19/25**		**Analyzed: 03/20/25**					
Ammonia as N	0.236	0.017	0.10	mg/l	0.250	ND	94	90-110			
Matrix Spike Dup (W5C1467-MSD1)	**Source: 5B28005-03**			**Prepared: 03/19/25**		**Analyzed: 03/20/25**					
Ammonia as N	1.20	0.017	0.10	mg/l	0.250	0.966	95	90-110	0.4	15	
Matrix Spike Dup (W5C1467-MSD2)	**Source: 5C06118-01**			**Prepared: 03/19/25**		**Analyzed: 03/20/25**					
Ammonia as N	0.236	0.017	0.10	mg/l	0.250	ND	94	90-110	0.06	15	
Batch: W5C2093 - EPA 351.2											
Blank (W5C2093-BLK1)				**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	ND	0.065	0.10	mg/l							
Blank (W5C2093-BLK2)				**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	ND	0.065	0.10	mg/l							
LCS (W5C2093-BS1)				**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	0.976	0.065	0.10	mg/l	1.00		98	90-110			
LCS (W5C2093-BS2)				**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	1.02	0.065	0.10	mg/l	1.00		102	90-110			
Duplicate (W5C2093-DUP1)	**Source: 5C10116-04**			**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	0.998	0.065	0.10	mg/l		0.927			7	10	
Matrix Spike (W5C2093-MS1)	**Source: 5C10144-01**			**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	0.941	0.065	0.10	mg/l	1.00	ND	94	90-110			
Matrix Spike (W5C2093-MS2)	**Source: 5C10144-02**			**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	1.59	0.065	0.10	mg/l	1.00	0.487	110	90-110			
Matrix Spike Dup (W5C2093-MSD1)	**Source: 5C10144-01**			**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	1.01	0.065	0.10	mg/l	1.00	ND	101	90-110	7	10	
Matrix Spike Dup (W5C2093-MSD2)	**Source: 5C10144-02**			**Prepared: 03/27/25**		**Analyzed: 03/28/25**					
TKN	1.55	0.065	0.10	mg/l	1.00	0.487	107	90-110	2	10	

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1325 - EPA 200.7											
Blank (W5C1325-BLK1)				**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	ND	0.0240	0.500	mg/l							
Magnesium, Total	ND	0.0495	0.500	mg/l							
LCS (W5C1325-BS1)				**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	48.8	0.0240	0.500	mg/l	50.2		97	85-115			
Magnesium, Total	51.2	0.0495	0.500	mg/l	50.2		102	85-115			
Matrix Spike (W5C1325-MS1)	**Source: 5C12084-01**			**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	70.0	0.0240	0.500	mg/l	50.2	21.8	96	70-130			
Magnesium, Total	58.2	0.0495	0.500	mg/l	50.2	6.93	102	70-130			
Matrix Spike Dup (W5C1325-MSD1)	**Source: 5C12084-01**			**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	70.2	0.0240	0.500	mg/l	50.2	21.8	96	70-130	0.2	30	
Magnesium, Total	58.3	0.0495	0.500	mg/l	50.2	6.93	102	70-130	0.1	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:31

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
[CALC]	An automated calculation using unrounded values then rounding the final result (scientific rounding rules). Calculations do not contain direct qualifiers; please refer to the individual components of the calculation for any qualifiers

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Hardness as CaCO3, Total consist of the following components Magnesium, Total; and Calcium, Total

Nitrogen, Total consist of the following components NO2+NO3 as N; and TKN

Organic Nitrogen, Total consist of the following components TKN; and Ammonia as N

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C13090

Project: Lake Elsinore/Canyon Lake Nutrient Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/10/2025
Received Date: 3/13/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:39

Sample Condition

Temperature	1.40 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-04-031325	Matt Millenburg	5C13090-01	Water	03/13/25 11:15	
CLS-031325	Matt Millenburg	5C13090-02	Water	03/13/25 12:15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:39

Sample Results

Sample: S-04-031325 — Sampled: 03/13/25 11:15 by Matt Millenburg

5C13090-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4			**Instr:** UVVIS05				
Batch ID: W5D0021	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/01/25 08:53			**Analyst:** UVVIS05	
Chemical Oxygen Demand	**30**	2.9	5.0	mg/l	1	04/05/25	
Method: SM 5210B			**Instr:** PH13				
Batch ID: W5C1082	**Preparation:** _NONE (WETCHEM)		**Prepared:** 03/14/25 17:50			**Analyst:** jls	
Biochemical Oxygen Demand	**5.5**	2.0	2.0	mg/l	1	03/19/25	

Sample Results

Sample: CLS-031325 — Sampled: 03/13/25 12:15 by Matt Millenburg

5C13090-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4			**Instr:** UVVIS05				
Batch ID: W5D0021	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/01/25 08:53			**Analyst:** UVVIS05	
Chemical Oxygen Demand	**25**	2.9	5.0	mg/l	1	04/05/25	
Method: SM 5210B			**Instr:** PH13				
Batch ID: W5C1082	**Preparation:** _NONE (WETCHEM)		**Prepared:** 03/14/25 17:50			**Analyst:** jls	
Biochemical Oxygen Demand	**4.3**	2.0	2.0	mg/l	1	03/19/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:39

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1082 - SM 5210B											
Blank (W5C1082-BLK1)				**Prepared: 03/14/25 Analyzed: 03/19/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C1082-BLK2)				**Prepared: 03/14/25 Analyzed: 03/19/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C1082-BLK3)				**Prepared: 03/14/25 Analyzed: 03/19/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
LCS (W5C1082-BS1)				**Prepared: 03/14/25 Analyzed: 03/19/25**							
Biochemical Oxygen Demand	199	2.0	2.0	mg/l	198		101	85-115			
Duplicate (W5C1082-DUP1)	**Source: 5C13084-01**			**Prepared: 03/14/25 Analyzed: 03/19/25**							
Biochemical Oxygen Demand	5.86	2.0	2.0	mg/l		6.21			6	20	
Batch: W5D0021 - EPA 410.4											
Blank (W5D0021-BLK1)				**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	ND	2.9	5.0	mg/l							
LCS (W5D0021-BS1)				**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	192	12	20	mg/l	200		96	90-110			
LCS (W5D0021-BS2)				**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	1920	12	20	mg/l	2000		96	90-110			
Duplicate (W5D0021-DUP1)	**Source: 5C13085-01**			**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	1210	5.8	10	mg/l		1200			0.2	15	
Matrix Spike (W5D0021-MS1)	**Source: 5C12003-01**			**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	186	12	20	mg/l	200	ND	93	90-110			
Matrix Spike (W5D0021-MS2)	**Source: 5C18047-01**			**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	2320	12	20	mg/l	2000	470	93	90-110			
Matrix Spike Dup (W5D0021-MSD1)	**Source: 5C12003-01**			**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	196	12	20	mg/l	200	ND	98	90-110	6	15	
Matrix Spike Dup (W5D0021-MSD2)	**Source: 5C18047-01**			**Prepared: 04/01/25 Analyzed: 04/05/25**							
Chemical Oxygen Demand	2410	12	20	mg/l	2000	470	97	90-110	4	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:39

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C17071

Project: Lake Elsinore/Canyon Lake Nutrient TMDL

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/10/2025
Received Date: 3/17/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported:
04/10/2025 16:34

Sample Condition

Temperature	1.20 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CLS-031725	TJ Hackett	5C17071-01	Water	03/17/25 06:50	
S-04-031725	TJ Hackett	5C17071-02	Water	03/17/25 09:24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Sample Results

Sample: CLS-031725

Sampled: 03/17/25 6:50 by TJ Hackett

5C17071-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 04/04/25 14:32			**Analyst:** YMT	
Nitrogen, Total	**0.93**	0.036	0.10	mg/l		04/08/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 04/04/25 14:32			**Analyst:** YMT	
Organic Nitrogen, Total	**0.93**	0.017	0.10	mg/l		04/08/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1882 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 10:42			**Analyst:** YMT	
Ammonia as N	ND	0.017	0.10	mg/l	1	03/31/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D0448 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/04/25 14:32			**Analyst:** YMT	
TKN	**0.93**	0.065	0.10	mg/l	1	04/08/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C1320 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/18/25 11:45			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	03/18/25 13:16	FILT
Nitrite as N	ND	42	100	ug/l	1	03/18/25 13:16	FILT
NO2+NO3 as N	ND	36	200	ug/l	1	03/18/25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C1335 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/18/25 13:36			**Analyst:** rob	
o-Phosphate as P	**0.0080**	0.0071	0.010	mg/l	1	03/18/25 17:53	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.10**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C1308 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/18/25 10:50			**Analyst:** ism	
Total Dissolved Solids	**500**	4.0	10	mg/l	1	03/18/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C1394 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 09:30			**Analyst:** dig	
Total Suspended Solids	**13**	5	5	mg/l	1	03/19/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/25/25 12:42			**Analyst:** kvm	
Hardness as CaCO3, Total	**232**	0.264	3.31	mg/l		03/27/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1912 **Preparation:** EPA 200.2			**Prepared:** 03/25/25 12:42			**Analyst:** kvm	
Calcium, Total	**58.8**	0.0240	0.500	mg/l	1	03/27/25	
Magnesium, Total	**20.6**	0.0495	0.500	mg/l	1	03/27/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Sample Results (Continued)

Sample: CLS-031725 — Sampled: 03/17/25 6:50 by TJ Hackett

5C17071-01 (Water) (Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1912 **Preparation:** EPA 200.2			**Prepared:** 03/25/25 12:42			**Analyst:** kvm	

Sample Results (Continued)

Sample: S-04-031725 — Sampled: 03/17/25 9:24 by TJ Hackett

5C17071-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 04/04/25 14:32			**Analyst:** YMT	
Nitrogen, Total	**1.4**	0.036	0.10	mg/l		04/08/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 04/04/25 14:32			**Analyst:** YMT	
Organic Nitrogen, Total	**0.78**	0.017	0.10	mg/l		04/08/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1882 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 10:42			**Analyst:** YMT	
Ammonia as N	**0.063**	0.017	0.10	mg/l	1	03/31/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D0448 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/04/25 14:32			**Analyst:** YMT	
TKN	**0.84**	0.065	0.10	mg/l	1	04/08/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C1320 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/18/25 11:45			**Analyst:** ATN	
Nitrate as N	**0.59**	0.040	0.20	mg/l	1	03/18/25 13:17	FILT
Nitrite as N	ND	42	100	ug/l	1	03/18/25 13:17	FILT
NO2+NO3 as N	**590**	36	200	ug/l	1	03/18/25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C1335 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/18/25 13:36			**Analyst:** rob	
o-Phosphate as P	**0.19**	0.0071	0.010	mg/l	1	03/18/25 17:55	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.35**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C1308 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/18/25 10:50			**Analyst:** ism	
Total Dissolved Solids	**150**	4.0	10	mg/l	1	03/18/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C1544 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/20/25 09:12			**Analyst:** dig	
Total Suspended Solids	**60**	5	5	mg/l	1	03/20/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Sample Results

(Continued)

Sample: S-04-031725

Sampled: 03/17/25 9:24 by TJ Hackett

5C17071-02 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)							
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C1544 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/20/25 09:12				**Analyst:** dig
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/25/25 12:42				**Analyst:** kvm
Hardness as CaCO3, Total	**66.0**	0.264	3.31	mg/l		03/27/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1912 **Preparation:** EPA 200.2			**Prepared:** 03/25/25 12:42				**Analyst:** kvm
Calcium, Total	**18.4**	0.0240	0.500	mg/l	1	03/27/25	
Magnesium, Total	**4.84**	0.0495	0.500	mg/l	1	03/27/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1308 - SM 2540C											
Blank (W5C1308-BLK1)					**Prepared & Analyzed: 03/18/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5C1308-BS1)					**Prepared & Analyzed: 03/18/25**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5C1308-DUP1)	**Source: 5C17092-01**				**Prepared & Analyzed: 03/18/25**						
Total Dissolved Solids	2100	4.0	10	mg/l		2140			2	10	
Batch: W5C1320 - EPA 353.2											
Blank (W5C1320-BLK1)					**Prepared & Analyzed: 03/18/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
Blank (W5C1320-BLK2)					**Prepared & Analyzed: 03/18/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
LCS (W5C1320-BS1)					**Prepared & Analyzed: 03/18/25**						
Nitrate as N	1.00	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1070	42	100	ug/l	1000		107	90-110			
NO2+NO3 as N	1000	36	200	ug/l	1000		100	90-110			
LCS (W5C1320-BS2)					**Prepared & Analyzed: 03/18/25**						
Nitrate as N	1.01	0.040	0.20	mg/l	1.00		101	90-110			
Nitrite as N	1070	42	100	ug/l	1000		107	90-110			
NO2+NO3 as N	1010	36	200	ug/l	1000		101	90-110			
Matrix Spike (W5C1320-MS1)	**Source: 5C14006-02**				**Prepared & Analyzed: 03/18/25**						
Nitrate as N	9.11	0.040	0.20	mg/l	2.00	7.16	97	90-110			
Nitrite as N	1060	42	100	ug/l	1000	ND	106	90-110			
NO2+NO3 as N	9110	36	200	ug/l	2000	7160	98	90-110			
Matrix Spike (W5C1320-MS2)	**Source: 5C17102-02**				**Prepared & Analyzed: 03/18/25**						
Nitrate as N	6.27	0.040	0.20	mg/l	2.00	4.24	102	90-110			
Nitrite as N	1080	42	100	ug/l	1000	ND	108	90-110			
NO2+NO3 as N	6270	36	200	ug/l	2000	4240	102	90-110			
Matrix Spike Dup (W5C1320-MSD1)	**Source: 5C14006-02**				**Prepared & Analyzed: 03/18/25**						
Nitrate as N	9.13	0.040	0.20	mg/l	2.00	7.16	99	90-110	0.2	20	
Nitrite as N	1050	42	100	ug/l	1000	ND	105	90-110	0.9	20	
NO2+NO3 as N	9130	36	200	ug/l	2000	7160	98	90-110	0.2	20	
Matrix Spike Dup (W5C1320-MSD2)	**Source: 5C17102-02**				**Prepared & Analyzed: 03/18/25**						
Nitrate as N	6.27	0.040	0.20	mg/l	2.00	4.24	102	90-110	0	20	
Nitrite as N	1080	42	100	ug/l	1000	ND	108	90-110	0	20	
NO2+NO3 as N	6270	36	200	ug/l	2000	4240	102	90-110	0	20	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1335 - EPA 365.3											
Blank (W5C1335-BLK1)					**Prepared & Analyzed: 03/18/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5C1335-BS1)					**Prepared & Analyzed: 03/18/25**						
o-Phosphate as P	0.207	0.0071	0.010	mg/l	0.200		104	88-111			
Matrix Spike (W5C1335-MS1)	**Source: 5C17071-01**				**Prepared & Analyzed: 03/18/25**						
o-Phosphate as P	0.211	0.0071	0.010	mg/l	0.200	0.00800	102	85-112			
Matrix Spike Dup (W5C1335-MSD1)	**Source: 5C17071-01**				**Prepared & Analyzed: 03/18/25**						
o-Phosphate as P	0.212	0.0071	0.010	mg/l	0.200	0.00800	102	85-112	0.5	20	
Batch: W5C1394 - SM 2540D											
Blank (W5C1394-BLK1)					**Prepared & Analyzed: 03/19/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5C1394-BS1)					**Prepared & Analyzed: 03/19/25**						
Total Suspended Solids	66.7	5	5	mg/l	68.4		98	90-110			
Duplicate (W5C1394-DUP1)	**Source: 5C14124-03**				**Prepared & Analyzed: 03/19/25**						
Total Suspended Solids	143	5	5	mg/l		133			8	10	
Batch: W5C1465 - EPA 365.3											
Blank (W5C1465-BLK1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5C1465-BS1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.191	0.0067	0.010	mg/l	0.200		96	90-110			
Matrix Spike (W5C1465-MS1)	**Source: 5C03031-01**				**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.846	0.013	0.020	mg/l	0.400	0.456	98	90-110			
Matrix Spike Dup (W5C1465-MSD1)	**Source: 5C03031-01**				**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.860	0.013	0.020	mg/l	0.400	0.456	101	90-110	2	20	
Batch: W5C1544 - SM 2540D											
Blank (W5C1544-BLK1)					**Prepared & Analyzed: 03/20/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5C1544-BS1)					**Prepared & Analyzed: 03/20/25**						
Total Suspended Solids	54.1	5	5	mg/l	54.6		99	90-110			
Duplicate (W5C1544-DUP1)	**Source: 5C14001-01**				**Prepared & Analyzed: 03/20/25**						
Total Suspended Solids	1590	5	5	mg/l		1480			7	10	
Batch: W5C1882 - EPA 350.1											
Blank (W5C1882-BLK1)					**Prepared: 03/25/25 Analyzed: 03/31/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5C1882-BLK2)					**Prepared: 03/25/25 Analyzed: 03/31/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5C1882-BS1)					**Prepared: 03/25/25 Analyzed: 03/31/25**						
Ammonia as N	0.239	0.017	0.10	mg/l	0.250		95	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1882 - EPA 350.1 (Continued)											
LCS (W5C1882-BS2)				**Prepared: 03/25/25 Analyzed: 03/31/25**							
Ammonia as N	0.245	0.017	0.10	mg/l	0.250		98	90-110			
Matrix Spike (W5C1882-MS1)	**Source: 5C14144-05**			**Prepared: 03/25/25 Analyzed: 03/31/25**							
Ammonia as N	0.235	0.017	0.10	mg/l	0.250	ND	94	90-110			
Matrix Spike (W5C1882-MS2)	**Source: 5C18077-01**			**Prepared: 03/25/25 Analyzed: 03/31/25**							
Ammonia as N	0.242	0.017	0.10	mg/l	0.250	ND	97	90-110			
Matrix Spike Dup (W5C1882-MSD1)	**Source: 5C14144-05**			**Prepared: 03/25/25 Analyzed: 03/31/25**							
Ammonia as N	0.234	0.017	0.10	mg/l	0.250	ND	94	90-110	0.3	15	
Matrix Spike Dup (W5C1882-MSD2)	**Source: 5C18077-01**			**Prepared: 03/25/25 Analyzed: 03/31/25**							
Ammonia as N	0.239	0.017	0.10	mg/l	0.250	ND	96	90-110	1	15	
Batch: W5D0448 - EPA 351.2											
Blank (W5D0448-BLK1)				**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	ND	0.065	0.10	mg/l							
Blank (W5D0448-BLK2)				**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	ND	0.065	0.10	mg/l							
LCS (W5D0448-BS1)				**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	0.936	0.065	0.10	mg/l	1.00		94	90-110			
LCS (W5D0448-BS2)				**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	0.919	0.065	0.10	mg/l	1.00		92	90-110			
Matrix Spike (W5D0448-MS1)	**Source: 5C18070-13**			**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	1.10	0.065	0.10	mg/l	1.00	0.0951	100	90-110			
Matrix Spike (W5D0448-MS2)	**Source: 5C18070-14**			**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	1.32	0.065	0.10	mg/l	1.00	0.360	96	90-110			
Matrix Spike Dup (W5D0448-MSD1)	**Source: 5C18070-13**			**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	1.08	0.065	0.10	mg/l	1.00	0.0951	99	90-110	1	10	
Matrix Spike Dup (W5D0448-MSD2)	**Source: 5C18070-14**			**Prepared: 04/04/25 Analyzed: 04/08/25**							
TKN	1.35	0.065	0.10	mg/l	1.00	0.360	99	90-110	2	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1912 - EPA 200.7											
Blank (W5C1912-BLK1)				**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	ND	0.0240	0.500	mg/l							
Magnesium, Total	ND	0.0495	0.500	mg/l							
LCS (W5C1912-BS1)				**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	47.3	0.0240	0.500	mg/l	50.2		94	85-115			
Magnesium, Total	49.4	0.0495	0.500	mg/l	50.2		98	85-115			
Duplicate (W5C1912-DUP1)	**Source: 5C17071-01**			**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	59.4	0.0240	0.500	mg/l		58.8			0.9	30	
Magnesium, Total	20.8	0.0495	0.500	mg/l		20.6			0.7	30	
Matrix Spike (W5C1912-MS1)	**Source: 5C17071-02**			**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	63.3	0.0240	0.500	mg/l	50.2	18.4	89	70-130			
Magnesium, Total	52.9	0.0495	0.500	mg/l	50.2	4.84	96	70-130			
Matrix Spike (W5C1912-MS2)	**Source: 5C18129-01**			**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	97.6	0.0240	0.500	mg/l	50.2	53.4	88	70-130			
Magnesium, Total	77.7	0.0495	0.500	mg/l	50.2	29.4	96	70-130			
Matrix Spike Dup (W5C1912-MSD1)	**Source: 5C17071-02**			**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	65.5	0.0240	0.500	mg/l	50.2	18.4	94	70-130	3	30	
Magnesium, Total	54.7	0.0495	0.500	mg/l	50.2	4.84	99	70-130	3	30	
Matrix Spike Dup (W5C1912-MSD2)	**Source: 5C18129-01**			**Prepared: 03/25/25 Analyzed: 03/27/25**							
Calcium, Total	95.8	0.0240	0.500	mg/l	50.2	53.4	84	70-130	2	30	
Magnesium, Total	76.3	0.0495	0.500	mg/l	50.2	29.4	93	70-130	2	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient TMDL

Project Manager: Garth Engelhorn

Reported: 04/10/2025 16:34

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
[CALC]	An automated calculation using unrounded values then rounding the final result (scientific rounding rules). Calculations do not contain direct qualifiers; please refer to the individual components of the calculation for any qualifiers

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Hardness as CaCO3, Total consist of the following components Magnesium, Total; and Calcium, Total

Nitrogen, Total consist of the following components NO2+NO3 as N; and TKN

Organic Nitrogen, Total consist of the following components TKN; and Ammonia as N

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C12083

Project: Lake Elsinore/Canyon Lake Nutrient Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/11/2025
Received Date: 3/12/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:23

Sample Condition

Temperature	0.90 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-03-031125	Matt Millenburg	5C12083-01	Water	03/11/25 21:52	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:23

Sample Results

Sample: S-03-031125

Sampled: 03/11/25 21:52 by Matt Millenburg

5C12083-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods						
Method: EPA 410.4		**Instr:** UVVIS05				
Batch ID: W5C2214	**Preparation:** _NONE (WETCHEM)	**Prepared:** 03/28/25 09:59				**Analyst:** jls
Chemical Oxygen Demand	**29**	5.0	mg/l	1	04/02/25	
Method: SM 5210B		**Instr:** PH13				
Batch ID: W5C0884	**Preparation:** _NONE (WETCHEM)	**Prepared:** 03/12/25 09:46				**Analyst:** jls
Biochemical Oxygen Demand	**5.9**	2.0	mg/l	1	03/17/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:23

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0884 - SM 5210B										
Blank (W5C0884-BLK1)			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Biochemical Oxygen Demand	ND	2.0	mg/l							
Blank (W5C0884-BLK2)			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Biochemical Oxygen Demand	ND	2.0	mg/l							
Blank (W5C0884-BLK3)			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Biochemical Oxygen Demand	ND	2.0	mg/l							
LCS (W5C0884-BS1)			**Prepared: 03/12/25 Analyzed: 03/17/25**							
Biochemical Oxygen Demand	191	2.0	mg/l	198		96	85-115			
Duplicate (W5C0884-DUP1)	**Source: 5B27003-02**		**Prepared: 03/12/25 Analyzed: 03/17/25**							
Biochemical Oxygen Demand	ND	2.0	mg/l		ND				20	
Batch: W5C2214 - EPA 410.4										
Blank (W5C2214-BLK1)			**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	ND	5.0	mg/l							
LCS (W5C2214-BS1)			**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	184	20	mg/l	200		92	90-110			
Duplicate (W5C2214-DUP1)	**Source: 5E16001-01**		**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	5090	20	mg/l		5180			2	15	
Matrix Spike (W5C2214-MS1)	**Source: 5C12063-02**		**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	203	20	mg/l	200	19.0	92	90-110			
Matrix Spike (W5C2214-MS2)	**Source: 5C05073-01**		**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	2590	20	mg/l	2000	670	96	90-110			
Matrix Spike Dup (W5C2214-MSD1)	**Source: 5C12063-02**		**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	203	20	mg/l	200	19.0	92	90-110	0	15	
Matrix Spike Dup (W5C2214-MSD2)	**Source: 5C05073-01**		**Prepared: 03/28/25 Analyzed: 04/02/25**							
Chemical Oxygen Demand	2590	20	mg/l	2000	670	96	90-110	0	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:23

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C12084

Project: Lake Elsinore/Canyon Lake TMDL Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/11/2025
Received Date: 3/12/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Sample Condition

Temperature	0.90 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
5-03-031225-01	Matt Millenburg	5C12084-01	Water	03/12/25 10:55	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Sample Results

Sample: 5-03-031225-01

Sampled: 03/12/25 10:55 by Matt Millenburg

5C12084-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 04/01/25 11:42			**Analyst:** YMT	
Nitrogen, Total	**1.8**	0.036	0.10	mg/l		04/02/25	
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 04/01/25 11:42			**Analyst:** YMT	
Organic Nitrogen, Total	**1.1**	0.017	0.10	mg/l		04/02/25	
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5C1468 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 14:10			**Analyst:** YMT	
Ammonia as N	**0.080**	0.017	0.10	mg/l	1	03/20/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D0060 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/01/25 11:42			**Analyst:** YMT	
TKN	**1.2**	0.065	0.10	mg/l	1	04/02/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5C0960 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/12/25 16:24			**Analyst:** ATN	
Nitrate as N	**0.55**	0.040	0.20	mg/l	1	03/12/25 17:56	FILT
Nitrite as N	ND	42	100	ug/l	1	03/12/25 17:56	FILT
NO2+NO3 as N	**550**	36	200	ug/l	1	03/12/25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5C0963 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/12/25 16:31			**Analyst:** rob	
o-Phosphate as P	**0.17**	0.0071	0.010	mg/l	1	03/12/25 17:56	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5C1465 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/19/25 13:19			**Analyst:** rob	
Phosphorus as P, Total	**0.30**	0.0067	0.010	mg/l	1	03/24/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5C1053 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/13/25 17:52			**Analyst:** ism	
Total Dissolved Solids	**190**	4.0	10	mg/l	1	03/14/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5C1044 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/13/25 15:34			**Analyst:** dig	
Total Suspended Solids	**33**	5	5	mg/l	1	03/13/25	
Metals by EPA 200 Series Methods							
Method: [CALC]			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	
Hardness as CaCO3, Total	**82.9**	0.264	3.31	mg/l		03/21/25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5C1325 **Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04			**Analyst:** kvm	
Calcium, Total	**21.8**	0.0240	0.500	mg/l	1	03/21/25	
Magnesium, Total	**6.93**	0.0495	0.500	mg/l	1	03/21/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Sample Results

(Continued)

Sample: 5-03-031225-01

Sampled: 03/12/25 10:55 by Matt Millenburg

5C12084-01 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Metals by EPA 200 Series Methods (Continued)							
Method: EPA 200.7				**Instr:** ICP03			
Batch ID: W5C1325	**Preparation:** EPA 200.2			**Prepared:** 03/18/25 14:04		**Analyst:** kvm	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0960 - EPA 353.2											
Blank (W5C0960-BLK1)					**Prepared & Analyzed: 03/12/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
Blank (W5C0960-BLK2)					**Prepared & Analyzed: 03/12/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	42	100	ug/l							
NO2+NO3 as N	ND	36	200	ug/l							
LCS (W5C0960-BS1)					**Prepared & Analyzed: 03/12/25**						
Nitrate as N	1.01	0.040	0.20	mg/l	1.00		101	90-110			
Nitrite as N	1030	42	100	ug/l	1000		103	90-110			
NO2+NO3 as N	1010	36	200	ug/l	1000		101	90-110			
LCS (W5C0960-BS2)					**Prepared & Analyzed: 03/12/25**						
Nitrate as N	1.02	0.040	0.20	mg/l	1.00		102	90-110			
Nitrite as N	1070	42	100	ug/l	1000		107	90-110			
NO2+NO3 as N	1020	36	200	ug/l	1000		102	90-110			
Matrix Spike (W5C0960-MS1)	**Source: 5B21003-03**				**Prepared & Analyzed: 03/12/25**						
Nitrate as N	2.28	0.040	0.20	mg/l	2.00	0.270	100	90-110			
Nitrite as N	1050	42	100	ug/l	1000	ND	105	90-110			
NO2+NO3 as N	2280	36	200	ug/l	2000	270	100	90-110			
Matrix Spike (W5C0960-MS2)	**Source: 5B21003-04**				**Prepared & Analyzed: 03/12/25**						
Nitrate as N	2.24	0.040	0.20	mg/l	2.00	0.205	102	90-110			
Nitrite as N	1070	42	100	ug/l	1000	ND	107	90-110			
NO2+NO3 as N	2240	36	200	ug/l	2000	205	102	90-110			
Matrix Spike Dup (W5C0960-MSD1)	**Source: 5B21003-03**				**Prepared & Analyzed: 03/12/25**						
Nitrate as N	2.28	0.040	0.20	mg/l	2.00	0.270	100	90-110	0	20	
Nitrite as N	1050	42	100	ug/l	1000	ND	105	90-110	0	20	
NO2+NO3 as N	2280	36	200	ug/l	2000	270	100	90-110	0	20	
Matrix Spike Dup (W5C0960-MSD2)	**Source: 5B21003-04**				**Prepared & Analyzed: 03/12/25**						
Nitrate as N	2.24	0.040	0.20	mg/l	2.00	0.205	102	90-110	0	20	
Nitrite as N	1080	42	100	ug/l	1000	ND	108	90-110	0.9	20	
NO2+NO3 as N	2240	36	200	ug/l	2000	205	102	90-110	0	20	
Batch: W5C0963 - EPA 365.3											
Blank (W5C0963-BLK1)					**Prepared & Analyzed: 03/12/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5C0963-BS1)					**Prepared & Analyzed: 03/12/25**						
o-Phosphate as P	0.208	0.0071	0.010	mg/l	0.200		104	88-111			
Matrix Spike (W5C0963-MS1)	**Source: 5C03031-01**				**Prepared & Analyzed: 03/12/25**						
o-Phosphate as P	0.472	0.0071	0.010	mg/l	0.200	0.269	102	85-112			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0963 - EPA 365.3 (Continued)											
Matrix Spike Dup (W5C0963-MSD1)	**Source: 5C03031-01**				**Prepared & Analyzed: 03/12/25**						
o-Phosphate as P	0.477	0.0071	0.010	mg/l	0.200	0.269	104	85-112	1	20	
Batch: W5C1044 - SM 2540D											
Blank (W5C1044-BLK1)					**Prepared & Analyzed: 03/13/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5C1044-BS1)					**Prepared & Analyzed: 03/13/25**						
Total Suspended Solids	61.8	5	5	mg/l	60.0		103	90-110			
Duplicate (W5C1044-DUP1)	**Source: 5C13011-01**				**Prepared & Analyzed: 03/13/25**						
Total Suspended Solids	216	5	5	mg/l		204			6	10	
Duplicate (W5C1044-DUP2)	**Source: 5B12016-01RE1**				**Prepared & Analyzed: 03/13/25**						
Total Suspended Solids	4960	5	5	mg/l		4610			7	10	
Batch: W5C1053 - SM 2540C											
Blank (W5C1053-BLK1)					**Prepared: 03/13/25 Analyzed: 03/14/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5C1053-BS1)					**Prepared: 03/13/25 Analyzed: 03/14/25**						
Total Dissolved Solids	49.0	4.0	10	mg/l	50.0		98	97-103			
Duplicate (W5C1053-DUP1)	**Source: 5C12082-05**				**Prepared: 03/13/25 Analyzed: 03/14/25**						
Total Dissolved Solids	8270	4.0	10	mg/l		8160			1	10	
Batch: W5C1465 - EPA 365.3											
Blank (W5C1465-BLK1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5C1465-BS1)					**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.191	0.0067	0.010	mg/l	0.200		96	90-110			
Matrix Spike (W5C1465-MS1)	**Source: 5C03031-01**				**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.846	0.013	0.020	mg/l	0.400	0.456	98	90-110			
Matrix Spike Dup (W5C1465-MSD1)	**Source: 5C03031-01**				**Prepared: 03/19/25 Analyzed: 03/24/25**						
Phosphorus as P, Total	0.860	0.013	0.020	mg/l	0.400	0.456	101	90-110	2	20	
Batch: W5C1468 - EPA 350.1											
Blank (W5C1468-BLK1)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5C1468-BLK2)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5C1468-BS1)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	0.256	0.017	0.10	mg/l	0.250		102	90-110			
LCS (W5C1468-BS2)					**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	0.250	0.017	0.10	mg/l	0.250		100	90-110			
Matrix Spike (W5C1468-MS1)	**Source: 5B27003-01**				**Prepared: 03/19/25 Analyzed: 03/20/25**						
Ammonia as N	0.245	0.017	0.10	mg/l	0.250	ND	98	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1468 - EPA 350.1 (Continued)											
Matrix Spike (W5C1468-MS2)	**Source: 5C11108-01**			**Prepared: 03/19/25**		**Analyzed: 03/20/25**					
Ammonia as N	0.305	0.017	0.10	mg/l	0.250	0.0626	97	90-110			
Matrix Spike Dup (W5C1468-MSD1)	**Source: 5B27003-01**			**Prepared: 03/19/25**		**Analyzed: 03/20/25**					
Ammonia as N	0.242	0.017	0.10	mg/l	0.250	ND	97	90-110	1	15	
Matrix Spike Dup (W5C1468-MSD2)	**Source: 5C11108-01**			**Prepared: 03/19/25**		**Analyzed: 03/20/25**					
Ammonia as N	0.304	0.017	0.10	mg/l	0.250	0.0626	97	90-110	0.2	15	
Batch: W5D0060 - EPA 351.2											
Blank (W5D0060-BLK1)				**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	ND	0.065	0.10	mg/l							
Blank (W5D0060-BLK2)				**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	ND	0.065	0.10	mg/l							
LCS (W5D0060-BS1)				**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	0.965	0.065	0.10	mg/l	1.00		97	90-110			
LCS (W5D0060-BS2)				**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	0.972	0.065	0.10	mg/l	1.00		97	90-110			
Matrix Spike (W5D0060-MS1)	**Source: 5C18070-03**			**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	1.05	0.065	0.10	mg/l	1.00	ND	105	90-110			
Matrix Spike (W5D0060-MS2)	**Source: 5C18070-05**			**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	0.941	0.065	0.10	mg/l	1.00	ND	94	90-110			
Matrix Spike Dup (W5D0060-MSD1)	**Source: 5C18070-03**			**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	1.01	0.065	0.10	mg/l	1.00	ND	101	90-110	3	10	
Matrix Spike Dup (W5D0060-MSD2)	**Source: 5C18070-05**			**Prepared: 04/01/25**		**Analyzed: 04/02/25**					
TKN	0.956	0.065	0.10	mg/l	1.00	ND	96	90-110	2	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1325 - EPA 200.7											
Blank (W5C1325-BLK1)				**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	ND	0.0240	0.500	mg/l							
Magnesium, Total	ND	0.0495	0.500	mg/l							
LCS (W5C1325-BS1)				**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	48.8	0.0240	0.500	mg/l	50.2		97	85-115			
Magnesium, Total	51.2	0.0495	0.500	mg/l	50.2		102	85-115			
Matrix Spike (W5C1325-MS1)	**Source: 5C12084-01**			**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	70.0	0.0240	0.500	mg/l	50.2	21.8	96	70-130			
Magnesium, Total	58.2	0.0495	0.500	mg/l	50.2	6.93	102	70-130			
Matrix Spike Dup (W5C1325-MSD1)	**Source: 5C12084-01**			**Prepared: 03/18/25**	**Analyzed: 03/21/25**						
Calcium, Total	70.2	0.0240	0.500	mg/l	50.2	21.8	96	70-130	0.2	30	
Magnesium, Total	58.3	0.0495	0.500	mg/l	50.2	6.93	102	70-130	0.1	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake TMDL Monitoring

Project Manager: Garth Engelhorn

Reported: 04/11/2025 17:19

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
[CALC]	An automated calculation using unrounded values then rounding the final result (scientific rounding rules). Calculations do not contain direct qualifiers; please refer to the individual components of the calculation for any qualifiers

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Hardness as CaCO3, Total consist of the following components Magnesium, Total; and Calcium, Total

Nitrogen, Total consist of the following components NO2+NO3 as N; and TKN

Organic Nitrogen, Total consist of the following components TKN; and Ammonia as N

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5C06057

Project: Lake Elsinore/Canyon Lake Nutrient Monitoring

Attn: Garth Engelhorn

Client: NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Report Date: 4/25/2025
Received Date: 3/6/2025
Turnaround Time: Normal
Phones: (858) 385-0500
Fax:
P.O. #:
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Garth Engelhorn,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Rahul R. Nair
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/25/2025 13:19

Sample Condition

Temperature	2.10 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
S-03-030525-01	TS Hadsett	5C06057-01	Water	03/05/25 22:45	
S-04-030525-01	TS Hadsett	5C06057-02	Water	03/06/25 09:15	
S-04-030525-02	TS Hadsett	5C06057-03	Water	03/06/25 09:15	
S-04-030525-03	TS Hadsett	5C06057-04	Water	03/06/25 09:25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring
Project Manager: Garth Engelhorn

Reported: 04/25/2025 13:19

Sample Results

Sample: S-03-030525-01 — Sampled: 03/05/25 22:45 by TS Hadsett

5C06057-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4				**Instr:** UVVIS05			
Batch ID: W5C1949	**Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 16:54			**Analyst:** jls
Chemical Oxygen Demand	**36**	2.9	5.0	mg/l	1	03/28/25	
Method: SM 5210B				**Instr:** PH13			
Batch ID: W5C0400	**Preparation:** _NONE (WETCHEM)			**Prepared:** 03/06/25 09:33			**Analyst:** jls
Biochemical Oxygen Demand	**6.9**	2.0	2.0	mg/l	1	03/11/25	

Sample Results

Sample: S-04-030525-01 — Sampled: 03/06/25 9:15 by TS Hadsett

5C06057-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4				**Instr:** UVVIS05			
Batch ID: W5C1951	**Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 16:57			**Analyst:** jls
Chemical Oxygen Demand	**48**	2.9	5.0	mg/l	1	03/28/25	
Method: SM 5210B				**Instr:** PH13			
Batch ID: W5C0500	**Preparation:** _NONE (WETCHEM)			**Prepared:** 03/07/25 12:25			**Analyst:** jls
Biochemical Oxygen Demand	**13**	2.0	2.0	mg/l	1	03/12/25	

Sample Results

Sample: S-04-030525-02 — Sampled: 03/06/25 9:15 by TS Hadsett

5C06057-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4				**Instr:** UVVIS05			
Batch ID: W5C1951	**Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 16:57			**Analyst:** jls
Chemical Oxygen Demand	**52**	2.9	5.0	mg/l	1	03/28/25	
Method: SM 5210B				**Instr:** PH13			
Batch ID: W5C0500	**Preparation:** _NONE (WETCHEM)			**Prepared:** 03/07/25 12:25			**Analyst:** jls
Biochemical Oxygen Demand	**15**	2.0	2.0	mg/l	1	03/12/25	

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/25/2025 13:19

Sample Results

(Continued)

Sample: S-04-030525-03

Sampled: 03/06/25 9:25 by TS Hadsett

5C06057-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 410.4			**Instr:** UVVIS05				
Batch ID: W5C1951 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/25/25 16:57				**Analyst:** jls
Chemical Oxygen Demand	ND	2.9	5.0	mg/l	1	03/28/25	
Method: SM 5210B			**Instr:** PH13				
Batch ID: W5C0500 **Preparation:** _NONE (WETCHEM)			**Prepared:** 03/07/25 12:25				**Analyst:** jls
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l	1	03/12/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/25/2025 13:19

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C0400 - SM 5210B											
Blank (W5C0400-BLK1)				**Prepared: 03/06/25 Analyzed: 03/11/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C0400-BLK2)				**Prepared: 03/06/25 Analyzed: 03/11/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C0400-BLK3)				**Prepared: 03/06/25 Analyzed: 03/11/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
LCS (W5C0400-BS1)				**Prepared: 03/06/25 Analyzed: 03/11/25**							
Biochemical Oxygen Demand	204	2.0	2.0	mg/l	198		103	85-115			
Duplicate (W5C0400-DUP1)	**Source: 5B27018-02**			**Prepared: 03/06/25 Analyzed: 03/11/25**							
Biochemical Oxygen Demand	24.1	2.0	2.0	mg/l		22.4			7	20	
Batch: W5C0500 - SM 5210B											
Blank (W5C0500-BLK1)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C0500-BLK2)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
Blank (W5C0500-BLK3)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l							
LCS (W5C0500-BS1)				**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	192	2.0	2.0	mg/l	198		97	85-115			
Duplicate (W5C0500-DUP1)	**Source: 5C06057-04**			**Prepared: 03/07/25 Analyzed: 03/12/25**							
Biochemical Oxygen Demand	ND	2.0	2.0	mg/l		ND				20	
Batch: W5C1949 - EPA 410.4											
Blank (W5C1949-BLK1)				**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	ND	2.9	5.0	mg/l							
LCS (W5C1949-BS1)				**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	194	12	20	mg/l	200		97	90-110			
Duplicate (W5C1949-DUP1)	**Source: 5B28006-05**			**Prepared: 03/25/25 Analyzed: 03/29/25**							
Chemical Oxygen Demand	361	5.8	10	mg/l		381			5	15	
Matrix Spike (W5C1949-MS1)	**Source: 5C06118-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	190	12	20	mg/l	200	ND	95	90-110			
Matrix Spike (W5C1949-MS2)	**Source: 5B28006-05**			**Prepared: 03/25/25 Analyzed: 03/29/25**							
Chemical Oxygen Demand	2280	12	20	mg/l	2000	381	95	90-110			
Matrix Spike Dup (W5C1949-MSD1)	**Source: 5C06118-01**			**Prepared: 03/25/25 Analyzed: 03/28/25**							
Chemical Oxygen Demand	194	12	20	mg/l	200	ND	97	90-110	2	15	
Matrix Spike Dup (W5C1949-MSD2)	**Source: 5B28006-05**			**Prepared: 03/25/25 Analyzed: 03/29/25**							
Chemical Oxygen Demand	2280	12	20	mg/l	2000	381	95	90-110	0	15	
Batch: W5C1951 - EPA 410.4											
Blank (W5C1951-BLK1)				**Prepared: 03/25/25 Analyzed: 03/28/25**							

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/25/2025 13:19

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5C1951 - EPA 410.4 (Continued)											
Blank (W5C1951-BLK1)				**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	ND	2.9	5.0	mg/l							
LCS (W5C1951-BS1)				**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	191	12	20	mg/l	200		96	90-110			
Duplicate (W5C1951-DUP1)	**Source: 5B24035-01**			**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	1440	23	40	mg/l		1350			7	15	
Matrix Spike (W5C1951-MS1)	**Source: 5B24010-01**			**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	192	12	20	mg/l	200	ND	96	90-110			
Matrix Spike (W5C1951-MS2)	**Source: 5C11040-01**			**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	2360	12	20	mg/l	2000	559	90	90-110			
Matrix Spike Dup (W5C1951-MSD1)	**Source: 5B24010-01**			**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	189	12	20	mg/l	200	ND	95	90-110	1	15	
Matrix Spike Dup (W5C1951-MSD2)	**Source: 5C11040-01**			**Prepared: 03/25/25**		**Analyzed: 03/28/25**					
Chemical Oxygen Demand	2360	12	20	mg/l	2000	559	90	90-110	0	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

NV5 - Oceanside
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Project Number: Lake Elsinore/Canyon Lake Nutrient Monitoring

Project Manager: Garth Engelhorn

Reported: 04/25/2025 13:19

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

APPENDIX B

WATER COLUMN PROFILE DATASHEETS

FIELD DATASHEET

Date: 7/23/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1000 Time off Station: 1007 Staff Initials: HK / NJ

Weather Conditions: clear & sunny Wind (mph & direction): 1-2 SW

Lat: on Long: on target

Water Depth (m): 8.0 Secchi Depth (m): 0.00

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.4	2685	9.16	9.06	12				
1	29.1	2685	9.15	8.14	13				
2	29.0	2686	9.12	6.56	14				
3	29.0	2686	9.12	6.51	15				
4	28.9	26860	9.11	6.25	16				
5	28.7	26860	9.02	3.34	17				
6	28.6	2685	8.95	1.83	18				
7	28.5	2685	8.92	1.08	19				
~~8~~	28.5	2684	8.91	0.83	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 7/23/2024 Location: Lake Elsinore Station: LE02

Time on Station: 0740 0753 Time off Station: 0930 Staff Initials: HK / NJ

Weather Conditions: Clear and Sunny Wind (mph & direction): 1-2 SW

Lat: Un Long: on target

Water Depth (m): 9.1 Secchi Depth (m): 0.8m

Water Chemistry Sample Times:

Surface: 0815
Surface DUP: 0845
Depth Int: 0823
Depth Int. DUP: 0855
Bottom: 0830
Bottom DUP: 0855
Surface TMDL: 0915

Chl-a Samples?: (Y) / N **Algae Taxonomy Sample**? (Y) N

Surface volume filtered (ml): 500
Surface DUP volume filtered *(ml)*: 500
Depth Int. volume filtered (ml): 500
Depth Int. DUP volume filtered (ml): 500
Surface TMDL: volume filtered (ml): 500
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: pre-sampling

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	29.1	2687	9.16	7.91	113.4	6.20
0.5	29.1	2686	~~9.173~~ 9.17	~~7.73~~ 7.17	119.2	6.40
1	29.1	2687	9.17	7.70	124.5	6.48
2	29.1	2687	9.17	7.63	129.7	6.44
3	29.1	2687	9.14	6.68	139.2	5.17
4	28.9	2686	9.09	5.39	148.9	4.48
5	28.7	2685	8.99	2.51	155.7	4.85
6	28.1	2684	8.85	0.30	-170.8	2.97
7	28.1	2683	8.85	0.21	-194.3	3.38
8	27.9	2683	8.77	0.19	-226.3	2.15
~~8.5~~ 9	27.5	2682	8.59	0.18	-248.3	1.89
10						
11						

FIELD DATASHEET

Date: 7/23/24 Location: Lake Elsinore Station: LE02

Time on Station: 0753 Time off Station: 0930 Staff Initials: HK/NJ

Weather Conditions: Clear & sunny Wind (mph & direction): 1-2 SW

Lat: on Long: on target

Water Depth (m): 9.1 Secchi Depth (m): 0.8

Water Chemistry Sample Times: **Chl-a Samples**?: Y (N) **Algae Taxonomy Sample**?: Y / (N)

Surface:
Surface DUP:
Depth Int:
Depth Int. DUP:
Bottom:
Bottom DUP:
Surface TMDL:

Surface volume filtered (ml):
Surface DUP volume filtered *(ml):*
Depth Int. volume filtered (ml):
Depth Int. DUP volume filtered (ml):
Surface TMDL: volume filtered (ml):

Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: Post sample Rdgs

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	29.5	2688	9.26	9.66	142.3	6.09
0.5	29.5	2687	9.25	9.73	144.2	6.37
1	29.3	2686	9.24	9.46	153.1	7.55
2	29.1	2687	9.21	8.02	160.3	6.33
3	29.1	2687	9.19	7.53	169.6	5.93
4	29.0	2686	9.14	5.80	175.1	4.59
5	28.8	2685	9.04	3.23	183.2	4.33
6	28.6	2687	8.97	1.21	188.8	3.29
7	28.4	2686	8.92	0.38	-153.4	3.75
8	27.9	2683	8.78	0.20	-210.1	2.47
~~8.5~~ 9	27.8	2683	8.74	0.19	-225.4	1.70
10						
11						

FIELD DATASHEET

Date: 7/23/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 0740 Time off Station: 0750 Staff Initials: HF NJ

Weather Conditions: Clear and Sunny Wind (mph & direction): 1-2 SW

Lat: on Long: on

Water Depth (m): 7.3 Secchi Depth (m): 2.6 feet / 0.8 m

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed 7 **PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.3	2686	9.11	7.92	12				
1	29.3	2687	9.12	7.83	13				
2	29.3	2687	9.14	7.64	14				
3	29.3	2687	9.13	7.43	15				
4	29.1	2686	9.01	3.49	16				
5	28.5	2684	8.90	0.78	17				
6	28.3	2685	8.87	0.26	18				
7	27.2	2684	8.37	0.24	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 7/22/24 Location (Circle): Lake Elsinore/Canyon Lake Station: Lakeshore

Time on Station: 0945 Time off Station: 0955 Staff Initials: HK / NJ

Weather Conditions: Clear 3 Sunny Wind (mph & direction): 1-2 SW

Lat: On Long: Sonde

Water Depth (m): 9.6 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.2	2678	9.24	9.63	12				
1	29.1	2685	9.19	8.75	13				
2	29.0	2686	9.13	6.85	14				
3	29.0	2686	9.10	5.42	15				
4	28.8	2686	9.08	4.90	16				
5	28.7	2686	9.02	3.47	17				
6	28.7	2685	8.93	1.34	18				
7	28.1	2683	8.80	0.25	19				
8	28.0	2682	8.78	0.20	20				
9	27.8	2682	8.61	0.18	21				
9.5/6	27.5	2699	8.32	0.18	22				
11					23				

FIELD DATASHEET

Date: 7/23/ Location (Circle): Lake Elsinore/Canyon Lake Station: Grand

Time on Station: 0935 Time off Station: 0940 Staff Initials: HK/NJ

Weather Conditions: Clear & Sunny Wind (mph & direction): 1-2 SW

Lat: On Long: Sonde

Water Depth (m): 8.5 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.3	2684	9.25	8.99	12				
1	29.3	2685	9.20	8.58	13				
2	29.2	2686	9.18	7.37	14				
3	29.2	2686	9.16	6.88	15				
4	29.1	2687	9.13	5.30	16				
5	28.8	2687	9.02	3.03	17				
6	28.4	2686	8.93	0.38	18				
7	27.9	2687	8.79	0.25	19				
8	27.6	2684	8.56	0.22	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 7/23/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1245 Time off Station: 1251 Staff Initials: HK/NJ

Weather Conditions: ~~Clear and Sunny~~ partly cloudy Wind (mph & direction): 4 SW

Lat: on Long: on target

Water Depth (m): 8.0 Secchi Depth (m): 0.7

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

PM WQR

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	31.0	2683	9.19	12.03	12				
1	29.6	2684	9.25	12.61	13				
2	29.0	2685	9.10	7.32	14				
3	29.0	2686	9.07	6.13	15				
4	28.8	2686	9.04	5.26	16				
5	28.7	2686	8.99	3.75	17				
6	28.6	2685	8.92	2.02	18				
7	28.6	2685	8.91	1.73	19				
~~7.5~~ 8	28.5	2685	8.89	0.55	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 7/23/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE07

Time on Station: 1236 Time off Station: 1242 Staff Initials: HK / NJ

Weather Conditions: Sunny Wind (mph & direction): 4 SW

Lat: on Long: on target

Water Depth (m): 9.1 Secchi Depth (m): 0.7

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM Rdgs

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	31.8	2694	9.21	12.24	12				
1	29.4	2689	9.23	10.18	13				
2	29.3	2686	9.18	7.80	14				
3	29.1	2686	9.11	7.08	15				
4	29.0	2686	9.06	5.71	16				
5	28.9	2686	9.06	5.57	17				
6	28.8	2685	9.02	4.48	18				
7	28.6	2685	8.89	0.29	19				
8	28.1	2682	8.78	0.24	20				
8.5	28.0	2682	8.74	0.21	21				
10					22				
11					23				

FIELD DATASHEET

Date: 7/23/2024 Location (Circle): (Lake Elsinore) Canyon Lake Station: LE03

Time on Station: 1225 Time off Station: 1235 Staff Initials: HK/NJ

Weather Conditions: clear and sunny Wind (mph & direction): 4 SW

Lat: on Long: on target

Water Depth (m): 7.3 Secchi Depth (m): 0.7

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM Rdgs

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	32.1	2699	9.36	12.77	12				
1	29.5	2689	9.36	10.98	13				
2	29.2	2689	9.22	6.77	14				
3	29.0	2689	9.03	3.94	15				
4	28.7	2688	8.93	1.54	16				
5	28.5	2685	8.87	0.49	17				
6	28.0	2685	8.73	0.21	18				
7	27.8	2686	8.54	0.19	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1045 Time off Station: 1050 Staff Initials: NJ/MT/BS

Weather Conditions: Sunny & clear Wind (mph & direction): 2/3 mph SW

Lat: On Long: On

Water Depth (m): 7.8 m Secchi Depth (m): 0.3 m

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.7	2718	9.14	10.83	12				
1	28.0	2713	9.00	7.22	13				
2	27.9	2714	8.98	6.43	14				
3	27.9	2715	8.99	6.34	15				
4	27.9	2715	9.00	6.28	16				
5	27.9	2715	9.00	6.21	17				
6	27.9	2716	8.98	5.23	18				
7	27.7	2717	8.92	5.83	19				
~~8~~7.5					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location: Lake Elsinore Station: LE02

Time on Station: 0820 Time off Station: 1010 Staff Initials: NS/MT/BS

Weather Conditions: Clear/Sunny Wind (mph & direction): 2-3 mph NE

Lat: on Long: on

Water Depth (m): 9.0 m Secchi Depth (m): 0.30

Water Chemistry Sample Times: **Chl-a Samples?** (Y) / N **Algae Taxonomy Sample?** (Y) / N

Surface: 0845
Surface DUP: 0920
Depth Int: 0850
Depth Int. DUP: 0920
Bottom: 0905
Bottom DUP: 0935
Surface TMDL: 0940

Surface volume filtered (ml): 500mL
Surface DUP volume filtered *(ml)*: 500mL
Depth Int. volume filtered (ml): 500
Depth Int. DUP volume filtered (ml): 430mL
Surface TMDL: volume filtered (ml): 500mL
Do not exceed 7 **PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Big : ~~440mL~~
Small : 440mL

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	27.8	2714	8.96	6.10	118.4	18.06
~~0.5~~ 1	27.8	2714	8.96	5.73	126.1	18.20
1/2	27.8	2715	8.96	5.34	132.1	18.20
3	27.8	2715	8.96	5.23	140.8	18.76
4	27.8	2715	8.96	5.23	146.3	17.65
5	27.8	2715	8.97	5.21	158.4	18.65
6	27.8	2858	8.97	5.19	162.6	18.51
7	27.7	2717	8.93	4.22	168.1	16.60
8	27.4	2845	8.88	2.59	176.6	15.71
~~8.5~~	27.4	2717	8.88	2.52	179.9	16.40
~~9.0~~ 9	27.8	2714	9.01	5.65	180.7	18.07
10						
11						

0.5m

FIELD DATASHEET

Date: 8/15/24 Location: Lake Elsinore Station: LE02

Time on Station: 0820 Time off Station: 1010 Staff Initials: NS/BS/MT

Weather Conditions: clear; sunny Wind (mph & direction): 2-3mph NE

Lat: on Long: on

Water Depth (m): 9.0m Secchi Depth (m): 0.3m

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface: _____
Surface DUP: _____
Depth Int.: _____
Depth Int. DUP: _____
Bottom: _____
Bottom DUP: _____
Surface TMDL: _____

Surface volume filtered (ml): _____
Surface DUP volume filtered *(ml):* _____
Depth Int. volume filtered (ml): _____
Depth Int. DUP volume filtered (ml): _____
Surface TMDL: volume filtered (ml): _____
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: post readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	28.5	2719	9.25	11.45	88.1	18.36
0.5	28.2	2719	9.22	10.42	102.2	19.17
1	27.9	2714	9.09	7.11	125.9	18.51
2	27.8	2715	9.04	5.81	138.4	17.9
3	27.8	2715	9.02	5.36	156.5	17.61
4	27.8	2715	9.02	5.32	166.8	17.86
5	27.8	2715	9.01	5.15	172.6	17.65
6	27.8	2715	9.00	4.99	181.1	17.73
7	27.7	2715	8.99	4.81	198.1	17.75
8	27.6	2717	8.91	3.02	206.5	15.95
~~8.5~~	27.4	2718	8.88	2.12	211.3	16.65
10						
11						

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 0810 Time off Station: 0815 Staff Initials: VS/MT/BS

Weather Conditions: clear/sunny Wind (mph & direction): 2-3 mph NE

Lat: on Long: on

Water Depth (m): 7.1 Secchi Depth (m): 0.35m

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	27.9	2863	8.96	6.39	12				
1	27.9	2714	8.97	6.14	13				
2	27.9	2714	8.97	6.22	14				
3	27.9	2715	8.96	6.01	15				
4	27.9	2719	8.96	5.91	16				
5	27.7	2719	8.91	4.43	17				
6	27.4	2719	8.79	1.04	18				
6.5	27.4	2720	8.75	0.30	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: grand view

Time on Station: 1015 Time off Station: 1020 Staff Initials: NJ/ MT/ BS

Weather Conditions: sunny & clear Wind (mph & direction): 2.3 SW mph

Lat: on Long: on

Water Depth (m): 8.3m Secchi Depth (m): 0.3m

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.2	2715	9.10	8.09	12				
1	27.9	2715	9.01	6.01	13				
2	27.8	2715	9.00	5.47	14				
3	27.8	2715	8.98	4.91	15				
4	27.8	2715	8.98	4.82	16				
5	27.7	2716	8.97	4.54	17				
6	27.6	2716	8.96	4.35	18				
7	27.5	2716	8.95	3.81	19				
8	27.4	2716	8.92	3.25	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: lake shore

Time on Station: 1035 Time off Station: 1040 Staff Initials: NS/MT/BS

Weather Conditions: Sunny & clear Wind (mph & direction): 2/3 mph SW

Lat: on Long: on

Water Depth (m): 9.1 Secchi Depth (m): 0.35 m

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.3	2716	9.09	8.90	12				
1	28.2	2715	9.02	6.75	13				
2	27.9	2714	9.00	6.02	14				
3	27.9	2714	9.00	5.92	15				
4	27.8	2714	9.00	5.73	16				
5	27.8	2715	8.99	5.28	17				
6	27.8	2715	8.99	5.05	18				
7	27.7	2719	8.91	2.14	19				
8	27.5	2718	8.88	2.09	20				
8.5	27.4	2719	8.86	1.28	21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE1

Time on Station: 1450 Time off Station: 1455 Staff Initials: NH/MH/BS

Weather Conditions: Sunny/clear Wind (mph & direction): 9.0 mph SW

Lat: on Long: on

Water Depth (m): 7.9 Secchi Depth (m): 0.35

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed 7 **PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.7	2712	9.26	12.29	12				
1	28.7	2713	9.04	7.61	13				
2	28.0	2715	9.02	6.02	14				
3	27.9	2715	9.00	5.72	15				
4	27.9	2715	8.99	5.52	16				
5	27.8	2715	8.98	5.41	17				
6	27.8	2715	8.97	5.14	18				
7	27.7	2721	8.79	0.89	19				
7.5	27.4	2722	8.78	0.47	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE2

Time on Station: 1440 Time off Station: 1450 Staff Initials: MJ/MT/BS

Weather Conditions: Sunny & clear Wind (mph & direction): 5/6 mph SW

Lat: ON Long: ON

Water Depth (m): 8.9 Secchi Depth (m): 0.30

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.6	2707	9.39	17.52	12				
1	28.6	2707	9.28	14.54	13				
2	28.1	2713	9.08	8.06	14				
3	27.9	2715	8.97	5.33	15				
4	27.8	2716	8.96	5.07	16				
5	27.8	2716	8.96	5.00	17				
6	27.7	2716	8.95	4.61	18				
7	27.6	2716	8.93	2.82	19				
8	27.4	2718	8.86	2.25	20				
~~8.5~~	27.4	2716	8.82	0.76	21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 1430 Time off Station: 1435 Staff Initials: MT/MT/BS

Weather Conditions: sunny & clear Wind (mph & direction): 5/6 mph SW

Lat: on Long: on

Water Depth (m): 7.1 Secchi Depth (m): 0.35

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed 7 **PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.9	2721	9.59	20.81	12				
1	28.1	2713	9.21	8.29	13				
2	27.9	2714	9.05	5.77	14				
3	27.9	2714	9.02	5.49	15				
4	27.8	2715	9.00	4.48	16				
5	27.7	2719	8.85	1.83	17				
6	27.5	2720	8.79	0.68	18				
6.5	27.4	2720	8.76	0.27	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL07

Time on Station: 1105 Time off Station: 1140 Staff Initials: HK/KP

Weather Conditions: Clear & Sunny Wind (mph & direction): 2 mph WSW

Lat: on target Long: on target

Water Depth (m): 13.4 Secchi Depth (m): 1.5

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y / N

SAMPLE TIME: 1123 Surface volume filtered (ml): 500 sample time: 1135

Depth-Integrated volume filtered (ml): 450mL

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.2	756	9.27	9.00	12	13.8	652	7.13	0.0
1	28.7	752	9.28	9.30	13	13.8	653	7.15	0.0
2	28.5	753	9.20	8.92	14				
3	28.4	753	9.17	8.79	15				
4	28.1	754	9.03	7.60	16				
5	27.1	751	8.49	4.20	17				
6	20.7	704	7.37	0.11	18				
7	16.4	655	7.29	0.0	19				
8	15.0	648	7.33	0.0	20				
9	14.4	645	7.28	0.0	21				
10	14.1	646	7.21	0.0	22				
11	13.9	646	7.16	0.0	23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-08

Time on Station: 1025 Time off Station: 1055 Staff Initials: HK/KP

Weather Conditions: clear/sunny Wind (mph & direction): _____

Lat: on target Long: on target

Water Depth (m): 9.2 Secchi Depth (m): 1.3

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: 1035 Surface volume filtered (ml): 400mL time: 1043

Depth-Integrated volume filtered (ml): 375

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.9	753	9.13	8.93	12				
1	28.7	752	9.13	8.97	13				
2	28.5	753	9.10	8.63	14				
3	28.4	753	9.04	8.26	15				
4	28.0	754	8.80	6.14	16				
5	26.8	748	7.81	0.71	17				
6	20.7	693	7.29	0.03	18				
7	17.5	665	7.24	0.0	19				
8	15.5	661	7.23	0.0	20				
8.5	14.8	664	7.19	0.0	21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-09

Time on Station: 0930 Time off Station: 1005 Staff Initials: HK/KP

Weather Conditions: Clear & sunny Wind (mph & direction): 1.95 mph from SE

Lat: on target Long: on target

Water Depth (m): 6.8 Secchi Depth (m): 1.0

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) N Plankton Sample?: Y (N)

SAMPLE TIME: 0955 Surface volume filtered (ml): 400mL 1000 sample time

Depth-Integrated volume filtered (ml): 375mL

*Do not exceed 7 **PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.7	921	8.86	8.29	12				
1	28.6	919	8.85	8.32	13				
2	28.4	917	8.83	8.07	14				
3	28.4	919	8.77	7.62	15				
4	28.3	921	8.67	6.91	16				
5	23.5	1004	7.06	0.07	17				
6	17.2	1000	6.96	0.0	18				
6.5 7	15.7	1007	6.95	0.0	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL10

Time on Station: 0845 Time off Station: 0925 Staff Initials: HK/KP

Weather Conditions: Clear 3 sunny Wind (mph & direction): 1 NE

Lat: on target Long: on target

Water Depth (m): 3.6 Secchi Depth (m): 0.95

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y (N)

SAMPLE TIME: 0900 Depth int Surface volume filtered (ml): 300mL

0910 surface Depth-Integrated volume filtered (ml): 300mL

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: 0-2

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.5	953	8.72	7.97	12				
1	28.5	953	8.73	7.97	13				
2	28.5	956	8.69	7.74	14				
3	28.4	954	8.70	7.69	15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL07

Time on Station: 1450 Time off Station: 1458 Staff Initials: HK KP

Weather Conditions: Clear & sunny Wind (mph & direction): 5 mph SW

Lat: _____ Long: On target

Water Depth (m): ~~13.4~~ 12.0 Secchi Depth (m): 1.4

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Afternoon Post Rdgs

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	30.1	754	9.15	9.75	~~12~~ 11.5 14.0		652	7.09	0.00
1	29.3	752	9.22	10.32	13				
2	28.8	752	9.21	10.20	14				
3	28.6	752	9.16	9.32	15				
4	28.1	754	9.03	7.97	16				
5	26.4	750	8.10	1.43	17				
6	21.0	699	7.49	0.27	18				
7	17.4	666	7.31	0.10	19				
8	15.7	649	7.30	0.04	20				
9	14.5	646	7.34	0.01	21				
10	14.1	646	7.28	0.00	22				
11	14.0	646	7.24	0.00	23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL08

Time on Station: 1435 Time off Station: 1445 Staff Initials: HK KP

Weather Conditions: Clear & Sunny Wind (mph & direction): 5 SW

Lat: _____ Long: On target

Water Depth (m): 9.2 Secchi Depth (m): 1.4

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	30.3	754	9.13	9.49	12				
1	29.0	751	9.20	9.97	13				
2	28.7	752	9.19	9.73	14				
3	28.5	752	9.11	9.25	15				
4	27.9	753	8.47	3.90	16				
5	26.2	743	7.90	0.50	17				
6	21.1	696	7.43	0.14	18				
7	16.9	661	7.36	0.06	19				
8	15.3	659	7.30	0.01	20				
8.5 ~~9~~	14.9	663	7.25	0.00	21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL09

Time on Station: 1415 Time off Station: 1421 Staff Initials: HK KP

Weather Conditions: Clear & sunny Wind (mph & direction): 5 SW

Lat: _____ Long: On target

Water Depth (m): 6.8 Secchi Depth (m): 1.2

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	30.3	924	8.92	9.36	12				
1	28.7	917	8.95	9.03	13				
2	28.5	916	8.86	8.15	14				
3	28.1	922	8.44	5.32	15				
4	22.2	1012	7.19	0.43	16				
5	18.6	1002	7.21	~~0.16~~ 8.13	17				
6	16.3	1005	7.16	0.07	18				
6.5 ~~7~~	15.9	1005	7.14	0.04	19				
~~8~~					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 8/15/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-10

Time on Station: 1405 Time off Station: 1407 Staff Initials: HK/KP

Weather Conditions: clear & sunny Wind (mph & direction): 5mph from SW

Lat: on target Long: on target

Water Depth (m): 3.6 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Afternoon

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	31.0	958	8.92	9.14	12				
1	29.2	957	9.02	9.84	13				
2	28.7	955	8.91	9.82	14				
3	28.6	957	8.87	8.12	15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 9/19/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1025 Time off Station: 1030 Staff Initials: HK/KP

Weather Conditions: cloudy/light breeze Wind (mph & direction): 1 mph from S

Lat: On target Long: On target

Water Depth (m): 7.6 Secchi Depth (m): see comments

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / N Plankton Sample?: Y / (N)

SAMPLE TIME: N/A Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: AM Readings

Secchi disk dropped/broke @ 0817 LE-03. No reading possible. Approx. 0.2m

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	24.2	2764	8.59	2.82	12				
1	24.2	2765	8.57	2.42	13				
2	24.2	2765	8.55	2.26	14				
3	24.2	2765	8.55	2.24	15				
4	24.2	2765	8.55	2.21	16				
5	24.2	2765	8.55	2.19	17				
6	24.2	2765	8.55	2.20	18				
7	24.2	2765	8.55	2.18	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 9/19/2024 Location: Lake Elsinore Station: LE02

Time on Station: 0830 Time off Station: 1020 Staff Initials: AK/KP

Weather Conditions: cloudy/light breeze Wind (mph & direction): 2mph from SW

Lat: on target Long: on target

Water Depth (m): 8.8 Secchi Depth (m): See comments

Water Chemistry Sample Times: **Chl-a Samples**?: (Y) N **Algae Taxonomy Sample**?: (Y) N

Surface: 0845
Surface DUP: 0930
Depth Int: 0850
Depth Int. DUP: 0925
Bottom: 0910
Bottom DUP: 0945
Surface TMDL: 1000 (0-2)

Surface volume filtered (ml):
Surface DUP volume filtered *(ml)*:
Depth Int. volume filtered (ml):
Depth Int. DUP volume filtered (ml):
Surface TMDL: volume filtered (ml):
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: AM Readings Pre-chem Sampling
Secchi disk broke off @ LE-03 0817. No reading possible.

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	23.8	2762	8.54	2.10	135.0	8.65
0.5	23.8	2763	8.54	2.09	138.3	8.97
1	23.8	2763	8.54	2.11	140.8	8.59
2	23.8	2763	8.53	1.99	144.3	9.15
3	23.8	2764	8.53	1.95	147.3	8.73
4	23.8	2763	8.53	1.93	150.5	9.04
5	23.8	2764	8.53	1.92	154.1	8.54
6	23.8	2763	8.54	1.91	157.4	8.89
7	23.8	2764	8.55	1.92	159.6	9.01
8	23.8	2764	8.55	1.90	161.1	8.52
8.5	23.8	2764	8.55	1.85	129.4	8.98
10						
11						

FIELD DATASHEET

Date: 9/19/2024 Location: Lake Elsinore Station: LE 02

Time on Station: 0830 Time off Station: 1020 Staff Initials: HK / KD

Weather Conditions: cloudy/overcast Wind (mph & direction): 2mph from SW

Lat: on target Long: on target

Water Depth (m): 8.8 Secchi Depth (m): N/A

Water Chemistry Sample Times: **Chl-a Samples?** (Y) N **Algae Taxonomy Sample?** (Y) N

Surface: 0845
Surface DUP: 0930
Depth Int: 0850
Depth Int. DUP: 0925
Bottom: 0910
Bottom DUP: 0945
Surface TMDL: 1000
(0-2m)

Surface volume filtered (ml): 500
Surface DUP volume filtered *(ml):* 500
Depth Int. volume filtered (ml): 500
Depth Int. DUP volume filtered (ml): 500
Surface TMDL: volume filtered (ml): 500
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: AM Readings Post-Chem SAMPLING
Secchi disk broke @ LE-03. No reading possible.

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	23.9	2764	8.58	2.74	154.3	8.87
0.5	23.9	2763	8.58	2.52	160.3	8.55
1	23.9	2764	8.56	2.37	165.0	8.64
2	23.9	2704	8.55	2.04	174.1	8.81
3	23.9	2764	8.54	1.94	180.0	8.49
4	23.9	2764	8.54	1.85	189.9	8.53
5	23.9	2764	8.54	1.84	194.7	8.44
6	23.8	2764	8.54	1.83	196.5	8.21
7	23.8	2764	8.55	1.87	200.6	8.41
8	23.8	2764	8.55	1.94	201.3	8.70
8.5 ~~9~~	23.8	2764	8.56	1.98	200.6	9.04
~~10~~						
~~11~~						

FIELD DATASHEET

Date: 9/19/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 0815 Time off Station: 0825 Staff Initials: HR/KP

Weather Conditions: cloudy & light breeze Wind (mph & direction): 2mph from SW

Lat: on target Long: on target

Water Depth (m): 7.0 Secchi Depth (m):

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: N/A Surface volume filtered (ml): N/A

Depth-Integrated volume filtered (ml): N/A

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: AM Readings
secchi disk broke off measuring tape. No depth reading @ 817 possible.

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	24.1	2715	8.67	3.30	12				
1	24.1	2760	8.67	3.24	13				
2	24.1	2760	8.66	3.21	14				
3	24.1	2761	8.65	3.06	15				
4	24.1	2761	8.63	3.15	16				
5	24.1	2761	8.62	2.90	17				
6	24.1	2763	8.59	1.86	18				
6.5 7	24.1	2765	8.55	1.61	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 9/19/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE 01

Time on Station: 1406 Time off Station: 1414 Staff Initials: HK KP

Weather Conditions: Partly Cloudy Wind (mph & direction): 4 MPH SSW

Lat: _____ Long: on target

Water Depth (m): 7.6 Secchi Depth (m): N/A

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM Readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	25.5	2770	8.73	5.71	12				
1	24.4	2767	8.64	2.70	13				
2	24.2	2765	8.57	2.77	14				
3	24.2	2766	8.57	2.03	15				
4	24.2	2766	8.56	1.76	16				
5	24.2	2766	8.54	1.43	17				
6	24.1	2766	8.53	1.20	18				
7	24.1	2767	8.51	1.04	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 9/19/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: LE02

Time on Station: 1353 Time off Station: _____ Staff Initials: HK KP

Weather Conditions: partly Cloudy Wind (mph & direction): 4 mph SSW

Lat: _____ Long: on target

Water Depth (m): 8.8 Secchi Depth (m): N/A

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM Readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	~~26.1~~ 26.0	2772	8.74	6.00	12				
1	25.0	2771	8.82	6.95	13				
2	24.0	2764	8.60	2.61	14				
3	23.9	2764	8.56	2.09	15				
4	23.9	2764	8.55	1.85	16				
5	23.9	2765	8.52	1.56	17				
6	23.9	2765	8.52	1.59	18				
7	23.9	2765	8.53	1.68	19				
8	23.8	2765	8.52	1.54	20				
8.5 ~~9~~	23.8	2765	8.52	1.49	21				
~~10~~					22				
11					23				

FIELD DATASHEET

Date: 9/19/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 1345 Time off Station: 1349 Staff Initials: HK/KP

Weather Conditions: Sunny Wind (mph & direction): 4 mph SSW

Lat: _____ Long: on target

Water Depth (m): 7.0 Secchi Depth (m): N/A

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Afternoon Readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	24.7	2766	8.90	7.43	12				
1	24.3	2764	8.75	4.69	13				
2	24.2	2764	8.62	2.66	14				
3	24.1	2764	8.62	2.61	15				
4	24.1	2763	8.62	2.68	16				
5	24.1	2763	8.62	2.70	17				
6	24.0	2765	8.55	1.43	18				
6.5	24.0	2765	8.53	1.23	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 9/19/2024 Location (Circle): (Lake Elsinore)/Canyon Lake Station: Grand

Time on Station: 1040 Time off Station: 1045 Staff Initials: HK/KP

Weather Conditions: cloudy Wind (mph & direction): 1 mph from S

Lat: on target Long: on target

Water Depth (m): 8.2 Secchi Depth (m): see comments

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / N Plankton Sample?: Y / (N)

SAMPLE TIME: N/A Surface volume filtered (ml):_____

Depth-Integrated volume filtered (ml):_____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	24.0	2763	8.65	3.26	12				
1	24.0	2763	8.64	2.97	13				
2	23.9	2763	8.60	2.48	14				
3	23.9	2764	8.59	2.38	15				
4	23.9	2763	8.58	2.31	16				
5	23.9	2763	8.58	2.30	17				
6	23.9	2763	8.58	2.31	18				
7	23.9	2764	8.58	2.31	19				
7.5 8	23.9	2764	8.58	2.32	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 9/19/2024 Location (Circle): (Lake Elsinore)/Canyon Lake Station: Lakeshore

Time on Station: 1050 Time off Station: 1055 Staff Initials: HK/KP

Weather Conditions: cloudy/light breeze Wind (mph & direction): 1 mph from S

Lat: on target Long: on target

Water Depth (m): 9.4 Secchi Depth (m): N/A

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: N/A Surface volume filtered (ml):_____

Depth-Integrated volume filtered (ml):_____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Secchi disk broke @ 0817 @ LE-03. No reading possible

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	23.9	2763	8.64	3.32	12				
1	23.9	2763	8.62	2.94	13				
2	23.8	2763	8.60	2.49	14				
3	23.8	2763	8.59	2.39	15				
4	23.8	2763	8.59	2.38	16				
5	23.8	2763	8.58	2.37	17				
6	23.8	2764	8.57	2.24	18				
7	23.8	2764	8.56	2.06	19				
8	23.8	2764	8.55	1.94	20				
8.5 9	23.8	2764	8.55	1.91	21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CLO7

Time on Station: 1007 Time off Station: 1645 Staff Initials: RN/HIC

Weather Conditions: Partially cloudy Wind (mph & direction): 1 mph NNE

Lat: _____ Long: On target

Water Depth (m): 14.4 Secchi Depth (m): 0.9

Water Chemistry Sample? (Y) / N Chl-a Sample? (Y) / N Plankton Sample?: Y / (N)

SAMPLE TIME: 1030 Surface volume filtered (ml): ~~330~~ 500

Depth-Integrated volume filtered (ml): ~~330~~

surface Chl-a 1040

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: AM work, sulfuric smell,

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	20.9	825	7.40	3.79	12	14.2	690	6.93	0.00
1	20.9	825	7.37	3.74	13	14.1	689	6.91	0.00
2	20.8	825	7.36	3.61	14	14.0	699	6.77	0.00
3	20.8	825	7.34	3.59	15				
4	20.8	827	7.35	4.32	16				
5	20.7	828	7.38	4.28	17				
6	20.7	829	7.32	1.27	18				
7	20.5	835	7.13	0.09	19				
8	19.4	775	6.99	0.00	20				
9	15.7	680	7.07	0.00	21				
10	14.8	669	7.06	0.00	22				
11	14.4	677	7.00	0.00	23				

FIELD DATASHEET

Date: 10/24/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL07

Time on Station: 1426 Time off Station: 1437 Staff Initials: HK/RV

Weather Conditions: Sunny Wind (mph & direction): 2 mph W

Lat: _____ Long: _____

Water Depth (m): 14.4 Secchi Depth (m): 1.5

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: POST

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	22.9	826	7.63	6.12	12	14.4	678	6.95	0.00
1	21.4	827	7.62	5.80	13	14.1	688	6.90	0.00
2	20.9	826	7.50	4.60	14	14.0	699	6.89	0.00
3	20.8	827	7.46	4.36	15				
4	20.7	828	7.43	4.20	16				
5	20.7	827	7.40	3.86	17				
6	20.6	829	7.35	3.48	18				
7	20.6	829	7.28	1.76	19				
8	19.1	764	6.98	0.11	20				
9	15.9	670	7.04	0.01	21				
10	15.2	674	6.98	0.00	22				
11	14.6	673	6.99	0.00	23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL08

Time on Station: 0932 Time off Station: 09 1000 Staff Initials: HF RV

Weather Conditions: partly cloudy Wind (mph & direction): 2 mph NNE

Lat: _____ Long: on target

Water Depth (m): 8.6 Secchi Depth (m): 0.8

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y (N)

SAMPLE TIME: 0945 Surface volume filtered (ml): 500

Surface Chl-a 0955 Depth-Integrated volume filtered (ml): 500

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

AM water quality readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	21.1	825	7.61	6.12	12				
1	21.1	825	7.57	6.06	13				
2	21.0	825	7.53	5.94	14				
3	21.0	825	7.53	6.01	15				
4	20.8	824	7.37	2.75	16				
5	20.7	823	7.28	2.27	17				
6	20.7	823	7.24	1.68	18				
7	20.5	820	7.17	0.13	19				
8	18.5	750	6.94	0.02	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL08

Time on Station: 1410 Time off Station: 1420 Staff Initials: RV HK

Weather Conditions: Sunny Wind (mph & direction): 3mph W

Lat: _____ Long: _____

Water Depth (m): 8.6 Secchi Depth (m): 1.0

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Post WQ

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	22.6	830	7.80	7.61	12				
1	22.0	825	7.82	7.81	13				
2	21.3	825	7.78	6.20	14				
3	21.0	826	7.63	5.40	15				
4	20.9	827	7.55	3.43	16				
5	20.8	824	7.38	2.06	17				
6	20.7	825	7.30	1.87	18				
7	20.5	819	7.23	0.25	19				
8	18.8	767	6.97	0.05	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL09

Time on Station: 08:47 Time off Station: 0920 Staff Initials: HK RV

Weather Conditions: Cloudy Wind (mph & direction): 1 mph NE

Lat: Long: On target

Water Depth (m): 7.5 Secchi Depth (m): 0.8

Water Chemistry Sample?: (Y) N Chl-a Sample?: (Y) N Plankton Sample?: Y (N)

SAMPLE TIME: 0905 Surface volume filtered (ml): 330

Depth-Integrated volume filtered (ml): 400

Surface Chl-a 0915

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:
AM water quality Readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	20.5	993	7.77	7.09	12				
1	20.6	993	7.73	7.03	13				
2	20.6	993	7.70	6.92	14				
3	20.6	993	7.69	6.77	15				
4	20.6	995	7.64	5.99	16				
5	20.5	996	7.47	3.98	17				
6	20.2	1005	7.13	0.81	18				
7	18.3	1053	6.77	0.03	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL09

Time on Station: PW 1346 Time off Station: 1358 Staff Initials: RV/HK

Weather Conditions: Sunny Wind (mph & direction): 2 mph W

Lat: _____ Long: On target

Water Depth (m): 7.5 Secchi Depth (m): 0.55

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: post

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	~~23.4~~ 22.8	1006	~~8.02~~ 8.12	~~8.56~~ 9.20	12				
1	21.2	996	~~8.17~~ 8.29	10.03	13				
2	20.6	994	7.96	7.82	14				
3	20.5	991	7.69	6.36	15				
4	20.5	991	7.61	5.20	16				
5	20.5	995	7.48	4.42	17				
6	20.4	999	7.35	2.74	18				
7	19.2	1031	6.80	0.15	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL10

Time on Station: 0800 Time off Station: 0839 Staff Initials: HK RV

Weather Conditions: Partly Cloudy Wind (mph & direction): 1 mph NNE

Lat: Long: On target

Water Depth (m): 3.5 Secchi Depth (m): 0.75

Water Chemistry Sample? (Y) / N Chl-a Sample? (Y) / N Plankton Sample?: Y / (N)

SAMPLE TIME: 0825 Surface volume filtered (ml): 350

Surface Chla 0835 Depth-Integrated volume filtered (ml): 330

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

AM WQR

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	20.6	1033	8.08	9.27	12				
1	20.6	1033	8.09	9.26	13				
2	20.6	1034	8.10	9.32	14				
3	20.6	1037	8.13	9.41	15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL1D

Time on Station: 1335 Time off Station: 1340 Staff Initials: HK RV

Weather Conditions: Sunny Wind (mph & direction): 2mph W

Lat: _____ Long: _____

Water Depth (m): 3.5 Secchi Depth (m): 0.55

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: ~~Post~~ Sampling

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	~~21.6~~ 22.0	1039	8.48	10.48	12				
1	21.5	1040	8.52	10.90	13				
2	20.9	1029	8.33	9.75	14				
3	20.7	1041	8.22	9.36	15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1030 Time off Station: 1040 Staff Initials: NS/JF

Weather Conditions: clear Wind (mph & direction): 2 mph E

Lat: on Long: on

Water Depth (m): 7.6 Secchi Depth (m): 0.6m

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	21.6	2866	8.80	8.90	12				
1	21.3	2870	8.79	8.43	13				
2	21.2	2869	8.74	7.40	14				
3	21.2	2869	8.74	7.38	15				
4	21.2	2870	8.73	7.37	16				
5	21.1	2871	8.67	6.48	17				
6	21.0	2873	8.61	5.05	18				
7	21.0	2872	8.57	4.89	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location: Lake Elsinore Station: LE02

Time on Station: 0815 Time off Station: 1000 Staff Initials: NJ/JF

Weather Conditions: partly cloudy Wind (mph & direction): 1 mph E

Lat: on Long: on

Water Depth (m): 8.6 Secchi Depth (m): 0.6m

Water Chemistry Sample Times: **Chl-a Samples?** (Y)/N **Algae Taxonomy Sample?** (Y)/N

Surface: 0830
Surface DUP: 0910
Depth Int: 0850
Depth Int. DUP: 0920
Bottom: 0855
Bottom DUP: 0925
Surface TMDL: 0950

Surface volume filtered (ml): 410
Surface DUP volume filtered *(ml):* 250
Depth Int. volume filtered (ml): 500
Depth Int. DUP volume filtered (ml): 245
Surface TMDL: volume filtered (ml): 440
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

BIG Filter: 250 mLs
Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	21.3	2873	8.66	7.64	87.8	19.0
0.5	21.3	2873	8.66	7.24	87.1	24.5
1	21.3	2873	8.65	7.13	87.6	24.3
2	21.3	2873	8.66	7.17	88.6	24.6
3	21.3	2873	8.63	6.59	95.0	19.5
4	21.3	2874	8.62	6.12	94.4	20.1
5	21.2	2875	8.55	5.13	93.7	17.4
6	21.0	2877	8.49	4.25	101.9	13.3
7	21.0	2877	8.45	3.53	104.7	26.6
8	21.0	2878	8.43	3.09	106.1	23.7
9						
10						
11						

FIELD DATASHEET

Date: 10/24/24 Location: Lake Elsinore Station: LE02

Time on Station: 0815 Time off Station: 1000 Staff Initials: _____

Weather Conditions: _____ Wind (mph & direction): _____

Lat: _____ Long: _____

Water Depth (m): _____ Secchi Depth (m): _____

Water Chemistry Sample Times:

Surface: _____
Surface DUP: _____
Depth Int: _____
Depth Int. DUP: _____
Bottom: _____
Bottom DUP: _____
Surface TMDL: _____

Chl-a Samples?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface volume filtered (ml): _____
Surface DUP volume filtered *(ml)*: _____
Depth Int. volume filtered (ml): _____
Depth Int. DUP volume filtered (ml): _____
Surface TMDL: volume filtered (ml): _____
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: post readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	21.5	2866	8.83	8.94	42.9	21.2
0.5	21.5	2868	8.82	8.99	55.0	25.1
1	21.5	2869	8.79	8.43	61.5	22.7
2	21.3	2869	8.76	7.87	66.1	21.9
3	21.3	2869	8.74	7.46	69.0	19.7
4	21.2	2871	8.63	5.58	74.8	17.9
5	21.0	2871	8.60	5.06	80.6	18.7
6	21.0	2873	8.51	3.74	86.7	18.4
7	21.0	2873	8.50	3.57	91.3	15.5
8	21.0	2874	8.46	3.10	94.8	17.9
9						
10						
11						

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 0805 Time off Station: 0810 Staff Initials: NJ / JF

Weather Conditions: partly cloudy Wind (mph & direction): 1 mph E

Lat: on Long: on

Water Depth (m): 6.8 m Secchi Depth (m): 0.6 m

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	21.4	2872	8.80	9.00	12				
1	21.4	2871	8.77	9.01	13				
2	21.4	2872	8.74	8.84	14				
3	21.4	2872	8.68	6.47	15				
4	21.2	2875	8.45	4.92	16				
5	21.2	2875	8.40	2.80	17				
6	21.2	2875	8.37	2.48	18				
x 6.5	21.2	2875	8.37	2.50	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: Lakeshore

Time on Station: 1015 Time off Station: 1022 Staff Initials: NJ/JF

Weather Conditions: clear Wind (mph & direction): 2 mph E

Lat: on Long: on

Water Depth (m): 9.0 Secchi Depth (m): 0.6m

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	21.4	2862	8.80	9.35	12				
1	21.4	2864	8.76	8.76	13				
2	21.3	2867	8.74	7.93	14				
3	21.3	2870	8.69	7.10	15				
4	21.1	2870	8.67	6.63	16				
5	21.1	2870	8.66	6.44	17				
6	21.0	2873	8.51	3.97	18				
7	21.0	2873	8.49	3.56	19				
8	21.0	2873	8.44	3.38	20				
~~8.5~~	21.0	2873	8.48	3.32	21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: Grand

Time on Station: 1005 Time off Station: 1012 Staff Initials: NJ/JF

Weather Conditions: Sunny Wind (mph & direction): 2mph S

Lat: on Long: on

Water Depth (m): 8.1 Secchi Depth (m): 0.6m

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	21.7	2865	8.81	9.30	12				
1	21.5	2869	8.78	8.21	13				
2	21.4	2865	8.78	7.48	14				
3	21.4	2869	8.70	6.90	15				
4	21.3	2872	8.60	5.33	16				
5	21.1	2874	8.46	3.00	17				
6	21.1	2874	8.45	2.81	18				
7	21.1	2874	8.44	2.78	19				
~~8~~ 7.5	21.1	2875	8.44	2.63	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LF03

Time on Station: 1425 Time off Station: 1428 Staff Initials: NJ/JF

Weather Conditions: clear; hot Wind (mph & direction): 3 mph N

Lat: _____ Long: _____

Water Depth (m): 6.8 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	23.1	2881	9.33	16.43	12				
1	21.8	2895	9.14	12.63	13				
2	21.5	2871	9.02	9.10	14				
3	21.4	2873	8.87	7.30	15				
4	21.2	2876	8.61	4.25	16				
5	21.1	2877	8.56	3.10	17				
6	21.1	2877	8.49	2.69	18				
6.5	21.1	2878	8.48	2.62	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE02

Time on Station: 1432 Time off Station: 1436 Staff Initials: NS

Weather Conditions: clear; hot Wind (mph & direction): 3mph N

Lat: on Long: on

Water Depth (m): 8.6 Secchi Depth (m):

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	23.9	2870	9.07	16.05	12				
1	21.5	2871	8.88	11.23	13				
2	21.5	2871	8.85	9.53	14				
3	21.3	2873	8.73	7.19	15				
4	21.2	2874	8.69	6.91	16				
5	21.1	2874	8.67	6.30	17				
6	21.0	2877	8.46	3.76	18				
7	21.0	2878	8.44	3.04	19				
8	21.0	2878	8.43	3.02	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 10/24/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1438 Time off Station: 1443 Staff Initials: MJ

Weather Conditions: hot Wind (mph & direction): 3mph N

Lat: ON Long: ON

Water Depth (m): 7.6 Secchi Depth (m): _____

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	22.3	2873	8.79	9.73	12				
1	22.2	2873	8.79	9.59	13				
2	21.8	2873	8.76	8.30	14				
3	21.1	2872	8.72	7.56	15				
4	21.1	2873	8.68	7.23	16				
5	21.0	2874	8.67	7.00	17				
6	21.0	2876	8.52	5.30	18				
7	20.9	2877	8.52	4.75	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 0745 Time off Station: 0755 Staff Initials: MT / MS

Weather Conditions: partly cloudy Wind (mph & direction): 1/2 mph East

Lat: _____ Long: _____

Water Depth (m): 7 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	14.7	2831	9.22	10.49	12				
1	14.8	2831	9.18	10.34	13				
2	14.8	2831	9.16	10.29	14				
3	14.8	2831	9.14	10.38	15				
4	14.8	2832	9.12	10.41	16				
5	14.8	2832	9.10	10.38	17				
6	14.8	2832	9.07	9.44	18				
6.5	14.8	2831	8.98	9.23	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location: Lake Elsinore Station: LE02

Time on Station: 0800 Time off Station: 0810 Staff Initials: MTI NJ

Weather Conditions: partly cloudy Wind (mph & direction): 1-2 mph E

Lat: _____ Long: _____

Water Depth (m): 8.8 Secchi Depth (m): _____

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface: 0815
Surface DUP: 0845
Depth Int: 0820
Depth Int. DUP: 0845
Bottom: 0835
Bottom DUP: 0900
Surface TMDL: 0910

Surface volume filtered (ml): _____
Surface DUP volume filtered *(ml)*: _____
Depth Int. volume filtered (ml): _____
Depth Int. DUP volume filtered (ml): _____
Surface TMDL: volume filtered (ml): _____
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: pre sampling

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	14.7	2803	9.10	10.47	44.8	4.34
0.5	14.8	2837	9.08	10.50	45.4	4.22
1	14.8	2838	9.08	10.50	45.9	4.07
2	14.9	2838	9.07	10.45	47.1	4.09
3	14.9	2838	9.08	10.54	48.0	3.94
4	14.9	2838	9.07	10.54	48.8	4.13
5	14.9	2839	9.06	10.31	50.2	4.26
6	14.9	2840	9.02	9.67	51.8	4.37
7	14.8	2841	8.96	8.24	53.7	4.38
8	14.8	2844	8.82	6.63	57.7	4.29
8.5	14.8	2843	8.79	6.11	57.7	5.17
10						
11						

FIELD DATASHEET

Date: 12/3/24 Location: Lake Elsinore Station: LE02

Time on Station: 0915 Time off Station: 0925 Staff Initials: MT/MS

Weather Conditions: Partly cloudy Wind (mph & direction): 1/2 mph EAST

Lat: _____ Long: _____

Water Depth (m): 8.8 Secchi Depth (m): 0.8

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface: _____
Surface DUP: _____
Depth Int: _____
Depth Int. DUP: _____
Bottom: _____
Bottom DUP: _____
Surface TMDL: _____

Surface volume filtered (ml): _____
Surface DUP volume filtered *(ml):* _____
Depth Int. volume filtered (ml): _____
Depth Int. DUP volume filtered (ml): _____
Surface TMDL: volume filtered (ml): _____
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: post sampling

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	14.9	2816	9.05	10.96	115.9	3.8
0.5	15.0	2836	9.04	11.13	117.7	4.11
1	14.9	2837	9.03	11.05	118.5	4.23
2	14.9	2838	9.01	10.58	119.6	4.11
3	14.9	2838	8.99	1047	120.3	4.14
4	14.9	2838	8.98	10.33	121.0	4.44
5	14.9	2839	8.97	10.22	121.8	4.07
6	14.9	2839	8.97	10.15	122.5	4.19
7	14.9	2839	8.96	9.96	123.1	4.27
8	14.8	2843	8.81	7.46	125.5	4.81
~~8.5~~	14.8	2843	8.78	6.86	106.6	5.37
10						
11						

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 0945 Time off Station: 0950 Staff Initials: MT / NJ

Weather Conditions: partly cloudy Wind (mph & direction): 1/2 mph E

Lat: _____ Long: _____

Water Depth (m): 7.6 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	15.1	2833	9.04	11.39	12				
1	14.9	2837	9.04	11.60	13				
2	14.7	2838	9.03	11.27	14				
3	14.7	2838	9.01	11.12	15				
4	14.7	2839	9.00	10.87	16				
5	14.6	2838	8.99	10.84	17				
6	14.6	2839	8.98	10.61	18				
7	14.6	2839	8.97	10.35	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: lake shore

Time on Station: 0940 Time off Station: 0945 Staff Initials: MT/NJ

Weather Conditions: partly cloudy Wind (mph & direction): 1/2mph E

Lat: _____ Long: _____

Water Depth (m): 9.2 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	15.1	2830	9.05	10.73	12				
1	15.1	2839	9.02	10.85	13				
2	15.0	2839	8.99	10.34	14				
3	14.8	2839	8.97	10.08	15				
4	14.8	2839	8.96	9.97	16				
5	14.8	2839	8.96	9.93	17				
6	14.8	2839	8.95	9.83	18				
7	14.8	2839	8.95	9.76	19				
8	14.8	2840	8.93	9.30	20				
9/8.5	14.8	2840	8.91	8.91	21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: GA Grand Avenue

Time on Station: 0930 Time off Station: 0935 Staff Initials: MT/NJ

Weather Conditions: Partly cloudy Wind (mph & direction): 1/2 mph E

Lat: _____ Long: _____

Water Depth (m): 8.1 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	14.9	2835	9.07	10.79	12				
1	14.9	2838	9.02	10.71	13				
2	14.8	2838	9.01	10.52	14				
3	14.8	2838	8.99	10.33	15				
4	14.8	2838	8.99	10.31	16				
5	14.8	2838	8.98	10.27	17				
6	14.8	2838	8.98	10.23	18				
7	14.8	2838	8.98	10.21	19				
~~7.5~~	14.8	2838	8.98	10.22	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: 1

Time on Station: 1425 Time off Station: 1430 Staff Initials: MT/NJ

Weather Conditions: partly cloudy Wind (mph & direction): 1/2 mph E

Lat: [redacted] Long: _____

Water Depth (m): 7.6 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Afternoon

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	16.8	2838	9.17	13.22	12				
1	15.8	2838	9.23	14.78	13				
2	14.8	2838	9.11	12.17	14				
3	14.7	2838	9.04	10.80	15				
4	14.7	2838	9.04	10.87	16				
5	14.6	2838	9.04	10.88	17				
6	14.5	2840	8.98	9.82	18				
7	14.5	2839	8.97	9.71	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE02

Time on Station: 1420 Time off Station: 1425 Staff Initials: MT / NJ

Weather Conditions: partly cloudy Wind (mph & direction): 12 mph E

Lat: _____ Long: _____

Water Depth (m): 8.8 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Afternoon

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	17.1	2858	9.14	12.58	12				
1	15.3	2861	9.17	12.70	13				
2	14.9	2840	9.06	10.59	14				
3	14.9	2839	9.03	9.98	15				
4	14.9	2839	9.02	9.97	16				
5	14.8	2839	9.02	10.02	17				
6	14.8	2839	9.01	9.66	18				
7	14.8	2840	8.97	8.85	19				
8	14.8	2840	8.95	8.86	20				
8.5	14.7	2840	8.94	8.84	21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/3/24 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 1410 Time off Station: 1420 Staff Initials: MTI NJ

Weather Conditions: partly cloudy Wind (mph & direction): 112 mph E

Lat: _____ Long: _____

Water Depth (m): 7 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Afternoon

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	16.4	2828	9.56	15.42	12				
1	15.2	2840	9.45	15.21	13				
2	15.0	2835	9.35	12.71	14				
3	14.9	2834	9.24	11.86	15				
4	14.8	2834	9.19	10.39	16				
5	14.8	2834	9.10	9.86	17				
6	14.8	2833	9.06	9.80	18				
6.5	14.8	2834	9.05	9.77	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/03/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CL07

Time on Station: 1002 Time off Station: ~~1030~~ 1035 Staff Initials: HK/JF

Weather Conditions: Cloudy Wind (mph & direction): 1 mph SSE

Lat: Long: on target

Water Depth (m): 14.7 Secchi Depth (m): 0.90

Water Chemistry Sample?: (Y) / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SURF SAMPLE TIME: 1030 Surface volume filtered (ml): 450

INT Sample Time: 1020 Depth-Integrated volume filtered (ml): ~~375~~ 400

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Lot of feathers on surface

AM WQR

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	15.1	839	7.60	3.77	12	14.4	837	7.30	2.11
1	14.5	837	7.45	3.32	13	14.3	839	7.30	1.72
2	14.4	836	7.42	2.93	14	14.3	840	7.29	1.63
3	14.4	836	7.40	2.77	~~15~~ 14.5	14.3	840	7.29	1.53
4	14.4	836	7.39	2.70	16				
5	14.4	836	7.36	2.39	17				
6	14.4	836	7.35	2.26	18				
7	14.4	835	7.33	2.15	19				
8	14.4	835	7.33	2.11	20				
9	14.4	835	7.32	2.07	21				
10	14.4	835	7.31	2.08	22				
11	14.4	836	7.31	2.08	23				

FIELD DATASHEET

Date: 12/03/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL07

Time on Station: ~~1100~~ 1340 Time off Station: 1355 Staff Initials: HK JF

Weather Conditions: Cloudy Wind (mph & direction): 2-5 SW

Lat: _____ Long: on target

Water Depth (m): 14.7 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / N Plankton Sample?: Y / (N)

SAMPLE TIME: \ Surface volume filtered (ml): \

Depth-Integrated volume filtered (ml): \

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	16.5	841	7.46	4.30	12	14.4	837	7.23	1.70
1	14.7	839	7.45	3.67	13	14.3	840	7.23	1.49
2	14.5	836	7.35	2.42	14	14.3	843	7.05	1.01
3	14.4	836	7.32	2.48	~~14.5~~15	14.3	846	7.09	0.92
4	14.4	836	7.29	2.20	16				
5	14.4	836	7.28	2.12	17				
6	14.4	836	7.27	2.22	18				
7	14.4	836	7.27	2.17	19				
8	14.4	836	7.27	2.10	20				
9	14.4	836	7.26	2.11	21				
10	14.4	836	7.25	2.11	22				
11	14.4	836	7.25	1.74	23				

FIELD DATASHEET

Date: 12/03/24 Location (Circle): Lake Elsinore/Canyon Lake Station: CLOB

Time on Station: 0925 Time off Station: 0955 Staff Initials: HK / JF

Weather Conditions: partly cloudy Wind (mph & direction): 1 mph SSE

Lat: _____ Long: on target

Water Depth (m): 8.5 Secchi Depth (m): 1.0

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y / (N)

SURF SAMPLE TIME: 0950

INT Sample time: 0940

Surface volume filtered (ml): 500

Depth-Integrated volume filtered (ml): 400

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

PM

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	14.6	832	7.79	5.33	12				
1	14.5	832	7.47	4.46	13				
2	14.4	832	7.45	4.24	14				
3	14.4	832	7.44	4.13	15				
4	14.4	832	7.43	4.05	16				
5	14.4	832	7.42	4.01	17				
6	14.4	832	7.41	3.97	18				
7	14.4	832	7.40	3.93	19				
8	14.4	832	7.40	3.91	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/03/24 Location (Circle): Lake Elsinore/~~Canyon Lake~~ Station: CL08

Time on Station: 1328 Time off Station: 1335 Staff Initials: HK JF

Weather Conditions: Cloudy Wind (mph & direction): 2 SW

Lat: Long: on target

Water Depth (m): 8.5 Secchi Depth (m): 1.0

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: \ Surface volume filtered (ml): \

Depth-Integrated volume filtered (ml): \

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

PM

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	15.2	832	7.78	7.09	12				
1	15.1	832	7.75	6.60	13				
2	14.6	832	7.65	5.04	14				
3	14.4	832	7.52	4.40	15				
4	14.4	832	7.47	4.08	16				
5	14.4	832	7.43	3.87	17				
6	14.4	832	7.42	3.83	18				
7	14.4	832	7.41	3.80	19				
8	14.4	832	7.40	3.76	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/03/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL09

Time on Station: 0833 Time off Station: 0912 Staff Initials: ~~HK~~ JE

Weather Conditions: Partly Cloudy Wind (mph & direction): 1 mph SSE

Lat: _____ Long: On target

Water Depth (m): 8.5 Secchi Depth (m): 0.80

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y (N)

Surf SAMPLE TIME: 0910 Surface volume filtered (ml): 500

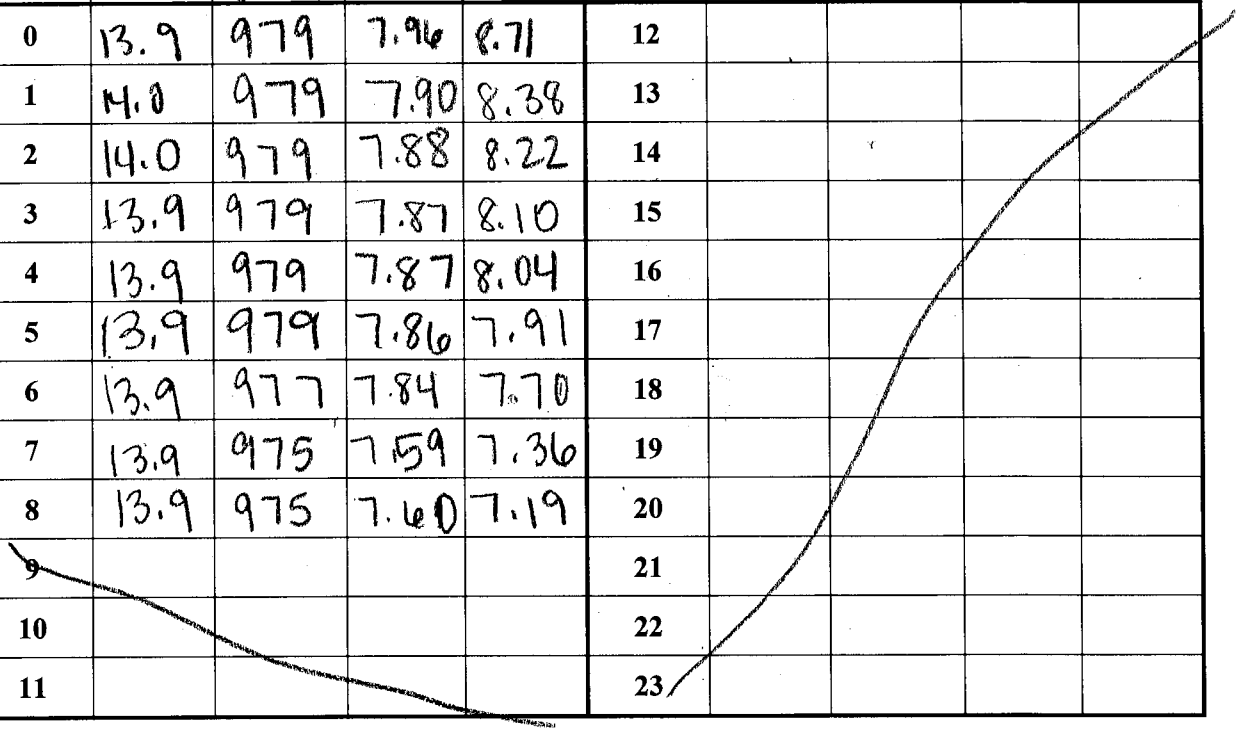
INT Sample Time 0850 Depth-Integrated volume filtered (ml): 375

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: no smells, water green tint. Debris present

AM WQR

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.9	979	7.96	8.71	12				
1	14.0	979	7.90	8.38	13				
2	14.0	979	7.88	8.22	14				
3	13.9	979	7.87	8.10	15				
4	13.9	979	7.87	8.04	16				
5	13.9	979	7.86	7.91	17				
6	13.9	977	7.84	7.70	18				
7	13.9	975	7.59	7.36	19				
8	13.9	975	7.60	7.19	20				
9					21				
10					22				
11					23				



FIELD DATASHEET

Date: 12/03/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL09

Time on Station: 1310 Time off Station: _____ Staff Initials: HK IJF

Weather Conditions: Cloudy Wind (mph & direction): 2 mph SW

Lat: _____ Long: on target

Water Depth (m): 8.5 Secchi Depth (m): 1.8

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): \

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	14.6	975	8.15	9.51	12				
1	14.4	~~923~~ 979	8.11	9.37	13				
2	14.0	976	8.00	7.80	14				
3	14.0	976	7.84	7.45	15				
4	14.0	978	7.78	7.65	16				
5	13.9	981	7.80	7.92	17				
6	13.9	981	7.81	7.89	18				
7	13.9	979	7.61	7.19	19				
8	13.9	982	7.32	1.35	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/03/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL10

Time on Station: 0755 Time off Station: 08:27 Staff Initials: HK JE

Weather Conditions: Partly Cloudy Wind (mph & direction): 1 mph SSE

Lat: _____ Long: On target

Water Depth (m): 4.0 Secchi Depth (m): 0.85

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y (N)

Surf SAMPLE TIME: 0825 Surface volume filtered (ml): 250

INT Sample Time 0815 Depth-Integrated volume filtered (ml): 250

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: some debris on water, slightly greenish brown

AM WQR

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	14.0	1005	8.37	11.33	12				
1	14.1	1005	8.39	11.33	13				
2	14.0	1002	8.38	11.04	14				
3	14.0	1002	8.36	10.95	15				
3.5	14.0	1001	8.34	10.88	16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 12/03/2024 Location (Circle): Lake Elsinore/Canyon Lake Station: CL10

Time on Station: 1300 Time off Station: 1305 Staff Initials: HK JF

Weather Conditions: Cloudy Wind (mph & direction): 2 mph SW

Lat: Long: on target

Water Depth (m): 4.0 Secchi Depth (m): 0.60

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / N

SAMPLE TIME: N/A Surface volume filtered (ml): \

Depth-Integrated volume filtered (ml): \

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: PM WQR

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	15.5	1013	8.74	13.31	12				
1	14.5	1009	8.82	13.74	13				
2	14.2	1004	8.62	12.12	14				
3	14.1	1023	8.50	11.25	15				
3.54	14.1	1036	8.41	10.95	16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 1129 Time off Station: 1137 Staff Initials: _____

Weather Conditions: drizzle, cloudy Wind (mph & direction): 10-15 mph SW

Lat: _____ Long: _____

Water Depth (m): 7.6 Secchi Depth (m): 0.4

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.1	2794	8.82	12.39	12				
1	13.1	2795	8.83	12.21	13				
2	12.8	2798	8.79	11.04	14				
3	12.5	2799	8.73	9.33	15				
4	12.3	2796	8.69	9.05	16				
5	12.3	2796	8.68	8.94	17				
6	12.1	2798	8.64	8.04	18				
7	11.4	2801	8.44	4.02	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LE 01

Time on Station: 1350 Time off Station: 1358 Staff Initials: _____

Weather Conditions: cloudy Wind (mph & direction): 3 mph W

Lat: _____ Long: _____

Water Depth (m): 7.7 Secchi Depth (m): _____

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.5	2794	8.84	12.70	12				
1	13.4	2796	8.83	12.04	13				
2	12.8	2796	8.78	10.72	14				
3	12.6	2797	8.75	9.80	15				
4	12.4	2796	8.72	9.25	16				
5	12.4	2796	8.70	9.13	17				
6	12.3	2796	8.69	8.94	18				
7	12.2	2797	8.67	8.20	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location: Lake Elsinore Station: LE02

Time on Station: 0840 Time off Station: _____ Staff Initials: _____

Weather Conditions: clear Wind (mph & direction): 2.3 mph SE

Lat: on Long: on

Water Depth (m): 8.8 m Secchi Depth (m): 0.4

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface: 0915
Surface DUP: 1022
Depth Int: 0907
Depth Int. DUP: 0941
Bottom: 0950
Bottom DUP: 1042
Surface TMDL: 1016

Surface volume filtered (ml): _____
Surface DUP volume filtered *(ml)*: 250
Depth Int. volume filtered (ml): 250 mL
Depth Int. DUP volume filtered (ml): 250
Surface TMDL: volume filtered (ml): 260
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	13.3	2793	8.89	13.04	51.7	7.62
0.5	13.2	2795	8.87	13.00	48.0	7.54
1	13.1	2797	8.86	12.77	46.8	7.56
2	13.0	2797	8.82	11.62	47.1	7.69
3	12.8	2796	8.76	10.23	46.4	7.66
4	12.4	2806	8.67	7.76	47.0	8.20
5	11.3	2803	8.46	4.46	49.5	8.40
6	11.2	2797	8.41	3.89	48.2	8.69
7	11.2	2795	8.38	3.65	47.0	9.10
8	11.2	2794	8.37	3.57	45.6	9.15
9						
10						
11						

FIELD DATASHEET

Date: 2/6/25 Location: Lake Elsinore Station: LE02

Time on Station:_____ Time off Station:_____ Staff Initials: _____

Weather Conditions:_____ Wind (mph & direction):_____

Lat:_____ Long:_____

Water Depth (m):_____ Secchi Depth (m):_____

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

*Surface:*_____
*Surface DUP:*_____
*Depth Int:*_____
Depth Int. DUP: _____
Bottom: _____
Bottom DUP: _____
Surface TMDL: _____

Surface volume filtered (ml):_____
Surface DUP volume filtered *(ml):*_____
Depth Int. volume filtered (ml):_____
Depth Int. DUP volume filtered (ml):_____
Surface TMDL: volume filtered (ml):_____
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments:
post readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	13.4	2787	8.89	13.39	48.8	7.59
0.5	13.3	2789	8.88	13.41	45.1	7.59
1	13.3	2790	8.88	13.36	46.2	7.58
2	13.3	2791	8.88	13.39	43.1	7.63
3	13.1	2794	8.84	12.40	40.7	7.65
4	12.9	2795	8.79	10.91	40.7	7.69
5	12.9	2795	8.77	10.36	40.3	7.88
6	11.7	2810	8.54	5.16	44.1	8.42
7	11.3	2797	8.45	4.13	43.8	8.59
8	11.2	2794	8.40	3.79	42.7	9.31
9						
10						
11						

FIELD DATASHEET

Date: 2/6/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LED2

Time on Station: 1340 Time off Station: 1348 Staff Initials: _____

Weather Conditions: Cloudy Wind (mph & direction): 3 mph W

Lat: _____ Long: _____

Water Depth (m): 8.8 Secchi Depth (m): _____

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.8	2794	8.90	14.07	12				
1	13.6	2796	8.90	13.92	13				
2	13.2	2794	8.82	11.92	14				
3	12.8	2796	8.75	10.12	15				
4	12.0	2799	8.60	6.74	16				
5	11.4	2798	8.46	4.77	17				
6	11.3	2796	8.42	4.04	18				
7	11.2	2793	8.39	3.64	19				
8	11.2	2793	8.38	3.50	20				
8.59	11.2	2792	8.38	3.48	21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location (Circle) Lake Elsinore/Canyon Lake Station: LE-03

Time on Station: 0825 Time off Station: 0832 Staff Initials: VS / AS

Weather Conditions: drizzle Wind (mph & direction): 2-3 mph SE

Lat: on Long: on

Water Depth (m): 6.9m Secchi Depth (m): 0.4m

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.7	2813	8.85	13.87	12				
1	13.6	2812	8.85	13.72	13				
2	13.5	2811	8.82	13.02	14				
3	13.1	2810	8.76	11.26	15				
4	12.1	2813	8.58	7.86	16				
5	11.3	2803	8.34	3.27	17				
6	11.2	2802	8.30	2.69	18				
X6.5	11.2	2799	8.30	2.57	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LE-03

Time on Station: 1325 Time off Station: 1336 Staff Initials: _____

Weather Conditions: cloudy Wind (mph & direction): 3 mph W

Lat: _____ Long: on

Water Depth (m): 6.9 Secchi Depth (m): _____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	14.6	2799	9.07	15.92	12				
1	14.2	2799	9.03	15.14	13				
2	13.0	2801	8.83	10.05	14				
3	12.0	2800	8.58	5.69	15				
4	11.3	2795	8.44	3.02	16				
5	11.2	2792	8.34	1.92	17				
6	11.2	2792	8.33	1.73	18				
6.5	11.2	2791	8.32	1.58	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-07

Time on Station: 1155 Time off Station: 1237 Staff Initials: JF/KP

Weather Conditions: dark/windy Wind (mph & direction): 8.3 kts ↗

Lat: on target Long: on target

Water Depth (m): 15.0 Secchi Depth (m): 0.61

Water Chemistry Sample?: (Y) / N Chl-a Sample? (Y) / N Plankton Sample?: Y (N)

SAMPLE TIME: 1220 Surface volume filtered (ml): 475

Depth-Integrated volume filtered (ml): 450

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Surface INT (0-2m) @ 1230

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	12.7	866	8.72	12.76	12	10.8	872	7.48	3.14
1	12.6	866	8.71	12.78	13	10.8	872	7.46	3.40
2	12.6	867	8.67	12.76	14	10.8	872	7.46	3.40
3	12.2	871	8.22	6.95	14.5/15	10.8	872	7.45	3.35
4	11.1	876	7.80	5.25	16				
5	10.9	875	7.72	4.50	17				
6	10.9	874	7.64	3.86	18				
7	10.8	874	7.56	3.59	19				
8	10.8	873	7.53	3.50	20				
9	10.8	873	7.52	3.48	21				
10	10.8	873	7.49	3.47	22				
11	10.8	872	7.49	3.48	23				

FIELD DATASHEET

Date: 2/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-08

Time on Station: 1053 Time off Station: 1137 Staff Initials: JF/KP

Weather Conditions: partly cloudy Wind (mph & direction): 9.1 kts ↑

Lat: on target Long: on target

Water Depth (m): 10.4 Secchi Depth (m): 0.61

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y (N)

SAMPLE TIME: 1120 Surface volume filtered (ml): 400

Depth-Integrated volume filtered (ml): 400

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

wind picking up; surface int (0-2m) @ 1130

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.6	848	8.87	14.94	12				
1	13.5	848	8.87	14.99	13				
2	13.2	851	8.83	14.45	14				
3	12.9	854	8.76	13.80	15				
4	12.3	860	8.42	11.05	16				
5	12.1	863	8.14	4.57	17				
6	10.9	865	7.66	4.45	18				
7	10.9	865	7.58	3.78	19				
8	10.8	865	7.54	3.54	20				
9	10.9	864	7.46	1.52	21				
10	10.9	864	7.43	1.99	22				
11					23				

FIELD DATASHEET

Date: 2/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-09

Time on Station: 0953 Time off Station: 1033 Staff Initials: JF/KP

Weather Conditions: partly cloudy/breezy Wind (mph & direction): 4.1 NE

Lat: on target Long: on target

Water Depth (m): 9.1 Secchi Depth (m): 0.61

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y (N)

SAMPLE TIME: 1015 Surface volume filtered (ml): 466

Depth-Integrated volume filtered (ml): 500

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

surface int (0-2m) @ 1025

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.7	956	8.72	14.17	12				
1	13.7	957	8.72	14.21	13				
2	13.6	960	8.70	14.14	14				
3	12.6	983	8.06	6.75	15				
4	11.6	978	7.91	4.73	16				
5	11.2	972	7.77	3.40	17				
6	11.0	967	7.68	3.00	18				
7	10.9	965	7.46	2.17	19				
8	10.9	965	7.40	1.80	20				
8.5 / 9	10.9	965	7.37	1.75	21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-10

Time on Station: 0903 Time off Station: 0940 Staff Initials: JF/KP

Weather Conditions: cloudy/breezy Wind (mph & direction): 4.2 mph ↗

Lat: on target Long: on target

Water Depth (m): 1.6 Secchi Depth (m): 0.9

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y / (N)

SAMPLE TIME: 0915 Surface volume filtered (ml): 300

Depth-Integrated volume filtered (ml): 250

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

very shallow due to low rain; surface int. (0-2m) @ 925

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.2	991	8.60	12.83	12				
1	13.2	990	8.60	12.85	13				
1.5 ~~2~~	13.2	1001	8.58	12.85	14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location (Circle): Lake Elsinore/Canyon Lake Station: grand

Time on Station: 1108 Time off Station: 1113 Staff Initials: _____

Weather Conditions: cloudy Wind (mph & direction): 10-15 mph SW

Lat: _____ Long: _____

Water Depth (m): 8.2 Secchi Depth (m): 0.4

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.5	2792	8.91	13.16	12				
1	13.4	2790	8.90	13.59	13				
2	13.4	2791	8.90	13.56	14				
3	13.2	2795	8.85	11.30	15				
4	12.0	2805	8.67	7.84	16				
5	11.4	2800	8.52	5.52	17				
6	11.3	2797	8.45	4.13	18				
7	11.3	2796	8.40	3.42	19				
7.5~~8~~	11.3	2795	8.38	3.03	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 2/6/25 Location (Circle): Lake Elsinore/Canyon Lake Station: Lake Shore

Time on Station: 1116 Time off Station: 1124 Staff Initials: _____

Weather Conditions: cloudy Wind (mph & direction): 10-15 mph SW

Lat: _____ Long: _____

Water Depth (m): 9.1 Secchi Depth (m): 0.4

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	13.4	2790	8.85	12.50	12				
1	13.4	2792	8.85	12.53	13				
2	13.2	2795	8.82	11.77	14				
3	13.1	2796	8.79	10.84	15				
4	12.7	2800	8.73	9.63	16				
5	11.4	2805	8.49	4.73	17				
6	11.2	2797	8.42	4.07	18				
7	11.2	2796	8.41	3.82	19				
8	11.2	2795	8.40	3.69	20				
8.5	11.2	2795	8.40	3.65	21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 4/17/25 Time off Station: 1010 Staff Initials: HK NJ

Weather Conditions: cloudy Wind (mph & direction): 3 W

Lat: _____ Long: on target

Water Depth (m): 7.8 Secchi Depth (m): ~~7.8~~ 0.6

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: — Surface volume filtered (ml): —

Depth-Integrated volume filtered (ml): —

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.5	2768	8.79	10.29	12				
1	18.5	2770	8.76	9.40	13				
2	18.3	2770	8.71	9.02	14				
3	18.3	2770	8.69	8.35	15				
4	18.2	2771	8.66	8.04	16				
5	17.9	2771	8.54	6.25	17				
6	17.8	2771	8.49	4.61	18				
7	17.6	2772	8.38	3.92	19				
8	17.1	2776	8.15	1.15	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/2025 Location: Lake Elsinore Station: LE02

Time on Station: ~~0744~~ 0755 Time off Station: _____ Staff Initials: HKNJ

Weather Conditions: Cloudy Wind (mph & direction): 2mph WSW

Lat: _____ Long: On target

Water Depth (m): ~~7.0~~ 9.1 Secchi Depth (m): 0.6

Water Chemistry Sample Times:

Surface: 0815
Surface DUP: 0855
Depth Int: 0826
Depth Int. DUP: 0905
Bottom: 0840
Bottom DUP: 0915
Surface TMDL: 0930

Chl-a Samples? (Y) / N **Algae Taxonomy Sample?** (Y) / N

Surface volume filtered (ml): 250mL
Surface DUP volume filtered *(ml)*: 210
Depth Int. volume filtered (ml): 300mL
Depth Int. DUP volume filtered (ml): 350mL
Surface TMDL: volume filtered (ml): 200mL

Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: Recent Rain / Pre-sampling

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	18.4	2769	8.69	9.92	128.8	5.70
0.5	18.5	2769	8.69	9.90	131.2	5.74
1	18.5	2769	8.70	9.87	135.8	5.72
2	18.5	2770	8.70	9.77	139.1	5.92
3	18.5	2769	8.70	9.68	144.1	6.48
4	18.4	2773	8.62	7.90	150.1	6.02
5	17.9	2773	8.44	5.06	166.7	5.40
6	17.6	2773	8.34	3.90	174.5	5.57
7	16.9	2775	8.07	0.49	156.2	14.91
8	16.7	2778	8.05	0.28	-57.3	16.09
8.59	16.7	2777	8.04	0.27	-89.4	15.41
10						
11						

FIELD DATASHEET

Date: 4/17/25 Location: Lake Elsinore Station: LE02

Time on Station: 0755 Time off Station: 0945 Staff Initials: HK NS

Weather Conditions: cloudy Wind (mph & direction): 3mph WNW

Lat: _____ Long: ON

Water Depth (m): 9.1 Secchi Depth (m): 0.6m

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface: _____
Surface DUP: _____
Depth Int: _____
Depth Int. DUP: _____
Bottom: _____
Bottom DUP: _____
Surface TMDL: _____

Surface volume filtered (ml): _____
Surface DUP volume filtered *(ml)*: _____
Depth Int. volume filtered (ml): _____
Depth Int. DUP volume filtered (ml): _____
Surface TMDL: volume filtered (ml): _____
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: post chem readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	18.4	2762	8.80	10.61	127.9	5.16
0.5	18.5	2769	8.81	10.66	133.4	5.50
1	18.5	2769	8.81	10.54	140.9	5.83
2	18.5	2769	8.82	10.25	153.5	5.56
3	18.4	2772	8.76	7.83	157.9	5.95
4	18.2	2773	8.64	5.77	166.5	5.81
5	17.9	2774	8.50	4.89	173.6	5.43
6	17.6	~~22~~ 2774	8.45	4.35	178.1	5.19
7	17.0	2782	8.20	0.80	181.6	10.31
8	16.9	2777	8.16	0.42	-92.3	15.49
8.59	16.6	2778	8.11	0.29	-115.7	14.81
10						
11						

FIELD DATASHEET

Date: 4/18/2025 Location (Circle): ~~Lake Elsinore~~/Canyon Lake Station: LE03

Time on Station: 0740 Time off Station: 0745 Staff Initials: HK NJ

Weather Conditions: Cloudy Wind (mph & direction): 2mph WSW

Lat: _____ Long: _____

Water Depth (m): 7.0 Secchi Depth (m): 0.6

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: \ Surface volume filtered (ml): \

Depth-Integrated volume filtered (ml): \

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Brown - Green water
Recent Rain in AM

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.7	2764	8.77	11.03	12				
1	18.7	2765	8.77	11.11	13				
2	18.6	2765	8.77	11.11	14				
3	18.6	2765	8.76	10.76	15				
4	18.6	2766	8.75	10.68	16				
5	18.6	2766	8.73	10.36	17				
6	18.4	2770	8.63	8.53	18				
6.57	17.7	2777	8.22	1.85	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: Lakeshore

Time on Station: 0957 Time off Station: 1005 Staff Initials: HR NJ

Weather Conditions: Cloudy Wind (mph & direction): 3 WSW

Lat: _____ Long: on target

Water Depth (m): 9.1 Secchi Depth (m): 0.6

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.7	2769	8.83	11.09	12				
1	18.6	2768	8.83	10.76	13				
2	18.6	2769	8.81	10.27	14				
3	18.4	2772	8.69	8.31	15				
4	18.0	2776	8.53	5.74	16				
5	17.7	2773	8.46	4.54	17				
6	17.7	2773	8.44	4.31	18				
7	17.5	2772	8.38	3.44	19				
8	17.0	2776	8.18	1.02	20				
8.8	16.5	2780	8.08	0.35	21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: Grand

Time on Station: 0947 Time off Station: 0955 Staff Initials: HK NJ

Weather Conditions: cloudy Wind (mph & direction): 2 W

Lat: _____ Long: on target

Water Depth (m): 8.3 Secchi Depth (m): 0.6

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: — Surface volume filtered (ml): —

Depth-Integrated volume filtered (ml): —

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.7	2766	8.85	11.28	12				
1	18.7	2769	8.85	11.27	13				
2	18.7	2768	8.84	10.69	14				
3	18.6	2770	8.80	9.82	15				
4	18.3	2771	8.70	6.84	16				
5	17.9	2774	8.51	4.82	17				
6	17.4	2782	8.36	1.42	18				
7	16.9	2779	8.16	0.41	19				
8	16.9	2778	8.15	0.36	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C107

Time on Station: 1025 Time off Station: 1100 Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 3.1, SSE

Lat: On Long: On

Water Depth (m): 15.15 Secchi Depth (m): 0.5

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y / N

SAMPLE TIME: 1045

surface 1055

Surface volume filtered (ml): 275mL

Depth-Integrated volume filtered (ml): 300mL

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.5	815	9.46	11.53	12	12.4	888	7.83	0.00
1	18.4	815	9.29	11.52	13	12.3	890	7.79	0.00
2	18.3	815	9.01	11.28	14	12.3	891	7.56	0.00
3	18.3	816	8.92	11.12	15	12.2	893	7.37	0.00
4	16.5	857	8.17	3.38	16				
5	15.5	860	7.76	0.53	17				
6	14.2	879	7.61	0.21	18				
7	13.2	880	8.1748	0.10	19				
8	13.0	884	7.87	0.04	20				
9	12.4	887	7.90	0.00	21				
10	12.4	887	7.89	0.00	22				
11	12.4	888	7.85	0.00	23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C108

Time on Station: 0948 Time off Station: 1020 Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 2.2 KTS, S

Lat: On Long: On

Water Depth (m): 9.5 Secchi Depth (m): 0.5

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y / N

SAMPLE TIME: 1000 Surface volume filtered (ml):

Surface: 1010 Depth-Integrated volume filtered (ml): 500mL

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.7	810	8.74	11.28	12				
1	18.7	812	8.71	11.36	13				
2	18.6	812	8.69	11.37	14				
3	18.4	814	8.69	10.95	15				
4	16.2	869	7.96	0.82	16				
5	15.2	875	7.57	0.43	17				
6	14.7	879	7.49	0.15	18				
7	13.6	877	7.41	0.16	19				
8	13.4	878	7.47	0.03	20				
9	12.8	883	7.48	0.00	21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C109

Time on Station: 0850 Time off Station: 0935 Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 2.7 SE

Lat: On Long: On

Water Depth (m): 8.5 Secchi Depth (m): 0.5m

Water Chemistry Sample?: (Y) / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: 0910 Surface volume filtered (ml): 200mL

Surface: 0920 Depth-Integrated volume filtered (ml): 200mL

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.6	875	8.83	12.40	12				
1	18.7	881	8.84	12.88	13				
2	18.7	882	8.86	12.89	14				
3	17.5	963	8.25	7.83	15				
4	15.2	1048	7.54	0.63	16				
5	13.0	1028	7.32	0.19	17				
6	12.4	1057	7.14	0.1	18				
7	12.3	1040	6.92	0.7	19				
8	12.3	1040	6.91	0.5	20				
8.5	12.3	1040	6.92	0.05	21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C110

Time on Station: 0820 Time off Station: 0845 SW Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 2.2 SW

Lat: Or Long: Or

Water Depth (m): 3.5 Secchi Depth (m): 0.5

Water Chemistry Sample? (Y) N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: 0830 Surface volume filtered (ml): 200 mL

surface: 0840 Depth-Integrated volume filtered (ml): 200 mL

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.7	919	8.52	12.95	12				
1	18.9	918	8.52	12.75	13				
2	18.9	916	8.64	12.88	14				
3	18.4	1032	8.00	4.00	15				
3.5	17.9	1050	3.08	3.	16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/ Location (Circle): Lake Elsinore/Canyon Lake Station: C107

Time on Station: 1340 Time off Station: 1345 Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 3.4 kts, C

Lat: On Long: On

Water Depth (m): 15.5 Secchi Depth (m):

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / N

SAMPLE TIME: Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed 7 **PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.4	815	8.96	11.75	12	12.4	889	7.74	6.01
1	18.4	816	8.97	11.77	13	12.4	890	7.40	0.00
2	18.4	814	8.96	11.49	14	12.4	891	7.49	0.00
3	18.3	818	8.92	11.11	15	12.3	891	7.50	0.00
4	17.2	853	8.14	4.89	16				
5	14.9	865	7.82	0.72	17				
6	13.8	877	7.72	0.27	18				
7	13.2	881	7.55	0.15	19				
8	12.9	884	7.49	0.09	20				
9	12.7	888	7.43	0.07	21				
10	12.5	885	7.39	0.05	22				
11	12.5	889	7.41	0.03	23				

FIELD DATASHEET

Date:_____ Location (Circle): Lake Elsinore/Canyon Lake Station: C108

Time on Station: 1330 Time off Station:_____ Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 3.4Kts, E

Lat: On Long: On

Water Depth (m): 9.0 Secchi Depth (m):_____

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml):_____

Depth-Integrated volume filtered (ml):_____

*Do not exceed 7 **PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	18.7	813	8.98	11.78	12				
1	18.7	813	9.01	11.80	13				
2	18.7	814	9.03	11.78	14				
3	18.6	815	9.02	11.32	15				
4	18.2	822	8.83	9.21	16				
5	15.4	871	7.96	0.72	17				
6	15.1	885	7.80	0.33	18				
7	14.9	878	7.71	0.18	19				
8	14.1	869	7.59	0.11	20				
~~8.5~~	14.0	869	7.54	0.09	21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C109

Time on Station: 1310 Time off Station: _____ Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): _____

Lat: On Long: On

Water Depth (m): 9.5 Secchi Depth (m): _____

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

PM Readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	19.1	884	9.18	13.22	12				
1	19.0	885	9.15	13.26	13				
2	18.9	886	9.12	13.38	14				
3	18.4	9145	8.80	10.25	15				
4	16.4	9185	7.97	0.60	16				
5	14.9	1057	7.56	0.42	17				
6	13.8	1047	7.49	0.18	18				
7	13.3	1042	7.40	0.12	19				
8	12.4	1040	7.25	0.06	20				
9	12.4	1041	7.17	0.06	21				
10					22				
11					23				

FIELD DATASHEET

Date: 4/17/25 Location (Circle): Lake Elsinore/Canyon Lake Station: elo1D

Time on Station: 1360 Time off Station: 1305 Staff Initials: JF/MT

Weather Conditions: Overcast Wind (mph & direction): 3 kmrs ESE

Lat: On Long: On

Water Depth (m): 3.60 Secchi Depth (m):

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: ~~Post~~ PM Readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	19.3	907	9.58	13.33	12				
1	19.2	925	9.60	13.56	13				
2	19.1	929	9.60	13.62	14				
3	18.8	945	9.45	12.25	15				
~~4~~ 3.5	17.3	1061	8.40	0.45	16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/2025 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 10:50 AM Time off Station: 10:55 AM Staff Initials: NJ, NOW

Weather Conditions: clear Wind (mph & direction): 4mph, SW

Lat: on Long: on

Water Depth (m): 7.6 Secchi Depth (m): 2.1m

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	26.4	2884	8.85	9.55	12				
1	25.4	2882	8.83	8.44	13				
2	25.3	2880	8.79	7.21	14				
3	25.0	2880	8.71	5.82	15				
4	24.9	2879	8.68	4.68	16				
5	24.4	2878	8.56	2.13	17				
6	23.7	2875	8.37	0.41	18				
7	23.1	2877	8.19	0.22	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/2025 Location (Circle): Lake Elsinore/Canyon Lake Station: LE01

Time on Station: 2:50 PM Time off Station: 2:55 PM Staff Initials: NJ, NDW

Weather Conditions: clear, sunny Wind (mph & direction): 5 knots, WSW

Lat: oh Long: oh

Water Depth (m): 7.6 Secchi Depth (m): —

Water Chemistry Sample?: Y /(N) Chl-a Sample?: Y /(N) Plankton Sample?: Y /(N)

SAMPLE TIME: Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.6	2894	8.86	12.42	12				
1	26.3	2887	8.90	12.71	13				
2	25.2	2881	8.74	7.07	14				
3	25.1	2880	8.72	6.17	15				
4	24.9	2878	8.68	5.06	16				
5	24.7	2877	8.60	1.88	17				
6	23.8	2877	8.43	0.37	18				
7	23.3	2875	8.22	0.28	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/25 Location: Lake Elsinore Station: LE02

Time on Station: 8:10 AM Time off Station: 10:20 AM Staff Initials: NJ, NDW

Weather Conditions: Fog AM - Wind (mph & direction): 1 knot, SSW

Lat: on Long: on

Water Depth (m): 8.7m Secchi Depth (m): 1.8 ft

Water Chemistry Sample Times: **Chl-a Samples?**: Y / N **Algae Taxonomy Sample?**: Y / N 0835

Surface: 0835
Surface DUP: 0915
Depth Int: 8:40
Depth Int. DUP: 0915
Bottom: 0900
Bottom DUP: 0940
Surface TMDL: 09:45

Surface volume filtered (ml): 250
Surface DUP volume filtered *(ml)*: 210
Depth Int. volume filtered (ml): 250
Depth Int. DUP volume filtered (ml): 250
Surface TMDL: volume filtered (ml): 250
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	24.5	2868	8.63	5.61	94.5	3.15
0.5	24.6	2876	8.67	5.56	100.8	2.97
1	24.6	2876	8.68	5.55	109.3	2.80
2	24.6	2877	8.69	5.49	120.9	2.83
3	24.6	2877	8.69	5.43	128.1	2.85
4	24.6	2877	8.69	5.38	137.8	3.06
5	24.5	2878	8.65	4.38	154.0	2.94
6	23.8	2875	8.49	1.48	168.3	3.21
7	23.6	2875	8.42	0.41	-102.7	19.23
8	23.3	2877	8.32	0.22	-178.4	11.62
9						
10						
11						

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LE02

Time on Station: 2:45 PM Time off Station: 2:48 PM Staff Initials: NJ, NDW

Weather Conditions: clear, sunny Wind (mph & direction): 5 knots, WSW

Lat: on Long: on

Water Depth (m): 8.6 Secchi Depth (m): —

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.0	2902	8.81	11.32	12				
1	25.9	2885	8.91	11.43	13				
2	24.9	2880	8.82	7.37	14				
3	24.7	2877	8.75	5.48	15				
4	24.5	2877	8.69	4.96	16				
5	24.3	2877	8.66	4.53	17				
6	23.8	2875	8.44	0.82	18				
7	23.7	2875	8.41	0.29	19				
8	23.5	2875	8.36	0.25	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: LE63

Time on Station: 07:55AM Time off Station: 08:05AM Staff Initials: NJ, NDW

Weather Conditions: Clear Wind (mph & direction): 4mph, SW

Lat: On Long: On

Water Depth (m): 6.7 Secchi Depth (m): 1.8

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	24.1	2895	8.83	7.25	12				
1	24.1	2903	8.87	7.20	13				
2	24.0	2903	8.88	7.19	14				
3	24.0	2901	8.88	5.23	15				
4	24.0	2900	8.88	4.01	16				
5	23.9	2898	8.84	1.15	17				
6	23.2	2895	8.69	0.83	18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 6/11/2025 Location (Circle): Lake Elsinore/Canyon Lake Station: LE03

Time on Station: 2:35 PM Time off Station: 2:40 PM Staff Initials: NJ, NDW

Weather Conditions: clear Wind (mph & direction): 5 knots, WSW

Lat: on Long: on

Water Depth (m): 6.8 Secchi Depth (m): —

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.4	2902	9.02	9.15	12				
1	25.6	2887	9.10	10.01	13				
2	24.3	2873	8.98	7.31	14				
3	24.1	2874	8.84	4.33	15				
4	23.9	2873	8.64	3.01	16				
5	23.7	2873	8.61	2.98	17				
6	23.6	2873	8.48	0.42	18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/2025 Location (Circle): Lake Elsinore/Canyon Lake Station: Grand

Time on Station: 10:25 Time off Station: 10:30 Staff Initials: NJ, NDN

Weather Conditions: Clear Wind (mph & direction): 4mph, SW

Lat: on Long: on

Water Depth (m): 8m Secchi Depth (m):

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	24.9	2880	8.75	6.86	12				
1	24.7	2879	8.71	6.11	13				
2	24.5	2877	8.69	5.49	14				
3	24.4	2877	8.67	5.26	15				
4	24.4	2877	8.66	5.22	16				
5	24.1	2878	8.48	1.26	17				
6	23.8	2875	8.43	0.82	18				
7	23.7	2875	8.39	0.37	19				
~~8~~ 7.5	23.6	2876	8.35	0.32	20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/2025 Location (Circle): Lake Elsinore/Canyon Lake Station: Lake Shore

Time on Station: 10:35 AM Time off Station: 10:45 AM Staff Initials: NJ, NDW

Weather Conditions: clear Wind (mph & direction): 4 mph, SW

Lat: on Long: on

Water Depth (m): 9m Secchi Depth (m):

Water Chemistry Sample?: Y (N) Chl-a Sample?: Y (N) Plankton Sample?: Y (N)

SAMPLE TIME: Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	26.1	2884	8.80	9.00	12				
1	25.2	2879	8.79	7.96	13				
2	24.9	2875	8.76	6.56	14				
3	24.7	2877	8.71	5.37	15				
4	24.6	2878	8.67	4.87	16				
5	23.9	2875	8.47	1.48	17				
6	23.6	2874	8.39	0.33	18				
7	23.5	2873	8.37	0.25	19				
8	23.1	2877	8.18	0.19	20				
8.5 ✓	23.1	2877	8.17	0.19	21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/25 Location: Lake Elsinore Station: LE02

Time on Station: 10:10 Time off Station: 10:20 Staff Initials: NJ, NDW

Weather Conditions: clear Wind (mph & direction): 4 mph, SW

Lat: on Long: on

Water Depth (m): 8.7m Secchi Depth (m): 1.8

Water Chemistry Sample Times: **Chl-a Samples**?: Y / N **Algae Taxonomy Sample**?: Y / N

Surface:
Surface DUP:
Depth Int:
Depth Int. DUP:
Bottom:
Bottom DUP:
Surface TMDL:

Surface volume filtered (ml):
Surface DUP volume filtered *(ml):*
Depth Int. volume filtered (ml):
Depth Int. DUP volume filtered (ml):
Surface TMDL: volume filtered (ml):
Do not exceed **7 PSI or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250mL filter volume).

Comments: post-chem readings

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)
0	26.0	2883	8.81	8.35	160.5	2.86
0.5	25.2	2881	8.83	8.25	169.9	3.06
1	25.1	2880	8.80	7.26	190.2	3.05
2	24.6	2879	8.74	5.81	197.8	2.71
3	24.6	2878	8.69	5.42	210.3	2.70
4	24.5	2877	8.68	5.20	214.6	2.86
5	24.0	2877	8.52	2.22	226.1	2.88
6	23.9	2876	8.48	0.77	229.6	7.79
7	23.6	2878	8.37	0.38	-124.6	13.95
8	23.4	2876	8.28	0.23	-170.4	10.31
9						
10						
11						

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C107

Time on Station: 1050 Time off Station: 1120 Staff Initials: JF/KC

Weather Conditions: Sunny Wind (mph & direction): 1 kts, W

Lat: On Long: On

Water Depth (m): 15.3 Secchi Depth (m): 0.8

Water Chemistry Sample?: (Y) / N Chl-a Sample?: (Y) / N Plankton Sample?: Y / N

SAMPLE TIME: 11:10 Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	27.2	909	9.20	10.02	12	13.0	932	7.20	0.00
1	26.8	909	9.10	10.26	13	12.9	937	7.20	0.00
2	25.9	906	9.09	10.38	14	12.9	934	7.21	0.00
3	25.6	924	8.74	4.40	15	12.9	939	7.20	0.00
4	19.5	933	7.87	0.19	16				
5	18.5	944	7.70	0.21	17				
6	16.7	941	7.51	0.11	18				
7	15.0	932	7.42	0.05	19				
8	13.9	932	7.36	0.03	20				
9	13.5	931	7.21	0.00	21				
10	13.1	931	7.23	0.00	22				
11	13.0	930	7.22	0.00	23				

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-07

Time on Station: 1425 Time off Station: 1435 Staff Initials: JF/KC

Weather Conditions: sunny Wind (mph & direction): 5 mph/SSW

Lat: DM Long: DM

Water Depth (m): 15.5 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: POSX

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	27.2	924	8.60	7.76	12	13.0	953	7.33	0
1	27.1	924	8.71	10.40	13	12.9	953	7.31	↓
2	26.2	915	8.80	10.78	14	12.7	953	7.28	
3	24.4	936	8.74	3.70	15	12.9	953	7.26	
4	20.7	950	7.93	0.60	16				
5	18.3	951	7.69	0.45	17				
6	18.4	960	7.58	0.29	18				
7	14.8	948	7.52	0.00	19				
8	13.9	947	7.48	0.00	20				
9	13.5	949	7.45	0.00	21				
10	13.1	953	7.38	0.00	22				
11	13.0	953	7.35	0.00	23				

FIELD DATASHEET

Date: 06/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C108

Time on Station: 1015 Time off Station: 1045 Staff Initials: JF/KC

Weather Conditions: Sunny Wind (mph & direction): 3.8 WSW

Lat: On Long: On

Water Depth (m): 9.0 Secchi Depth (m): 0.85

Water Chemistry Sample?: (Y) / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: 1030 Surface volume filtered (ml):

Surface time 1040 Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Moderate Swirl Smell

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	27.2	913	9.33	9.99	12				
1	26.9	908	9.25	10.16	13				
2	26.5	907	9.18	10.12	14				
3	22.8	925	8.34	1.02	15				
4	21.8	924	7.95	0.44	16				
5	18.2	939	7.81	0.29	17				
6	16.4	932	7.66	0.18	18				
7	15.0	930	7.60	0.13	19				
8	14.0	934	7.49	0.10	20				
9	13.3	938	7.39	0.05	21				
10					22				
11					23				

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: CL-08

Time on Station: 1415 Time off Station: 1420 Staff Initials: JF/KU

Weather Conditions: sunny Wind (mph & direction): 5 KTS / SSW

Lat: on Long: on

Water Depth (m): 9.0 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: post

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.0	919	8.72	9.92	12				
1	27.6	917	8.86	10.47	13				
2	26.3	914	8.96	10.83	14				
3	24.2	920	8.72	8.55	15				
4	20.6	734	8.23	0.7	16				
5	18.0	944	7.73	0.45	17				
6	16.1	952	7.61	0.35	18				
7	14.5	951	7.55	0.29	19				
8	13.8	951	7.47	0.23	20				
~~8.5~~ 9	13.5	959	7.36	0.17	21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C109

Time on Station: 0925 Time off Station: 1000 Staff Initials: JF/KC

Weather Conditions: Sunny Wind (mph & direction): 1.6 kts, W

Lat: On Long: On

Water Depth (m): 9.2 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: 0940

Surface: 0950

Surface volume filtered (ml):

Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Strong Sulfur odor

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	26.4	988	9.14	9.30	12				
1	26.5	992	9.01	9.25	13				
2	26.2	994	8.96	9.21	14				
3	24.3	1054	8.20	7.58	15				
4	22.1	1118	8.06	0.58	16				
5	17.5	1132	7.47	0.22	17				
6	15.0	1118	7.42	0.10	18				
7	13.6	1118	7.37	0.05	19				
8	13.0	1129	7.29	0.03	20				
9	13.0	1129	7.20	0.02	21				
10					22				
11					23				

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: 609

Time on Station: 1405 Time off Station: 1410 Staff Initials: JF/KC

Weather Conditions: Sunny Wind (mph & direction): 5 kts, SSW

Lat: On Long: On

Water Depth (m): 7.5 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: _____ Surface volume filtered (ml): _____

Depth-Integrated volume filtered (ml): _____

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments: Park

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	28.2	992	8.87	9.43	12				
1	26.5	1012	8.77	9.87	13				
2	24.2	1024	8.93	13.43	14				
3	22.0	1130	7.96	1.00	15				
4	17.3	1143	7.39	0.55	16				
5	15.0	1138	7.33	0.40	17				
6	13.7	1148	7.26	0.33	18				
7	13.5	1155	7.09	0.29	19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 06/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C|10

Time on Station: 0830 Time off Station: 0910 Staff Initials: JF/KC

Weather Conditions: Sunny Wind (mph & direction): 2kts, W

Lat: On Long: On

Water Depth (m): 3.7 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / N Chl-a Sample?: Y / N Plankton Sample?: Y / N

SAMPLE TIME: 0850 Surface volume filtered (ml):

Surface 0900 Depth-Integrated volume filtered (ml):

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	26.2	1028	8.96	9.51	12				
1	26.2	1027	8.94	9.53	13				
2	26.2	1032	8.96	8.95	14				
3	25.9	1122	8.56	8.75	15				
3.54	25.1	1091	8.65	10.70	16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

FIELD DATASHEET

Date: 6/11/25 Location (Circle): Lake Elsinore/Canyon Lake Station: C110 Post

Time on Station: 1350 Time off Station: 1400 Staff Initials: JF/KC

Weather Conditions: Sunny Wind (mph & direction): 5kts, SSW

Lat: 0 Long: 0

Water Depth (m): 3.5 Secchi Depth (m): 0.8

Water Chemistry Sample?: Y / (N) Chl-a Sample?: Y / (N) Plankton Sample?: Y / (N)

SAMPLE TIME: _____ Surface volume filtered (ml): ✓

Depth-Integrated volume filtered (ml): ✓

*Do not exceed **7 PSI** or **14 in. Hg** when filtering chlorophyll (~500 mL fill volume preferred). Discard lower chamber when full (after first 250 mL are filtered).

Comments:

Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)	Depth (m)	Temp (°C)	Sp. Cond (µS/cm)	pH (units)	DO (mg/L)
0	29.7	1037	12.01	9.42	12				
1	27.5	1039	11.14	9.73	13				
2	26.5	1035	10.53	9.77	14				
3	24.4	1068	9.65	11.95	15				
3.5	23.0	1129	8.19	1.25	16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				

APPENDIX C

LAKE MONITORING ANALYTICAL REPORTS

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 4G23136

Project: LECL TMDL Monitoring

Attn: John Rudolph

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 8/19/2024
Received Date: 7/23/2024
Turnaround Time: Normal
Phones: (858) 514-6465
Fax: (858) 278-5300
P.O. #: C016900152, Project No.
Billing Code: 2315100200.0004.WECK

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear John Rudolph,

Enclosed are the results of analyses for samples received 7/23/24 with the Chain-of-Custody document. The samples were received in good condition, at 6.3 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: John Rudolph

Reported:
08/19/2024 16:00

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
LEO2	Nick Jernack	4G23136-01	Water	07/23/24 08:55	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: John Rudolph

Reported:
08/19/2024 16:00

Sample Results

Sample: LEO2

Sampled: 07/23/24 8:55 by Nick Jernack

4G23136-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4G2010 **Preparation:** _NONE (WETCHEM)			**Prepared:** 07/25/24 15:51			**Analyst:** YMT	
Ammonia as N	**0.23**	0.017	0.10	mg/l	1	07/26/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4H0656 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/08/24 16:51			**Analyst:** YMT	
TKN	**2.2**	0.26	0.40	mg/l	1	08/13/24	M-02
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4G1833 **Preparation:** _NONE (WETCHEM)			**Prepared:** 07/24/24 09:22			**Analyst:** KAC	
Nitrate as N	ND	0.040	0.20	mg/l	1	07/24/24 11:06	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	07/24/24 11:06	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4G1860 **Preparation:** _NONE (WETCHEM)			**Prepared:** 07/24/24 11:02			**Analyst:** rob	
o-Phosphate as P	**0.12**	0.0071	0.010	mg/l	1	07/24/24 13:19	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4H0226 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/05/24 11:12			**Analyst:** rob	
Phosphorus as P, Total	**0.20**	0.0067	0.010	mg/l	1	08/09/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4G1958 **Preparation:** _NONE (WETCHEM)			**Prepared:** 07/25/24 09:56			**Analyst:** bel	
Total Dissolved Solids	**1500**	4.0	10	mg/l	1	07/25/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4G2154 **Preparation:** _NONE (WETCHEM)			**Prepared:** 07/29/24 09:28			**Analyst:** mes	
Sulfide, Total	**0.10**	0.050	0.10	mg/l	1	07/29/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: John Rudolph

Reported:
08/19/2024 16:00

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4G1833 - EPA 353.2											
Blank (W4G1833-BLK1)					**Prepared & Analyzed: 07/24/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W4G1833-BLK2)					**Prepared & Analyzed: 07/24/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W4G1833-BS1)					**Prepared & Analyzed: 07/24/24**						
Nitrate as N	0.990	0.040	0.20	mg/l	1.00		99	90-110			
Nitrite as N	1.01	0.042	0.10	mg/l	1.00		101	90-110			
LCS (W4G1833-BS2)					**Prepared & Analyzed: 07/24/24**						
Nitrate as N	0.990	0.040	0.20	mg/l	1.00		99	90-110			
Nitrite as N	1.02	0.042	0.10	mg/l	1.00		102	90-110			
Duplicate (W4G1833-DUP1)	**Source: 4G23002-08**				**Prepared & Analyzed: 07/24/24**						
Nitrate as N	10.9	0.40	2.0	mg/l		11.0			0.9	20	
Nitrite as N	ND	0.042	0.10	mg/l		ND				20	
Matrix Spike (W4G1833-MS1)	**Source: 4G23002-06**				**Prepared & Analyzed: 07/24/24**						
Nitrate as N	28.7	0.40	2.0	mg/l	20.0	9.60	96	90-110			
Nitrite as N	1.05	0.042	0.10	mg/l	1.00	ND	105	90-110			
Matrix Spike (W4G1833-MS2)	**Source: 4G23070-01**				**Prepared & Analyzed: 07/24/24**						
Nitrate as N	127	2.0	10	mg/l	100	36.4	91	90-110			
Nitrite as N	1.04	0.042	0.10	mg/l	1.00	ND	104	90-110			
Matrix Spike Dup (W4G1833-MSD1)	**Source: 4G23002-06**				**Prepared & Analyzed: 07/24/24**						
Nitrate as N	28.6	0.40	2.0	mg/l	20.0	9.60	95	90-110	0.3	20	
Nitrite as N	1.07	0.042	0.10	mg/l	1.00	ND	107	90-110	2	20	
Matrix Spike Dup (W4G1833-MSD2)	**Source: 4G23070-01**				**Prepared & Analyzed: 07/24/24**						
Nitrate as N	130	2.0	10	mg/l	100	36.4	94	90-110	2	20	
Nitrite as N	1.04	0.042	0.10	mg/l	1.00	ND	104	90-110	0	20	
Batch: W4G1860 - EPA 365.3											
Blank (W4G1860-BLK1)					**Prepared & Analyzed: 07/24/24**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W4G1860-BS1)					**Prepared & Analyzed: 07/24/24**						
o-Phosphate as P	0.204	0.0071	0.010	mg/l	0.200		102	88-111			
Matrix Spike (W4G1860-MS1)	**Source: 4G23084-02**				**Prepared & Analyzed: 07/24/24**						
o-Phosphate as P	0.444	0.0071	0.010	mg/l	0.200	0.248	98	85-112			
Matrix Spike Dup (W4G1860-MSD1)	**Source: 4G23084-02**				**Prepared & Analyzed: 07/24/24**						
o-Phosphate as P	0.447	0.0071	0.010	mg/l	0.200	0.248	100	85-112	0.7	20	
Batch: W4G1958 - SM 2540C											
Blank (W4G1958-BLK1)					**Prepared & Analyzed: 07/25/24**						
Total Dissolved Solids	ND	4.0	10	mg/l							

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: John Rudolph

Reported:
08/19/2024 16:00

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4G1958 - SM 2540C (Continued)											
Blank (W4G1958-BLK1)					**Prepared & Analyzed: 07/25/24**						
LCS (W4G1958-BS1)					**Prepared & Analyzed: 07/25/24**						
Total Dissolved Solids	51.0	4.0	10	mg/l	50.0		102	97-103			
Duplicate (W4G1958-DUP1)	**Source: 4G22062-01**				**Prepared & Analyzed: 07/25/24**						
Total Dissolved Solids	25800	4.0	10	mg/l		26500			3	10	
Batch: W4G2010 - EPA 350.1											
Blank (W4G2010-BLK1)					**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W4G2010-BLK2)					**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W4G2010-BS1)					**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	0.263	0.017	0.10	mg/l	0.250		105	90-110			
LCS (W4G2010-BS2)					**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	0.274	0.017	0.10	mg/l	0.250		110	90-110			
Matrix Spike (W4G2010-MS1)	**Source: 4G18071-01**				**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	0.338	0.017	0.10	mg/l	0.250	0.0852	101	90-110			
Matrix Spike (W4G2010-MS2)	**Source: 4G23133-07**				**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	0.257	0.017	0.10	mg/l	0.250	ND	103	90-110			
Matrix Spike Dup (W4G2010-MSD1)	**Source: 4G18071-01**				**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	0.333	0.017	0.10	mg/l	0.250	0.0852	99	90-110	1	15	
Matrix Spike Dup (W4G2010-MSD2)	**Source: 4G23133-07**				**Prepared: 07/25/24 Analyzed: 07/26/24**						
Ammonia as N	0.256	0.017	0.10	mg/l	0.250	ND	102	90-110	0.5	15	
Batch: W4G2154 - SM 4500S2-D											
Blank (W4G2154-BLK1)					**Prepared & Analyzed: 07/29/24**						
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W4G2154-BS1)					**Prepared & Analyzed: 07/29/24**						
Sulfide, Total	0.100	0.050	0.10	mg/l	0.0978		102	90-110			
Duplicate (W4G2154-DUP1)	**Source: 4G29019-09**				**Prepared & Analyzed: 07/29/24**						
Sulfide, Total	20.0	5.0	10	mg/l		20.0			0	20	
Matrix Spike (W4G2154-MS1)	**Source: 4G15007-01**				**Prepared & Analyzed: 07/29/24**						
Sulfide, Total	0.400	0.050	0.10	mg/l	0.196	0.200	102	80-120			
Matrix Spike Dup (W4G2154-MSD1)	**Source: 4G15007-01**				**Prepared & Analyzed: 07/29/24**						
Sulfide, Total	0.400	0.050	0.10	mg/l	0.196	0.200	102	80-120	0	20	
Batch: W4H0226 - EPA 365.3											
Blank (W4H0226-BLK1)					**Prepared: 08/05/24 Analyzed: 08/09/24**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W4H0226-BS1)					**Prepared: 08/05/24 Analyzed: 08/09/24**						
Phosphorus as P, Total	0.202	0.0067	0.010	mg/l	0.200		101	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: John Rudolph

Reported:
08/19/2024 16:00

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4H0226 - EPA 365.3 (Continued)											
Matrix Spike (W4H0226-MS1)	**Source: 4G11003-01**			**Prepared: 08/05/24**		**Analyzed: 08/09/24**					
Phosphorus as P, Total	0.371	0.0067	0.010	mg/l	0.200	0.176	97	90-110			
Matrix Spike Dup (W4H0226-MSD1)	**Source: 4G11003-01**			**Prepared: 08/05/24**		**Analyzed: 08/09/24**					
Phosphorus as P, Total	0.375	0.0067	0.010	mg/l	0.200	0.176	100	90-110	1	20	
Batch: W4H0656 - EPA 351.2											
Blank (W4H0656-BLK1)				**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	ND	0.065	0.10	mg/l							
Blank (W4H0656-BLK2)				**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	ND	0.065	0.10	mg/l							
LCS (W4H0656-BS1)				**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	1.01	0.065	0.10	mg/l	1.00		101	90-110			
LCS (W4H0656-BS2)				**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	1.01	0.065	0.10	mg/l	1.00		101	90-110			
Matrix Spike (W4H0656-MS1)	**Source: 4G23136-01**			**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	6.42	0.26	0.40	mg/l	4.00	2.19	106	90-110			
Matrix Spike (W4H0656-MS2)	**Source: 4G24133-04**			**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	1.51	0.065	0.10	mg/l	1.00	0.584	92	90-110			
Matrix Spike Dup (W4H0656-MSD1)	**Source: 4G23136-01**			**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	6.43	0.26	0.40	mg/l	4.00	2.19	106	90-110	0.2	10	
Matrix Spike Dup (W4H0656-MSD2)	**Source: 4G24133-04**			**Prepared: 08/08/24**		**Analyzed: 08/13/24**					
TKN	1.58	0.065	0.10	mg/l	1.00	0.584	99	90-110	4	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: John Rudolph

Reported:
08/19/2024 16:00

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 4H01002

Project: 2315100200.0004.WECK LECL TMDL Monitoring

Attn: John Rudolph

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 9/11/2024
Received Date: 8/15/2024
Turnaround Time: Normal
Phones: (858) 514-6465
Fax: (858) 278-5300
P.O. #: C016900152, Project No.
Billing Code: 2315100200.0004.WECK

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear John Rudolph,

Enclosed are the results of analyses for samples received 8/15/24 with the Chain-of-Custody document. The samples were received in good condition, at 1.6 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CL07	Nick Jernack	4H01002-01	Water	08/15/24 11:23	
CL08	Nick Jernack	4H01002-02	Water	08/15/24 10:35	
CL09	Nick Jernack	4H01002-03	Water	08/15/24 09:55	
CL10	Nick Jernack	4H01002-04	Water	08/15/24 09:00	
LE02	Nick Jernack	4H01002-05	Water	08/15/24 09:20	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Sample Results

Sample: CL07

Sampled: 08/15/24 11:23 by Nick Jernack

4H01002-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4H2390 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/29/24 11:21			**Analyst:** YMT	
Ammonia as N	**1.4**	0.017	0.10	mg/l	1	08/30/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4I0447 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/06/24 10:59			**Analyst:** YMT	
TKN	**2.2**	0.065	0.10	mg/l	1	09/09/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4H1300 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 09:30			**Analyst:** KAC	
Nitrate as N	ND	0.040	0.20	mg/l	1	08/16/24 16:53	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	08/16/24 16:53	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4H1338 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 11:39			**Analyst:** rob	
o-Phosphate as P	**0.23**	0.0071	0.010	mg/l	1	08/16/24 12:59	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4I0292 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/05/24 09:27			**Analyst:** rob	
Phosphorus as P, Total	**0.27**	0.0067	0.010	mg/l	1	09/10/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4H1494 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:31			**Analyst:** bel	
Total Dissolved Solids	**410**	4.0	10	mg/l	1	08/20/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4H1655 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/21/24 09:28			**Analyst:** dig	
Total Suspended Solids	**8**	5	5	mg/l	1	08/21/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4H1348 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 12:24			**Analyst:** mes	
Sulfide, Total	**4.0**	0.50	1.0	mg/l	10	08/16/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4H1588 **Preparation:** EPA 200.2			**Prepared:** 08/21/24 11:10			**Analyst:** tyc	
Aluminum, Dissolved	**0.055**	0.041	0.050	mg/l	1	08/23/24	
Aluminum, Total	**0.069**	0.022	0.050	mg/l	1	08/23/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Sample Results

(Continued)

Sample: CL08

Sampled: 08/15/24 10:35 by Nick Jernack

4H01002-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4H2390 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/29/24 11:21			**Analyst:** YMT	
Ammonia as N	**0.91**	0.017	0.10	mg/l	1	08/30/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4I0447 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/06/24 10:59			**Analyst:** YMT	
TKN	**1.8**	0.065	0.10	mg/l	1	09/09/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4H1300 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 09:30			**Analyst:** KAC	
Nitrate as N	ND	0.040	0.20	mg/l	1	08/16/24 16:54	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	08/16/24 16:54	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4H1338 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 11:39			**Analyst:** rob	
o-Phosphate as P	**0.14**	0.0071	0.010	mg/l	1	08/16/24 13:01	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4I0292 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/05/24 09:27			**Analyst:** rob	
Phosphorus as P, Total	**0.19**	0.0067	0.010	mg/l	1	09/10/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4H1494 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:31			**Analyst:** bel	
Total Dissolved Solids	**410**	4.0	10	mg/l	1	08/20/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4H1404 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:09			**Analyst:** dig	
Total Suspended Solids	**6**	5	5	mg/l	1	08/20/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4H1348 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 12:24			**Analyst:** mes	
Sulfide, Total	**3.0**	0.50	1.0	mg/l	10	08/16/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4H1588 **Preparation:** EPA 200.2			**Prepared:** 08/21/24 11:10			**Analyst:** tyc	
Aluminum, Dissolved	**0.077**	0.041	0.050	mg/l	1	08/23/24	
Aluminum, Total	**0.080**	0.022	0.050	mg/l	1	08/23/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Sample Results

(Continued)

Sample: CL09

Sampled: 08/15/24 9:55 by Nick Jernack

4H01002-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4H2390 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/29/24 11:21			**Analyst:** YMT	
Ammonia as N	**1.0**	0.017	0.10	mg/l	1	08/30/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4I0447 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/06/24 10:59			**Analyst:** YMT	
TKN	**1.9**	0.065	0.10	mg/l	1	09/09/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4H1300 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 09:30			**Analyst:** KAC	
Nitrate as N	ND	0.040	0.20	mg/l	1	08/16/24 16:55	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	08/16/24 16:55	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4H1338 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 11:39			**Analyst:** rob	
o-Phosphate as P	**0.029**	0.0071	0.010	mg/l	1	08/16/24 13:01	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4I0292 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/05/24 09:27			**Analyst:** rob	
Phosphorus as P, Total	**0.090**	0.0067	0.010	mg/l	1	09/10/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4H1494 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:31			**Analyst:** bel	
Total Dissolved Solids	**550**	4.0	10	mg/l	1	08/20/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4H1404 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:09			**Analyst:** dig	
Total Suspended Solids	**9**	5	5	mg/l	1	08/20/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4H1348 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 12:24			**Analyst:** mes	
Sulfide, Total	**6.0**	0.50	1.0	mg/l	10	08/16/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4H1588 **Preparation:** EPA 200.2			**Prepared:** 08/21/24 11:10			**Analyst:** tyc	
Aluminum, Dissolved	**0.080**	0.041	0.050	mg/l	1	08/23/24	
Aluminum, Total	**0.097**	0.022	0.050	mg/l	1	08/23/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Sample Results

(Continued)

Sample: CL10

Sampled: 08/15/24 9:00 by Nick Jernack

4H01002-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4H2390 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/29/24 11:21			**Analyst:** YMT	
Ammonia as N	**0.019**	0.017	0.10	mg/l	1	08/30/24	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4I0447 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/06/24 10:59			**Analyst:** YMT	
TKN	**0.93**	0.065	0.10	mg/l	1	09/09/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4H1300 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 09:30			**Analyst:** KAC	
Nitrate as N	ND	0.040	0.20	mg/l	1	08/16/24 16:56	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	08/16/24 16:56	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4H1338 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 11:39			**Analyst:** rob	
o-Phosphate as P	**0.042**	0.0071	0.010	mg/l	1	08/16/24 13:02	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4I0292 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/05/24 09:27			**Analyst:** rob	
Phosphorus as P, Total	**0.11**	0.0067	0.010	mg/l	1	09/10/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4H1494 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:31			**Analyst:** bel	
Total Dissolved Solids	**560**	4.0	10	mg/l	1	08/20/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4H1404 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:09			**Analyst:** dig	
Total Suspended Solids	**6**	5	5	mg/l	1	08/20/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4H1348 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 12:24			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	08/16/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4H1588 **Preparation:** EPA 200.2			**Prepared:** 08/21/24 11:10			**Analyst:** tyc	
Aluminum, Dissolved	**0.094**	0.041	0.050	mg/l	1	08/23/24	
Aluminum, Total	**0.15**	0.022	0.050	mg/l	1	08/23/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Sample Results

(Continued)

Sample: LE02

Sampled: 08/15/24 9:20 by Nick Jernack

4H01002-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4H2390 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/29/24 11:21			**Analyst:** YMT	
Ammonia as N	**0.12**	0.017	0.10	mg/l	1	08/30/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4I0447 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/06/24 10:59			**Analyst:** YMT	
TKN	**3.0**	0.26	0.40	mg/l	1	09/09/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4H1300 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 09:30			**Analyst:** KAC	
Nitrate as N	ND	0.040	0.20	mg/l	1	08/16/24 16:57	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	08/16/24 16:57	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4H1338 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 11:39			**Analyst:** rob	
o-Phosphate as P	**0.0090**	0.0071	0.010	mg/l	1	08/16/24 13:03	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4I0292 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/05/24 09:27			**Analyst:** rob	
Phosphorus as P, Total	**0.18**	0.0067	0.010	mg/l	1	09/10/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4H1494 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/19/24 18:31			**Analyst:** bel	
Total Dissolved Solids	**1600**	4.0	10	mg/l	1	08/20/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4H1348 **Preparation:** _NONE (WETCHEM)			**Prepared:** 08/16/24 12:24			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	08/16/24	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4H1300 - EPA 353.2											
Blank (W4H1300-BLK1)					**Prepared & Analyzed: 08/16/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W4H1300-BLK2)					**Prepared & Analyzed: 08/16/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W4H1300-BS1)					**Prepared & Analyzed: 08/16/24**						
Nitrate as N	0.998	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1.06	0.042	0.10	mg/l	1.00		106	90-110			
LCS (W4H1300-BS2)					**Prepared & Analyzed: 08/16/24**						
Nitrate as N	1.01	0.040	0.20	mg/l	1.00		101	90-110			
Nitrite as N	1.06	0.042	0.10	mg/l	1.00		106	90-110			
Matrix Spike (W4H1300-MS1)	**Source: 4H16073-03**				**Prepared & Analyzed: 08/16/24**						
Nitrate as N	6.14	0.040	0.20	mg/l	2.00	4.11	102	90-110			
Nitrite as N	1.05	0.042	0.10	mg/l	1.00	ND	105	90-110			
Matrix Spike (W4H1300-MS2)	**Source: 4H16073-04**				**Prepared & Analyzed: 08/16/24**						
Nitrate as N	5.18	0.040	0.20	mg/l	2.00	3.22	98	90-110			
Nitrite as N	1.06	0.042	0.10	mg/l	1.00	ND	106	90-110			
Matrix Spike Dup (W4H1300-MSD1)	**Source: 4H16073-03**				**Prepared & Analyzed: 08/16/24**						
Nitrate as N	6.15	0.040	0.20	mg/l	2.00	4.11	102	90-110	0.2	20	
Nitrite as N	1.04	0.042	0.10	mg/l	1.00	ND	104	90-110	1	20	
Matrix Spike Dup (W4H1300-MSD2)	**Source: 4H16073-04**				**Prepared & Analyzed: 08/16/24**						
Nitrate as N	5.19	0.040	0.20	mg/l	2.00	3.22	98	90-110	0.2	20	
Nitrite as N	1.05	0.042	0.10	mg/l	1.00	ND	105	90-110	0.9	20	
Batch: W4H1338 - EPA 365.3											
Blank (W4H1338-BLK1)					**Prepared & Analyzed: 08/16/24**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W4H1338-BS1)					**Prepared & Analyzed: 08/16/24**						
o-Phosphate as P	0.205	0.0071	0.010	mg/l	0.200		102	88-111			
Matrix Spike (W4H1338-MS1)	**Source: 4H01002-01**				**Prepared & Analyzed: 08/16/24**						
o-Phosphate as P	0.432	0.0071	0.010	mg/l	0.200	0.234	99	85-112			
Matrix Spike Dup (W4H1338-MSD1)	**Source: 4H01002-01**				**Prepared & Analyzed: 08/16/24**						
o-Phosphate as P	0.436	0.0071	0.010	mg/l	0.200	0.234	101	85-112	0.9	20	
Batch: W4H1348 - SM 4500S2-D											
Blank (W4H1348-BLK1)					**Prepared & Analyzed: 08/16/24**						
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W4H1348-BS1)					**Prepared & Analyzed: 08/16/24**						
Sulfide, Total	0.100	0.050	0.10	mg/l	0.0903		111	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4H1348 - SM 4500S2-D (Continued)											
Duplicate (W4H1348-DUP1)	**Source: 4H01002-01**			**Prepared & Analyzed: 08/16/24**							
Sulfide, Total	4.00	0.25	0.50	mg/l		4.00			0	20	
Matrix Spike (W4H1348-MS1)	**Source: 4G22034-01**			**Prepared & Analyzed: 08/16/24**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.181	ND	111	80-120			
Matrix Spike Dup (W4H1348-MSD1)	**Source: 4G22034-01**			**Prepared & Analyzed: 08/16/24**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.181	ND	111	80-120	0	20	
Batch: W4H1404 - SM 2540D											
Blank (W4H1404-BLK1)				**Prepared: 08/19/24 Analyzed: 08/20/24**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W4H1404-BS1)				**Prepared: 08/19/24 Analyzed: 08/20/24**							
Total Suspended Solids	65.4	5	5	mg/l	61.4		107	90-110			
Duplicate (W4H1404-DUP1)	**Source: 4H15097-01**			**Prepared: 08/19/24 Analyzed: 08/20/24**							
Total Suspended Solids	1320	5	5	mg/l		1230			7	10	
Batch: W4H1494 - SM 2540C											
Blank (W4H1494-BLK1)				**Prepared: 08/19/24 Analyzed: 08/20/24**							
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W4H1494-BS1)				**Prepared: 08/19/24 Analyzed: 08/20/24**							
Total Dissolved Solids	49.0	4.0	10	mg/l	50.0		98	97-103			
Duplicate (W4H1494-DUP1)	**Source: 4H19104-02**			**Prepared: 08/19/24 Analyzed: 08/20/24**							
Total Dissolved Solids	2020	4.0	10	mg/l		2040			0.6	10	
Batch: W4H1655 - SM 2540D											
Blank (W4H1655-BLK1)				**Prepared & Analyzed: 08/21/24**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W4H1655-BS1)				**Prepared & Analyzed: 08/21/24**							
Total Suspended Solids	53.7	5	5	mg/l	50.1		107	90-110			
Duplicate (W4H1655-DUP1)	**Source: 4H15042-01**			**Prepared & Analyzed: 08/21/24**							
Total Suspended Solids	647	5	5	mg/l		640			1	10	
Batch: W4H2390 - EPA 350.1											
Blank (W4H2390-BLK1)				**Prepared: 08/29/24 Analyzed: 08/30/24**							
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W4H2390-BLK2)				**Prepared: 08/29/24 Analyzed: 08/30/24**							
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W4H2390-BS1)				**Prepared: 08/29/24 Analyzed: 08/30/24**							
Ammonia as N	0.254	0.017	0.10	mg/l	0.250		102	90-110			
LCS (W4H2390-BS2)				**Prepared: 08/29/24 Analyzed: 08/30/24**							
Ammonia as N	0.254	0.017	0.10	mg/l	0.250		102	90-110			
Duplicate (W4H2390-DUP1)	**Source: 4H19104-03**			**Prepared: 08/29/24 Analyzed: 08/30/24**							
Ammonia as N	0.0684	0.017	0.10	mg/l		0.0682			0.3	15	J

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4H2390 - EPA 350.1 (Continued)											
Matrix Spike (W4H2390-MS1)	**Source: 4H16021-01**			**Prepared: 08/29/24**		**Analyzed: 08/30/24**					
Ammonia as N	0.259	0.017	0.10	mg/l	0.250	ND	103	90-110			
Matrix Spike (W4H2390-MS2)	**Source: 4H19104-02**			**Prepared: 08/29/24**		**Analyzed: 08/30/24**					
Ammonia as N	0.272	0.017	0.10	mg/l	0.250	0.0243	99	90-110			
Matrix Spike Dup (W4H2390-MSD1)	**Source: 4H16021-01**			**Prepared: 08/29/24**		**Analyzed: 08/30/24**					
Ammonia as N	0.261	0.017	0.10	mg/l	0.250	ND	104	90-110	0.9	15	
Matrix Spike Dup (W4H2390-MSD2)	**Source: 4H19104-02**			**Prepared: 08/29/24**		**Analyzed: 08/30/24**					
Ammonia as N	0.272	0.017	0.10	mg/l	0.250	0.0243	99	90-110	0.1	15	
Batch: W4I0292 - EPA 365.3											
Blank (W4I0292-BLK1)				**Prepared: 09/05/24**		**Analyzed: 09/10/24**					
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W4I0292-BS1)				**Prepared: 09/05/24**		**Analyzed: 09/10/24**					
Phosphorus as P, Total	0.194	0.0067	0.010	mg/l	0.200		97	90-110			
Matrix Spike (W4I0292-MS1)	**Source: 4H01003-01**			**Prepared: 09/05/24**		**Analyzed: 09/10/24**					
Phosphorus as P, Total	0.372	0.0067	0.010	mg/l	0.200	0.164	104	90-110			
Matrix Spike Dup (W4I0292-MSD1)	**Source: 4H01003-01**			**Prepared: 09/05/24**		**Analyzed: 09/10/24**					
Phosphorus as P, Total	0.364	0.0067	0.010	mg/l	0.200	0.164	100	90-110	2	20	
Batch: W4I0447 - EPA 351.2											
Blank (W4I0447-BLK1)				**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	ND	0.065	0.10	mg/l							
Blank (W4I0447-BLK2)				**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	ND	0.065	0.10	mg/l							
LCS (W4I0447-BS1)				**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	1.03	0.065	0.10	mg/l	1.00		103	90-110			
LCS (W4I0447-BS2)				**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	0.943	0.065	0.10	mg/l	1.00		94	90-110			
Matrix Spike (W4I0447-MS1)	**Source: 4H01002-05**			**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	7.48	0.26	0.40	mg/l	4.00	3.05	111	90-110			MS-02
Matrix Spike (W4I0447-MS2)	**Source: 4H20035-28**			**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	1.04	0.065	0.10	mg/l	1.00	0.0806	96	90-110			
Matrix Spike Dup (W4I0447-MSD1)	**Source: 4H01002-05**			**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	7.16	0.26	0.40	mg/l	4.00	3.05	103	90-110	4	10	
Matrix Spike Dup (W4I0447-MSD2)	**Source: 4H20035-28**			**Prepared: 09/06/24**		**Analyzed: 09/09/24**					
TKN	1.07	0.065	0.10	mg/l	1.00	0.0806	99	90-110	3	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4H1588 - EPA 200.7											
Blank (W4H1588-BLK1)				**Prepared: 08/21/24**	**Analyzed: 08/23/24**						
Aluminum, Dissolved	ND	0.041	0.050	mg/l							
Aluminum, Total	ND	0.022	0.050	mg/l							
LCS (W4H1588-BS1)				**Prepared: 08/21/24**	**Analyzed: 08/23/24**						
Aluminum, Dissolved	0.230	0.041	0.050	mg/l	0.200		115	85-115			
Aluminum, Total	0.230	0.022	0.050	mg/l	0.200		115	85-115			
Matrix Spike (W4H1588-MS1)	**Source: 4H01002-01**			**Prepared: 08/21/24**	**Analyzed: 08/23/24**						
Aluminum, Dissolved	0.302	0.041	0.050	mg/l	0.200	0.0548	123	70-130			
Aluminum, Total	0.302	0.022	0.050	mg/l	0.200	0.0690	116	70-130			
Matrix Spike (W4H1588-MS2)	**Source: 4H01003-02**			**Prepared: 08/21/24**	**Analyzed: 08/23/24**						
Aluminum, Dissolved	0.256	0.041	0.050	mg/l	0.200	ND	128	70-130			
Aluminum, Total	0.256	0.022	0.050	mg/l	0.200	ND	128	70-130			
Matrix Spike Dup (W4H1588-MSD1)	**Source: 4H01002-01**			**Prepared: 08/21/24**	**Analyzed: 08/23/24**						
Aluminum, Dissolved	0.301	0.041	0.050	mg/l	0.200	0.0548	123	70-130	0.1	30	
Aluminum, Total	0.301	0.022	0.050	mg/l	0.200	0.0690	116	70-130	0.1	30	
Matrix Spike Dup (W4H1588-MSD2)	**Source: 4H01003-02**			**Prepared: 08/21/24**	**Analyzed: 08/23/24**						
Aluminum, Dissolved	0.257	0.041	0.050	mg/l	0.200	ND	128	70-130	0.4	30	
Aluminum, Total	0.257	0.022	0.050	mg/l	0.200	ND	128	70-130	0.4	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK LECL TMDL Monitoring

Project Manager: John Rudolph

Reported: 09/11/2024 11:31

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
MS-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 4I12007

Project: LECL TMDL Monitoring

Attn: WSP USA E&I Inc. - San Diego

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 10/09/2024
Received Date: 9/19/2024
Turnaround Time: Normal
Phones: (858) 278-3600
Fax: (858) 278-5300
P.O. #: C016900152, Project No.
Billing Code: 2315100200.0004.WECK

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear WSP USA E&I Inc. - San Diego,

Enclosed are the results of analyses for samples received 9/19/24 with the Chain-of-Custody document. The samples were received in good condition, at 5.7 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
10/09/2024 14:29

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
LE02	Client	4I12007-01	Water	09/19/24 09:25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
10/09/2024 14:29

Sample Results

Sample: LE02

Sampled: 09/19/24 9:25 by Client

4I12007-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4J0157 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/02/24 09:59			**Analyst:** YMT	
Ammonia as N	**0.64**	0.017	0.10	mg/l	1	10/03/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4J0407 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/04/24 09:34			**Analyst:** ymt	
TKN	**3.2**	0.13	0.20	mg/l	1	10/08/24	M-02
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4I1699 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/20/24 10:06			**Analyst:** ATN/YMT	
Nitrate as N	ND	0.040	0.20	mg/l	1	09/20/24 12:26	
Nitrite as N	ND	0.042	0.10	mg/l	1	09/20/24 12:26	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4I1715 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/20/24 11:17			**Analyst:** rob	
o-Phosphate as P	**0.0080**	0.0071	0.010	mg/l	1	09/20/24 12:31	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4J0097 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/01/24 15:41			**Analyst:** rob	
Phosphorus as P, Total	**0.13**	0.0067	0.010	mg/l	1	10/07/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4I1905 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/24/24 10:25			**Analyst:** bel	
Total Dissolved Solids	**1600**	4.0	10	mg/l	1	09/24/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4I1690 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/20/24 09:26			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	09/20/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
10/09/2024 14:29

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4I1690 - SM 4500S2-D											
Blank (W4I1690-BLK1)					**Prepared & Analyzed: 09/20/24**						
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W4I1690-BS1)					**Prepared & Analyzed: 09/20/24**						
Sulfide, Total	0.100	0.050	0.10	mg/l	0.0961		104	90-110			
Duplicate (W4I1690-DUP1)	**Source: 4G22037-01**				**Prepared & Analyzed: 09/20/24**						
Sulfide, Total	0.200	0.050	0.10	mg/l		0.200			0	20	
Matrix Spike (W4I1690-MS1)	**Source: 4H02013-01**				**Prepared & Analyzed: 09/20/24**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.192	ND	104	80-120			
Matrix Spike Dup (W4I1690-MSD1)	**Source: 4H02013-01**				**Prepared & Analyzed: 09/20/24**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.192	ND	104	80-120	0	20	
Batch: W4I1699 - EPA 353.2											
Blank (W4I1699-BLK1)					**Prepared & Analyzed: 09/20/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W4I1699-BS1)					**Prepared & Analyzed: 09/20/24**						
Nitrate as N	1.01	0.040	0.20	mg/l	1.00		101	90-110			
Nitrite as N	1.01	0.042	0.10	mg/l	1.00		101	90-110			
Matrix Spike (W4I1699-MS1)	**Source: 4I12007-01**				**Prepared & Analyzed: 09/20/24**						
Nitrate as N	2.01	0.040	0.20	mg/l	2.00	ND	100	90-110			
Nitrite as N	1.11	0.042	0.10	mg/l	1.00	ND	111	90-110			MS-01
Matrix Spike (W4I1699-MS2)	**Source: 4I19053-02**				**Prepared & Analyzed: 09/20/24**						
Nitrate as N	9.44	0.040	0.20	mg/l	2.00	7.58	93	90-110			
Nitrite as N	1.01	0.042	0.10	mg/l	1.00	ND	101	90-110			
Matrix Spike Dup (W4I1699-MSD1)	**Source: 4I12007-01**				**Prepared & Analyzed: 09/20/24**						
Nitrate as N	1.99	0.040	0.20	mg/l	2.00	ND	100	90-110	1	20	
Nitrite as N	1.00	0.042	0.10	mg/l	1.00	ND	100	90-110	10	20	
Matrix Spike Dup (W4I1699-MSD2)	**Source: 4I19053-02**				**Prepared & Analyzed: 09/20/24**						
Nitrate as N	9.45	0.040	0.20	mg/l	2.00	7.58	93	90-110	0.1	20	
Nitrite as N	1.03	0.042	0.10	mg/l	1.00	ND	103	90-110	2	20	
Batch: W4I1715 - EPA 365.3											
Blank (W4I1715-BLK1)					**Prepared & Analyzed: 09/20/24**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W4I1715-BS1)					**Prepared & Analyzed: 09/20/24**						
o-Phosphate as P	0.202	0.0071	0.010	mg/l	0.200		101	88-111			
Matrix Spike (W4I1715-MS1)	**Source: 4I12007-01**				**Prepared & Analyzed: 09/20/24**						
o-Phosphate as P	0.206	0.0071	0.010	mg/l	0.200	0.00800	99	85-112			
Matrix Spike Dup (W4I1715-MSD1)	**Source: 4I12007-01**				**Prepared & Analyzed: 09/20/24**						
o-Phosphate as P	0.210	0.0071	0.010	mg/l	0.200	0.00800	101	85-112	2	20	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
10/09/2024 14:29

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4I1905 - SM 2540C											
Blank (W4I1905-BLK1)					**Prepared & Analyzed: 09/24/24**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W4I1905-BS1)					**Prepared & Analyzed: 09/24/24**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W4I1905-DUP1)	**Source: 4H02021-02**				**Prepared & Analyzed: 09/24/24**						
Total Dissolved Solids	14900	4.0	10	mg/l		15200			2	10	
Batch: W4J0097 - EPA 365.3											
Blank (W4J0097-BLK1)					**Prepared: 10/01/24 Analyzed: 10/07/24**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W4J0097-BS1)					**Prepared: 10/01/24 Analyzed: 10/07/24**						
Phosphorus as P, Total	0.196	0.0067	0.010	mg/l	0.200		98	90-110			
Matrix Spike (W4J0097-MS1)	**Source: 4I24084-02**				**Prepared: 10/01/24 Analyzed: 10/07/24**						
Phosphorus as P, Total	0.716	0.013	0.020	mg/l	0.400	0.332	96	90-110			
Matrix Spike Dup (W4J0097-MSD1)	**Source: 4I24084-02**				**Prepared: 10/01/24 Analyzed: 10/07/24**						
Phosphorus as P, Total	0.718	0.013	0.020	mg/l	0.400	0.332	96	90-110	0.3	20	
Batch: W4J0157 - EPA 350.1											
Blank (W4J0157-BLK1)					**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W4J0157-BLK2)					**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W4J0157-BS1)					**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	0.261	0.017	0.10	mg/l	0.250		104	90-110			
LCS (W4J0157-BS2)					**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	0.269	0.017	0.10	mg/l	0.250		108	90-110			
Duplicate (W4J0157-DUP1)	**Source: 4I23091-02**				**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	ND	0.017	0.10	mg/l		ND				15	
Matrix Spike (W4J0157-MS1)	**Source: 4I23091-01**				**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	0.261	0.017	0.10	mg/l	0.250	ND	104	90-110			
Matrix Spike (W4J0157-MS2)	**Source: 4I24119-01**				**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	0.267	0.017	0.10	mg/l	0.250	ND	107	90-110			
Matrix Spike Dup (W4J0157-MSD1)	**Source: 4I23091-01**				**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	0.263	0.017	0.10	mg/l	0.250	ND	105	90-110	0.9	15	
Matrix Spike Dup (W4J0157-MSD2)	**Source: 4I24119-01**				**Prepared: 10/02/24 Analyzed: 10/03/24**						
Ammonia as N	0.267	0.017	0.10	mg/l	0.250	ND	107	90-110	0.08	15	
Batch: W4J0407 - EPA 351.2											
Blank (W4J0407-BLK1)					**Prepared: 10/04/24 Analyzed: 10/08/24**						
TKN	ND	0.065	0.10	mg/l							
Blank (W4J0407-BLK2)					**Prepared: 10/04/24 Analyzed: 10/08/24**						

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
10/09/2024 14:29

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4J0407 - EPA 351.2 (Continued)											
Blank (W4J0407-BLK2)				**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	ND	0.065	0.10	mg/l							
LCS (W4J0407-BS1)				**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	0.983	0.065	0.10	mg/l	1.00		98	90-110			
LCS (W4J0407-BS2)				**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	0.969	0.065	0.10	mg/l	1.00		97	90-110			
Duplicate (W4J0407-DUP1)	**Source: 4I16097-01**			**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	0.380	0.065	0.10	mg/l		0.386			2	10	
Matrix Spike (W4J0407-MS1)	**Source: 4I12007-01**			**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	5.21	0.13	0.20	mg/l	2.00	3.23	99	90-110			
Matrix Spike (W4J0407-MS2)	**Source: 4I18123-04**			**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	1.40	0.065	0.10	mg/l	1.00	0.433	97	90-110			
Matrix Spike Dup (W4J0407-MSD1)	**Source: 4I12007-01**			**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	5.24	0.13	0.20	mg/l	2.00	3.23	101	90-110	0.7	10	
Matrix Spike Dup (W4J0407-MSD2)	**Source: 4I18123-04**			**Prepared: 10/04/24**		**Analyzed: 10/08/24**					
TKN	1.31	0.065	0.10	mg/l	1.00	0.433	88	90-110	7	10	MS-01

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
10/09/2024 14:29

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 4J22072

Project: 2315100200.0004.WECK

Attn: WSP USA E&I Inc. - San Diego

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 11/13/2024
Received Date: 10/24/2024
Turnaround Time: Normal
Phones: (858) 278-3600
Fax: (858) 278-5300
P.O. #: C016900152, Project No.
Billing Code: 2315100200.0004.WECK

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear WSP USA E&I Inc. - San Diego,

Enclosed are the results of analyses for samples received 10/24/24 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
11/13/2024 10:02

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CL07	Nick Jernack	4J22072-01	Water	10/24/24 10:30	
CL08	Nick Jernack	4J22072-02	Water	10/24/24 09:45	
CL09	Nick Jernack	4J22072-03	Water	10/24/24 09:05	
CL10	Nick Jernack	4J22072-04	Water	10/24/24 08:25	
LE02	Nick Jernack	4J22072-05	Water	10/24/24 09:20	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Sample Results

Sample: CL07

Sampled: 10/24/24 10:30 by Nick Jernack

4J22072-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4J2263 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/28/24 17:38			**Analyst:** ymt	
Ammonia as N	**3.0**	0.017	0.10	mg/l	1	10/31/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4K0673 **Preparation:** _NONE (WETCHEM)			**Prepared:** 11/08/24 11:48			**Analyst:** YMT	
TKN	**3.7**	0.065	0.10	mg/l	1	11/12/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4J2113 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 09:33			**Analyst:** ATN	
Nitrate as N	**0.055**	0.040	0.20	mg/l	1	10/25/24 15:48	J
Nitrite as N	ND	0.042	0.10	mg/l	1	10/25/24 15:48	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4J2129 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 11:49			**Analyst:** rob	
o-Phosphate as P	**0.31**	0.0071	0.010	mg/l	1	10/25/24 17:19	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4J2580 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/31/24 12:24			**Analyst:** rob	
Phosphorus as P, Total	**0.34**	0.0067	0.010	mg/l	1	11/04/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4J2350 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/29/24 11:55			**Analyst:** bel	
Total Dissolved Solids	**410**	4.0	10	mg/l	1	10/29/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4J2135 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:03			**Analyst:** dig	
Total Suspended Solids	**7**	5	5	mg/l	1	10/25/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4J2143 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:53			**Analyst:** mes	
Sulfide, Total	**5.0**	0.50	1.0	mg/l	10	10/25/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4J2235 **Preparation:** EPA 200.2			**Prepared:** 10/29/24 12:55			**Analyst:** tyc	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	10/31/24	
Aluminum, Total	**0.051**	0.022	0.050	mg/l	1	10/31/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Sample Results

(Continued)

Sample: CL08

Sampled: 10/24/24 9:45 by Nick Jernack

4J22072-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4J2263 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/28/24 17:38			**Analyst:** ymt	
Ammonia as N	**0.084**	0.017	0.10	mg/l	1	10/31/24	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4K0673 **Preparation:** _NONE (WETCHEM)			**Prepared:** 11/08/24 11:48			**Analyst:** YMT	
TKN	**0.65**	0.065	0.10	mg/l	1	11/12/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4J2113 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 09:33			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	10/25/24 15:49	
Nitrite as N	ND	0.042	0.10	mg/l	1	10/25/24 15:49	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4J2129 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 11:49			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	10/25/24 17:19	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4J2580 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/31/24 12:24			**Analyst:** rob	
Phosphorus as P, Total	**0.036**	0.0067	0.010	mg/l	1	11/04/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4J2350 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/29/24 11:55			**Analyst:** bel	
Total Dissolved Solids	**480**	4.0	10	mg/l	1	10/29/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4J2135 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:03			**Analyst:** dig	
Total Suspended Solids	ND	5	5	mg/l	1	10/25/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4J2143 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:53			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	10/25/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4J2235 **Preparation:** EPA 200.2			**Prepared:** 10/29/24 12:55			**Analyst:** tyc	
Aluminum, Dissolved	**0.048**	0.041	0.050	mg/l	1	10/31/24	J
Aluminum, Total	**0.093**	0.022	0.050	mg/l	1	10/31/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Sample Results

(Continued)

Sample: CL09

Sampled: 10/24/24 9:05 by Nick Jernack

4J22072-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4J2263 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/28/24 17:38			**Analyst:** ymt	
Ammonia as N	**0.56**	0.017	0.10	mg/l	1	10/31/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4K0673 **Preparation:** _NONE (WETCHEM)			**Prepared:** 11/08/24 11:48			**Analyst:** YMT	
TKN	**1.4**	0.065	0.10	mg/l	1	11/12/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4J2113 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 09:33			**Analyst:** ATN	
Nitrate as N	**0.048**	0.040	0.20	mg/l	1	10/25/24 16:11	J
Nitrite as N	ND	0.042	0.10	mg/l	1	10/25/24 16:11	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4J2129 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 11:49			**Analyst:** rob	
o-Phosphate as P	**0.0080**	0.0071	0.010	mg/l	1	10/25/24 17:19	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4J2580 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/31/24 12:24			**Analyst:** rob	
Phosphorus as P, Total	**0.047**	0.0067	0.010	mg/l	1	11/04/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4J2350 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/29/24 11:55			**Analyst:** bel	
Total Dissolved Solids	**600**	4.0	10	mg/l	1	10/29/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4J2135 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:03			**Analyst:** dig	
Total Suspended Solids	**5**	5	5	mg/l	1	10/25/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4J2143 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:53			**Analyst:** mes	
Sulfide, Total	**1.6**	0.10	0.20	mg/l	2	10/25/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4J2235 **Preparation:** EPA 200.2			**Prepared:** 10/29/24 12:55			**Analyst:** tyc	
Aluminum, Dissolved	**0.071**	0.041	0.050	mg/l	1	10/31/24	
Aluminum, Total	**0.14**	0.022	0.050	mg/l	1	10/31/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Sample Results

(Continued)

Sample: CL10

Sampled: 10/24/24 8:25 by Nick Jernack

4J22072-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4J2263 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/28/24 17:38			**Analyst:** ymt	
Ammonia as N	**0.023**	0.017	0.10	mg/l	1	10/31/24	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4K0673 **Preparation:** _NONE (WETCHEM)			**Prepared:** 11/08/24 11:48			**Analyst:** YMT	
TKN	**0.87**	0.065	0.10	mg/l	1	11/12/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4J2113 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 09:33			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	10/25/24 16:12	
Nitrite as N	ND	0.042	0.10	mg/l	1	10/25/24 16:12	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4J2129 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 11:49			**Analyst:** rob	
o-Phosphate as P	**0.018**	0.0071	0.010	mg/l	1	10/25/24 17:20	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4J2580 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/31/24 12:24			**Analyst:** rob	
Phosphorus as P, Total	**0.070**	0.0067	0.010	mg/l	1	11/04/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4J2350 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/29/24 11:55			**Analyst:** bel	
Total Dissolved Solids	**620**	4.0	10	mg/l	1	10/29/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4J2135 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:03			**Analyst:** dig	
Total Suspended Solids	**6**	5	5	mg/l	1	10/25/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4J2143 **Preparation:** _NONE (WETCHEM)			**Prepared:** 10/25/24 15:53			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	10/25/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4J2235 **Preparation:** EPA 200.2			**Prepared:** 10/29/24 12:55			**Analyst:** tyc	
Aluminum, Dissolved	**0.12**	0.041	0.050	mg/l	1	10/31/24	
Aluminum, Total	**0.19**	0.022	0.050	mg/l	1	10/31/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Sample Results

(Continued)

Sample: LE02 — Sampled: 10/24/24 9:20 by Nick Jernack

4J22072-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4J2263	**Preparation:** _NONE (WETCHEM)		**Prepared:** 10/28/24 17:38			**Analyst:** ymt	
Ammonia as N	**0.83**	0.017	0.10	mg/l	1	10/31/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4K0673	**Preparation:** _NONE (WETCHEM)		**Prepared:** 11/08/24 11:48			**Analyst:** YMT	
TKN	**2.9**	0.13	0.20	mg/l	1	11/12/24	M-02
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4J2113	**Preparation:** _NONE (WETCHEM)		**Prepared:** 10/25/24 09:33			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	10/25/24 15:59	
Nitrite as N	ND	0.042	0.10	mg/l	1	10/25/24 15:59	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4J2129	**Preparation:** _NONE (WETCHEM)		**Prepared:** 10/25/24 11:49			**Analyst:** rob	
o-Phosphate as P	**0.013**	0.0071	0.010	mg/l	1	10/25/24 17:20	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4J2580	**Preparation:** _NONE (WETCHEM)		**Prepared:** 10/31/24 12:24			**Analyst:** rob	
Phosphorus as P, Total	**0.11**	0.0067	0.010	mg/l	1	11/04/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4J2350	**Preparation:** _NONE (WETCHEM)		**Prepared:** 10/29/24 11:55			**Analyst:** bel	
Total Dissolved Solids	**1700**	4.0	10	mg/l	1	10/29/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4J2143	**Preparation:** _NONE (WETCHEM)		**Prepared:** 10/25/24 15:53			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	10/25/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4J2113 - EPA 353.2											
Blank (W4J2113-BLK1)					**Prepared & Analyzed: 10/25/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W4J2113-BLK2)					**Prepared & Analyzed: 10/25/24**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W4J2113-BS1)					**Prepared & Analyzed: 10/25/24**						
Nitrate as N	1.01	0.040	0.20	mg/l	1.00		101	90-110			
Nitrite as N	1.07	0.042	0.10	mg/l	1.00		107	90-110			
LCS (W4J2113-BS2)					**Prepared & Analyzed: 10/25/24**						
Nitrate as N	1.02	0.040	0.20	mg/l	1.00		102	90-110			
Nitrite as N	1.09	0.042	0.10	mg/l	1.00		109	90-110			
Matrix Spike (W4J2113-MS1)	**Source: 4J10114-01**				**Prepared & Analyzed: 10/25/24**						
Nitrate as N	2.04	0.040	0.20	mg/l	2.00	0.0410	100	90-110			
Nitrite as N	1.07	0.042	0.10	mg/l	1.00	ND	107	90-110			
Matrix Spike (W4J2113-MS2)	**Source: 4J10114-02**				**Prepared & Analyzed: 10/25/24**						
Nitrate as N	2.03	0.040	0.20	mg/l	2.00	0.0425	99	90-110			
Nitrite as N	1.07	0.042	0.10	mg/l	1.00	ND	107	90-110			
Matrix Spike Dup (W4J2113-MSD1)	**Source: 4J10114-01**				**Prepared & Analyzed: 10/25/24**						
Nitrate as N	2.04	0.040	0.20	mg/l	2.00	0.0410	100	90-110	0	20	
Nitrite as N	1.07	0.042	0.10	mg/l	1.00	ND	107	90-110	0	20	
Matrix Spike Dup (W4J2113-MSD2)	**Source: 4J10114-02**				**Prepared & Analyzed: 10/25/24**						
Nitrate as N	2.02	0.040	0.20	mg/l	2.00	0.0425	99	90-110	0.5	20	
Nitrite as N	1.08	0.042	0.10	mg/l	1.00	ND	108	90-110	0.9	20	
Batch: W4J2129 - EPA 365.3											
Blank (W4J2129-BLK1)					**Prepared & Analyzed: 10/25/24**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W4J2129-BS1)					**Prepared & Analyzed: 10/25/24**						
o-Phosphate as P	0.208	0.0071	0.010	mg/l	0.200		104	88-111			
Matrix Spike (W4J2129-MS1)	**Source: 4J10114-01**				**Prepared & Analyzed: 10/25/24**						
o-Phosphate as P	0.213	0.0071	0.010	mg/l	0.200	0.0110	101	85-112			
Matrix Spike Dup (W4J2129-MSD1)	**Source: 4J10114-01**				**Prepared & Analyzed: 10/25/24**						
o-Phosphate as P	0.215	0.0071	0.010	mg/l	0.200	0.0110	102	85-112	0.9	20	
Batch: W4J2135 - SM 2540D											
Blank (W4J2135-BLK1)					**Prepared & Analyzed: 10/25/24**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W4J2135-BS1)					**Prepared & Analyzed: 10/25/24**						
Total Suspended Solids	63.8	5	5	mg/l	63.7		100	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4J2135 - SM 2540D (Continued)											
Duplicate (W4J2135-DUP1)	**Source: 4J25018-01**				**Prepared & Analyzed: 10/25/24**						
Total Suspended Solids	408	5	5	mg/l		381			7	10	
Batch: W4J2143 - SM 4500S2-D											
Blank (W4J2143-BLK1)					**Prepared & Analyzed: 10/25/24**						
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W4J2143-BS1)					**Prepared & Analyzed: 10/25/24**						
Sulfide, Total	0.100	0.050	0.10	mg/l	0.0974		103	90-110			
Duplicate (W4J2143-DUP1)	**Source: 4J22072-03**				**Prepared & Analyzed: 10/25/24**						
Sulfide, Total	1.60	0.20	0.40	mg/l		1.60			0	20	
Matrix Spike (W4J2143-MS1)	**Source: 4J17019-01**				**Prepared & Analyzed: 10/25/24**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.195	ND	103	80-120			
Matrix Spike Dup (W4J2143-MSD1)	**Source: 4J17019-01**				**Prepared & Analyzed: 10/25/24**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.195	ND	103	80-120	0	20	
Batch: W4J2263 - EPA 350.1											
Blank (W4J2263-BLK1)					**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W4J2263-BLK2)					**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W4J2263-BS1)					**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	0.266	0.017	0.10	mg/l	0.250		106	90-110			
LCS (W4J2263-BS2)					**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	0.266	0.017	0.10	mg/l	0.250		106	90-110			
Matrix Spike (W4J2263-MS1)	**Source: 4J02101-05**				**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	56.6	0.85	5.0	mg/l	12.5	44.6	96	90-110			
Matrix Spike (W4J2263-MS2)	**Source: 4J22072-05**				**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	1.08	0.017	0.10	mg/l	0.250	0.834	97	90-110			
Matrix Spike Dup (W4J2263-MSD1)	**Source: 4J02101-05**				**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	56.5	0.85	5.0	mg/l	12.5	44.6	95	90-110	0.2	15	
Matrix Spike Dup (W4J2263-MSD2)	**Source: 4J22072-05**				**Prepared: 10/28/24 Analyzed: 10/31/24**						
Ammonia as N	1.08	0.017	0.10	mg/l	0.250	0.834	99	90-110	0.4	15	
Batch: W4J2350 - SM 2540C											
Blank (W4J2350-BLK1)					**Prepared & Analyzed: 10/29/24**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W4J2350-BS1)					**Prepared & Analyzed: 10/29/24**						
Total Dissolved Solids	51.0	4.0	10	mg/l	50.0		102	97-103			
Duplicate (W4J2350-DUP1)	**Source: 4J28076-01**				**Prepared & Analyzed: 10/29/24**						
Total Dissolved Solids	4090	4.0	10	mg/l		4130			0.9	10	
Batch: W4J2580 - EPA 365.3											

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 11/13/2024 10:02

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4J2580 - EPA 365.3 (Continued)											
Blank (W4J2580-BLK1)				**Prepared: 10/31/24 Analyzed: 11/04/24**							
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W4J2580-BS1)				**Prepared: 10/31/24 Analyzed: 11/04/24**							
Phosphorus as P, Total	0.194	0.0067	0.010	mg/l	0.200		97	90-110			
Matrix Spike (W4J2580-MS1)	**Source: 4J23090-07**			**Prepared: 10/31/24 Analyzed: 11/04/24**							
Phosphorus as P, Total	0.205	0.0067	0.010	mg/l	0.200	0.00900	98	90-110			
Matrix Spike Dup (W4J2580-MSD1)	**Source: 4J23090-07**			**Prepared: 10/31/24 Analyzed: 11/04/24**							
Phosphorus as P, Total	0.209	0.0067	0.010	mg/l	0.200	0.00900	100	90-110	2	20	
Batch: W4K0673 - EPA 351.2											
Blank (W4K0673-BLK1)				**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	ND	0.065	0.10	mg/l							
Blank (W4K0673-BLK2)				**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	ND	0.065	0.10	mg/l							
LCS (W4K0673-BS1)				**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	0.959	0.065	0.10	mg/l	1.00		96	90-110			
LCS (W4K0673-BS2)				**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	0.973	0.065	0.10	mg/l	1.00		97	90-110			
Matrix Spike (W4K0673-MS1)	**Source: 4J23090-07**			**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	1.04	0.065	0.10	mg/l	1.00	ND	104	90-110			
Matrix Spike (W4K0673-MS2)	**Source: 4K01068-03**			**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	ND	0.065	0.10	mg/l	1.00	ND		90-110			MS-01
Matrix Spike Dup (W4K0673-MSD1)	**Source: 4J23090-07**			**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	1.01	0.065	0.10	mg/l	1.00	ND	101	90-110	2	10	
Matrix Spike Dup (W4K0673-MSD2)	**Source: 4K01068-03**			**Prepared: 11/08/24 Analyzed: 11/12/24**							
TKN	ND	0.065	0.10	mg/l	1.00	ND		90-110		10	MS-01

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
11/13/2024 10:02

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4J2235 - EPA 200.7											
Blank (W4J2235-BLK1)				**Prepared: 10/29/24**	**Analyzed: 10/31/24**						
Aluminum, Dissolved	ND	0.041	0.050	mg/l							
Aluminum, Total	ND	0.022	0.050	mg/l							
LCS (W4J2235-BS1)				**Prepared: 10/29/24**	**Analyzed: 10/31/24**						
Aluminum, Dissolved	0.212	0.041	0.050	mg/l	0.200		106	85-115			
Aluminum, Total	0.212	0.022	0.050	mg/l	0.200		106	85-115			
Matrix Spike (W4J2235-MS1)	**Source: 4J21058-01**			**Prepared: 10/29/24**	**Analyzed: 10/31/24**						
Aluminum, Total	0.355	0.022	0.050	mg/l	0.200	0.0810	137	70-130			MS-01
Matrix Spike (W4J2235-MS2)	**Source: 4J22072-01**			**Prepared: 10/29/24**	**Analyzed: 10/31/24**						
Aluminum, Total	0.277	0.022	0.050	mg/l	0.200	0.0506	113	70-130			
Matrix Spike Dup (W4J2235-MSD1)	**Source: 4J21058-01**			**Prepared: 10/29/24**	**Analyzed: 10/31/24**						
Aluminum, Total	0.342	0.022	0.050	mg/l	0.200	0.0810	131	70-130	4	30	MS-01
Matrix Spike Dup (W4J2235-MSD2)	**Source: 4J22072-01**			**Prepared: 10/29/24**	**Analyzed: 10/31/24**						
Aluminum, Total	0.278	0.022	0.050	mg/l	0.200	0.0506	114	70-130	0.6	30	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported:
11/13/2024 10:02

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 4K26009

Project: 2315100200.0004a.WECK

Attn: Nicholas Jernack

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 12/18/2024
Received Date: 12/3/2024
Turnaround Time: Normal
Phones: (858) 278-3600
Fax: (858) 278-5300
P.O. #: C016900152, Project No.
Billing Code: 2315100200.0004.WECK

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Nicholas Jernack,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported:
12/18/2024 17:56

Sample Condition

Temperature	4.10 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	✓

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CL07	Nicholas Jernack	4K26009-01	Water	12/03/24 10:20	
CL08	Nicholas Jernack	4K26009-02	Water	12/03/24 09:40	
CL09	Nicholas Jernack	4K26009-03	Water	12/03/24 08:50	
CL10	Nicholas Jernack	4K26009-04	Water	12/03/24 08:15	
LE02	Nicholas Jernack	4K26009-05	Water	12/03/24 08:45	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Sample Results

Sample: CL07

Sampled: 12/03/24 10:20 by Nicholas Jernack

4K26009-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4L0880 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 10:57			**Analyst:** ymt	
Ammonia as N	**0.74**	0.017	0.10	mg/l	1	12/12/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4L0889 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 11:26			**Analyst:** YMT	
TKN	**1.4**	0.065	0.10	mg/l	1	12/13/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4L0281 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 10:36			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	12/04/24 16:21	
Nitrite as N	ND	0.042	0.10	mg/l	1	12/04/24 16:21	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4L0295 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 11:01			**Analyst:** rob	
o-Phosphate as P	**0.0080**	0.0071	0.010	mg/l	1	12/04/24 13:02	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4L0330 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 17:12			**Analyst:** rob	
Phosphorus as P, Total	**0.056**	0.0067	0.010	mg/l	1	12/09/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4L0352 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 18:24			**Analyst:** ism	
Total Dissolved Solids	**520**	4.0	10	mg/l	1	12/05/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4L0227 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/03/24 18:03			**Analyst:** dig	
Total Suspended Solids	**7**	5	5	mg/l	1	12/04/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4L0254 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 09:10			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	12/04/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4L0432 **Preparation:** EPA 200.2			**Prepared:** 12/05/24 16:18			**Analyst:** tyc	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	12/11/24	
Aluminum, Total	**0.042**	0.022	0.050	mg/l	1	12/11/24	J

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Sample Results

(Continued)

Sample: CL08

Sampled: 12/03/24 9:40 by Nicholas Jernack

4K26009-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4L0880 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 10:57			**Analyst:** YMT	
Ammonia as N	**0.65**	0.017	0.10	mg/l	1	12/12/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4L0889 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 11:26			**Analyst:** YMT	
TKN	**1.3**	0.065	0.10	mg/l	1	12/13/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4L0281 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 10:36			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	12/04/24 16:22	
Nitrite as N	ND	0.042	0.10	mg/l	1	12/04/24 16:22	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4L0295 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 11:01			**Analyst:** rob	
o-Phosphate as P	**0.0080**	0.0071	0.010	mg/l	1	12/04/24 13:02	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4L0330 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 17:12			**Analyst:** rob	
Phosphorus as P, Total	**0.047**	0.0067	0.010	mg/l	1	12/09/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4L0352 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 18:24			**Analyst:** ism	
Total Dissolved Solids	**500**	4.0	10	mg/l	1	12/05/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4L0227 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/03/24 18:03			**Analyst:** dig	
Total Suspended Solids	**5**	5	5	mg/l	1	12/04/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4L0254 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 09:10			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	12/04/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4L0432 **Preparation:** EPA 200.2			**Prepared:** 12/05/24 16:18			**Analyst:** tyc	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	12/11/24	
Aluminum, Total	**0.046**	0.022	0.050	mg/l	1	12/11/24	J

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Sample Results

(Continued)

Sample: CL09

Sampled: 12/03/24 8:50 by Nicholas Jernack

4K26009-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4L0880 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 10:57			**Analyst:** YMT	
Ammonia as N	**0.47**	0.017	0.10	mg/l	1	12/12/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4L0889 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 11:26			**Analyst:** YMT	
TKN	**1.2**	0.065	0.10	mg/l	1	12/13/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4L0281 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 10:36			**Analyst:** ATN	
Nitrate as N	**0.18**	0.040	0.20	mg/l	1	12/04/24 16:23	J
Nitrite as N	ND	0.042	0.10	mg/l	1	12/04/24 16:23	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4L0295 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 11:01			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	12/04/24 13:03	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4L0330 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 17:12			**Analyst:** rob	
Phosphorus as P, Total	**0.060**	0.0067	0.010	mg/l	1	12/09/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4L0352 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 18:24			**Analyst:** ism	
Total Dissolved Solids	**590**	4.0	10	mg/l	1	12/05/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4L0227 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/03/24 18:03			**Analyst:** dig	
Total Suspended Solids	**9**	5	5	mg/l	1	12/04/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4L0254 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 09:10			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	12/04/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4L0432 **Preparation:** EPA 200.2			**Prepared:** 12/05/24 16:18			**Analyst:** tyc	
Aluminum, Dissolved	**0.047**	0.041	0.050	mg/l	1	12/11/24	J
Aluminum, Total	**0.16**	0.022	0.050	mg/l	1	12/11/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Sample Results

(Continued)

Sample: CL10

Sampled: 12/03/24 8:15 by Nicholas Jernack

4K26009-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4L0880 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 10:57			**Analyst:** YMT	
Ammonia as N	**0.27**	0.017	0.10	mg/l	1	12/12/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4L0889 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/11/24 11:26			**Analyst:** YMT	
TKN	**1.1**	0.065	0.10	mg/l	1	12/13/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4L0281 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 10:36			**Analyst:** ATN	
Nitrate as N	**0.085**	0.040	0.20	mg/l	1	12/04/24 16:24	J
Nitrite as N	ND	0.042	0.10	mg/l	1	12/04/24 16:24	
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4L0295 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 11:01			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	12/04/24 13:03	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4L0330 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 17:12			**Analyst:** rob	
Phosphorus as P, Total	**0.062**	0.0067	0.010	mg/l	1	12/09/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4L0352 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 18:24			**Analyst:** ism	
Total Dissolved Solids	**610**	4.0	10	mg/l	1	12/05/24	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W4L0227 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/03/24 18:03			**Analyst:** dig	
Total Suspended Solids	**8**	5	5	mg/l	1	12/04/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4L0254 **Preparation:** _NONE (WETCHEM)			**Prepared:** 12/04/24 09:10			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	12/04/24	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W4L0432 **Preparation:** EPA 200.2			**Prepared:** 12/05/24 16:18			**Analyst:** tyc	
Aluminum, Dissolved	**0.057**	0.041	0.050	mg/l	1	12/11/24	
Aluminum, Total	**0.14**	0.022	0.050	mg/l	1	12/11/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Sample Results

(Continued)

Sample: LE02

Sampled: 12/03/24 8:45 by Nicholas Jernack

4K26009-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W4L0880	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/11/24 10:57			**Analyst:** YMT	
Ammonia as N	**0.49**	0.017	0.10	mg/l	1	12/12/24	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W4L0889	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/11/24 11:26			**Analyst:** YMT	
TKN	**2.8**	0.13	0.20	mg/l	1	12/13/24	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W4L0281	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/04/24 10:36			**Analyst:** ATN	
Nitrate as N	**0.073**	0.040	0.20	mg/l	1	12/04/24 16:25	J
Nitrite as N	**0.085**	0.042	0.10	mg/l	1	12/04/24 16:25	J
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W4L0295	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/04/24 11:01			**Analyst:** rob	
o-Phosphate as P	**0.0090**	0.0071	0.010	mg/l	1	12/04/24 13:04	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W4L0330	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/04/24 17:12			**Analyst:** rob	
Phosphorus as P, Total	**0.098**	0.0067	0.010	mg/l	1	12/09/24	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W4L0352	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/04/24 18:24			**Analyst:** ism	
Total Dissolved Solids	**1700**	4.0	10	mg/l	1	12/05/24	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W4L0254	**Preparation:** _NONE (WETCHEM)		**Prepared:** 12/04/24 09:10			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	12/04/24	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4L0227 - SM 2540D											
Blank (W4L0227-BLK1)				**Prepared: 12/03/24 Analyzed: 12/04/24**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W4L0227-BS1)				**Prepared: 12/03/24 Analyzed: 12/04/24**							
Total Suspended Solids	63.5	5	5	mg/l	61.6		103	90-110			
Duplicate (W4L0227-DUP1)	**Source: 4L03088-01**			**Prepared: 12/03/24 Analyzed: 12/04/24**							
Total Suspended Solids	33.6	5	5	mg/l		32.4			4	10	
Batch: W4L0254 - SM 4500S2-D											
Blank (W4L0254-BLK1)				**Prepared & Analyzed: 12/04/24**							
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W4L0254-BS1)				**Prepared & Analyzed: 12/04/24**							
Sulfide, Total	0.100	0.050	0.10	mg/l	0.0977		102	90-110			
Duplicate (W4L0254-DUP1)	**Source: 4F05006-02**			**Prepared & Analyzed: 12/04/24**							
Sulfide, Total	1.00	0.10	0.20	mg/l		1.00			0	20	
Matrix Spike (W4L0254-MS1)	**Source: 4K26009-02**			**Prepared & Analyzed: 12/04/24**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.195	ND	102	80-120			
Matrix Spike Dup (W4L0254-MSD1)	**Source: 4K26009-02**			**Prepared & Analyzed: 12/04/24**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.195	ND	102	80-120	0	20	
Batch: W4L0281 - EPA 353.2											
Blank (W4L0281-BLK1)				**Prepared & Analyzed: 12/04/24**							
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W4L0281-BLK2)				**Prepared & Analyzed: 12/04/24**							
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W4L0281-BS1)				**Prepared & Analyzed: 12/04/24**							
Nitrate as N	1.00	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1.01	0.042	0.10	mg/l	1.00		101	90-110			
LCS (W4L0281-BS2)				**Prepared & Analyzed: 12/04/24**							
Nitrate as N	0.999	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1.05	0.042	0.10	mg/l	1.00		105	90-110			
Matrix Spike (W4L0281-MS1)	**Source: 4L02001-02**			**Prepared & Analyzed: 12/04/24**							
Nitrate as N	8.90	0.040	0.20	mg/l	2.00	6.99	95	90-110			
Nitrite as N	1.03	0.042	0.10	mg/l	1.00	ND	103	90-110			
Matrix Spike (W4L0281-MS2)	**Source: 4L03136-01**			**Prepared & Analyzed: 12/04/24**							
Nitrite as N	4.08	0.17	0.40	mg/l	4.00	ND	102	90-110			
Matrix Spike (W4L0281-MS3)	**Source: 4L03136-01**			**Prepared & Analyzed: 12/04/24**							
Nitrate as N	73.2	0.32	1.6	mg/l	16.0	58.5	92	90-110			
Matrix Spike Dup (W4L0281-MSD1)	**Source: 4L02001-02**			**Prepared & Analyzed: 12/04/24**							
Nitrate as N	8.90	0.040	0.20	mg/l	2.00	6.99	95	90-110	0	20	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4L0281 - EPA 353.2 (Continued)											
Matrix Spike Dup (W4L0281-MSD1)	**Source: 4L02001-02**				**Prepared & Analyzed: 12/04/24**						
Nitrite as N	1.03	0.042	0.10	mg/l	1.00	ND	103	90-110	0	20	
Matrix Spike Dup (W4L0281-MSD2)	**Source: 4L03136-01**				**Prepared & Analyzed: 12/04/24**						
Nitrite as N	4.04	0.17	0.40	mg/l	4.00	ND	101	90-110	1	20	
Matrix Spike Dup (W4L0281-MSD3)	**Source: 4L03136-01**				**Prepared & Analyzed: 12/04/24**						
Nitrate as N	73.3	0.32	1.6	mg/l	16.0	58.5	92	90-110	0.1	20	
Batch: W4L0295 - EPA 365.3											
Blank (W4L0295-BLK1)					**Prepared & Analyzed: 12/04/24**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W4L0295-BS1)					**Prepared & Analyzed: 12/04/24**						
o-Phosphate as P	0.210	0.0071	0.010	mg/l	0.200		105	88-111			
Matrix Spike (W4L0295-MS1)	**Source: 4L02016-02**				**Prepared & Analyzed: 12/04/24**						
o-Phosphate as P	0.448	0.0071	0.010	mg/l	0.200	0.248	100	85-112			
Matrix Spike Dup (W4L0295-MSD1)	**Source: 4L02016-02**				**Prepared & Analyzed: 12/04/24**						
o-Phosphate as P	0.450	0.0071	0.010	mg/l	0.200	0.248	101	85-112	0.4	20	
Batch: W4L0330 - EPA 365.3											
Blank (W4L0330-BLK1)					**Prepared: 12/04/24 Analyzed: 12/09/24**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W4L0330-BS1)					**Prepared: 12/04/24 Analyzed: 12/09/24**						
Phosphorus as P, Total	0.195	0.0067	0.010	mg/l	0.200		97	90-110			
Matrix Spike (W4L0330-MS1)	**Source: 4K21002-02**				**Prepared: 12/04/24 Analyzed: 12/09/24**						
Phosphorus as P, Total	0.576	0.013	0.020	mg/l	0.200	0.380	98	90-110			
Matrix Spike Dup (W4L0330-MSD1)	**Source: 4K21002-02**				**Prepared: 12/04/24 Analyzed: 12/09/24**						
Phosphorus as P, Total	0.576	0.013	0.020	mg/l	0.200	0.380	98	90-110	0	20	
Batch: W4L0352 - SM 2540C											
Blank (W4L0352-BLK1)					**Prepared: 12/04/24 Analyzed: 12/05/24**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W4L0352-BS1)					**Prepared: 12/04/24 Analyzed: 12/05/24**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W4L0352-DUP1)	**Source: 4K25007-03**				**Prepared: 12/04/24 Analyzed: 12/05/24**						
Total Dissolved Solids	89700	4.0	10	mg/l		88900			0.9	10	
Batch: W4L0880 - EPA 350.1											
Blank (W4L0880-BLK1)					**Prepared: 12/11/24 Analyzed: 12/12/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W4L0880-BLK2)					**Prepared: 12/11/24 Analyzed: 12/12/24**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W4L0880-BS1)					**Prepared: 12/11/24 Analyzed: 12/12/24**						
Ammonia as N	0.251	0.017	0.10	mg/l	0.250		100	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 12/18/2024 17:56

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4L0880 - EPA 350.1 (Continued)											
LCS (W4L0880-BS2)				**Prepared: 12/11/24 Analyzed: 12/12/24**							
Ammonia as N	0.255	0.017	0.10	mg/l	0.250		102	90-110			
Matrix Spike (W4L0880-MS1)	**Source: 4K26009-05**			**Prepared: 12/11/24 Analyzed: 12/12/24**							
Ammonia as N	0.733	0.017	0.10	mg/l	0.250	0.490	97	90-110			
Matrix Spike (W4L0880-MS2)	**Source: 4K26010-01**			**Prepared: 12/11/24 Analyzed: 12/12/24**							
Ammonia as N	0.692	0.017	0.10	mg/l	0.250	0.448	97	90-110			
Matrix Spike Dup (W4L0880-MSD1)	**Source: 4K26009-05**			**Prepared: 12/11/24 Analyzed: 12/12/24**							
Ammonia as N	0.738	0.017	0.10	mg/l	0.250	0.490	99	90-110	0.7	15	
Matrix Spike Dup (W4L0880-MSD2)	**Source: 4K26010-01**			**Prepared: 12/11/24 Analyzed: 12/12/24**							
Ammonia as N	0.692	0.017	0.10	mg/l	0.250	0.448	98	90-110	0.1	15	
Batch: W4L0889 - EPA 351.2											
Blank (W4L0889-BLK1)				**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	ND	0.065	0.10	mg/l							
Blank (W4L0889-BLK2)				**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	ND	0.065	0.10	mg/l							
LCS (W4L0889-BS1)				**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	0.950	0.065	0.10	mg/l	1.00		95	90-110			
LCS (W4L0889-BS2)				**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	0.905	0.065	0.10	mg/l	1.00		91	90-110			
Matrix Spike (W4L0889-MS1)	**Source: 4J11017-01**			**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	1.12	0.065	0.10	mg/l	1.00	0.202	92	90-110			
Matrix Spike (W4L0889-MS2)	**Source: 4J11017-02**			**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	1.43	0.065	0.10	mg/l	1.00	0.491	94	90-110			
Matrix Spike Dup (W4L0889-MSD1)	**Source: 4J11017-01**			**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	1.10	0.065	0.10	mg/l	1.00	0.202	90	90-110	2	10	
Matrix Spike Dup (W4L0889-MSD2)	**Source: 4J11017-02**			**Prepared: 12/11/24 Analyzed: 12/13/24**							
TKN	1.47	0.065	0.10	mg/l	1.00	0.491	98	90-110	3	10	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported:
12/18/2024 17:56

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W4L0432 - EPA 200.7											
Blank (W4L0432-BLK1)				**Prepared: 12/05/24**	**Analyzed: 12/11/24**						
Aluminum, Dissolved	ND	0.041	0.050	mg/l							
Aluminum, Total	ND	0.022	0.050	mg/l							
LCS (W4L0432-BS1)				**Prepared: 12/05/24**	**Analyzed: 12/11/24**						
Aluminum, Dissolved	0.229	0.041	0.050	mg/l	0.200		115	85-115			
Aluminum, Total	0.229	0.022	0.050	mg/l	0.200		115	85-115			
Matrix Spike (W4L0432-MS1)	**Source: 4K26009-01**			**Prepared: 12/05/24**	**Analyzed: 12/11/24**						
Aluminum, Total	0.269	0.022	0.050	mg/l	0.200	0.0418	114	70-130			
Matrix Spike (W4L0432-MS2)	**Source: 4K26010-01**			**Prepared: 12/05/24**	**Analyzed: 12/11/24**						
Aluminum, Total	0.288	0.022	0.050	mg/l	0.200	0.0485	120	70-130			
Matrix Spike Dup (W4L0432-MSD1)	**Source: 4K26009-01**			**Prepared: 12/05/24**	**Analyzed: 12/11/24**						
Aluminum, Total	0.260	0.022	0.050	mg/l	0.200	0.0418	109	70-130	3	30	
Matrix Spike Dup (W4L0432-MSD2)	**Source: 4K26010-01**			**Prepared: 12/05/24**	**Analyzed: 12/11/24**						
Aluminum, Total	0.285	0.022	0.050	mg/l	0.200	0.0485	118	70-130	0.9	30	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported:
12/18/2024 17:56

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5A27040

Project: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Attn: WSP USA E&I Inc. - San Diego

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 3/04/2025
Received Date: 2/6/2025
Turnaround Time: Normal
Phones: (858) 278-3600
Fax: (858) 278-5300
P.O. #: C016900152
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear WSP USA E&I Inc. - San Diego,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 03/04/2025 15:06

Sample Condition

Temperature	2.30 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
LE02	Nick Jernack	5A27040-05	Water	02/06/25 09:41	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 03/04/2025 15:06

Sample Results

Sample: LE02

Sampled: 02/06/25 9:41 by Nick Jernack

5A27040-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B1040	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/13/25 10:49			**Analyst:** YMT	
Ammonia as N	**0.40**	0.017	0.10	mg/l	1	02/18/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B1521	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/20/25 09:19			**Analyst:** ymt	
TKN	**2.8**	0.13	0.20	mg/l	1	02/21/25	M-02
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5B0571	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/07/25 16:18			**Analyst:** ATN	
Nitrate as N	**0.25**	0.040	0.20	mg/l	1	02/07/25 17:33	FILT
Nitrite as N	**0.15**	0.042	0.10	mg/l	1	02/07/25 17:33	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5B0509	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/07/25 09:37			**Analyst:** rob	
o-Phosphate as P	**0.0090**	0.0071	0.010	mg/l	1	02/07/25 12:32	J
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5B1065	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/13/25 13:06			**Analyst:** rob	
Phosphorus as P, Total	**0.16**	0.0067	0.010	mg/l	1	02/21/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5B0524	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/07/25 10:02			**Analyst:** ism	
Total Dissolved Solids	**1700**	4.0	10	mg/l	1	02/07/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5B0637	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/10/25 09:26			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	02/10/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 03/04/2025 15:06

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0509 - EPA 365.3											
Blank (W5B0509-BLK1)					**Prepared & Analyzed: 02/07/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5B0509-BS1)					**Prepared & Analyzed: 02/07/25**						
o-Phosphate as P	0.211	0.0071	0.010	mg/l	0.200		106	88-111			
Matrix Spike (W5B0509-MS1)	**Source: 5A27040-05**				**Prepared & Analyzed: 02/07/25**						
o-Phosphate as P	0.208	0.0071	0.010	mg/l	0.200	0.00900	100	85-112			
Matrix Spike Dup (W5B0509-MSD1)	**Source: 5A27040-05**				**Prepared & Analyzed: 02/07/25**						
o-Phosphate as P	0.212	0.0071	0.010	mg/l	0.200	0.00900	102	85-112	2	20	
Batch: W5B0524 - SM 2540C											
Blank (W5B0524-BLK1)					**Prepared & Analyzed: 02/07/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5B0524-BS1)					**Prepared & Analyzed: 02/07/25**						
Total Dissolved Solids	51.0	4.0	10	mg/l	50.0		102	97-103			
Duplicate (W5B0524-DUP1)	**Source: 5A27040-05**				**Prepared & Analyzed: 02/07/25**						
Total Dissolved Solids	1640	4.0	10	mg/l		1680			3	10	
Batch: W5B0571 - EPA 353.2											
Blank (W5B0571-BLK1)					**Prepared & Analyzed: 02/07/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W5B0571-BLK2)					**Prepared & Analyzed: 02/07/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W5B0571-BS1)					**Prepared & Analyzed: 02/07/25**						
Nitrate as N	1.01	0.040	0.20	mg/l	1.00		101	90-110			
Nitrite as N	1.03	0.042	0.10	mg/l	1.00		103	90-110			
LCS (W5B0571-BS2)					**Prepared & Analyzed: 02/07/25**						
Nitrate as N	1.02	0.040	0.20	mg/l	1.00		102	90-110			
Nitrite as N	1.10	0.042	0.10	mg/l	1.00		110	90-110			
Matrix Spike (W5B0571-MS1)	**Source: 5B06094-01**				**Prepared & Analyzed: 02/07/25**						
Nitrite as N	1.09	0.042	0.10	mg/l	1.00	ND	109	90-110			
Matrix Spike (W5B0571-MS2)	**Source: 5B06094-02**				**Prepared & Analyzed: 02/07/25**						
Nitrate as N	2.16	0.040	0.20	mg/l	2.00	0.167	100	90-110			
Nitrite as N	1.08	0.042	0.10	mg/l	1.00	ND	108	90-110			
Matrix Spike (W5B0571-MS3)	**Source: 5B06094-01**				**Prepared & Analyzed: 02/07/25**						
Nitrate as N	14.1	0.080	0.40	mg/l	4.00	9.98	104	90-110			
Matrix Spike Dup (W5B0571-MSD1)	**Source: 5B06094-01**				**Prepared & Analyzed: 02/07/25**						
Nitrite as N	1.05	0.042	0.10	mg/l	1.00	ND	105	90-110	4	20	
Matrix Spike Dup (W5B0571-MSD2)	**Source: 5B06094-02**				**Prepared & Analyzed: 02/07/25**						
Nitrate as N	2.15	0.040	0.20	mg/l	2.00	0.167	99	90-110	0.5	20	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 03/04/2025 15:06

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0571 - EPA 353.2 (Continued)											
Matrix Spike Dup (W5B0571-MSD2)	**Source: 5B06094-02**				**Prepared & Analyzed: 02/07/25**						
Nitrite as N	1.09	0.042	0.10	mg/l	1.00	ND	109	90-110	0.9	20	
Matrix Spike Dup (W5B0571-MSD3)	**Source: 5B06094-01**				**Prepared & Analyzed: 02/07/25**						
Nitrate as N	14.1	0.080	0.40	mg/l	4.00	9.98	103	90-110	0.3	20	
Batch: W5B0637 - SM 4500S2-D											
Blank (W5B0637-BLK1)					**Prepared & Analyzed: 02/10/25**						
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W5B0637-BS1)					**Prepared & Analyzed: 02/10/25**						
Sulfide, Total	0.100	0.050	0.10	mg/l	0.100		100	90-110			
Duplicate (W5B0637-DUP1)	**Source: 5B07090-01**				**Prepared & Analyzed: 02/10/25**						
Sulfide, Total	10.0	1.2	2.5	mg/l		10.0			0	20	
Matrix Spike (W5B0637-MS1)	**Source: 5A16005-01**				**Prepared & Analyzed: 02/10/25**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.200	ND	100	80-120			
Matrix Spike Dup (W5B0637-MSD1)	**Source: 5A16005-01**				**Prepared & Analyzed: 02/10/25**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.200	ND	100	80-120	0	20	
Batch: W5B1040 - EPA 350.1											
Blank (W5B1040-BLK1)					**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5B1040-BLK2)					**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5B1040-BS1)					**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	0.253	0.017	0.10	mg/l	0.250		101	90-110			
LCS (W5B1040-BS2)					**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	0.260	0.017	0.10	mg/l	0.250		104	90-110			
Matrix Spike (W5B1040-MS1)	**Source: 5B06036-01**				**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	0.388	0.017	0.10	mg/l	0.250	0.146	97	90-110			
Matrix Spike (W5B1040-MS2)	**Source: 5B06039-03**				**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	0.352	0.017	0.10	mg/l	0.250	0.105	99	90-110			
Matrix Spike Dup (W5B1040-MSD1)	**Source: 5B06036-01**				**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	0.386	0.017	0.10	mg/l	0.250	0.146	96	90-110	0.5	15	
Matrix Spike Dup (W5B1040-MSD2)	**Source: 5B06039-03**				**Prepared: 02/13/25 Analyzed: 02/18/25**						
Ammonia as N	0.354	0.017	0.10	mg/l	0.250	0.105	100	90-110	0.4	15	
Batch: W5B1065 - EPA 365.3											
Blank (W5B1065-BLK1)					**Prepared: 02/13/25 Analyzed: 02/21/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5B1065-BS1)					**Prepared: 02/13/25 Analyzed: 02/21/25**						
Phosphorus as P, Total	0.200	0.0067	0.010	mg/l	0.200		100	90-110			
Matrix Spike (W5B1065-MS1)	**Source: 5B06004-01**				**Prepared: 02/13/25 Analyzed: 02/21/25**						

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 03/04/2025 15:06

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B1065 - EPA 365.3 (Continued)											
Matrix Spike (W5B1065-MS1)	**Source: 5B06004-01**			**Prepared: 02/13/25**		**Analyzed: 02/21/25**					
Phosphorus as P, Total	0.842	0.013	0.020	mg/l	0.400	0.444	100	90-110			
Matrix Spike Dup (W5B1065-MSD1)	**Source: 5B06004-01**			**Prepared: 02/13/25**		**Analyzed: 02/21/25**					
Phosphorus as P, Total	0.838	0.013	0.020	mg/l	0.400	0.444	98	90-110	0.5	20	
Batch: W5B1521 - EPA 351.2											
Blank (W5B1521-BLK1)				**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	ND	0.065	0.10	mg/l							
Blank (W5B1521-BLK2)				**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	ND	0.065	0.10	mg/l							
LCS (W5B1521-BS1)				**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	0.954	0.065	0.10	mg/l	1.00		95	90-110			
LCS (W5B1521-BS2)				**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	0.961	0.065	0.10	mg/l	1.00		96	90-110			
Matrix Spike (W5B1521-MS1)	**Source: 5B10104-04**			**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	1.02	0.065	0.10	mg/l	1.00	0.0995	92	90-110			
Matrix Spike (W5B1521-MS2)	**Source: 5B10104-05**			**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	1.08	0.065	0.10	mg/l	1.00	0.0888	99	90-110			
Matrix Spike Dup (W5B1521-MSD1)	**Source: 5B10104-04**			**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	1.06	0.065	0.10	mg/l	1.00	0.0995	96	90-110	4	10	
Matrix Spike Dup (W5B1521-MSD2)	**Source: 5B10104-05**			**Prepared: 02/20/25**		**Analyzed: 02/21/25**					
TKN	1.02	0.065	0.10	mg/l	1.00	0.0888	94	90-110	5	10	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: WSP USA E&I Inc. - San Diego

Reported: 03/04/2025 15:06

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5B11156

Project: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Attn: Nicholas Jernack

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date:	3/06/2025
Received Date:	2/11/2025
Turnaround Time:	Normal
Phones:	(858) 278-3600
Fax:	(858) 278-5300
P.O. #:	C016900152
Billing Code:	

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Nicholas Jernack,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Sample Condition

Temperature	12.30 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CL07	Kaylee Popovich	5B11156-01	Water	02/11/25 12:20	
CL08	Kaylee Popovich	5B11156-02	Water	02/11/25 11:20	
CL09	Kaylee Popovich	5B11156-03	Water	02/11/25 10:15	
CL10	Kaylee Popovich	5B11156-04	Water	02/11/25 09:15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Sample Results

Sample: CL07

Sampled: 02/11/25 12:20 by Kaylee Popovich

5B11156-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B1906 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/25/25 16:19			**Analyst:** YMT	
Ammonia as N	**0.14**	0.017	0.10	mg/l	1	02/27/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B1712 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/24/25 09:26			**Analyst:** YMT	
TKN	**0.87**	0.065	0.10	mg/l	1	02/25/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5B0940 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 13:21			**Analyst:** ATN	
Nitrate as N	**0.17**	0.040	0.20	mg/l	1	02/12/25 18:00	FILT, J
Nitrite as N	**0.28**	0.042	0.10	mg/l	1	02/12/25 18:00	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5B0861 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 10:52			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	02/12/25 12:50	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5B1065 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/13/25 13:06			**Analyst:** rob	
Phosphorus as P, Total	**0.044**	0.0067	0.010	mg/l	1	02/21/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5B1227 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/14/25 18:57			**Analyst:** ism	
Total Dissolved Solids	**520**	4.0	10	mg/l	1	02/14/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5B1043 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/13/25 10:50			**Analyst:** dig	
Total Suspended Solids	**6**	5	5	mg/l	1	02/13/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5B0934 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 12:04			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	02/12/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5B1301 **Preparation:** EPA 200.2			**Prepared:** 02/18/25 13:10			**Analyst:** kvm	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	02/20/25	
Aluminum, Total	**0.058**	0.022	0.050	mg/l	1	02/20/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Sample Results

(Continued)

Sample: CL08

Sampled: 02/11/25 11:20 by Kaylee Popovich

5B11156-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B1906	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/25/25 16:19			**Analyst:** YMT	
Ammonia as N	**0.15**	0.017	0.10	mg/l	1	02/27/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B1712	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/24/25 09:26			**Analyst:** YMT	
TKN	**0.93**	0.065	0.10	mg/l	1	02/25/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5B0940	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 13:21			**Analyst:** ATN	
Nitrate as N	**0.13**	0.040	0.20	mg/l	1	02/12/25 18:01	FILT, J
Nitrite as N	**0.21**	0.042	0.10	mg/l	1	02/12/25 18:01	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5B0861	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 10:52			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	02/12/25 12:50	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5B1065	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/13/25 13:06			**Analyst:** rob	
Phosphorus as P, Total	**0.051**	0.0067	0.010	mg/l	1	02/21/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5B1227	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/14/25 18:57			**Analyst:** ism	
Total Dissolved Solids	**520**	4.0	10	mg/l	1	02/14/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5B0936	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 12:20			**Analyst:** dig	
Total Suspended Solids	**8**	5	5	mg/l	1	02/12/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5B0934	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 12:04			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	02/12/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5B1301	**Preparation:** EPA 200.2		**Prepared:** 02/18/25 13:10			**Analyst:** kvm	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	02/20/25	
Aluminum, Total	**0.16**	0.022	0.050	mg/l	1	02/20/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Sample Results

(Continued)

Sample: CL09

Sampled: 02/11/25 10:15 by Kaylee Popovich

5B11156-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B1906 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/25/25 16:19			**Analyst:** YMT	
Ammonia as N	**0.41**	0.017	0.10	mg/l	1	02/27/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B1712 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/24/25 09:26			**Analyst:** YMT	
TKN	**1.3**	0.065	0.10	mg/l	1	02/25/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5B0940 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 13:21			**Analyst:** ATN	
Nitrate as N	**0.13**	0.040	0.20	mg/l	1	02/12/25 18:02	FILT, J
Nitrite as N	**0.062**	0.042	0.10	mg/l	1	02/12/25 18:02	FILT, J
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5B0861 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 10:52			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	02/12/25 12:50	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5B1065 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/13/25 13:06			**Analyst:** rob	
Phosphorus as P, Total	**0.090**	0.0067	0.010	mg/l	1	02/21/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5B1227 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/14/25 18:57			**Analyst:** ism	
Total Dissolved Solids	**590**	4.0	10	mg/l	1	02/14/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5B0936 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 12:20			**Analyst:** dig	
Total Suspended Solids	**10**	5	5	mg/l	1	02/12/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5B0934 **Preparation:** _NONE (WETCHEM)			**Prepared:** 02/12/25 12:04			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	02/12/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5B1301 **Preparation:** EPA 200.2			**Prepared:** 02/18/25 13:10			**Analyst:** kvm	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	02/20/25	
Aluminum, Total	**0.14**	0.022	0.050	mg/l	1	02/20/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Sample Results

(Continued)

Sample: CL10

Sampled: 02/11/25 9:15 by Kaylee Popovich

5B11156-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5B1906	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/25/25 16:19			**Analyst:** YMT	
Ammonia as N	**0.045**	0.017	0.10	mg/l	1	02/27/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5B1712	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/24/25 09:26			**Analyst:** YMT	
TKN	**1.1**	0.065	0.10	mg/l	1	02/25/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5B0940	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 13:21			**Analyst:** ATN	
Nitrate as N	**0.082**	0.040	0.20	mg/l	1	02/12/25 18:03	FILT, J
Nitrite as N	ND	0.042	0.10	mg/l	1	02/12/25 18:03	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5B0861	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 10:52			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	02/12/25 12:51	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5B1065	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/13/25 13:06			**Analyst:** rob	
Phosphorus as P, Total	**0.076**	0.0067	0.010	mg/l	1	02/21/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5B1227	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/14/25 18:57			**Analyst:** ism	
Total Dissolved Solids	**610**	4.0	10	mg/l	1	02/14/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5B0936	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 12:20			**Analyst:** dig	
Total Suspended Solids	**13**	5	5	mg/l	1	02/12/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5B0934	**Preparation:** _NONE (WETCHEM)		**Prepared:** 02/12/25 12:04			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	02/12/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5B1301	**Preparation:** EPA 200.2		**Prepared:** 02/18/25 13:10			**Analyst:** kvm	
Aluminum, Dissolved	ND	0.041	0.050	mg/l	1	02/20/25	
Aluminum, Total	**0.18**	0.022	0.050	mg/l	1	02/20/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0861 - EPA 365.3											
Blank (W5B0861-BLK1)					**Prepared & Analyzed: 02/12/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5B0861-BS1)					**Prepared & Analyzed: 02/12/25**						
o-Phosphate as P	0.209	0.0071	0.010	mg/l	0.200		104	88-111			
Matrix Spike (W5B0861-MS1)	**Source: 5B06004-01**				**Prepared & Analyzed: 02/12/25**						
o-Phosphate as P	0.470	0.0071	0.010	mg/l	0.200	0.264	103	85-112			
Matrix Spike Dup (W5B0861-MSD1)	**Source: 5B06004-01**				**Prepared & Analyzed: 02/12/25**						
o-Phosphate as P	0.472	0.0071	0.010	mg/l	0.200	0.264	104	85-112	0.4	20	
Batch: W5B0934 - SM 4500S2-D											
Blank (W5B0934-BLK1)					**Prepared & Analyzed: 02/12/25**						
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W5B0934-BS1)					**Prepared & Analyzed: 02/12/25**						
Sulfide, Total	0.100	0.050	0.10	mg/l	0.100		100	90-110			
Duplicate (W5B0934-DUP1)	**Source: 4L30006-01**				**Prepared & Analyzed: 02/12/25**						
Sulfide, Total	0.200	0.050	0.10	mg/l		0.200			0	20	
Matrix Spike (W5B0934-MS1)	**Source: 5A14006-01**				**Prepared & Analyzed: 02/12/25**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.200	ND	100	80-120			
Matrix Spike Dup (W5B0934-MSD1)	**Source: 5A14006-01**				**Prepared & Analyzed: 02/12/25**						
Sulfide, Total	0.200	0.050	0.10	mg/l	0.200	ND	100	80-120	0	20	
Batch: W5B0936 - SM 2540D											
Blank (W5B0936-BLK1)					**Prepared & Analyzed: 02/12/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5B0936-BS1)					**Prepared & Analyzed: 02/12/25**						
Total Suspended Solids	62.2	5	5	mg/l	61.2		102	90-110			
Duplicate (W5B0936-DUP1)	**Source: 5B11156-04**				**Prepared & Analyzed: 02/12/25**						
Total Suspended Solids	13.6	5	5	mg/l		13.0			5	10	
Batch: W5B0940 - EPA 353.2											
Blank (W5B0940-BLK1)					**Prepared & Analyzed: 02/12/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W5B0940-BLK2)					**Prepared & Analyzed: 02/12/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W5B0940-BS1)					**Prepared & Analyzed: 02/12/25**						
Nitrate as N	0.999	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	0.975	0.042	0.10	mg/l	1.00		98	90-110			
LCS (W5B0940-BS2)					**Prepared & Analyzed: 02/12/25**						
Nitrate as N	0.991	0.040	0.20	mg/l	1.00		99	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B0940 - EPA 353.2 (Continued)											
LCS (W5B0940-BS2)					**Prepared & Analyzed: 02/12/25**						
Nitrite as N	0.972	0.042	0.10	mg/l	1.00		97	90-110			
Matrix Spike (W5B0940-MS1)	**Source: 5B11106-05**				**Prepared & Analyzed: 02/12/25**						
Nitrate as N	7.87	0.040	0.20	mg/l	2.00	5.85	101	90-110			
Nitrite as N	1.09	0.042	0.10	mg/l	1.00	ND	109	90-110			
Matrix Spike (W5B0940-MS2)	**Source: 5B11106-14**				**Prepared & Analyzed: 02/12/25**						
Nitrate as N	7.09	0.040	0.20	mg/l	2.00	5.08	100	90-110			
Nitrite as N	1.09	0.042	0.10	mg/l	1.00	ND	109	90-110			
Matrix Spike Dup (W5B0940-MSD1)	**Source: 5B11106-05**				**Prepared & Analyzed: 02/12/25**						
Nitrate as N	7.86	0.040	0.20	mg/l	2.00	5.85	100	90-110	0.1	20	
Nitrite as N	1.08	0.042	0.10	mg/l	1.00	ND	108	90-110	0.9	20	
Matrix Spike Dup (W5B0940-MSD2)	**Source: 5B11106-14**				**Prepared & Analyzed: 02/12/25**						
Nitrate as N	7.10	0.040	0.20	mg/l	2.00	5.08	101	90-110	0.1	20	
Nitrite as N	1.10	0.042	0.10	mg/l	1.00	ND	110	90-110	0.9	20	
Batch: W5B1043 - SM 2540D											
Blank (W5B1043-BLK1)					**Prepared & Analyzed: 02/13/25**						
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5B1043-BS1)					**Prepared & Analyzed: 02/13/25**						
Total Suspended Solids	58.7	5	5	mg/l	57.4		102	90-110			
Duplicate (W5B1043-DUP1)	**Source: 5B12074-03**				**Prepared & Analyzed: 02/13/25**						
Total Suspended Solids	104	5	5	mg/l		97.3			7	10	
Batch: W5B1065 - EPA 365.3											
Blank (W5B1065-BLK1)					**Prepared: 02/13/25 Analyzed: 02/21/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5B1065-BS1)					**Prepared: 02/13/25 Analyzed: 02/21/25**						
Phosphorus as P, Total	0.200	0.0067	0.010	mg/l	0.200		100	90-110			
Matrix Spike (W5B1065-MS1)	**Source: 5B06004-01**				**Prepared: 02/13/25 Analyzed: 02/21/25**						
Phosphorus as P, Total	0.842	0.013	0.020	mg/l	0.400	0.444	100	90-110			
Matrix Spike Dup (W5B1065-MSD1)	**Source: 5B06004-01**				**Prepared: 02/13/25 Analyzed: 02/21/25**						
Phosphorus as P, Total	0.838	0.013	0.020	mg/l	0.400	0.444	98	90-110	0.5	20	
Batch: W5B1227 - SM 2540C											
Blank (W5B1227-BLK1)					**Prepared & Analyzed: 02/14/25**						
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5B1227-BS1)					**Prepared & Analyzed: 02/14/25**						
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5B1227-DUP1)	**Source: 5B12067-01**				**Prepared & Analyzed: 02/14/25**						
Total Dissolved Solids	2090	4.0	10	mg/l		2100			0.4	10	
Batch: W5B1712 - EPA 351.2											

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B1712 - EPA 351.2 (Continued)											
Blank (W5B1712-BLK1)				**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	ND	0.065	0.10	mg/l							
Blank (W5B1712-BLK2)				**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	ND	0.065	0.10	mg/l							
LCS (W5B1712-BS1)				**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	0.931	0.065	0.10	mg/l	1.00		93	90-110			
LCS (W5B1712-BS2)				**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	0.925	0.065	0.10	mg/l	1.00		92	90-110			
Matrix Spike (W5B1712-MS1)	**Source: 5B11082-35**			**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	1.26	0.065	0.10	mg/l	1.00	0.272	99	90-110			
Matrix Spike (W5B1712-MS2)	**Source: 5B11082-36**			**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	1.10	0.065	0.10	mg/l	1.00	0.138	96	90-110			
Matrix Spike Dup (W5B1712-MSD1)	**Source: 5B11082-35**			**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	1.23	0.065	0.10	mg/l	1.00	0.272	96	90-110	2	10	
Matrix Spike Dup (W5B1712-MSD2)	**Source: 5B11082-36**			**Prepared: 02/24/25 Analyzed: 02/25/25**							
TKN	1.14	0.065	0.10	mg/l	1.00	0.138	100	90-110	4	10	
Batch: W5B1906 - EPA 350.1											
Blank (W5B1906-BLK1)				**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5B1906-BLK2)				**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5B1906-BS1)				**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	0.250	0.017	0.10	mg/l	0.250		100	90-110			
LCS (W5B1906-BS2)				**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	0.248	0.017	0.10	mg/l	0.250		99	90-110			
Matrix Spike (W5B1906-MS1)	**Source: 4J02001-03**			**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	0.898	0.017	0.10	mg/l	0.250	0.659	95	90-110			
Matrix Spike (W5B1906-MS2)	**Source: 5B13043-01**			**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	0.547	0.017	0.10	mg/l	0.250	0.306	97	90-110			
Matrix Spike Dup (W5B1906-MSD1)	**Source: 4J02001-03**			**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	0.901	0.017	0.10	mg/l	0.250	0.659	97	90-110	0.3	15	
Matrix Spike Dup (W5B1906-MSD2)	**Source: 5B13043-01**			**Prepared: 02/25/25 Analyzed: 02/27/25**							
Ammonia as N	0.548	0.017	0.10	mg/l	0.250	0.306	97	90-110	0.1	15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5B1301 - EPA 200.7											
Blank (W5B1301-BLK1)				**Prepared: 02/18/25**	**Analyzed: 02/20/25**						
Aluminum, Dissolved	ND	0.041	0.050	mg/l							
Aluminum, Total	ND	0.022	0.050	mg/l							
LCS (W5B1301-BS1)				**Prepared: 02/18/25**	**Analyzed: 02/20/25**						
Aluminum, Dissolved	0.228	0.041	0.050	mg/l	0.200		114	85-115			
Aluminum, Total	0.228	0.022	0.050	mg/l	0.200		114	85-115			
Matrix Spike (W5B1301-MS1)	**Source: 5B11156-01**			**Prepared: 02/18/25**	**Analyzed: 02/20/25**						
Aluminum, Total	0.292	0.022	0.050	mg/l	0.200	0.0578	117	70-130			
Matrix Spike Dup (W5B1301-MSD1)	**Source: 5B11156-01**			**Prepared: 02/18/25**	**Analyzed: 02/20/25**						
Aluminum, Total	0.292	0.022	0.050	mg/l	0.200	0.0578	117	70-130	0.06	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring Project No. 2315100200.0004.WECK

Project Manager: Nicholas Jernack

Reported: 03/06/2025 10:59

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5D03011

Project: LECL TMDL Monitoring

Attn: Nicholas Jernack

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 5/09/2025
Received Date: 4/17/2025
Turnaround Time: Normal
Phones: (858) 278-3600
Fax: (858) 278-5300
P.O. #: C016900152, Project No.
Billing Code: 2315100200.0004.WECK

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Nicholas Jernack,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Sample Condition

Temperature	1.00 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CL07	Nick Jernack	5D03011-01	Water	04/17/25 10:45	
CL08	Nick Jernack	5D03011-02	Water	04/17/25 10:00	
CL09	Nick Jernack	5D03011-03	Water	04/17/25 09:10	
CL10	Nick Jernack	5D03011-04	Water	04/17/25 08:30	
LE02	Nick Jernack	5D03011-05	Water	04/17/25 09:05	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Sample Results

Sample: CL07

Sampled: 04/17/25 10:45 by Nick Jernack

5D03011-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5D2149 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 13:49			**Analyst:** YMT	
Ammonia as N	**0.51**	0.017	0.10	mg/l	1	04/30/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D2136 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 11:01			**Analyst:** ymt	
TKN	**1.3**	0.065	0.10	mg/l	1	04/29/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5D1528 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 10:03			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	04/18/25 17:24	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	04/18/25 17:24	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5D1557 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 14:28			**Analyst:** rob	
o-Phosphate as P	**0.018**	0.0071	0.010	mg/l	1	04/18/25 16:31	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5D2026 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/25/25 10:55			**Analyst:** rob	
Phosphorus as P, Total	**0.088**	0.0067	0.010	mg/l	1	04/30/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5D1575 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 18:58			**Analyst:** ism	
Total Dissolved Solids	**530**	4.0	10	mg/l	1	04/22/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5D1603 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/21/25 09:11			**Analyst:** dig	
Total Suspended Solids	**7**	5	5	mg/l	1	04/21/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5D1609 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/21/25 09:41			**Analyst:** mes	
Sulfide, Total	**0.70**	0.050	0.10	mg/l	1	04/21/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5D1627 **Preparation:** EPA 200.2			**Prepared:** 04/21/25 12:47			**Analyst:** kvm	
Aluminum, Dissolved	**0.052**	0.041	0.050	mg/l	1	05/01/25	
Aluminum, Total	**0.087**	0.022	0.050	mg/l	1	05/01/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported: 05/09/2025 13:46

Sample Results

(Continued)

Sample: CL08

Sampled: 04/17/25 10:00 by Nick Jernack

5D03011-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5D2149 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 13:49			**Analyst:** YMT	
Ammonia as N	**0.19**	0.017	0.10	mg/l	1	04/30/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D2136 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 11:01			**Analyst:** ymt	
TKN	**1.1**	0.065	0.10	mg/l	1	04/29/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5D1528 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 10:03			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	04/18/25 17:25	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	04/18/25 17:25	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5D1557 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 14:28			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	04/18/25 16:32	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5D2026 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/25/25 10:55			**Analyst:** rob	
Phosphorus as P, Total	**0.091**	0.0067	0.010	mg/l	1	04/30/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5D1575 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 18:58			**Analyst:** ism	
Total Dissolved Solids	**520**	4.0	10	mg/l	1	04/22/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5D1603 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/21/25 09:11			**Analyst:** dig	
Total Suspended Solids	**10**	5	5	mg/l	1	04/21/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5D1609 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/21/25 09:41			**Analyst:** mes	
Sulfide, Total	**0.30**	0.050	0.10	mg/l	1	04/21/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5D1627 **Preparation:** EPA 200.2			**Prepared:** 04/21/25 12:47			**Analyst:** kvm	
Aluminum, Dissolved	**0.12**	0.041	0.050	mg/l	1	05/01/25	
Aluminum, Total	**0.17**	0.022	0.050	mg/l	1	05/01/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported: 05/09/2025 13:46

Sample Results

(Continued)

Sample: CL09

Sampled: 04/17/25 9:10 by Nick Jernack

5D03011-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5D2149 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 13:49			**Analyst:** YMT	
Ammonia as N	**1.3**	0.017	0.10	mg/l	1	04/30/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D2136 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 11:01			**Analyst:** ymt	
TKN	**2.2**	0.065	0.10	mg/l	1	04/29/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5D1528 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 10:03			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	04/18/25 17:26	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	04/18/25 17:26	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5D1557 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 14:28			**Analyst:** rob	
o-Phosphate as P	**0.12**	0.0071	0.010	mg/l	1	04/18/25 16:32	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5D2026 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/25/25 10:55			**Analyst:** rob	
Phosphorus as P, Total	**0.21**	0.0067	0.010	mg/l	1	04/30/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5D1575 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 18:58			**Analyst:** ism	
Total Dissolved Solids	**620**	4.0	10	mg/l	1	04/22/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5D1498 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/17/25 17:37			**Analyst:** dig	
Total Suspended Solids	**13**	5	5	mg/l	1	04/18/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5D1609 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/21/25 09:41			**Analyst:** mes	
Sulfide, Total	**2.0**	0.25	0.50	mg/l	5	04/21/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5D1627 **Preparation:** EPA 200.2			**Prepared:** 04/21/25 12:47			**Analyst:** kvm	
Aluminum, Dissolved	**0.14**	0.041	0.050	mg/l	1	05/01/25	
Aluminum, Total	**0.24**	0.022	0.050	mg/l	1	05/01/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported: 05/09/2025 13:46

Sample Results

(Continued)

Sample: CL10

Sampled: 04/17/25 8:30 by Nick Jernack

5D03011-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5D2149 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 13:49			**Analyst:** YMT	
Ammonia as N	ND	0.017	0.10	mg/l	1	04/30/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D2136 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/28/25 11:01			**Analyst:** ymt	
TKN	**1.2**	0.065	0.10	mg/l	1	04/29/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5D1528 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 10:03			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	04/18/25 17:31	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	04/18/25 17:31	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5D1557 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 14:28			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	04/18/25 16:33	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5D2026 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/25/25 10:55			**Analyst:** rob	
Phosphorus as P, Total	**0.088**	0.0067	0.010	mg/l	1	04/30/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5D1575 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/18/25 18:58			**Analyst:** ism	
Total Dissolved Solids	**560**	4.0	10	mg/l	1	04/22/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5D1498 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/17/25 17:37			**Analyst:** dig	
Total Suspended Solids	**18**	5	5	mg/l	1	04/18/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5D1609 **Preparation:** _NONE (WETCHEM)			**Prepared:** 04/21/25 09:41			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	04/21/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5D1627 **Preparation:** EPA 200.2			**Prepared:** 04/21/25 12:47			**Analyst:** kvm	
Aluminum, Dissolved	**0.45**	0.041	0.050	mg/l	1	05/01/25	
Aluminum, Total	**0.47**	0.022	0.050	mg/l	1	05/01/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Sample Results

(Continued)

Sample: LE02

Sampled: 04/17/25 9:05 by Nick Jernack

5D03011-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5D2149	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/28/25 13:49			**Analyst:** YMT	
Ammonia as N	**0.18**	0.017	0.10	mg/l	1	04/30/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5D2136	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/28/25 11:01			**Analyst:** ymt	
TKN	**2.2**	0.13	0.20	mg/l	1	04/29/25	M-02
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5D1528	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/18/25 10:03			**Analyst:** ATN	
Nitrate as N	**0.097**	0.040	0.20	mg/l	1	04/18/25 17:32	FILT, J
Nitrite as N	ND	0.042	0.10	mg/l	1	04/18/25 17:32	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5D1557	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/18/25 14:28			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	04/18/25 16:33	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5D2026	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/25/25 10:55			**Analyst:** rob	
Phosphorus as P, Total	**0.13**	0.0067	0.010	mg/l	1	04/30/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5D1575	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/18/25 18:58			**Analyst:** ism	
Total Dissolved Solids	**1600**	4.0	10	mg/l	1	04/22/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5D1609	**Preparation:** _NONE (WETCHEM)		**Prepared:** 04/21/25 09:41			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	04/21/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5D1498 - SM 2540D											
Blank (W5D1498-BLK1)				**Prepared: 04/17/25 Analyzed: 04/18/25**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5D1498-BS1)				**Prepared: 04/17/25 Analyzed: 04/18/25**							
Total Suspended Solids	56.5	5	5	mg/l	55.4		102	90-110			
Duplicate (W5D1498-DUP1)	**Source: 5C26022-01RE1**			**Prepared: 04/17/25 Analyzed: 04/18/25**							
Total Suspended Solids	1220	5	5	mg/l		1180			3	10	
Duplicate (W5D1498-DUP2)	**Source: 5D16013-01**			**Prepared: 04/17/25 Analyzed: 04/18/25**							
Total Suspended Solids	1580	5	5	mg/l		1470			7	10	
Batch: W5D1528 - EPA 353.2											
Blank (W5D1528-BLK1)				**Prepared & Analyzed: 04/18/25**							
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W5D1528-BS1)				**Prepared & Analyzed: 04/18/25**							
Nitrate as N	0.993	0.040	0.20	mg/l	1.00		99	90-110			
Nitrite as N	1.08	0.042	0.10	mg/l	1.00		108	90-110			
Matrix Spike (W5D1528-MS1)	**Source: 5D17105-05**			**Prepared & Analyzed: 04/18/25**							
Nitrate as N	1.96	0.040	0.20	mg/l	2.00	ND	98	90-110			
Nitrite as N	1.08	0.042	0.10	mg/l	1.00	ND	108	90-110			
Matrix Spike (W5D1528-MS2)	**Source: 5D17105-08**			**Prepared & Analyzed: 04/18/25**							
Nitrite as N	1.08	0.042	0.10	mg/l	1.00	ND	108	90-110			
Matrix Spike (W5D1528-MS3)	**Source: 5D17105-08**			**Prepared & Analyzed: 04/18/25**							
Nitrate as N	23.4	0.16	0.80	mg/l	8.00	16.0	92	90-110			
Matrix Spike Dup (W5D1528-MSD1)	**Source: 5D17105-05**			**Prepared & Analyzed: 04/18/25**							
Nitrate as N	1.96	0.040	0.20	mg/l	2.00	ND	98	90-110	0	20	
Nitrite as N	1.06	0.042	0.10	mg/l	1.00	ND	106	90-110	2	20	
Matrix Spike Dup (W5D1528-MSD2)	**Source: 5D17105-08**			**Prepared & Analyzed: 04/18/25**							
Nitrite as N	1.07	0.042	0.10	mg/l	1.00	ND	107	90-110	0.9	20	
Matrix Spike Dup (W5D1528-MSD3)	**Source: 5D17105-08**			**Prepared & Analyzed: 04/18/25**							
Nitrate as N	23.4	0.16	0.80	mg/l	8.00	16.0	92	90-110	0	20	
Batch: W5D1557 - EPA 365.3											
Blank (W5D1557-BLK1)				**Prepared & Analyzed: 04/18/25**							
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5D1557-BS1)				**Prepared & Analyzed: 04/18/25**							
o-Phosphate as P	0.202	0.0071	0.010	mg/l	0.200		101	88-111			
Matrix Spike (W5D1557-MS1)	**Source: 5C17045-01**			**Prepared & Analyzed: 04/18/25**							
o-Phosphate as P	0.208	0.0071	0.010	mg/l	0.200	ND	104	85-112			
Matrix Spike Dup (W5D1557-MSD1)	**Source: 5C17045-01**			**Prepared & Analyzed: 04/18/25**							
o-Phosphate as P	0.207	0.0071	0.010	mg/l	0.200	ND	104	85-112	0.5	20	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported: 05/09/2025 13:46

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5D1575 - SM 2540C											
Blank (W5D1575-BLK1)				**Prepared: 04/18/25 Analyzed: 04/22/25**							
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5D1575-BS1)				**Prepared: 04/18/25 Analyzed: 04/22/25**							
Total Dissolved Solids	49.0	4.0	10	mg/l	50.0		98	97-103			
Duplicate (W5D1575-DUP1)	**Source: 5D11003-01**			**Prepared: 04/18/25 Analyzed: 04/22/25**							
Total Dissolved Solids	1330	4.0	10	mg/l		1350			2	10	
Batch: W5D1603 - SM 2540D											
Blank (W5D1603-BLK1)				**Prepared & Analyzed: 04/21/25**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5D1603-BS1)				**Prepared & Analyzed: 04/21/25**							
Total Suspended Solids	64.6	5	5	mg/l	63.1		102	90-110			
Duplicate (W5D1603-DUP1)	**Source: 5D03011-02**			**Prepared & Analyzed: 04/21/25**							
Total Suspended Solids	10.4	5	5	mg/l		9.80			6	10	
Batch: W5D1609 - SM 4500S2-D											
Blank (W5D1609-BLK1)				**Prepared & Analyzed: 04/21/25**							
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W5D1609-BS1)				**Prepared & Analyzed: 04/21/25**							
Sulfide, Total	0.100	0.050	0.10	mg/l	0.100		100	90-110			
Duplicate (W5D1609-DUP1)	**Source: 5D03011-03**			**Prepared & Analyzed: 04/21/25**							
Sulfide, Total	2.00	0.50	1.0	mg/l		2.00			0	20	
Matrix Spike (W5D1609-MS1)	**Source: 5C14013-01**			**Prepared & Analyzed: 04/21/25**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.200	ND	100	80-120			
Matrix Spike Dup (W5D1609-MSD1)	**Source: 5C14013-01**			**Prepared & Analyzed: 04/21/25**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.200	ND	100	80-120	0	20	
Batch: W5D2026 - EPA 365.3											
Blank (W5D2026-BLK1)				**Prepared: 04/25/25 Analyzed: 04/30/25**							
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5D2026-BS1)				**Prepared: 04/25/25 Analyzed: 04/30/25**							
Phosphorus as P, Total	0.198	0.0067	0.010	mg/l	0.200		99	90-110			
Matrix Spike (W5D2026-MS1)	**Source: 5D14022-01**			**Prepared: 04/25/25 Analyzed: 04/30/25**							
Phosphorus as P, Total	0.824	0.013	0.020	mg/l	0.400	0.444	95	90-110			
Matrix Spike Dup (W5D2026-MSD1)	**Source: 5D14022-01**			**Prepared: 04/25/25 Analyzed: 04/30/25**							
Phosphorus as P, Total	0.838	0.013	0.020	mg/l	0.400	0.444	98	90-110	2	20	
Batch: W5D2136 - EPA 351.2											
Blank (W5D2136-BLK1)				**Prepared: 04/28/25 Analyzed: 04/29/25**							
TKN	ND	0.065	0.10	mg/l							
LCS (W5D2136-BS1)				**Prepared: 04/28/25 Analyzed: 04/29/25**							
TKN	0.967	0.065	0.10	mg/l	1.00		97	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5D2136 - EPA 351.2 (Continued)											
Matrix Spike (W5D2136-MS1)	**Source: 5D24079-01**			**Prepared: 04/28/25**		**Analyzed: 04/29/25**					
TKN	1.52	0.065	0.10	mg/l	1.00	0.544	97	90-110			
Matrix Spike Dup (W5D2136-MSD1)	**Source: 5D24079-01**			**Prepared: 04/28/25**		**Analyzed: 04/29/25**					
TKN	1.51	0.065	0.10	mg/l	1.00	0.544	96	90-110	0.8	10	
Batch: W5D2149 - EPA 350.1											
Blank (W5D2149-BLK1)				**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5D2149-BLK2)				**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5D2149-BS1)				**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	0.246	0.017	0.10	mg/l	0.250		98	90-110			
LCS (W5D2149-BS2)				**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	0.263	0.017	0.10	mg/l	0.250		105	90-110			
Matrix Spike (W5D2149-MS1)	**Source: 5D22111-01**			**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	0.281	0.017	0.10	mg/l	0.250	0.0392	97	90-110			
Matrix Spike (W5D2149-MS2)	**Source: 5D23042-01**			**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	0.255	0.017	0.10	mg/l	0.250	ND	102	90-110			
Matrix Spike Dup (W5D2149-MSD1)	**Source: 5D22111-01**			**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	0.283	0.017	0.10	mg/l	0.250	0.0392	98	90-110	1	15	
Matrix Spike Dup (W5D2149-MSD2)	**Source: 5D23042-01**			**Prepared: 04/28/25**		**Analyzed: 04/30/25**					
Ammonia as N	0.254	0.017	0.10	mg/l	0.250	ND	101	90-110	0.5	15	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5D1627 - EPA 200.7											
Blank (W5D1627-BLK1)				**Prepared: 04/21/25**	**Analyzed: 05/01/25**						
Aluminum, Dissolved	ND	0.041	0.050	mg/l							
Aluminum, Total	ND	0.022	0.050	mg/l							
LCS (W5D1627-BS1)				**Prepared: 04/21/25**	**Analyzed: 05/01/25**						
Aluminum, Dissolved	0.205	0.041	0.050	mg/l	0.200		103	85-115			
Aluminum, Total	0.205	0.022	0.050	mg/l	0.200		103	85-115			
Matrix Spike (W5D1627-MS1)	**Source: 5D03011-01**			**Prepared: 04/21/25**	**Analyzed: 05/01/25**						
Aluminum, Total	0.320	0.022	0.050	mg/l	0.200	0.0872	116	70-130			
Matrix Spike (W5D1627-MS2)	**Source: 5D17101-04**			**Prepared: 04/21/25**	**Analyzed: 05/01/25**						
Aluminum, Dissolved	0.206	0.041	0.050	mg/l	0.200	ND	103	70-130			
Aluminum, Total	0.206	0.022	0.050	mg/l	0.200	ND	103	70-130			
Matrix Spike Dup (W5D1627-MSD1)	**Source: 5D03011-01**			**Prepared: 04/21/25**	**Analyzed: 05/01/25**						
Aluminum, Total	0.316	0.022	0.050	mg/l	0.200	0.0872	115	70-130	1	30	
Matrix Spike Dup (W5D1627-MSD2)	**Source: 5D17101-04**			**Prepared: 04/21/25**	**Analyzed: 05/01/25**						
Aluminum, Dissolved	0.205	0.041	0.050	mg/l	0.200	ND	103	70-130	0.3	30	
Aluminum, Total	0.205	0.022	0.050	mg/l	0.200	ND	103	70-130	0.3	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: LECL TMDL Monitoring

Project Manager: Nicholas Jernack

Reported:
05/09/2025 13:46

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 5F04010

Project: 2315100200.0004a.WECK

Attn: Nicholas Jernack

Client: WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Report Date: 7/08/2025
Received Date: 6/11/2025
Turnaround Time: Normal
Phones: (858) 278-3600
Fax: (858) 278-5300
P.O. #: C016900152
Billing Code:

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Results are related only to the items tested. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. The report may include analytes that are not currently accreditable by some state agencies or accrediting bodies. This analytical report must be reproduced in its entirety.

Dear Nicholas Jernack,

Enclosed are the analytical results for the samples submitted under the attached Chain of Custody document. All analyses adhered to the method criteria, except where noted in the case narrative, sample condition checklist, and/or data qualifiers.

Reviewed by:

Kenneth C. Oda For Kim G. Tu
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported:
07/08/2025 10:55

Sample Condition

Temperature	3.60 C		
COC present	✓	COC completed properly	✓
COC matches sample labels	✓	Wet ice	✓
Blue ice		Sample(s) intact	✓
Sample(s) using proper containers	✓	Sample(s) have sufficient sample volume	✓
Sample(s) received within hold time	✓	Sample(s) labels have correct preservation	✓
Sample(s) have acceptable pH	✓	Sample(s) have acceptable Cl	

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
CL07	Nick Jernack	5F04010-01	Water	06/11/25 11:10	
CL08	Nick Jernack	5F04010-02	Water	06/11/25 10:30	
CL09	Nick Jernack	5F04010-03	Water	06/11/25 09:40	
CL10	Nick Jernack	5F04010-04	Water	06/11/25 08:50	
LE02	Nick Jernack	5F04010-05	Water	06/11/25 09:15	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Sample Results

Sample: CL07

Sampled: 06/11/25 11:10 by Nick Jernack

5F04010-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5F1207 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/18/25 10:29			**Analyst:** YMT	
Ammonia as N	**1.3**	0.017	0.10	mg/l	1	06/19/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5F1768 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/25/25 10:56			**Analyst:** ymt	
TKN	**2.0**	0.065	0.10	mg/l	1	06/30/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5F0873 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 09:54			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	06/12/25 19:30	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	06/12/25 19:30	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5F0886 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 11:04			**Analyst:** rob	
o-Phosphate as P	**0.036**	0.0071	0.010	mg/l	1	06/12/25 16:06	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5F0919 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 14:17			**Analyst:** rob	
Phosphorus as P, Total	**0.088**	0.0067	0.010	mg/l	1	06/19/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5F0976 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/13/25 10:09			**Analyst:** ism	
Total Dissolved Solids	**570**	4.0	10	mg/l	1	06/13/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5F1059 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 09:12			**Analyst:** mes	
Total Suspended Solids	**6**	5	5	mg/l	1	06/16/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5F1086 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 11:56			**Analyst:** mes	
Sulfide, Total	**3.0**	0.50	1.0	mg/l	10	06/16/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5F1076 **Preparation:** EPA 200.2			**Prepared:** 06/16/25 10:58			**Analyst:** kvm	
Aluminum, Dissolved	**0.051**	0.041	0.050	mg/l	1	06/18/25	
Aluminum, Total	**0.064**	0.022	0.050	mg/l	1	06/18/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Sample Results

(Continued)

Sample: CL08

Sampled: 06/11/25 10:30 by Nick Jernack

5F04010-02 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5F1207 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/18/25 10:29			**Analyst:** YMT	
Ammonia as N	**1.1**	0.017	0.10	mg/l	1	06/19/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5F1768 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/25/25 10:56			**Analyst:** ymt	
TKN	**1.9**	0.065	0.10	mg/l	1	06/30/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5F0873 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 09:54			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	06/12/25 19:31	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	06/12/25 19:31	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5F0886 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 11:04			**Analyst:** rob	
o-Phosphate as P	**0.024**	0.0071	0.010	mg/l	1	06/12/25 16:07	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5F0919 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 14:17			**Analyst:** rob	
Phosphorus as P, Total	**0.082**	0.0067	0.010	mg/l	1	06/19/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5F0976 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/13/25 10:09			**Analyst:** ism	
Total Dissolved Solids	**580**	4.0	10	mg/l	1	06/13/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5F1059 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 09:12			**Analyst:** mes	
Total Suspended Solids	**6**	5	5	mg/l	1	06/16/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5F1086 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 11:56			**Analyst:** mes	
Sulfide, Total	**4.0**	0.50	1.0	mg/l	10	06/16/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5F1076 **Preparation:** EPA 200.2			**Prepared:** 06/16/25 10:58			**Analyst:** kvm	
Aluminum, Dissolved	**0.066**	0.041	0.050	mg/l	1	06/18/25	
Aluminum, Total	**0.078**	0.022	0.050	mg/l	1	06/18/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Sample Results

(Continued)

Sample: CL09

Sampled: 06/11/25 9:40 by Nick Jernack

5F04010-03 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5F1207 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/18/25 10:29			**Analyst:** YMT	
Ammonia as N	**2.2**	0.017	0.10	mg/l	1	06/19/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5F1768 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/25/25 10:56			**Analyst:** ymt	
TKN	**3.0**	0.065	0.10	mg/l	1	06/30/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5F0873 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 09:54			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	06/12/25 19:32	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	06/12/25 19:32	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5F0886 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 11:04			**Analyst:** rob	
o-Phosphate as P	**0.11**	0.0071	0.010	mg/l	1	06/12/25 16:07	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5F0919 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 14:17			**Analyst:** rob	
Phosphorus as P, Total	**0.18**	0.0067	0.010	mg/l	1	06/19/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5F0976 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/13/25 10:09			**Analyst:** ism	
Total Dissolved Solids	**640**	4.0	10	mg/l	1	06/13/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5F1059 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 09:12			**Analyst:** mes	
Total Suspended Solids	**7**	5	5	mg/l	1	06/16/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5F1086 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 11:56			**Analyst:** mes	
Sulfide, Total	**7.0**	0.50	1.0	mg/l	10	06/16/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5F1076 **Preparation:** EPA 200.2			**Prepared:** 06/16/25 10:58			**Analyst:** kvm	
Aluminum, Dissolved	**0.10**	0.041	0.050	mg/l	1	06/18/25	
Aluminum, Total	**0.15**	0.022	0.050	mg/l	1	06/18/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Sample Results

(Continued)

Sample: CL10

Sampled: 06/11/25 8:50 by Nick Jernack

5F04010-04 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5F1207 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/18/25 10:29			**Analyst:** YMT	
Ammonia as N	**0.018**	0.017	0.10	mg/l	1	06/19/25	J
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5F1768 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/25/25 10:56			**Analyst:** ymt	
TKN	**0.99**	0.065	0.10	mg/l	1	06/30/25	
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5F0873 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 09:54			**Analyst:** ATN	
Nitrate as N	**0.056**	0.040	0.20	mg/l	1	06/12/25 19:37	FILT, J
Nitrite as N	ND	0.042	0.10	mg/l	1	06/12/25 19:37	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5F0886 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 11:04			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	06/12/25 16:08	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5F0919 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/12/25 14:17			**Analyst:** rob	
Phosphorus as P, Total	**0.045**	0.0067	0.010	mg/l	1	06/19/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5F0976 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/13/25 10:09			**Analyst:** ism	
Total Dissolved Solids	**720**	4.0	10	mg/l	1	06/13/25	
Method: SM 2540D			**Instr:** OVEN18				
Batch ID: W5F1059 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 09:12			**Analyst:** mes	
Total Suspended Solids	**5**	5	5	mg/l	1	06/16/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5F1086 **Preparation:** _NONE (WETCHEM)			**Prepared:** 06/16/25 11:56			**Analyst:** mes	
Sulfide, Total	ND	0.050	0.10	mg/l	1	06/16/25	
Metals by EPA 200 Series Methods							
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W5F1076 **Preparation:** EPA 200.2			**Prepared:** 06/16/25 10:58			**Analyst:** kvm	
Aluminum, Dissolved	**0.20**	0.041	0.050	mg/l	1	06/18/25	
Aluminum, Total	**0.20**	0.022	0.050	mg/l	1	06/18/25	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Sample Results

(Continued)

Sample: LE02

Sampled: 06/11/25 9:15 by Nick Jernack

5F04010-05 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: EPA 350.1			**Instr:** AA06				
Batch ID: W5F1207	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/18/25 10:29			**Analyst:** YMT	
Ammonia as N	**0.19**	0.017	0.10	mg/l	1	06/19/25	
Method: EPA 351.2			**Instr:** AA06				
Batch ID: W5F1768	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/25/25 10:56			**Analyst:** ymt	
TKN	**2.0**	0.13	0.20	mg/l	1	06/30/25	M-02
Method: EPA 353.2			**Instr:** AA01				
Batch ID: W5F0873	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/12/25 09:54			**Analyst:** ATN	
Nitrate as N	ND	0.040	0.20	mg/l	1	06/12/25 19:38	FILT
Nitrite as N	ND	0.042	0.10	mg/l	1	06/12/25 19:38	FILT
Method: EPA 365.3			**Instr:** UVVIS04				
Batch ID: W5F0886	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/12/25 11:04			**Analyst:** rob	
o-Phosphate as P	ND	0.0071	0.010	mg/l	1	06/12/25 16:09	
Method: EPA 365.3			**Instr:** UVVIS05				
Batch ID: W5F0919	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/12/25 14:17			**Analyst:** rob	
Phosphorus as P, Total	**0.090**	0.0067	0.010	mg/l	1	06/19/25	
Method: SM 2540C			**Instr:** OVEN17				
Batch ID: W5F0976	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/13/25 10:09			**Analyst:** ism	
Total Dissolved Solids	**1700**	4.0	10	mg/l	1	06/13/25	
Method: SM 4500S2-D			**Instr:** _ANALYST				
Batch ID: W5F1086	**Preparation:** _NONE (WETCHEM)		**Prepared:** 06/16/25 11:56			**Analyst:** mes	
Sulfide, Total	**0.10**	0.050	0.10	mg/l	1	06/16/25	

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5F0873 - EPA 353.2											
Blank (W5F0873-BLK1)					**Prepared & Analyzed: 06/12/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
Blank (W5F0873-BLK2)					**Prepared & Analyzed: 06/12/25**						
Nitrate as N	ND	0.040	0.20	mg/l							
Nitrite as N	ND	0.042	0.10	mg/l							
LCS (W5F0873-BS1)					**Prepared & Analyzed: 06/12/25**						
Nitrate as N	1.00	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1.07	0.042	0.10	mg/l	1.00		107	90-110			
LCS (W5F0873-BS2)					**Prepared & Analyzed: 06/12/25**						
Nitrate as N	1.00	0.040	0.20	mg/l	1.00		100	90-110			
Nitrite as N	1.06	0.042	0.10	mg/l	1.00		106	90-110			
Matrix Spike (W5F0873-MS1)	**Source: 5E16007-02**				**Prepared & Analyzed: 06/12/25**						
Nitrate as N	2.27	0.040	0.20	mg/l	2.00	0.181	104	90-110			
Nitrite as N	1.11		0.10	mg/l	1.00	0.0418	107	90-110			
Matrix Spike (W5F0873-MS2)	**Source: 5E16007-03**				**Prepared & Analyzed: 06/12/25**						
Nitrate as N	2.31	0.040	0.20	mg/l	2.00	0.277	102	90-110			
Nitrite as N	1.07	0.042	0.10	mg/l	1.00	ND	107	90-110			
Matrix Spike Dup (W5F0873-MSD1)	**Source: 5E16007-02**				**Prepared & Analyzed: 06/12/25**						
Nitrate as N	2.26	0.040	0.20	mg/l	2.00	0.181	104	90-110	0.4	20	
Nitrite as N	1.12		0.10	mg/l	1.00	0.0418	108	90-110	0.9	20	
Matrix Spike Dup (W5F0873-MSD2)	**Source: 5E16007-03**				**Prepared & Analyzed: 06/12/25**						
Nitrate as N	2.31	0.040	0.20	mg/l	2.00	0.277	102	90-110	0	20	
Nitrite as N	1.06	0.042	0.10	mg/l	1.00	ND	106	90-110	0.9	20	
Batch: W5F0886 - EPA 365.3											
Blank (W5F0886-BLK1)					**Prepared & Analyzed: 06/12/25**						
o-Phosphate as P	ND	0.0071	0.010	mg/l							
LCS (W5F0886-BS1)					**Prepared & Analyzed: 06/12/25**						
o-Phosphate as P	0.203	0.0071	0.010	mg/l	0.200		102	88-111			
Matrix Spike (W5F0886-MS1)	**Source: 5E19036-01**				**Prepared & Analyzed: 06/12/25**						
o-Phosphate as P	0.200	0.0071	0.010	mg/l	0.200	ND	100	85-112			
Matrix Spike Dup (W5F0886-MSD1)	**Source: 5E19036-01**				**Prepared & Analyzed: 06/12/25**						
o-Phosphate as P	0.205	0.0071	0.010	mg/l	0.200	ND	102	85-112	2	20	
Batch: W5F0919 - EPA 365.3											
Blank (W5F0919-BLK1)					**Prepared: 06/12/25 Analyzed: 06/19/25**						
Phosphorus as P, Total	ND	0.0067	0.010	mg/l							
LCS (W5F0919-BS1)					**Prepared: 06/12/25 Analyzed: 06/19/25**						
Phosphorus as P, Total	0.191	0.0067	0.010	mg/l	0.200		96	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5F0919 - EPA 365.3 (Continued)											
Matrix Spike (W5F0919-MS1)	**Source: 5F02012-01**			**Prepared: 06/12/25**	**Analyzed: 06/19/25**						
Phosphorus as P, Total	0.824	0.013	0.020	mg/l	0.400	0.432	98	90-110			
Matrix Spike Dup (W5F0919-MSD1)	**Source: 5F02012-01**			**Prepared: 06/12/25**	**Analyzed: 06/19/25**						
Phosphorus as P, Total	0.834	0.013	0.020	mg/l	0.400	0.432	100	90-110	1	20	
Batch: W5F0976 - SM 2540C											
Blank (W5F0976-BLK1)				**Prepared & Analyzed: 06/13/25**							
Total Dissolved Solids	ND	4.0	10	mg/l							
LCS (W5F0976-BS1)				**Prepared & Analyzed: 06/13/25**							
Total Dissolved Solids	50.0	4.0	10	mg/l	50.0		100	97-103			
Duplicate (W5F0976-DUP1)	**Source: 5F10013-01**			**Prepared & Analyzed: 06/13/25**							
Total Dissolved Solids	3210	4.0	10	mg/l		3160			2	10	
Batch: W5F1059 - SM 2540D											
Blank (W5F1059-BLK1)				**Prepared & Analyzed: 06/16/25**							
Total Suspended Solids	ND	5	5	mg/l							
LCS (W5F1059-BS1)				**Prepared & Analyzed: 06/16/25**							
Total Suspended Solids	61.0	5	5	mg/l	57.0		107	90-110			
Duplicate (W5F1059-DUP1)	**Source: 5F04010-02**			**Prepared & Analyzed: 06/16/25**							
Total Suspended Solids	6.40	5	5	mg/l		6.20			3	10	
Batch: W5F1086 - SM 4500S2-D											
Blank (W5F1086-BLK1)				**Prepared & Analyzed: 06/16/25**							
Sulfide, Total	ND	0.050	0.10	mg/l							
LCS (W5F1086-BS1)				**Prepared & Analyzed: 06/16/25**							
Sulfide, Total	0.100	0.050	0.10	mg/l	0.0966		104	90-110			
Duplicate (W5F1086-DUP1)	**Source: 5F04010-01**			**Prepared & Analyzed: 06/16/25**							
Sulfide, Total	3.00	0.25	0.50	mg/l		3.00			0	20	
Matrix Spike (W5F1086-MS1)	**Source: 5F13077-01**			**Prepared & Analyzed: 06/16/25**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.193	ND	104	80-120			
Matrix Spike Dup (W5F1086-MSD1)	**Source: 5F13077-01**			**Prepared & Analyzed: 06/16/25**							
Sulfide, Total	0.200	0.050	0.10	mg/l	0.193	ND	104	80-120	0	20	
Batch: W5F1207 - EPA 350.1											
Blank (W5F1207-BLK1)				**Prepared: 06/18/25**	**Analyzed: 06/19/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
Blank (W5F1207-BLK2)				**Prepared: 06/18/25**	**Analyzed: 06/19/25**						
Ammonia as N	ND	0.017	0.10	mg/l							
LCS (W5F1207-BS1)				**Prepared: 06/18/25**	**Analyzed: 06/19/25**						
Ammonia as N	0.242	0.017	0.10	mg/l	0.250		97	90-110			
LCS (W5F1207-BS2)				**Prepared: 06/18/25**	**Analyzed: 06/19/25**						
Ammonia as N	0.248	0.017	0.10	mg/l	0.250		99	90-110			

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported: 07/08/2025 10:55

Quality Control Results

(Continued)

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5F1207 - EPA 350.1 (Continued)											
Duplicate (W5F1207-DUP1)	**Source: 5F12041-01**			**Prepared: 06/18/25**		**Analyzed: 06/19/25**					
Ammonia as N	ND	0.017	0.10	mg/l		ND				15	
Matrix Spike (W5F1207-MS1)	**Source: 5F11083-01**			**Prepared: 06/18/25**		**Analyzed: 06/19/25**					
Ammonia as N	0.275	0.017	0.10	mg/l	0.250	0.0403	94	90-110			
Matrix Spike (W5F1207-MS2)	**Source: 5F12014-01**			**Prepared: 06/18/25**		**Analyzed: 06/19/25**					
Ammonia as N	0.320	0.017	0.10	mg/l	0.250	0.0827	95	90-110			
Matrix Spike Dup (W5F1207-MSD1)	**Source: 5F11083-01**			**Prepared: 06/18/25**		**Analyzed: 06/19/25**					
Ammonia as N	0.278	0.017	0.10	mg/l	0.250	0.0403	95	90-110	0.8	15	
Matrix Spike Dup (W5F1207-MSD2)	**Source: 5F12014-01**			**Prepared: 06/18/25**		**Analyzed: 06/19/25**					
Ammonia as N	0.320	0.017	0.10	mg/l	0.250	0.0827	95	90-110	0.1	15	
Batch: W5F1768 - EPA 351.2											
Blank (W5F1768-BLK1)				**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	ND	0.065	0.10	mg/l							
Blank (W5F1768-BLK2)				**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	ND	0.065	0.10	mg/l							
LCS (W5F1768-BS1)				**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	0.985	0.065	0.10	mg/l	1.00		99	90-110			
LCS (W5F1768-BS2)				**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	0.983	0.065	0.10	mg/l	1.00		98	90-110			
Duplicate (W5F1768-DUP1)	**Source: 5F12042-03**			**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	ND	0.065	0.10	mg/l		ND				10	
Matrix Spike (W5F1768-MS1)	**Source: 5F12041-01**			**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	1.38	0.065	0.10	mg/l	1.00	0.426	95	90-110			
Matrix Spike (W5F1768-MS2)	**Source: 5F16113-02**			**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	1.57	0.065	0.10	mg/l	1.00	0.600	97	90-110			
Matrix Spike Dup (W5F1768-MSD1)	**Source: 5F12041-01**			**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	1.37	0.065	0.10	mg/l	1.00	0.426	95	90-110	0.1	10	
Matrix Spike Dup (W5F1768-MSD2)	**Source: 5F16113-02**			**Prepared: 06/25/25**		**Analyzed: 06/30/25**					
TKN	1.55	0.065	0.10	mg/l	1.00	0.600	95	90-110	1	10	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported:
07/08/2025 10:55

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W5F1076 - EPA 200.7											
Blank (W5F1076-BLK1)				**Prepared: 06/16/25**		**Analyzed: 06/18/25**					
Aluminum, Dissolved	ND	0.041	0.050	mg/l							
Aluminum, Total	ND	0.022	0.050	mg/l							
LCS (W5F1076-BS1)				**Prepared: 06/16/25**		**Analyzed: 06/18/25**					
Aluminum, Dissolved	0.217	0.041	0.050	mg/l	0.200		109	85-115			
Aluminum, Total	0.217	0.022	0.050	mg/l	0.200		109	85-115			
Matrix Spike (W5F1076-MS1)	**Source: 5F04010-01**			**Prepared: 06/16/25**		**Analyzed: 06/18/25**					
Aluminum, Dissolved	0.274	0.041	0.050	mg/l	0.200	0.0512	112	70-130			
Aluminum, Total	0.274	0.022	0.050	mg/l	0.200	0.0643	105	70-130			
Matrix Spike Dup (W5F1076-MSD1)	**Source: 5F04010-01**			**Prepared: 06/16/25**		**Analyzed: 06/18/25**					
Aluminum, Dissolved	0.275	0.041	0.050	mg/l	0.200	0.0512	112	70-130	0.2	30	
Aluminum, Total	0.275	0.022	0.050	mg/l	0.200	0.0643	105	70-130	0.2	30	

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

WSP USA E&I Inc. - San Diego
9177 Sky Park Court, Ste A
San Diego, CA 92123

Project Number: 2315100200.0004a.WECK

Project Manager: Nicholas Jernack

Reported:
07/08/2025 10:55

Notes and Definitions

Item	Definition
FILT	The sample was filtered prior to analysis.
J	Estimated conc. detected <MRL and >MDL.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	Method Reporting Limit (MRL) is the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139
www.wecklabs.com

Chain of Custody & Sample Information Record

4G23136

Client: WSP USA E&I Inc. **Contact:** John Rudolph **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** john.rudolph@wsp.com

Project Number: 2315100200.0004a.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Additional Charges May Apply

Lab TAT Approval: By:

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jurnek
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Total AL (EPA 200.7)	Matrix	Notes
LE02	7/23	0855																X	X	X	X	X	X	X				

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Ortho-P is field filtered.

please include all red codes on invoices

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jurnek / WSP	7/23/24 - 1200		Carla Dominguez RMS/Weck
	Carla Dominguez RMS/Weck	7/23/24 15:36		CSA Weck CS
		7/23/24 1536		

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice?	Yes	No		Temperature
Custody Seal(s) Intact?	Yes	No	N/A	°C
Sample(s) Intact?	Yes	No		☐ Cooler Blank

Lab Notes

T0307/C0-3C

Lab No. _____

WECK LABORATORIES, INC.

Sample Receipt Checklist

Weck WKO: **4G23136**
WKO Logged by: Jerico Bolotano
Samples Checked by: Jerico Bolotano

Date/Time Received: 07/23/24 @ 15:36
# of Samples: 01
Delivered by: RMS

	Task	Yes	No	N/A	Comments
COC	COC present at receipt?	☒	☐		
	COC properly completed?	☒	☐		
	COC matches sample labels?	☒	☐		
	Project Manager notified about COC discrepancy?	☐	☐	☒	
Receipt Information	Sample Temperature	6.3°C			
	Samples received on ice?	☒	☐		
	Ice Type (Blue/Wet)	Wet			
	All samples intact?	☒	☐		
	Samples in proper containers?	☒	☐		
	Sufficient sample volume?	☒	☐		
	Samples intact?	☒	☐		
	Received within holding time?	☒	☐		
	Project Manager notified?	☐	☐	☒	
	Sample labels checked for correct preservation?	☒	☐	☐	
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	☐	☐	☒	☐ <6mm/Pea size?
	pH verified upon receipt? Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 508.1, 525.2<2; 6710B<2; 608.3 5-9	☒	☐	☐	pH paper Lot# 3101689
	Free Chlorine Tested <0.1 (Organic Analyses)	☐	☐	☒	Cl Test Strip Lot#
	O&G pH <2 verified?	☐	☐	☐	pH paper Lot#
	pH adjusted for O&G	☐	☐	☐	pH Reading: Acid Lot# Amt added:
	Project Manager notified about sample preservation?	☐	☐	☒	

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Jerico Bolotano Date: 07/23/24

4H01002

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** John Rudolph **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** john.rudolph@woodplc.com

Project Number: 2315100200.0004.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

*Please include Marissa Cuevas (marissa.cuevas@wsp.com) on all invoicing

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Additional Charges May Apply

Lab TAT Approval: By:

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)	Matrix	Notes
CL07	8/15/24	1123															x	x	x	x	x	x	x	x	x	x		
CL08		1035															x	x	x	x	x	x	x	x	x	x		
CL09		0955															x	x	x	x	x	x	x	x	x	x		
CL10		0900															x	x	x	x	x	x	x	x	x	x		
LE02		0920																x	x	x	x	x	x	x				

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jernack / WSP	8/15/24 1345	8-15-24 13:40	
		8-15-24 2:55		8/15/24 14:55
	WECK	8/15/24 14:55		

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No

Temperature: 1.6 °C T-0506
☐ Cooler Blank

Lab Notes

Lab No. _____

WECK LABORATORIES, INC.

Sample Receipt Checklist

Weck WKO: **4H01002**
WKO Logged by: Lester Abad
Samples Checked by: Lester Abad

Date/Time Received: 08/15/24 @ 14:58
# of Samples: 05
Delivered by: Client

	Task	Yes	No	N/A	Comments
COC	COC present at receipt?	☒	☐		
	COC properly completed?	☒	☐		
	COC matches sample labels?	☒	☐		
	Project Manager notified about COC discrepancy?	☐	☐	☒	
Receipt Information	Sample Temperature	1.6°C			
	Samples received on ice?	☒	☐		
	Ice Type (Blue/Wet)	WET			
	All samples intact?	☒	☐		
	Samples in proper containers?	☒	☐		
	Sufficient sample volume?	☒	☐		
	Samples intact?	☒	☐		
	Received within holding time?	☒	☐		
	Project Manager notified about receipt info?	☐	☒	☐	
1	Sample labels checked for correct preservation?	☒	☐	☐	
	VOC Headspace: (No) none, If Yes (see comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	☐	☐	☒	☐<6mm/Pea Size?
	pH verified upon receipt? Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 508.1, 525.2<2, 6710B<2, 608.3 5-9	☒	☐	☐	pH paper Lot# 3101689
	Free Chlorine Tested <0.1 (Organics Analyses)	☐	☐	☒	Cl Test Strip Lot# 022Y423
	O&G pH <2 verified?	☐	☐	☐	pH paper Lot# 3101689
	pH adjusted for O&G	☐	☐	☐	pH Reading: Acid Lot# Amt added:
	Project Manager notified about sample preservation?	☐	☐	☒	

PM Comments

Sample Receipt Checklist Completed by:

Signature: *Lester Abad* Date: 08/15/24

Chain of Custody & Sample Information Record

4/12007

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** nicholas.jernack@wsp.com

Project Number: 2315100200.0004.WECK

PO#: C016900152

GL Code: 573000

Org# 3151

*Please include Marissa Cuevas (marissa.cuevas@wsp.com) on all billing matters

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests

Include QC Data Package: ☐ Yes ☐ No

FAX Results: ☐ Yes ☐ No

Email Results: ☐ Yes ☐ No

State EDT: ☐ Yes ☐ No

(Include Source Number in Notes)

Sampler Information

Name: _____

Employer: WSP USA E&I Inc.

Signature: _____

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Total AL (EPA 200.7)	Matrix	Notes
LE02	9/19/24	0925																X	X	X	X	X	X	X				

DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Ortho-P is field filtered.

please include all red codes on invoices

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	Hannah Kranz/WSP	09/19/24 1224	[signature] 9/19/24 12:24	
[signature]	[signature]	9/19/24 1:56	CSA Courier	week

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No T-0281 Temperature

Custody Seal(s) Intact? Yes No N/A 5.7c °C

Sample(s) Intact? Yes No ☐ Cooler Blank

Lab Notes

Lab No. _____

WECK LABORATORIES, INC.

Sample Receipt Checklist

Weck WKO: **4I12007**
WKO Logged by: Jerico Bolotano
Samples Checked by: Jerico Bolotano

Date/Time Received: 09/19/24 @ 13:56
# of Samples: 01
Delivered by: RMS

	Task	Yes	No	N/A	Comments
COC	COC present at receipt?	☒	☐		
	COC properly completed?	☒	☐		
	COC matches sample labels?	☒	☐		
	Project Manager notified about COC discrepancy?	☐	☐	☒	
Receipt Information	Sample Temperature	5.7°C			
	Samples received on ice?	☒	☐		
	Ice Type (Blue/Wet)	Wet			
	All samples intact?	☒	☐		
	Samples in proper containers?	☒	☐		
	Sufficient sample volume?	☒	☐		
	Samples intact?	☒	☐		
	Received within holding time?	☒	☐		
	Project Manager notified?	☐	☐	☒	
	Sample labels checked for correct preservation?	☒	☐	☐	
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	☐	☐	☒	☐ <6mm/Pea size?
	pH verified upon receipt? Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 508.1, 525.2<2; 6710B<2; 608.3 5-9	☒	☐	☐	pH paper Lot# 3101689
	Free Chlorine Tested <0.1 (Organic Analyses)	☐	☐	☒	Cl Test Strip Lot#
	O&G pH <2 verified?	☐	☐	☐	pH paper Lot# / pH Reading:
	pH adjusted for O&G	☐	☐	☐	Acid Lot# / Amt added:
	Project Manager notified about sample preservation?	☐	☐	☒	

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Jerico Bolotano Date: 09/19/24

Chain of Custody & Sample Information Record

4J22072 ~~4J22072~~ JB

Client: WSP USA E&I Inc. **Contact:** Nick Jernack **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** Nicholas.Jernack@wsp.com

Project Number: 2315100200.0004.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)
CL07	10/24/24	1030															X	X	X	X	X	X	X	X	X	X
CL08	10/24/24	0945															X	X	X	X	X	X	X	X	X	X
CL09	10/24/24	0905															X	X	X	X	X	X	X	X	X	X
CL10	10/24/24	0825															X	X	X	X	X	X	X	X	X	X
LE02	10/24/24	0920																X	X	X	X	X	X	X		

Matrix
DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Notes
Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jernack/WSP	10/24/24 1320		
		10/24/24 2240		CSA Week
		10/24/24 1440		

T0319/24

Lab No. _____

(For Lab Use Only) Sample Integrity Upon Receipt

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No
Temperature °C
☐ Cooler Blank

Lab Notes

WECK LABORATORIES, INC.

Sample Receipt Checklist

Weck WKO: **4J22072**
WKO Logged by: Jerico Bolotano
Samples Checked by: Jerico Bolotano

Date/Time Received: 10/24/24 @ 14:40
# of Samples: 05
Delivered by: Matt Navarro

	Task	Yes	No	N/A	Comments
COC	COC present at receipt?	☒	☐		
	COC properly completed?	☒	☐		
	COC matches sample labels?	☒	☐		
	Project Manager notified about COC discrepancy?	☐	☐	☒	
Receipt Information	Sample Temperature	2.4°C			
	Samples received on ice?	☒	☐		
	Ice Type (Blue/Wet)	Wet			
	All samples intact?	☒	☐		
	Samples in proper containers?	☒	☐		
	Sufficient sample volume?	☒	☐		
	Samples intact?	☒	☐		
	Received within holding time?	☒	☐		
	Project Manager notified?	☐	☐	☒	
	Sample labels checked for correct preservation?	☒	☐	☐	
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	☐	☐	☒	☐ <6mm/Pea size?
	pH verified upon receipt? Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 508.1, 525.2<2; 6710B<2; 608.3 5-9	☒	☐	☐	pH paper Lot# 3101689
	Free Chlorine Tested <0.1 (Organic Analyses)	☐	☐	☒	Cl Test Strip Lot#
	O&G pH <2 verified?	☐	☐	☐	pH paper Lot# pH Reading:
	pH adjusted for O&G	☐	☐	☐	Acid Lot# Amt added:
	Project Manager notified about sample preservation?	☐	☐	☒	

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Jerico Bolotano Date: 10/25/24

Chain of Custody & Sample Information Record

4K240079

Client: WSP USA E&I Inc. **Contact:** ~~John Rudolph~~ Nicholas Jernack **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** ~~john.rudolph@wsp.com~~ Nicholas.Jernack@wsp.com

Project Number: 2315100200.0004a.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)
CL07	12/3/24	1020															x	x	x	x	x	x	x	x	x	x
CL08		0940															x	x	x	x	x	x	x	x	x	x
CL09		0850															x	x	x	x	x	x	x	x	x	x
CL10		0815															x	x	x	x	x	x	x	x	x	x
LE02	↓	0845																x	x	x	x	x	x	x		

Matrix
DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Notes
Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jernack WSP	12/3/2024 1400	C. Dominguez	Carla Dominguez RMS/WECK
C. Dominguez	Carla Dominguez WECK RMS	12/3/24 16:33		

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No

Temperature: 4.1 °C
☐ Cooler Blank

Lab Notes

Lab No. _____

Page 1 of 1

WECK LABORATORIES, INC.

Sample Receipt Checklist

Weck WKO: **4k26009**
0WKO Logged by: Lester Abad
Samples Checked by: Lester Abad

Date/Time Received: 12/03/24 @ 16:33
# of Samples: 05
Delivered by: Client

	Task	Yes	No	N/A	Comments
COC	COC present at receipt?	☒	☐		
	COC properly completed?	☒	☐		
	COC matches sample labels?	☒	☐		
	Project Manager notified about COC discrepancy?	☐	☐	☒	
Receipt Information	Sample Temperature	4.1°C			
	Samples received on ice?	☒	☐		
	Ice Type (Blue/Wet)	WET			
	All samples intact?	☒	☐		
	Samples in proper containers?	☒	☐		
	Sufficient sample volume?	☒	☐		
	Samples intact?	☒	☐		
	Received within holding time?	☒	☐		
	Project Manager notified about receipt info?	☐	☒	☐	
1	Sample labels checked for correct preservation?	☒	☐	☐	
	VOC Headspace: (No) none, If Yes (see comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	☐	☐	☒	☐<6mm/Pea Size?
	pH verified upon receipt? Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 508.1, 525.2<2, 6710B<2, 608.3 5-9	☒	☐	☐	pH paper Lot# 0124322
	Free Chlorine Tested <0.1 (Organics Analyses)	☐	☐	☒	Cl Test Strip Lot# 3101689
	O&G pH <2 verified?	☐	☐	☐	pH paper Lot#
	pH adjusted for O&G	☐	☐	☐	pH Reading: Acid Lot# Amt added:
	Project Manager notified about sample preservation?	☐	☐	☒	

PM Comments

Sample Receipt Checklist Completed by:
Signature: Lester Keith Pejo Abad Date: 12/03/24

Chain of Custody & Sample Information Record

SA27040

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** Nicholas.Jernack@wsp.com

Project Number: 2315100200.0004a.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush *Additional Charges May Apply

Lab TAT Approval: By:

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)
~~CL07~~																	X	X	X	X	X	X	X	X	X	X
~~CL08~~																	X	X	X	X	X	X	X	X	X	X
~~CL09~~																	X	X	X	X	X	X	X	X	X	X
~~CL10~~																	X	X	X	X	X	X	X	X	X	X
LE02	2/6/25	0941															X	X	X	X	X	X	X			

Matrix
DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Notes
Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)

LA 2/6 15:4 2.5 DSRT
Check By Initials | Date/Time/ | Temp. C TID/ | Samples
405/1400
pH Lot (WP2A) | Value | Ice Type (WSI) | SLUE / WET
Acid Lot (WP2B) | Amount | Cl Lot (WP3A)
Qualifiers | Description

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick / WSP	2/6/25 - 1310	DELTA	
DELTA	DELTA	2/6/25 15:21	LAbad	NWOCK Lab.

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No

Temperature: 2.3 °C
☐ Cooler Blank

Lab Notes
DT322

Lab No. _____

Page 1 of 1

LA 2/6

RMS DELIVERS, INC

4959 PALO VERDE ST, SUITE 206C7
MONTCLAIR, CA 91763
PHONE: 909-445-1485

HANDWRITTEN

DATE 2 / 6 / 25

PICK UP POINT

Name WSP Nick Tennick
Street 40 Lenain Beach - Lake Elsinore
City/State/Zip Lake Elsinore CA

DELIVERED POINT

Name West Lab.
Street
City/State/Zip City of Industry
P.O. #

NO. PKGS	DESCRIPTION	WEIGHT	WAITING TIME
1	Coolers		

Signature: CSA

Print Name: CSA Driver Date

RMS Delivers INC liability for undeclared value per delivery is limited to US $100; if higher value is declared, additional charges will apply to insure delivery value.

Chain of Custody & Sample Information Record

5A27040

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** Nicholas.Jernack@wsp.com

Project Number: 2315100200.0004a.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Kaylee Popovich
Employer: WSP USA E&I Inc.
Signature: Kaylee Popovich

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)
CL07	2/11/25	1220															x	x	x	x	x	x	x	x	x	x
CL08	2/11/25	1120															x	x	x	x	x	x	x	x	x	x
CL09	2/11/25	1015															x	x	x	x	x	x	x	x	x	x
CL10	2/11/25	0915															x	x	x	x	x	x	x	x	x	x

Matrix
DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

KL 2/11 | 16:38 | 12.3 | 70220
Check by Initials | Date/Time/ | Temp. C | TID/ | Samples
405/490 | BLUE / WET
pH Lot (WP2A) | Value | Ice Type (WS1)
~~Acid Lot (WP2B)~~ | ~~Amount~~ | Cl Lot (WP3A)
~~Qualifiers~~ | ~~Description~~

Notes
Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)
12.3
WEL
T-032

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Kaylee Popovich	Kaylee Popovich/WSP	2/11/25 1354	Lida Gaviria	Lida / WECK 02.11.25 / 13:54
Lida Gaviria	Lida Gaviria	02.11.25 / 16:12		
			mideri 2/11/25	1638

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice?	Yes	No		Temperature
Custody Seal(s) Intact?	Yes	No	N/A	°C
Sample(s) Intact?	Yes	No		☐ Cooler Blank

Lab Notes

Lab No. _____

Page 1 of 1

KL 2/11

Chain of Custody & Sample Information Record

5D03011

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** Nicholas.Jernack@wsp.com

Project Number: 2315100200.0004a.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush *Additional Charges May Apply

Lab TAT Approval: By:

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)
CL07	4/17/25	1045															x	x	x	x	x	x	x	x	x	x
CL08		1000															x	x	x	x	x	x	x	x	x	x
CL09		0910															x	x	x	x	x	x	x	x	x	x
CL10		0830															x	x	x	x	x	x	x	x	x	x
LE02		0905																x	x	x	x	x	x	x		

Matrix
DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Notes
Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)

4/17 16:17 1 TID03

Check by Initials / Date/Time / Temp. C TID / Samples

4/05 4/01 BLUE / WET

pH Lot (WP2A) / Value / Ice Type (WS1)

Acid Lot (WP2B) / Amount / Cl Lot (WP3A)

Qualifiers / Description

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick / WSP	4/17/25 1345	C. Dom	Carla Dominguez WECK
C Dom	Carla Dominguez WECK	4/17/25 16:15		Jerald A. 4/17/25 16:17

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No

Temperature 1.0 °C
☐ Cooler Blank TID3

Lab Notes
Wet

Lab No. _____

Page 1 of 1

RMS DELIVERS, INC

4959 PALO VERDE ST, SUITE 206C7
MONTCLAIR, CA 91763
PHONE: 909-445-1485

DATE 6 / 11 / 25

PICK UP POINT

Name VNSP
Street 31740 Railroad Canyon
City/State/Zip Canyon Lake Rd

DELIVERED POINT

Name Wreck Lab
Street
City/State/Zip City of Industry
P.O. #

NO. PKGS	DESCRIPTION	WEIGHT	WAITING TIME
2	Lg blue coolers		

Signature: CSA

Print Name: CSA Driver Date

RMS Delivers INC liability for undeclared value per delivery is limited to US $100; if higher value is declared, additional charges will apply to insure delivery value.

Chain of Custody & Sample Information Record

5F04010

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** Nicholas.Jernack@wsp.com
Project Number: 2315100200.0004a.WECK
PO#: C016900152
GL Code: 573000
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: Yes No
FAX Results: Yes No
Email Results: Yes No
State EDT: Yes No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: TSS	Nitrate - Nitrite (EPA 353.2)	TDS (SM2540 C)	TKN (EPA 351.2	Ammonia (EPA 350.1)	Total Phosphorus (EPA 365.3)	SRP/Ortho-P (EPA 365.3)	Total Sulfide (SM4500S)	Total AL (EPA 200.7)	Dissolved AL (EPA 200.7)
CL07	6/11/25	11:10															x	x	x	x	x	x	x	x	x	x
CL08		1030															x	x	x	x	x	x	x	x	x	x
CL09		0940															x	x	x	x	x	x	x	x	x	x
CL10		0850															x	x	x	x	x	x	x	x	x	x
LE02		0915																x	x	x	x	x	x	x		

Matrix
DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Notes
Ortho-P is field filtered (0.45 um)
Dissolved Al is field filtered (0.45 um)

JB 6/12/25 3.6 5
Check by Initials | Date/Time/ Temp. C TID/ Samples
4051490 BLUE / WET
pH Lot (WP2A) | Value | Ice Type (WS1)
Acid Lot (WP2B) | Amount | Cl Lot (WP3A)
Qualifiers | Description

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Mike S/WSP	6/11/25 1:36		Laura G. Weck 6/11/25 16:40
	Laura G.	6/11/25 16:40		

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? (Yes) No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No

Temperature 3.6 °C
Cooler Blank +1.63
wet

Lab Notes

Lab No. 490

Page 1 of 1

JB 6/12

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

August 28, 2024

John D. Rudolph
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring Project # 2315100200.0004a.PHYSIS PO #
Physis Project ID: 2402004-034 GL Code 57300 Org# 3151

Dear John,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 7/25/2024. A total of 2 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,

Rich Gossett
714 602-5320
Extension 201
richgossett@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA PHYSIS Project ID: 2302004-034

LECL TMDL Monitoring Project # 2315100200.0004a.PHYSIS PO # C014105479 Total Samples: 2

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
120683	LE02 - Int		7/23/2024	8:55	Biologic	Not Specified
120684	LE02 - Surf		7/23/2024	9:15	Biologic	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-034
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.0004a.PH

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 120683-R1	**LE02 - Int**		**Matrix: Biologic**					**Sampled:**	**23-Jul-24**	**8:55**	**Received:**	**25-Jul-24**
Chlorophyll-a	SM 10200 H	mg/m3	27.2	1	1	2	NA		C-82113	02-Aug-24	02-Aug-24
Sample ID: 120684-R1	**LE02 - Surf**		**Matrix: Biologic**					**Sampled:**	**23-Jul-24**	**9:15**	**Received:**	**25-Jul-24**
Chlorophyll-a	SM 10200 H	mg/m3	49.7	1	1	2	NA		C-82113	02-Aug-24	02-Aug-24

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-034
Client: WSP USA
Project: LE TNTP Offset Project # 2315100200.0004A.PHYSIS PO

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**		**Fraction: NA**						**Prepared: 02-Aug-24**			**Analyzed: 02-Aug-24**		
120399-B1	QAQC Procedural Blank	C-82113	ND	1	1	2	mg/m3								
120399-BS1	QAQC Procedural Blank	C-82113	52332	1	1	2	mg/m3	51874	0	101	70 - 130%	PASS			
120399-BS2	QAQC Procedural Blank	C-82113	46992	1	1	2	mg/m3	51874	0	91	70 - 130%	PASS	10	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** John Rudolph **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** john.rudolph@wsp.com

Project Number: 2315100200.0004a.PHYSIS
PO#: C014105479
GL Code: 57300
Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Lab TAT Approval: By:
*Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: Yes No
FAX Results: Yes No
Email Results: Yes No
State EDT: Yes No
(Include Source Number in Notes)

Sampler Information
Name: Nick Jernack
Employer: WSP USA E&I Inc.
Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a (SM10200 H	Matrix	Notes
LE02 - Int	7/23/24	855																						X		Filter Volume: 500 mL
LE02 - Surf	7/23/24	915																						X		Filter Volume: 500 mL
																										Filter Volume:
																										Filter Volume:
																										Filter Volume:
																										Filter Volume:

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jernack - WSP	7/24/2024 - 1600		Richard Hanken Physis 7/25/24 930

(For Lab Use Only) **Sample Integrity Upon Receipt**

					Lab Notes
Sample(s) Submitted on Ice?	Yes	No		Temperature	
Custody Seal(s) Intact?	Yes	No	N/A	°C	
Sample(s) Submitted on Ice?	Yes	No		Temperature	
Custody Seal(s) Intact?	Yes	No	N/A	°C	
Sample(s) Intact?	Yes	No		☐ Cooler Blank	

Lab No. _____

Lab No. _____

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-034
Client Name: WSP USA
Project Name: LECL TMDL Monitoring Project # 2315100200.0004a.PHYSIS PO # C014105479 GL Code 57300 Org# 3151
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: ~~WSP~~ RGH
2. Date Received: 7/25/24
3. Time Received: 930
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - UPS
   - Area Fast
   - DRS
   - ~~FedEx~~
   - GSO/GLS
   - Ontrac
   - PAMS
   - PHYSIS Driver:
     i. Start Time:_____
     ii. End Time:_____
     iii. Total Mileage: _____
     iv. Number of Pickups:_____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - __ Styrofoam Cooler
   - ____ Boxes
   - None
   - ___ Carboy(s)
   - __Carboy Trash Can(s)
   - ____ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - ~~Water~~
   - None
8. Randomly Selected Samples Temperature (°C): 20.0 Used I/R Thermometer # ____

Inspection Info

1. Initials Inspected By: [signature]

Sample Integrity Upon Receipt:

1.	COC(s) included and completely filled out	Yes	/ No
2.	All sample containers arrived intact	Yes	/ No
3.	All samples listed on COC(s) are present	Yes	/ No
4.	Information on containers consistent with information on COC(s)	Yes	/ No
5.	Correct containers and volume for all analyses indicated	Yes	/ No
6.	All samples received within method holding time	Yes	/ No
7.	Correct preservation used for all analyses indicated	Yes	/ No
8.	Name of sampler included on COC(s)	Yes	/ No

Notes:

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

October 02, 2024

John D. Rudolph
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring Project # 2315100200.0004a.PHYSIS
Physis Project ID: 2302004-037

Dear John,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 8/30/2024. A total of 10 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,

Rachel Hansen

Rachel Hansen
714 602-5320
Extension 203
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA

PHYSIS Project ID: 2302004-037

LECL TMDL Monitoring Project # 2315100200.0004a.PHYSIS

Total Samples: 10

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
122955	CL07 - INT		8/15/2024	11:23	Biologic	Not Specified
122956	CL07 - SURF		8/15/2024	11:35	Biologic	Not Specified
122957	CL08 - INT		8/15/2024	10:35	Biologic	Not Specified
122958	CL08 - SURF		8/15/2024	10:43	Biologic	Not Specified
122959	CL09 - INT		8/15/2024	9:55	Biologic	Not Specified
122960	CL09 - SURF		8/15/2024	10:00	Biologic	Not Specified
122961	CL010 - INT		8/15/2024	9:00	Biologic	Not Specified
122962	CL010 - SURF		8/15/2024	9:10	Biologic	Not Specified
122963	LE02 - INT		8/15/2024	9:20	Biologic	Not Specified
122964	LE02 - SURF		8/15/2024	9:40	Biologic	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-037
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.0004a.PH

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 122955-R1	**CL07 - INT**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 11:23**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	30.3	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122956-R1	**CL07 - SURF**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 11:35**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	11.2	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122957-R1	**CL08 - INT**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 10:35**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	40.6	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122958-R1	**CL08 - SURF**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 10:43**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	21.4	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122959-R1	**CL09 - INT**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 9:55**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	44.1	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122960-R1	**CL09 - SURF**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 10:00**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	20	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122961-R1	**CL010 - INT**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 9:00**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	23.1	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122962-R1	**CL010 - SURF**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 9:10**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	25.8	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122963-R1	**LE02 - INT**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 9:20**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	153	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24
Sample ID: 122964-R1	**LE02 - SURF**		**Matrix: Biologic**					**Sampled:**	**15-Aug-24 9:40**	**Received:**	**30-Aug-24**
Chlorophyll-a	SM 10200 H	mg/m3	166	1	1	2	NA		C-87016	10-Sep-24	10-Sep-24

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-037
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.0004a.PH

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**		**Fraction: NA**						**Prepared: 10-Sep-24**			**Analyzed: 10-Sep-24**		
122954-B1	QAQC Procedural Blank	C-87016	ND	1	1	2	mg/m3								
122954-BS1	QAQC Procedural Blank	C-87016	58700	1	1	2	mg/m3	51900	0	113	70 - 130%	PASS			
122954-BS2	QAQC Procedural Blank	C-87016	54500	1	1	2	mg/m3	51900	0	105	70 - 130%	PASS	7	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nick Jernack **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** nicholas.jernack@wsp.com

Project Number: 2315100200.0004a.PHYSIS

PO#: C014105479

GL Code: 57300

Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

*Additional Charges May Apply

***Lab TAT Approval:** By:

Additional Reporting Requests

Include QC Data Package: ☐ Yes ☐ No

FAX Results: ☐ Yes ☐ No

Email Results: ☐ Yes ☐ No

State EDT: ☐ Yes ☐ No

(Include Source Number in Notes)

Sampler Information

Name: Nick Jernack

Employer: WSP USA

Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a	Matrix	Notes
CL07 - Int	8/15/24	1123																						x		Filter Volume: 450 mL
CL07 - Surf	8/15/24	1135																						x		Filter Volume: 500 mL
CL08 - Int	8/15/24	1035																						x		Filter Volume: 375 mL
CL08 - Surf	8/15/24	1043																						x		Filter Volume: 400 mL
CL09 - Int	8/15/24	955																						x		Filter Volume: 375 mL
CL09 - Surf	8/15/24	1000																						x		Filter Volume: 400 mL
CL10 - Int	8/15/24	900																						x		Filter Volume: 300 mL
CL10 - Surf	8/15/24	910																						x		Filter Volume: 300 mL
LE02 - Int	8/15/24	920																						x		Filter Volume: 430 mL
LE02 - Surf	8/15/24	940																						x		Filter Volume: 500 mL

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jernack / WSP	8/29/24 - 1600	Yvonne Cheng	Yvonne Cheng / Physis 8/30/24 0945

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No

Custody Seal(s) Intact? Yes No N/A

Sample(s) Intact? Yes No

Temperature °C

☐ Cooler Blank

Lab Notes

Lab No. _____

PHYSIS
TERRA FAUNA FLORA AQUA AUBA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-037
Client Name: WSP USA
Project Name: LECL TMDL Monitoring Project # 2315100200.0004a.PHYSIS
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: ijc
2. Date Received: 8/30/24
3. Time Received: 0945
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - FedEx
   - UPS
   - GSO/GLS
   - Area Fast
   - Ontrac
   - DRS
   - PAMS
   - PHYSIS Driver:
     i. Start Time: _____
     ii. End Time: _____
     iii. Total Mileage: _____
     iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - __ Styrofoam Cooler
   - ____ Boxes
   - None
   - ___ Carboy(s)
   - __Carboy Trash Can(s)
   - ____ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 21.9 - foil wrapped samples; 6.4 - bag of kelp Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: CDL

Sample Integrity Upon Receipt:

1.	COC(s) included and completely filled out	Yes /	No
2.	All sample containers arrived intact	Yes /	No
3.	All samples listed on COC(s) are present	Yes /	No
4.	Information on containers consistent with information on COC(s)	Yes /	No
5.	Correct containers and volume for all analyses indicated	Yes /	No
6.	All samples received within method holding time	Yes /	No
7.	Correct preservation used for all analyses indicated	Yes /	No
8.	Name of sampler included on COC(s)	Yes /	No

Notes:
blue ice was on the bottom of cooler with the bag of kelp on top. foil wrapped samples were on the very top - warmer temperature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

October 29, 2024

John D. Rudolph
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring Project # 2315100200.0004.PHYSIS PO # C014105479
Physis Project ID: 24092039 COC # 37300 Org # 3151

Dear John,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 9/24/2024. A total of 2 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,
Rachel Hansen
Rachel Hansen
714 602-5320
Extension 203
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA PHYSIS Project ID: 2302004-039

LECL TMDL Monitoring Project # 2315100200.0004.PHYSIS PO # C014105479 Total Samples: 2

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
123583	LE02-Int		9/19/2024	9:25	Biologic	Not Specified
123584	LE02-Surf		9/19/2024	10:00	Biologic	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-039
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.0004.PHY

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 123583-R1	**LE02-Int**		**Matrix: Biologic**					**Sampled:**	**19-Sep-24 9:25**	**Received:**	**24-Sep-24**
Chlorophyll-a	SM 10200 H	mg/m3	77.4	1	1	2	NA		C-87041	01-Oct-24	01-Oct-24
Sample ID: 123584-R1	**LE02-Surf**		**Matrix: Biologic**					**Sampled:**	**19-Sep-24 10:00**	**Received:**	**24-Sep-24**
Chlorophyll-a	SM 10200 H	mg/m3	72.1	1	1	2	NA		C-87041	01-Oct-24	01-Oct-24

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-039
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.0004.PHY

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**					**Fraction: NA**					**Prepared: 01-Oct-24**			**Analyzed: 01-Oct-24**
123585-B1	QAQC Procedural Blank	C-87041	ND	1	1	2	mg/m3								
123585-BS1	QAQC Procedural Blank	C-87041	56600	1	1	2	mg/m3	51900	0	109	70 - 130%	PASS			
123585-BS2	QAQC Procedural Blank	C-87041	57700	1	1	2	mg/m3	51900	0	111	70 - 130%	PASS	2	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring
Project Number: 2315100200.0004.PHYSIS
PO#: C014105479
GL Code: 57300
Org# 3151

Email: nicholas.jernack@wsp.com

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

***Lab TAT Approval:** By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: Yes No
FAX Results: Yes No
Email Results: Yes No
State EDT: Yes No
(Include Source Number in Notes)

Sampler Information
Name: Hannah Kranz
Employer: WSP USA E&I Inc.
Signature: Hannah Kranz

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a (SM10200 H)	Matrix	Notes
LE02 - Int	9/19/24	0925																						X		Filter Volume: 500
LE02 - Surf	1	1000																						X		Filter Volume: 500
																										Filter Volume:
																										Filter Volume:
																										Filter Volume:
																										Filter Volume:

DW = Drinking Water
WW = Wastewater
GW = Groundwater
S = Soil
SG = Sludge
L = Liquid
M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Hannah Kranz	Hannah Kranz/ WSP	9/23/2024 1600		Mounga Nomi / PHYSIS 9/24/24 0950

(For Lab Use Only) **Sample Integrity Upon Receipt**

					Lab Notes
Sample(s) Submitted on Ice?	Yes	No		Temperature	
Custody Seal(s) Intact?	Yes	No	N/A	°C	
Sample(s) Submitted on Ice?	Yes	No		Temperature	
Custody Seal(s) Intact?	Yes	No	N/A	°C	
Sample(s) Intact?	Yes	No		☐ Cooler Blank	

Lab No. _____

Lab No. _____

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-039
Client Name: WSP USA
Project Name: LECL TMDL Monitoring Project # 2315100200.0004.PHYSIS PO # C014105479 GL # 57300 Org # 3151
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: WSP MN
2. Date Received: 9/24/24
3. Time Received: 0950
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - UPS
   - Area Fast
   - DRS
   - FedEx
   - GSO/GLS
   - Ontrac
   - PAMS
   - PHYSIS Driver:
     - i. Start Time:_____
     - ii. End Time:_____
     - iii. Total Mileage: _____
     - iv. Number of Pickups:_____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - __ Styrofoam Cooler
   - ____ Boxes
   - None
   - ___ Carboy(s)
   - __Carboy Trash Can(s)
   - ____ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 17.7 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: [illegible]

Sample Integrity Upon Receipt:

1.	COC(s) included and completely filled out	Yes /	No
2.	All sample containers arrived intact	Yes /	No
3.	All samples listed on COC(s) are present	Yes /	No
4.	Information on containers consistent with information on COC(s)	Yes /	No
5.	Correct containers and volume for all analyses indicated	Yes /	No
6.	All samples received within method holding time	Yes /	No
7.	Correct preservation used for all analyses indicated	Yes /	No
8.	Name of sampler included on COC(s)	Yes /	No

Notes:

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

November 27, 2024

John D. Rudolph
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring
Physis Project ID: 2302004-042

Dear John,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 11/13/2024. A total of 10 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,
Rachel Hansen
Rachel Hansen
310 345-6547
Extension 203
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA

PHYSIS Project ID: 2302004-042

LECL TMDL Monitoring

Total Samples: 10

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
124702	CL07-INT		10/24/202^	10:30	Biologic	Not Specified
124703	CL07-SURF		10/24/202^	10:40	Biologic	Not Specified
124704	CL08-INT		10/24/202^	9:45	Biologic	Not Specified
124705	CL08-SURF		10/24/202^	9:55	Biologic	Not Specified
124706	CL09-INT		10/24/202^	9:05	Biologic	Not Specified
124707	CL09-SURF		10/24/202^	9:15	Biologic	Not Specified
124708	CL10-INT		10/24/202^	8:25	Biologic	Not Specified
124709	CL10-SURF		10/24/202^	8:35	Biologic	Not Specified
124710	LE02-INT		10/24/202^	9:20	Biologic	Not Specified
124711	LE02-SURF		10/24/202^	9:50	Biologic	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-042
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 124702-R1	**CL07-INT**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 10:30**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	26.7	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124703-R1	**CL07-SURF**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 10:40**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	16.6	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124704-R1	**CL08-INT**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 9:45**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	15	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124705-R1	**CL08-SURF**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 9:55**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	19.2	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124706-R1	**CL09-INT**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 9:05**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	24.7	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124707-R1	**CL09-SURF**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 9:15**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	34	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124708-R1	**CL10-INT**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 8:25**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	25.1	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124709-R1	**CL10-SURF**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 8:35**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	25.2	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124710-R1	**LE02-INT**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 9:20**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	50.1	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24
Sample ID: 124711-R1	**LE02-SURF**		**Matrix: Biologic**					**Sampled:**	**24-Oct-24 9:50**	**Received:**	**13-Nov-24**
Chlorophyll-a	SM 10200 H	mg/m3	66.1	1	1	2	NA		C-87096	19-Nov-24	19-Nov-24

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-042
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**					**Fraction: NA**					**Prepared: 19-Nov-24**			**Analyzed: 19-Nov-24**
124701-B1	QAQC Procedural Blank	C-87096	ND	1	1	2	mg/m3								
124701-BS1	QAQC Procedural Blank	C-87096	78000	1	1	2	mg/m3	76700	0	102	70 - 130%	PASS			
124701-BS2	QAQC Procedural Blank	C-87096	83300	1	1	2	mg/m3	76700	0	109	70 - 130%	PASS	7	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nick Jernack **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** nicholas.jernack@wsp.com

Project Number: 2315100200.0004a.PHYSIS

PO#: C014105479

GL Code: 57300

Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

***Lab TAT Approval:** By: *Additional Charges May Apply

Additional Reporting Requests

Include QC Data Package: ☐ Yes ☐ No

FAX Results: ☐ Yes ☐ No

Email Results: ☐ Yes ☐ No

State EDT: ☐ Yes ☐ No

(Include Source Number in Notes)

Sampler Information

Name: Nicholas Jernack

Employer: WSP USA

Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a	Matrix	Notes
CL07 - Int	10/24/24	10:30																						x		Filter Volume: 330 mL
CL07 - Surf	10/24/24	10:40																						x		Filter Volume: 500 mL
CL08 - Int	10/24/24	9:45																						x		Filter Volume: 500 mL
CL08 - Surf	10/24/24	9:55																						x		Filter Volume: 500 mL
CL09 - Int	10/24/24	9:05																						x		Filter Volume: 400 mL
CL09 - Surf	10/24/24	9:15																						x		Filter Volume: 330 mL
CL10 - Int	10/24/24	8:25																						x		Filter Volume: 330 mL
CL10 - Surf	10/24/24	8:35																						x		Filter Volume: 350 mL
LE02 - Int	10/24/24	9:20																						x		Filter Volume: 245 mL
LE02 - Surf	10/24/24	9:50																						x		Filter Volume: 440 mL

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nicholas Jernack / WSP	10/12/24 - 1600	Maryana Ta	Maryana Ta / PHYSIS
		11/13/24 1000		

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No Temperature

Custody Seal(s) Intact? Yes No N/A °C

Sample(s) Intact? Yes No ☐ Cooler Blank

Lab Notes

Lab No. _____

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Sample Receipt Summary

Project Iteration ID: 2302004-042
Client Name: WSP USA
Project Name: LECL TMDL Monitoring
COC Page Number: 2 of 2
Bottle Label Color: NA

Receiving Info

1. Initials Received By: M.T.
2. Date Received: 11/13/24
3. Time Received: 9:55
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - UPS
   - Area Fast
   - DRS
   - FedEx
   - GSO/GLS
   - Ontrac
   - PAMS
   - PHYSIS Driver:
     - i. Start Time: _____
     - ii. End Time: _____
     - iii. Total Mileage: _____
     - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - ___ Styrofoam Cooler
   - ___ Boxes
   - None
   - ___ Carboy(s)
   - ___ Carboy Trash Can(s)
   - ___ Carboy Cap(s)
   - Other _____
7. ~~What type~~ of ice was used: (Please circle any that apply)
   - Wet Ice (ice pack →)
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 18.1 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: _____

Sample Integrity Upon Receipt:

1. COC(s) included and completely filled out..... Yes / No
2. All sample containers arrived intact..... Yes / No
3. All samples listed on COC(s) are present..... Yes / No
4. Information on containers consistent with information on COC(s)..... Yes / No
5. Correct containers and volume for all analyses indicated..... Yes / No
6. All samples received within method holding time..... Yes / No
7. Correct preservation used for all analyses indicated..... Yes / No
8. Name of sampler included on COC(s)..... Yes / No

Notes:

December 28, 2024

John D. Rudolph
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring Project # 2315100200.004a.PHYSIS PO # C014105479
Physis Project ID: 24120040 COC # 5730 Org # 3151

Dear John,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 12/6/2024. A total of 10 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,

Rich Gossett
714 602-5320
Extension 201
richgossett@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA PHYSIS Project ID: 2302004-044

LECL TMDL Monitoring Project # 2315100200.004a.PHYSIS PO # C014105479 Total Samples: 10

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
125385	CL07 - Int		12/3/2024	10:20	Biologic	Not Specified
125386	CL07 - Surf		12/3/2024	10:30	Biologic	Not Specified
125387	CL08 - Int		12/3/2024	9:40	Biologic	Not Specified
125388	CL08 - Surf		12/3/2024	9:50	Biologic	Not Specified
125389	CL09 - Int		12/3/2024	8:50	Biologic	Not Specified
125390	CL09 - Surf		12/3/2024	9:10	Biologic	Not Specified
125391	CL10 - Int		12/3/2024	8:15	Biologic	Not Specified
125392	CL10 - Surf		12/3/2024	8:25	Biologic	Not Specified
125393	LE02 - Int		12/3/2024	8:45	Biologic	Not Specified
125394	LE02 - Surf		12/3/2024	9:10	Biologic	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-044
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.004a.PHY

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 125385-R1	**CL07 - Int**		**Matrix: Biologic**					**Sampled: 03-Dec-24 10:20**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	8.68	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125386-R1	**CL07 - Surf**		**Matrix: Biologic**					**Sampled: 03-Dec-24 10:30**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	14.8	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125387-R1	**CL08 - Int**		**Matrix: Biologic**					**Sampled: 03-Dec-24 9:40**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	18	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125388-R1	**CL08 - Surf**		**Matrix: Biologic**					**Sampled: 03-Dec-24 9:50**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	14.4	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125389-R1	**CL09 - Int**		**Matrix: Biologic**					**Sampled: 03-Dec-24 8:50**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	27.1	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125390-R1	**CL09 - Surf**		**Matrix: Biologic**					**Sampled: 03-Dec-24 9:10**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	32	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125391-R1	**CL10 - Int**		**Matrix: Biologic**					**Sampled: 03-Dec-24 8:15**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	34.2	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125392-R1	**CL10 - Surf**		**Matrix: Biologic**					**Sampled: 03-Dec-24 8:25**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	39.5	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125393-R1	**LE02 - Int**		**Matrix: Biologic**					**Sampled: 03-Dec-24 8:45**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	66.4	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24
Sample ID: 125394-R1	**LE02 - Surf**		**Matrix: Biologic**					**Sampled: 03-Dec-24 9:10**		**Received: 06-Dec-24**	
Chlorophyll-a	SM 10200 H	mg/m3	63.2	1	1	2	NA		C-87124	26-Dec-24	26-Dec-24

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-044
Client: WSP USA
Project: LECL TMDL Monitoring Project # 2315100200.004a.PHY

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**					**Fraction: NA**				**Prepared: 26-Dec-24**			**Analyzed: 26-Dec-24**	
125384-B1	QAQC Procedural Blank	C-87124	ND	1	1	2	mg/m3								
125384-BS1	QAQC Procedural Blank	C-87124	79000	1	1	2	mg/m3	76700	0	103	70 - 130%	PASS			
125384-BS2	QAQC Procedural Blank	C-87124	75800	1	1	2	mg/m3	76700	0	99	70 - 130%	PASS	4	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nick Jernack **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** nicholas.jernack@wsp.com

Project Number: 2315100200.0004a.PHYSIS

PO#: C014105479

GL Code: 57300

Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

***Lab TAT Approval:** By: *Additional Charges May Apply

Additional Reporting Requests

Include QC Data Package: Yes No

FAX Results: Yes No

Email Results: Yes No

State EDT: Yes No

(Include Source Number in Notes)

Sampler Information

Name: Hannah Kranz

Employer: WSP USA

Signature: Hannah Kranz

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen		Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a		Matrix	Notes
CL07 - Int	12/3/24	10:20																						x			Filter Volume: 400
CL07 - Surf	12/3/24	10:30																						x			Filter Volume: 450
CL08 - Int	12/3/24	9:40																						x			Filter Volume: 400
CL08 - Surf	12/3/24	9:50																						x			Filter Volume: 500
CL09 - Int	12/3/24	8:50																						x			Filter Volume: 375
CL09 - Surf	12/3/24	9:10																						x			Filter Volume: 500
CL10 - Int	12/3/24	8:15																						x			Filter Volume: 250
CL10 - Surf	12/3/24	8:25																						x			Filter Volume: 250
LE02 - Int	12/3/24	8:45																						x			Filter Volume: 330
LE02 - Surf	12/3/24	9:10																						x			Filter Volume: 380

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Hannah Kranz	Hannah Kranz WSP	12/5/2024 1600	AL 12/6/24 12:20	Ashley Lean / physis

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No Temperature

Custody Seal(s) Intact? Yes No N/A °C

Sample(s) Intact? Yes No ☐ Cooler Blank

Lab Notes

Lab No. _____

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-044
Client Name: WSP USA
Project Name: LECL TMDL Monitoring Project # 2315100200.004a.PHYSIS PO # C014105479 GL # 57300 Org # 3151
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: A-Leon
2. Date Received: 12/6/24
3. Time Received: 12:20
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - UPS
   - Area Fast
   - DRS
   - FedEx
   - GSO/GLS
   - Ontrac
   - PAMS
   - PHYSIS Driver:
     - i. Start Time:_____
     - ii. End Time:_____
     - iii. Total Mileage: _____
     - iv. Number of Pickups:_____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - __ Styrofoam Cooler
   - ____ Boxes
   - None
   - ___ Carboy(s)
   - __Carboy Trash Can(s)
   - ____ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 3.9 Used I/R Thermometer # 1

Inspection Info

1. Initials Inspected By: [signature]

Sample Integrity Upon Receipt:

1.	COC(s) included and completely filled out.....	Yes / No
2.	All sample containers arrived intact.....	Yes / No
3.	All samples listed on COC(s) are present.....	Yes / No
4.	Information on containers consistent with information on COC(s).....	Yes / No
5.	Correct containers and volume for all analyses indicated.....	Yes / No
6.	All samples received within method holding time.....	Yes / No
7.	Correct preservation used for all analyses indicated.....	Yes / No
8.	Name of sampler included on COC(s).....	Yes / No

Notes:

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

May 03, 2025

Nicholas Jernack
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring
Physis Project ID: 2302004-048

Dear Nicholas,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 2/20/2025. A total of 10 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,
Rachel Hansen
Rachel Hansen
310 345-6547
Extension
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA

PHYSIS Project ID: 2302004-04

LECL TMDL Monitoring

Total Samples: 10

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
127827	CL07-INT		2/11/2025	12:20	Biologic	Non Specific
127828	CL07-SURF		2/11/2025	12:30	Biologic	Non Specific
127829	CL08-INT		2/11/2025	11:20	Biologic	Non Specific
127830	CL08-SURF		2/11/2025	11:30	Biologic	Non Specific
127831	CL09-INT		2/11/2025	10:15	Biologic	Non Specific
127832	CL09-SURF		2/11/2025	10:25	Biologic	Non Specific
127833	CL10-INT		2/11/2025	9:15	Biologic	Non Specific
127834	CL10-SURF		2/11/2025	9:25	Biologic	Non Specific
127835	LE02-INT		2/6/2025	9:41	Biologic	Non Specific
127836	LE02-SURF		2/6/2025	10:16	Biologic	Non Specific

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-048
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 127827-R1	**CL07-INT**		**Matrix: Biologic**					**Sampled: 11-Feb-25 12:20**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	24.9	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127828-R1	**CL07-SURF**		**Matrix: Biologic**					**Sampled: 11-Feb-25 12:30**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	39.9	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127829-R1	**CL08-INT**		**Matrix: Biologic**					**Sampled: 11-Feb-25 11:20**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	30	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127830-R1	**CL08-SURF**		**Matrix: Biologic**					**Sampled: 11-Feb-25 11:30**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	50.1	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127831-R1	**CL09-INT**		**Matrix: Biologic**					**Sampled: 11-Feb-25 10:15**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	27.8	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127832-R1	**CL09-SURF**		**Matrix: Biologic**					**Sampled: 11-Feb-25 10:25**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	30	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127833-R1	**CL10-INT**		**Matrix: Biologic**					**Sampled: 11-Feb-25 9:15**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	44.9	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127834-R1	**CL10-SURF**		**Matrix: Biologic**					**Sampled: 11-Feb-25 9:25**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	38.3	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127835-R1	**LE02-INT**		**Matrix: Biologic**					**Sampled: 06-Feb-25 9:41**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	61.9	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25
Sample ID: 127836-R1	**LE02-SURF**		**Matrix: Biologic**					**Sampled: 06-Feb-25 10:16**		**Received: 20-Feb-25**	
Chlorophyll-a	SM 10200 H	mg/m3	87.3	1	1	2	NA		C-89044	05-Mar-25	05-Mar-25

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-048
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**					**Fraction: NA**				**Prepared: 05-Mar-25**			**Analyzed: 05-Mar-25**	
127826-B1	QAQC Procedural Blank	C-89044	ND	1	1	2	mg/m3								
127826-BS1	QAQC Procedural Blank	C-89044	72600	1	1	2	mg/m3	76700	0	95	70 - 130%	PASS			
127826-BS2	QAQC Procedural Blank	C-89044	72600	1	1	2	mg/m3	76700	0	95	70 - 130%	PASS	0	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nicholas Jernack **Phone No.** 858-243-8158

Project Name: LECL TMDL Monitoring **Email:** Nicholas.Jernack@WSP.com

Project Number: 2315100200.0004.PHYSIS

PO#: C014105479

GL Code: 57300

Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

***Lab TAT Approval:** By: *Additional Charges May Apply

Additional Reporting Requests

Include QC Data Package: ☐ Yes ☐ No

FAX Results: ☐ Yes ☐ No

Email Results: ☐ Yes ☐ No

State EDT: ☐ Yes ☐ No

(Include Source Number in Notes)

Sampler Information

Name: Jacob Fletcher

Employer: WSP USA

Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a	Matrix	Notes
CL07 - Int	2/11/25	12:20																						x		Filter Volume: 450
CL07 - Surf	2/11/25	12:30																						x		Filter Volume: 475
CL08 - Int	2/11/25	11:20																						x		Filter Volume: 400
CL08 - Surf	2/11/25	11:30																						x		Filter Volume: 400
CL09 - Int	2/11/25	10:15																						x		Filter Volume: 500
CL09 - Surf	2/11/25	10:25																						x		Filter Volume: 400
CL10 - Int	2/11/25	9:15																						x		Filter Volume: 250
CL10 - Surf	2/11/25	9:25																						x		Filter Volume: 300
LE02 - Int	2/6/2025	9:41																						x		Filter Volume: 250
LE02 - Surf	2/6/2025	10:16																						x		Filter Volume: 260

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Hannah Kranz	HANNAH KRANZ WSP	2/19/2025 1600		Ashley Lean / physis 2/20/25 12:05

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No Temperature

Custody Seal(s) Intact? Yes No N/A °C

Sample(s) Intact? Yes No ☐ Cooler Blank

Lab Notes

Lab No. _____

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-048
Client Name: WSP USA
Project Name: LECL TMDL Monitoring
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: A.Leon
2. Date Received: 2/20/25
3. Time Received: 12:05
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - UPS
   - Area Fast
   - DRS
   - FedEx
   - GSO/GLS
   - Ontrac
   - PAMS
   - PHYSIS Driver:
     - i. Start Time: _____
     - ii. End Time: _____
     - iii. Total Mileage: _____
     - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - ___ Styrofoam Cooler
   - ___ Boxes
   - None
   - ___ Carboy(s)
   - ___ Carboy Trash Can(s)
   - ___ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 15.4 Used I/R Thermometer # 1

Inspection Info

1. Initials Inspected By: [signature]

Sample Integrity Upon Receipt:

1. COC(s) included and completely filled out	Yes	/ No
2. All sample containers arrived intact	Yes	/ No
3. All samples listed on COC(s) are present	Yes	/ No
4. Information on containers consistent with information on COC(s)	Yes	/ No
5. Correct containers and volume for all analyses indicated	Yes	/ No
6. All samples received within method holding time	Yes	/ No
7. Correct preservation used for all analyses indicated	Yes	/ No
8. Name of sampler included on COC(s)	Yes	/ No

Notes:

Samples were placed in flat "in processing" freezer

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

June 25, 2025

Nicholas Jernack
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring
Physis Project ID: 2302004-052

Dear Nicholas,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 5/7/2025. A total of 10 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,
Rachel Hansen
Rachel Hansen
310 345-6547
Extension
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA

PHYSIS Project ID: 2302004-052

LECL TMDL Monitoring

Total Samples: 10

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
130632	CL07-INT		4/7/2025	10:45	Biologic	Non Specific
130633	CL07-SURF		4/7/2025	10:55	Biologic	Non Specific
130634	CL08-INT		4/7/2025	10:00	Biologic	Non Specific
130635	CL08-SURF		4/7/2025	10:10	Biologic	Non Specific
130636	CL09-INT		4/7/2025	9:10	Biologic	Non Specific
130637	CL09-SURF		4/7/2025	9:20	Biologic	Non Specific
130638	CL10-INT		4/7/2025	8:30	Biologic	Non Specific
130639	CL10-SURF		4/7/2025	8:40	Biologic	Non Specific
130640	LE02-INT		4/7/2025	9:05	Biologic	Non Specific
130641	LE02-SURF		4/7/2025	9:30	Biologic	Non Specific

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-052
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 130632-R1	**CL07-INT**		**Matrix: Biologic**					**Sampled: 07-Apr-25 10:45**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	22.3	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130633-R1	**CL07-SURF**		**Matrix: Biologic**					**Sampled: 07-Apr-25 10:55**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	22.3	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130634-R1	**CL08-INT**		**Matrix: Biologic**					**Sampled: 07-Apr-25 10:00**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	28.5	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130635-R1	**CL08-SURF**		**Matrix: Biologic**					**Sampled: 07-Apr-25 10:10**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	18.7	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130636-R1	**CL09-INT**		**Matrix: Biologic**					**Sampled: 07-Apr-25 9:10**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	24	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130637-R1	**CL09-SURF**		**Matrix: Biologic**					**Sampled: 07-Apr-25 9:20**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	17.4	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130638-R1	**CL10-INT**		**Matrix: Biologic**					**Sampled: 07-Apr-25 8:30**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	14.7	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130639-R1	**CL10-SURF**		**Matrix: Biologic**					**Sampled: 07-Apr-25 8:40**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	16	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130640-R1	**LE02-INT**		**Matrix: Biologic**					**Sampled: 07-Apr-25 9:05**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	47.3	1	1	2	NA		C-89130	19-May-25	19-May-25
Sample ID: 130641-R1	**LE02-SURF**		**Matrix: Biologic**					**Sampled: 07-Apr-25 9:30**		**Received:**	**07-May-25**
Chlorophyll-a	SM 10200 H	mg/m3	68.1	1	1	2	NA		C-89130	19-May-25	19-May-25

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-052
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**					**Fraction: NA**					**Prepared: 19-May-25**			**Analyzed: 19-May-25**
130631-B1	QAQC Procedural Blank	C-89130	ND	1	1	2	mg/m3								
130631-BS1	QAQC Procedural Blank	C-89130	37400	1	1	2	mg/m3	33900	0	110	70 - 130%	PASS			
130631-BS2	QAQC Procedural Blank	C-89130	39500	1	1	2	mg/m3	33900	0	117	70 - 130%	PASS	6	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nick Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** nicholas.jernack@wsp.com

Project Number: 2315100200.0004a.PHYSIS

PO#: C014105479

GL Code: 57300

Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

***Lab TAT Approval:** By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information

Name: Nick Jernack

Employer: WSP USA

Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a	Matrix	Notes
CL07 - Int	4/17/25	1045																						X		Filter Volume: 300 mL
CL07 - Surf		1055																						X		Filter Volume: 275 mL
CL08 - Int		1000																						X		Filter Volume: 300 mL
CL08 - Surf		1010																						X		Filter Volume: 300 mL
CL09 - Int		0910																						X		Filter Volume: 200 mL
CL09 - Surf		0920																						X		Filter Volume: 200 mL
CL10 - Int		0830																						X		Filter Volume: 200 mL
CL10 - Surf		0840																						X		Filter Volume: 200 mL
LE02 - Int		0905																						X		Filter Volume: 350 mL
LE02 - Surf		0930																						X		Filter Volume: 700 mL

Matrix: DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Notes: Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
		5/7/25 10:30	Maryana Ta	Maryana Ta / PHYSIS

(For Lab Use Only) Sample Integrity Upon Receipt

Sample(s) Submitted on Ice? Yes No Temperature

Custody Seal(s) Intact? Yes No N/A °C

Sample(s) Intact? Yes No ☐ Cooler Blank

Lab Notes

Lab No. _____

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-052
Client Name: WSP USA
Project Name: LECL TMDL Monitoring
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: MT
2. Date Received: 5/7/25
3. Time Received: 10:30
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client
   - FedEx
   - UPS
   - GSO/GLS
   - Area Fast
   - Ontrac
   - DRS
   - PAMS
   - PHYSIS Driver:
     - i. Start Time: _____
     - ii. End Time: _____
     - iii. Total Mileage: _____
     - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - __ Styrofoam Cooler
   - ____ Boxes
   - None
   - ___ Carboy(s)
   - __Carboy Trash Can(s)
   - ____ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 1.1 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By:

Sample Integrity Upon Receipt:

1.	COC(s) included and completely filled out	Yes / No
2.	All sample containers arrived intact	Yes / No
3.	All samples listed on COC(s) are present	Yes / No
4.	Information on containers consistent with information on COC(s)	Yes / No
5.	Correct containers and volume for all analyses indicated	Yes / No
6.	All samples received within method holding time	Yes / No
7.	Correct preservation used for all analyses indicated	Yes / No
8.	Name of sampler included on COC(s)	Yes / No

Notes:

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

July 16, 2025

Nicholas Jernack
WSP USA
9177 Sky Park Court
San Diego, CA 92123-

Project Name: LECL TMDL Monitoring
Physis Project ID: 2302004-054

Dear Nicholas,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 6/17/2025. A total of 10 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Chlorophyll-a (mg/m3) by SM 10200 H

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,
Rachel Hansen
Rachel Hansen
310 345-6547
Extension
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

WSP USA

PHYSIS Project ID: 2302004-054

LECL TMDL Monitoring

Total Samples: 10

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
131825	CL07 -I nt		6/11/2025	11:10	Biologic	Non Specific
131826	CL07 - Surf		6/11/2025	11:20	Biologic	Non Specific
131827	CL08 - Int		6/11/2025	10:30	Biologic	Non Specific
131828	CL08 - Surf		6/11/2025	10:40	Biologic	Non Specific
131829	CL09 - Int		6/11/2025	9:40	Biologic	Non Specific
131830	CL09 - Surf		6/11/2025	9:50	Biologic	Non Specific
131831	CL10 - Int		6/11/2025	8:50	Biologic	Non Specific
131832	CL10 - Surf		6/11/2025	9:00	Biologic	Non Specific
131833	LE02 - Int		6/11/2025	9:15	Biologic	Non Specific
131834	LE02 - Surf		6/11/2025	9:45	Biologic	Non Specific

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

ANALYTICAL REPORT

PHYSIS
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-054
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 131825-R1	**CL07 -I nt**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 11:10**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	14.9	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131826-R1	**CL07 - Surf**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 11:20**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	9.54	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131827-R1	**CL08 - Int**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 10:30**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	18.3	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131828-R1	**CL08 - Surf**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 10:40**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	12.5	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131829-R1	**CL09 - Int**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 9:40**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	36.1	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131830-R1	**CL09 - Surf**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 9:50**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	13.4	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131831-R1	**CL10 - Int**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 8:50**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	16	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131832-R1	**CL10 - Surf**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 9:00**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	13.7	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131833-R1	**LE02 - Int**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 9:15**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	34.2	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25
Sample ID: 131834-R1	**LE02 - Surf**		**Matrix: Biologic**					**Sampled:**	**11-Jun-25 9:45**	**Received:**	**17-Jun-25**
Chlorophyll-a	SM 10200 H	mg/m3	44.9	1	1	2	NA		C-92021	02-Jul-25	02-Jul-25

QUALITY CONTROL REPORT

PHYSIS
TERRA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS Project ID: 2302004-054
Client: WSP USA
Project: LECL TMDL Monitoring

Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chlorophyll-a		**Method: SM 10200 H**					**Fraction: NA**					**Prepared: 02-Jul-25**			**Analyzed: 02-Jul-25**
131824-B1	QAQC Procedural Blank	C-92021	ND	1	1	2	mg/m3								
131824-BS1	QAQC Procedural Blank	C-92021	37400	1	1	2	mg/m3	33900	0	110	70 - 130%	PASS			
131824-BS2	QAQC Procedural Blank	C-92021	32000	1	1	2	mg/m3	33900	0	94	70 - 130%	PASS	16	30	PASS

CHAIN OF CUSTODY

PHASE
TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Chain of Custody & Sample Information Record

Client: WSP USA E&I Inc. **Contact:** Nick Jernack **Phone No.** 732-966-5162

Project Name: LECL TMDL Monitoring **Email:** nicholas.jernack@wsp.com

Project Number: 2315100200.0004a.PHYSIS

PO#: C014105479

GL Code: 57300

Org# 3151

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush

*Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests

Include QC Data Package: Yes No

FAX Results: Yes No

Email Results: Yes No

State EDT: Yes No

(Include Source Number in Notes)

Sampler Information

Name: Nick Jernack

Employer: WSP USA

Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Frozen	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested: Total Sulfide	Nitrate - Nitrite	TDS	TKN	Ammonia	Total Phosphorus	SRP/Ortho-P	Chlorophyll-a	Matrix	Notes
CL07 - Int	6/11/25	1110																						x		Filter Volume: 400 mL
CL07 - Surf		1120																						x		Filter Volume: 420 mL
CL08 - Int		1030																						x		Filter Volume: 350 mL
CL08 - Surf		1040																						x		Filter Volume: 300 mL
CL09 - Int		0940																						x		Filter Volume: 400 mL
CL09 - Surf		0950																						x		Filter Volume: 420 mL
CL10 - Int		0850																						x		Filter Volume: 350 mL
CL10 - Surf		0900																						x		Filter Volume: 450 mL
LE02 - Int		0915																						x		Filter Volume: 250 mL
LE02 - Surf		0945																						x		Filter Volume: 250 mL

DW = Drinking Water; WW = Wastewater; GW = Groundwater; S = Soil; SG = Sludge; L = Liquid; M = Miscellaneous

Chl-a samples on 0.7 um GFF

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Nick Jernack / WSP	6/17/25 - 1320		Jerry Mendoza / PHYSIS

(For Lab Use Only) **Sample Integrity Upon Receipt**

Sample(s) Submitted on Ice? Yes No Temperature

Custody Seal(s) Intact? Yes No N/A °C

Sample(s) Intact? Yes No Cooler Blank

Lab Notes

rush order

Lab No. _____

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 2302004-054
Client Name: WSP USA
Project Name: LECL TMDL Monitoring
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: MSN
2. Date Received: 6/17/25
3. Time Received: 15:12
4. Client Name: WSP
5. Courier Information: (Please circle)
   - Client • UPS • Area Fast • DRS
   - FedEx • GSO/GLS • Ontrac • PAMS
   - PHYSIS Driver: Jerry Mendoza
     - i. Start Time: 10:00am
     - ii. End Time: 3:10pm
     - iii. Total Mileage: _____
     - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
   - 2 Cooler • ___ Styrofoam Cooler • ___ Boxes • None
   - ___ Carboy(s) • ___ Carboy Trash Can(s) • ___ Carboy Cap(s) • Other _____
7. ~~What type~~ of ice was used: (Please circle any that apply)
   - (Wet Ice) • Blue Ice • Dry Ice • Water • None
8. Randomly Selected Samples Temperature (°C): 11.4° Used I/R Thermometer # #1-2

Inspection Info

1. Initials Inspected By: AGH

Sample Integrity Upon Receipt:

1. COC(s) included and completely filled out..... (Yes) / No
2. All sample containers arrived intact..... (Yes) / No
3. All samples listed on COC(s) are present..... (Yes) / No
4. Information on containers consistent with information on COC(s)..... (Yes) / No
5. Correct containers and volume for all analyses indicated..... (Yes) / No
6. All samples received within method holding time..... (Yes) / No
7. Correct preservation used for all analyses indicated..... Yes / (No)
8. Name of sampler included on COC(s)..... Yes / (No)

Notes:

See temp

APPENDIX D

SATELLITE DATA REPORTS

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 35

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	35

1.1. List of all delivered scenes

Sensor	Time of record
Landsat-8	2024-07-23 18:22:09 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs35_20250703.pdf	PDF	Delivery Report
CHL_us-california_040037_EOMAP_20240723_182209_LSAT8_m0030.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_040037_EOMAP_20240723_182209_LSAT8_m0030_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_040037_EOMAP_20240723_182209_LSAT8_m0030_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_040037_EOMAP_20240723_182209_LSAT8_m0030.kmz	KMZ	GoogleEarth overlay
CHL_us-california_040037_EOMAP_20240723_182209_LSAT8_m0030.xml	XML	Metadata
CHL_us-california_040037_EOMAP_20240723_182209_LSAT8_m0030_overview.pdf	PDF	Overview PDF, metadata and quicklook

EOMAP detect more.

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

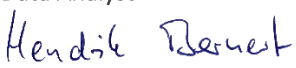
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

EOMAP detect more.

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings "Water Quality in Europe: Challenges and Best Practice" UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

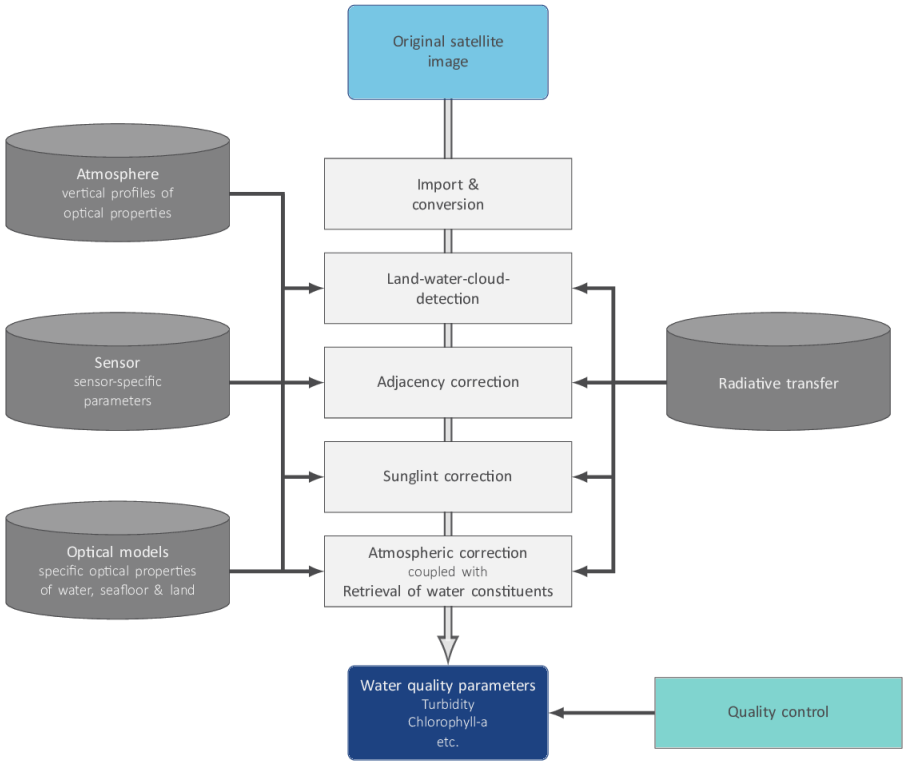


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2024-07-23 is shown in Figure 2.

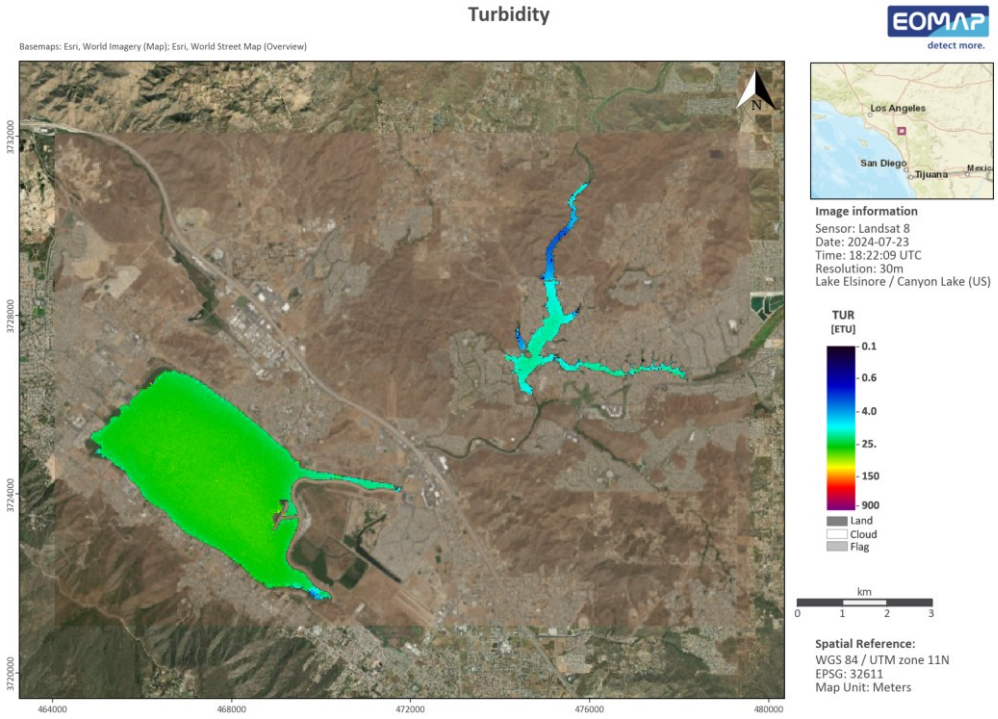


Figure 2: Turbidity product from 2024-07-23

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2024-07-23 is shown in Figure 3.

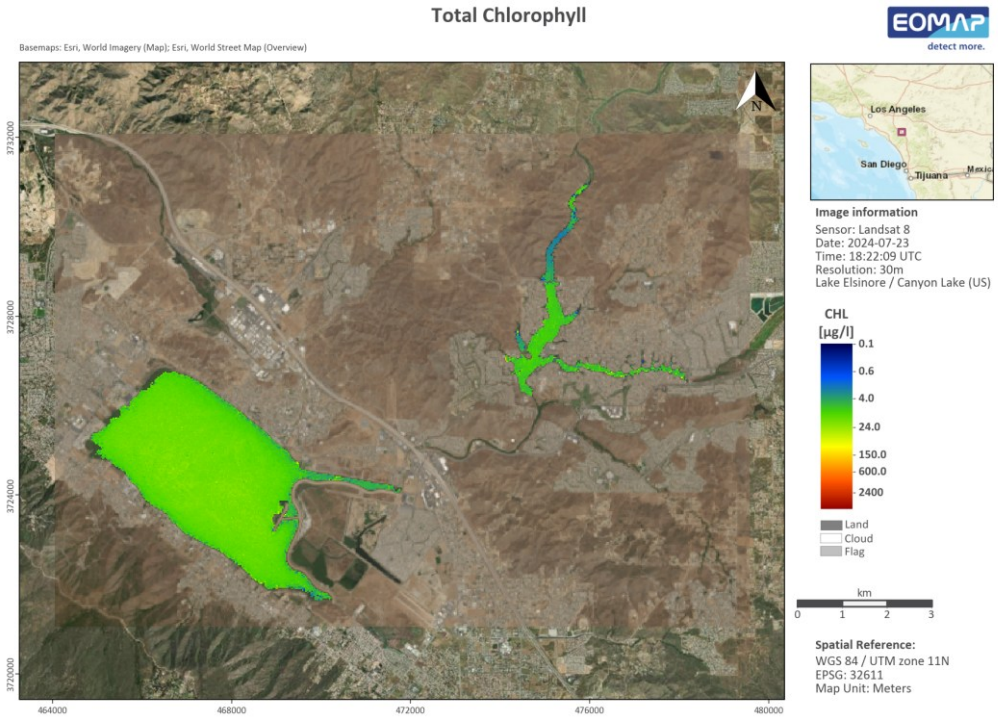


Figure 3: Chlorophyll-a product from 2024-07-23

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2024-07-23 is shown in Figure 4.

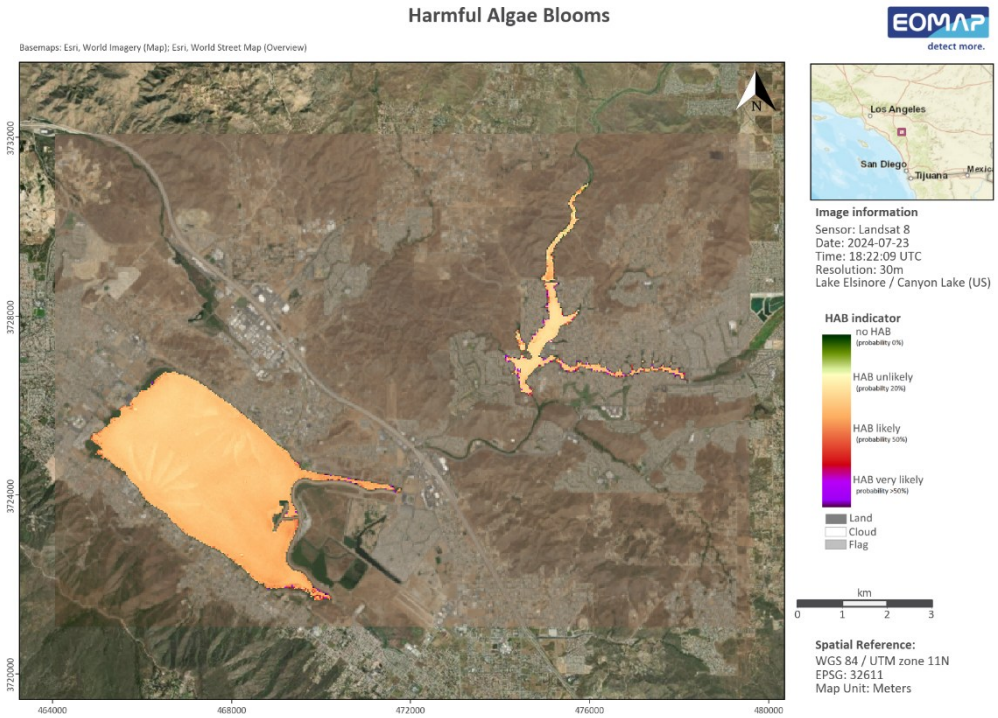


Figure 4: Harmful Algae Bloom Indicator product from 2024-07-23

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

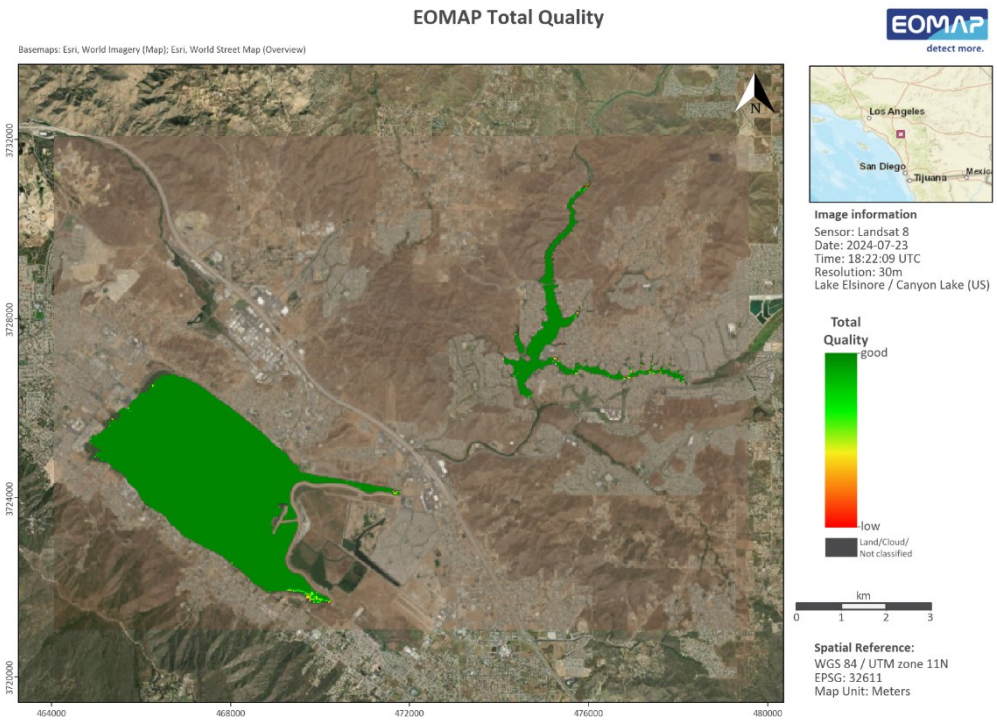


Figure 5: QUT product from 2024-07-23

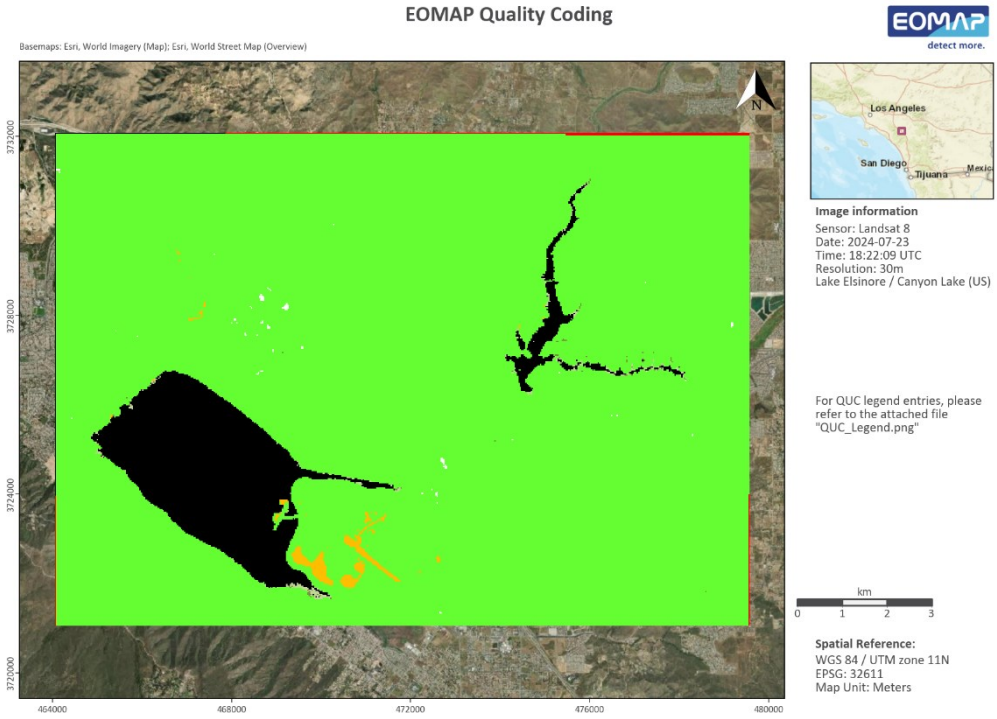


Figure 6: QUC product from 2024-07-23

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 36

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	36

1.1. List of all delivered scenes

Sensor	Time of record
Sentinel-2	2024-08-15 18:45:00 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs36_20250703.pdf	PDF	Delivery Report
CHL_us-california_11smt_EOMAP_20240815_184500_SENT2_m0010.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_11smt_EOMAP_20240815_184500_SENT2_m0010_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_11smt_EOMAP_20240815_184500_SENT2_m0010_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_11smt_EOMAP_20240815_184500_SENT2_m0010.kmz	KMZ	GoogleEarth overlay
CHL_us-california_11smt_EOMAP_20240815_184500_SENT2_m0010.xml	XML	Metadata
CHL_us-california_11smt_EOMAP_20240815_184500_SENT2_m0010_overview.pdf	PDF	Overview PDF, metadata and quicklook

EOMAP detect more.

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

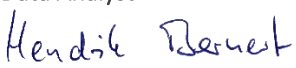
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings "Water Quality in Europe: Challenges and Best Practice" UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

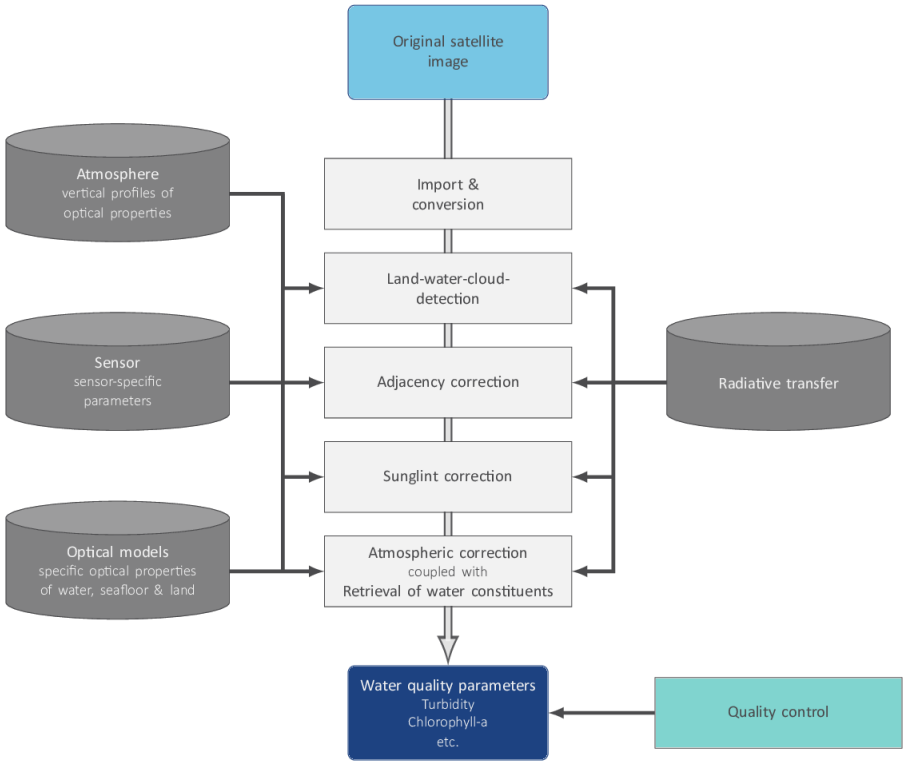


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2024-08-15 is shown in Figure 2.

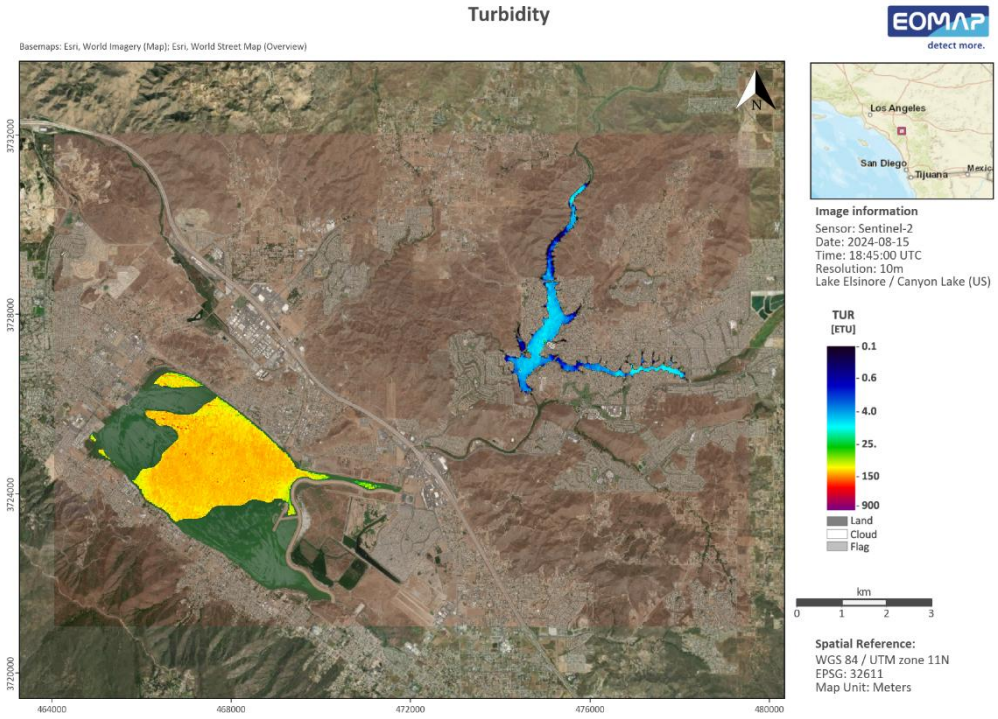


Figure 2: Turbidity product from 2024-08-15

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2024-08-15 is shown in Figure 3.

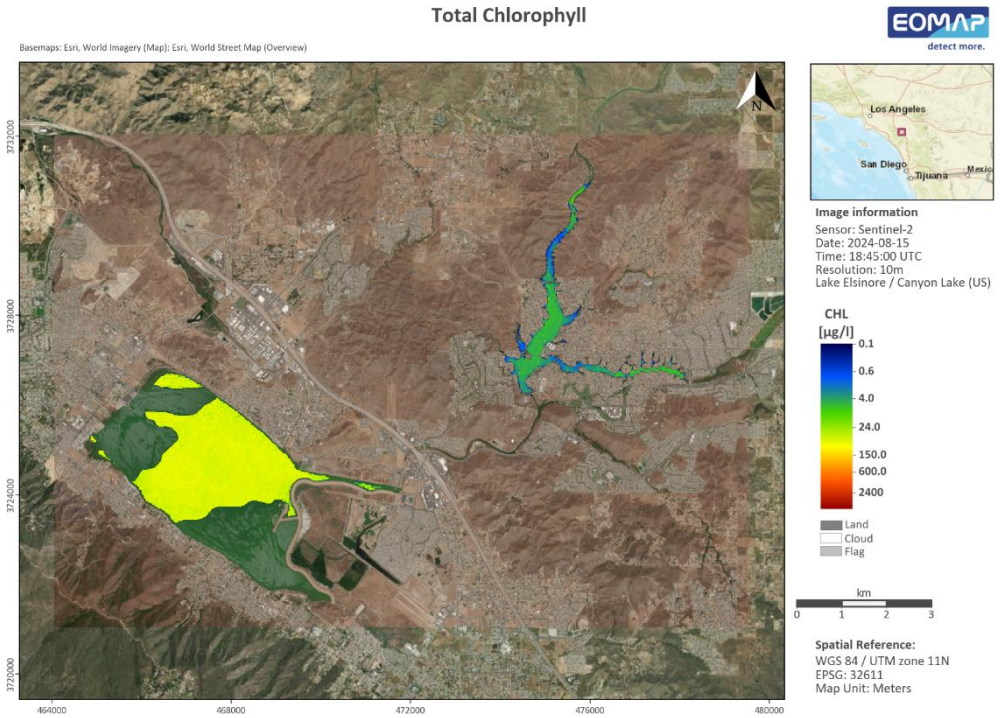


Figure 3: Chlorophyll-a product from 2024-08-15

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2024-08-15 is shown in Figure 4.

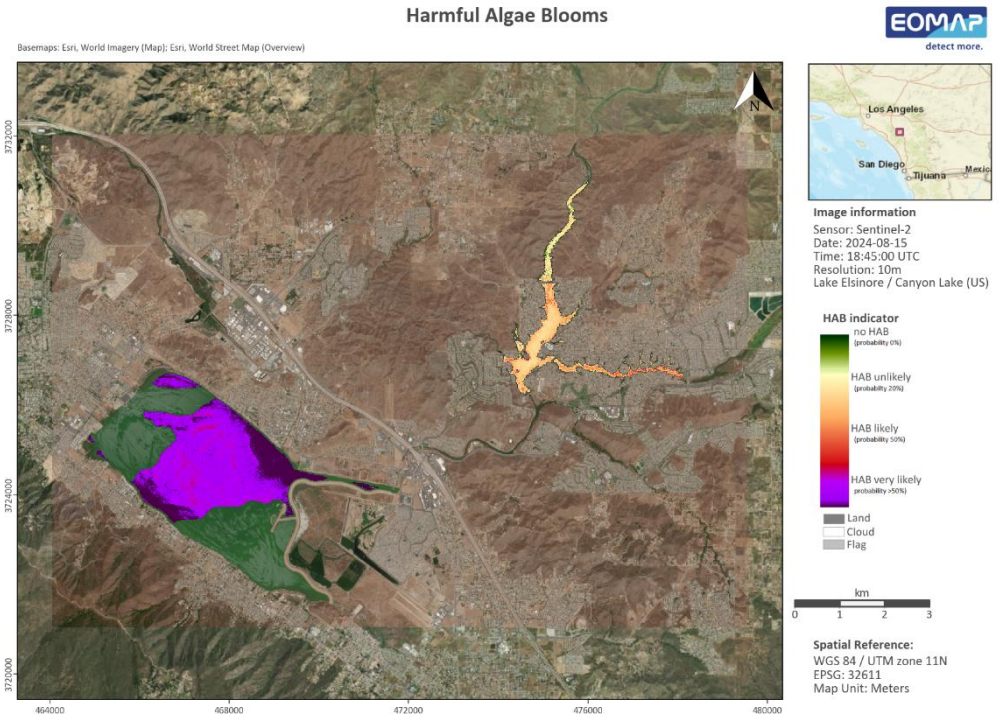


Figure 4: Harmful Algae Bloom Indicator product from 2024-08-15

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

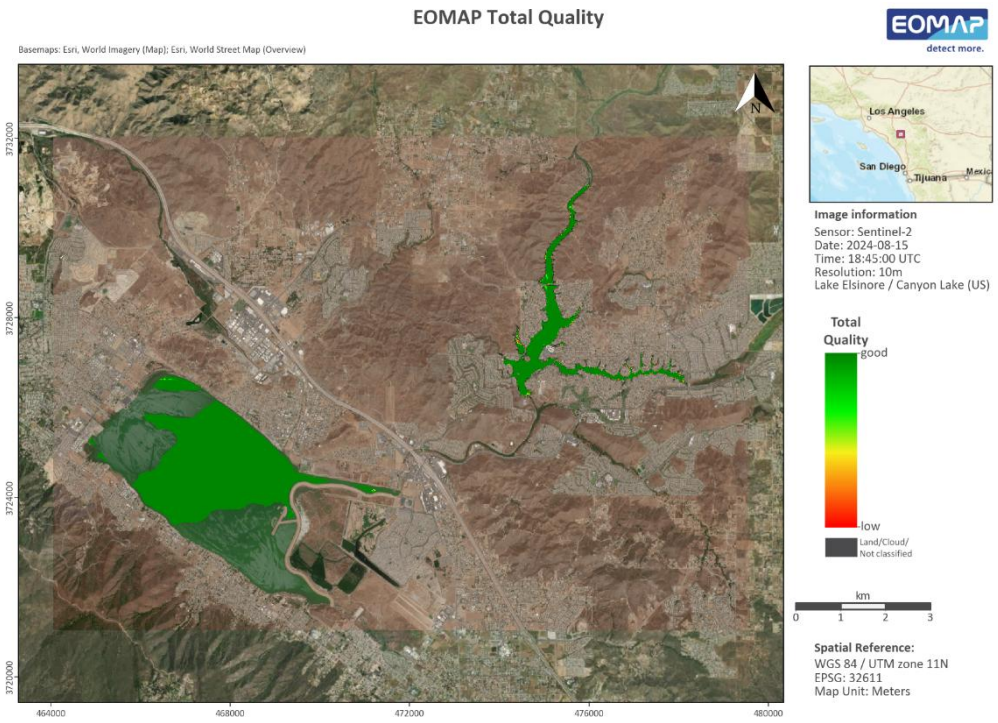


Figure 5: QUT product from 2024-08-15

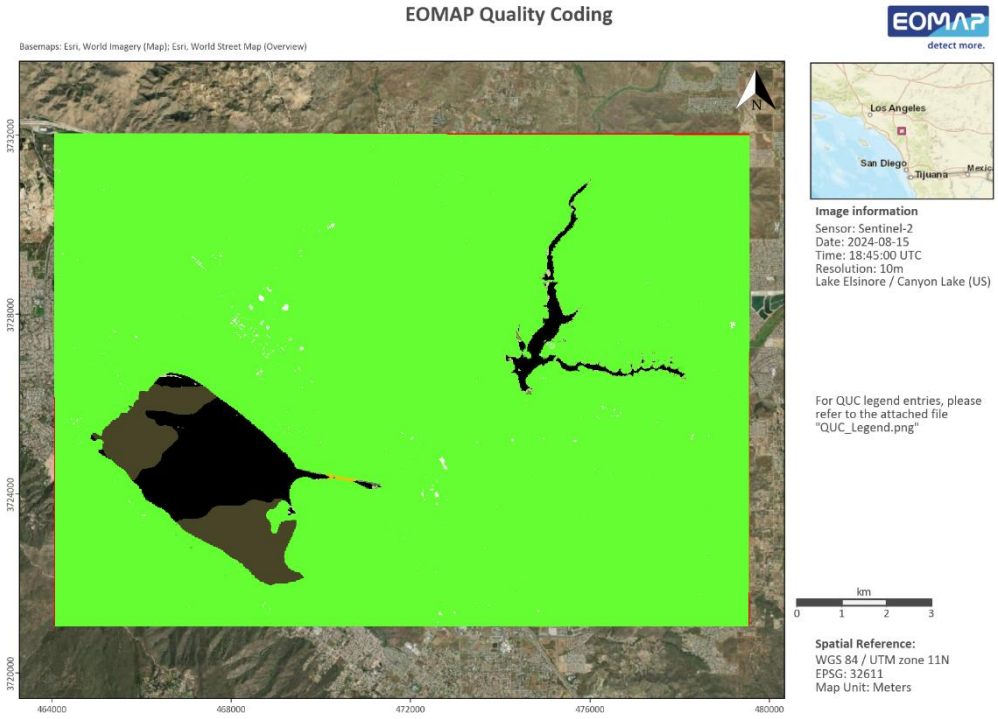


Figure 6: QUC product from 2024-08-15

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 37

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	37

1.1. List of all delivered scenes

Sensor	Time of record
Sentinel-2	2024-09-14 18:44:58 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs37_20250703.pdf	PDF	Delivery Report
CHL_us-california_11smt_EOMAP_20240914_184458_SENT2_m0010.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_11smt_EOMAP_20240914_184458_SENT2_m0010_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_11smt_EOMAP_20240914_184458_SENT2_m0010_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_11smt_EOMAP_20240914_184458_SENT2_m0010.kmz	KMZ	GoogleEarth overlay
CHL_us-california_11smt_EOMAP_20240914_184458_SENT2_m0010.xml	XML	Metadata
CHL_us-california_11smt_EOMAP_20240914_184458_SENT2_m0010_overview.pdf	PDF	Overview PDF, metadata and quicklook

EOMAP detect more.

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

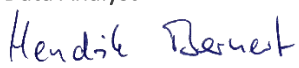
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

EOMAP detect more.

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings “Water Quality in Europe: Challenges and Best Practice” UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

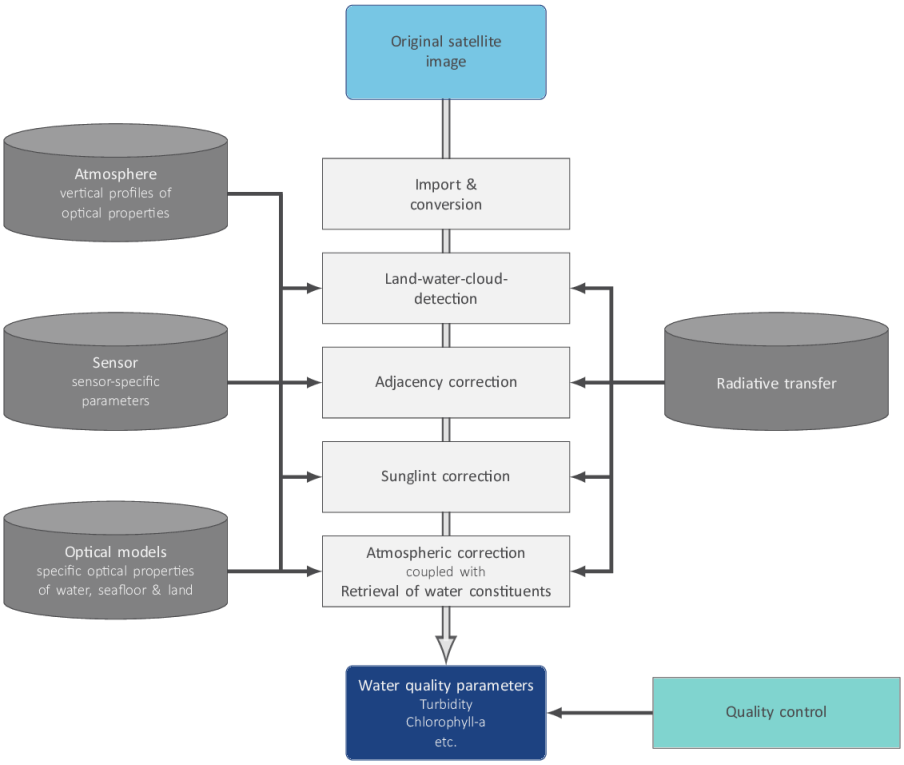


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2024-09-14 is shown in Figure 2.

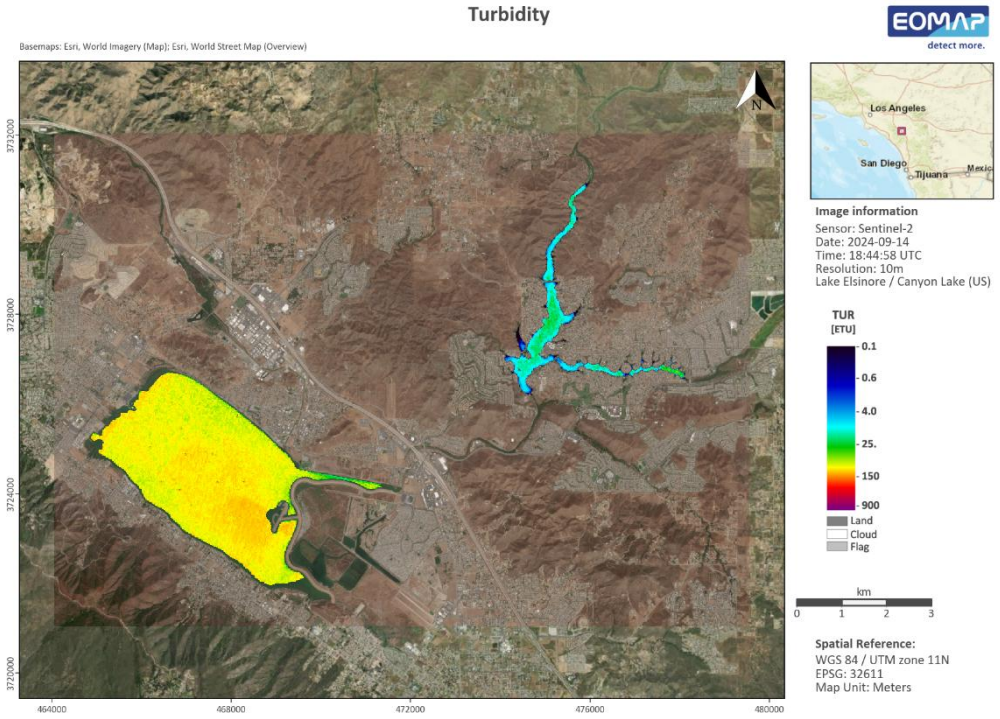


Figure 2: Turbidity product from 2024-09-14

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2024-09-14 is shown in Figure 3.

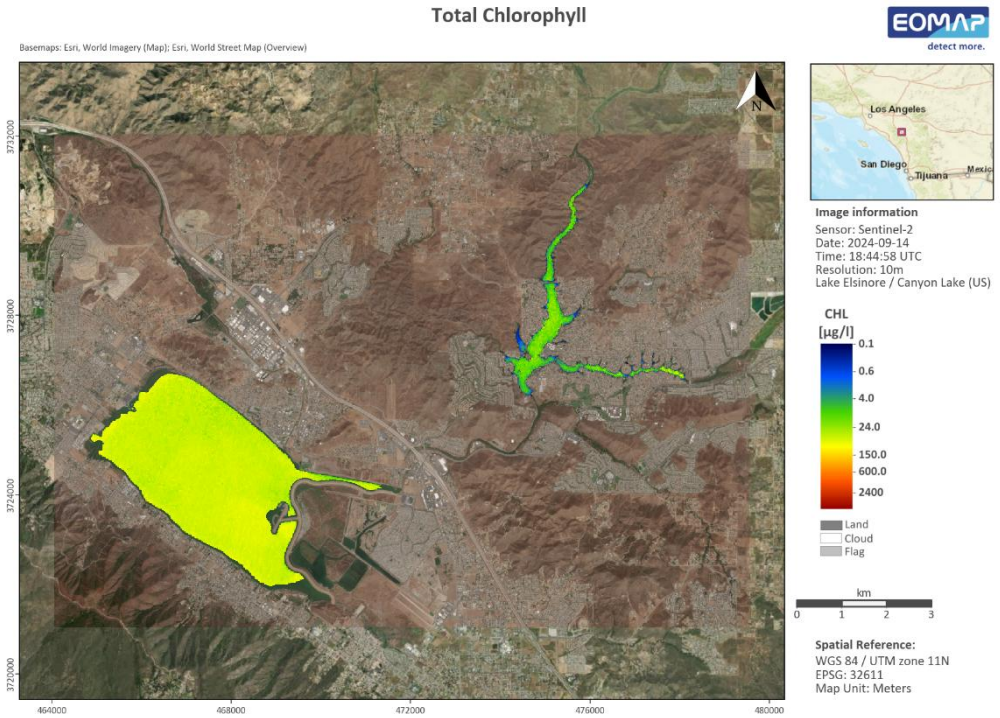


Figure 3: Chlorophyll-a product from 2024-09-14

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2024-09-14 is shown in Figure 4.

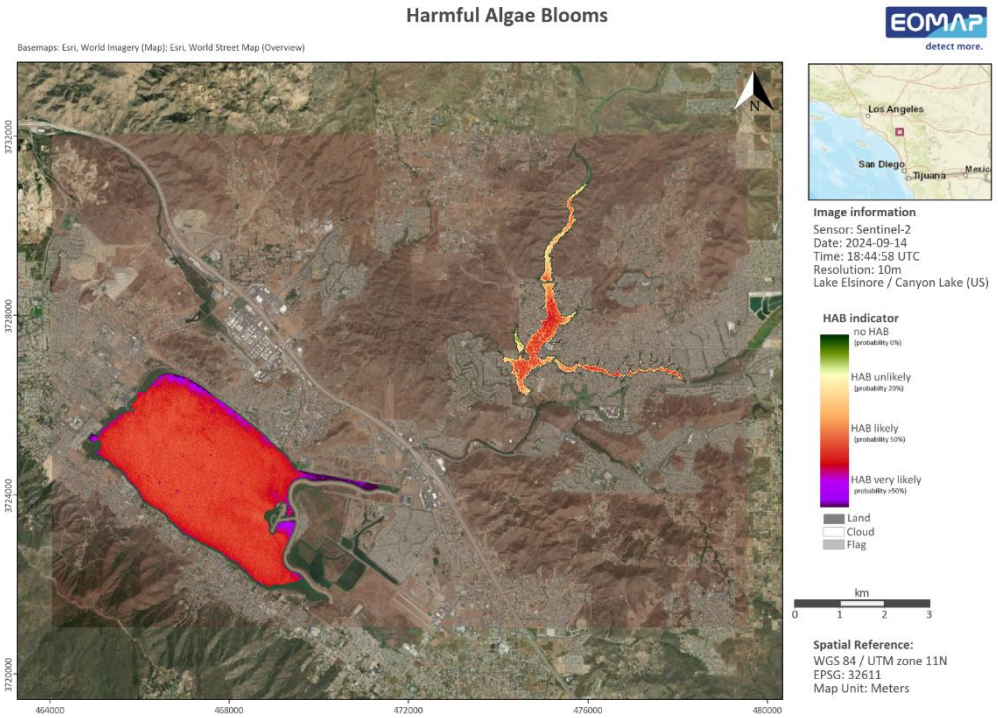


Figure 4: Harmful Algae Bloom Indicator product from 2024-09-14

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

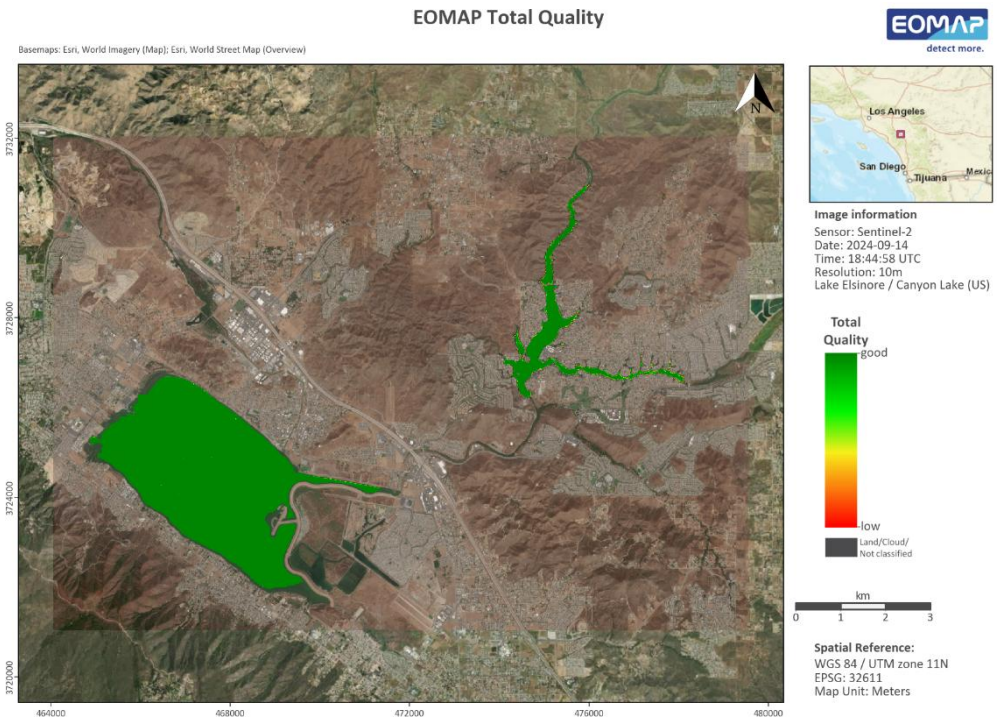


Figure 5: QUT product from 2024-09-14

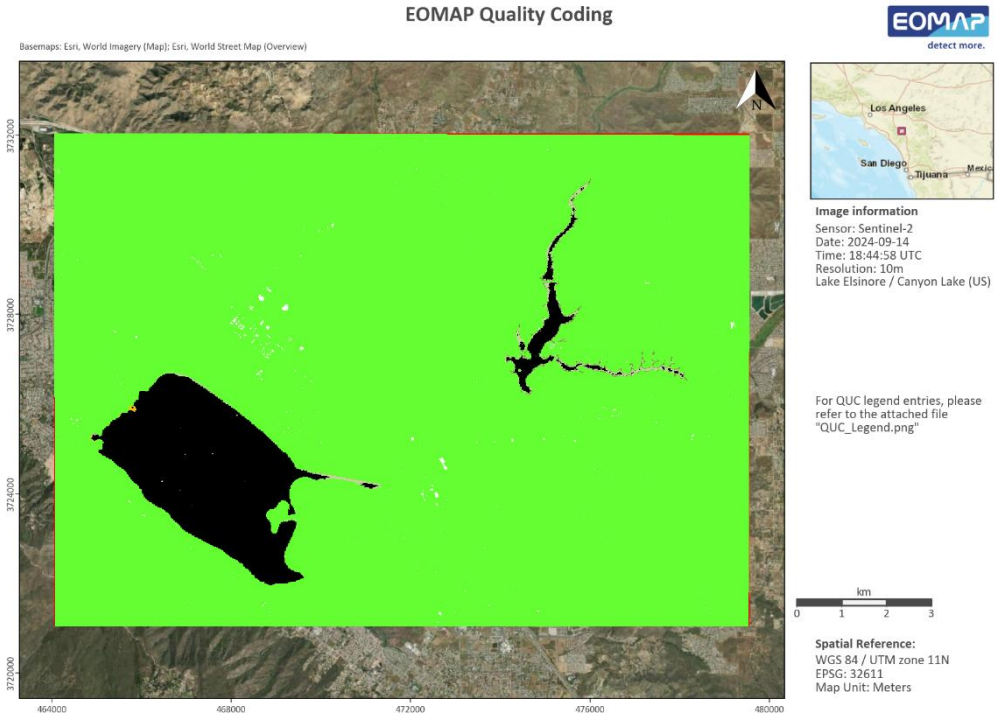


Figure 6: QUC product from 2024-09-14

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 38

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	38

1.1. List of all delivered scenes

Sensor	Time of record
Sentinel-2	2024-10-24 18:44:59 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs38_20250703.pdf	PDF	Delivery Report
CHL_us-california_11smt_EOMAP_20241024_184459_SENT2_m0010.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_11smt_EOMAP_20241024_184459_SENT2_m0010_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_11smt_EOMAP_20241024_184459_SENT2_m0010_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_11smt_EOMAP_20241024_184459_SENT2_m0010.kmz	KMZ	GoogleEarth overlay
CHL_us-california_11smt_EOMAP_20241024_184459_SENT2_m0010.xml	XML	Metadata
CHL_us-california_11smt_EOMAP_20241024_184459_SENT2_m0010_overview.pdf	PDF	Overview PDF, metadata and quicklook

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

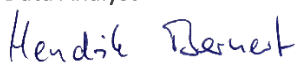
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

EOMAP detect more.

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings “Water Quality in Europe: Challenges and Best Practice” UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

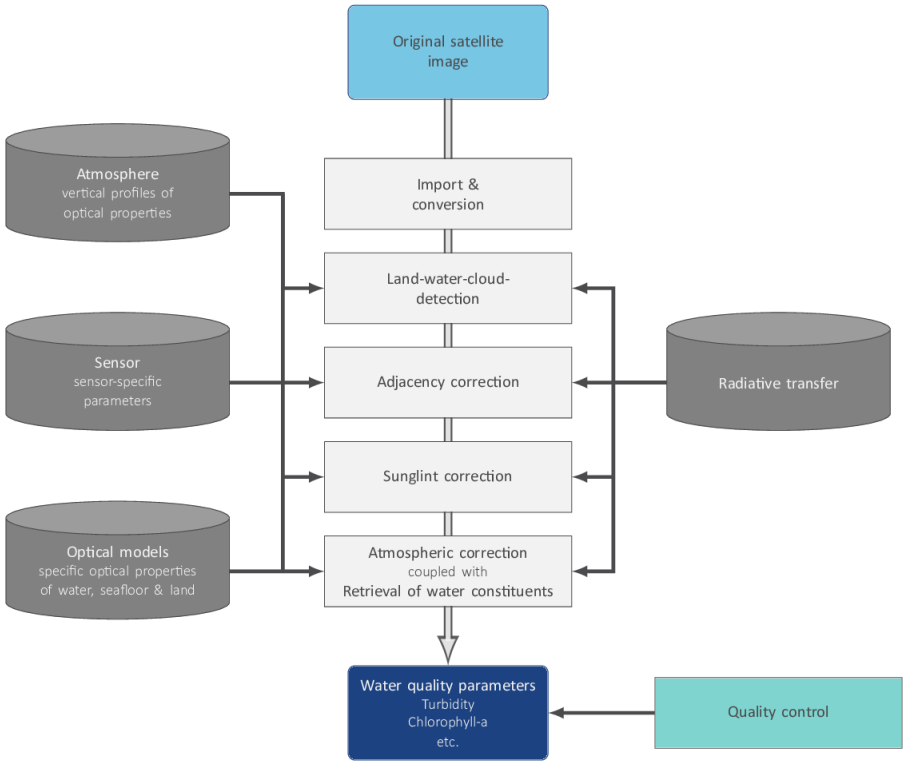


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2024-10-24 is shown in Figure 2.

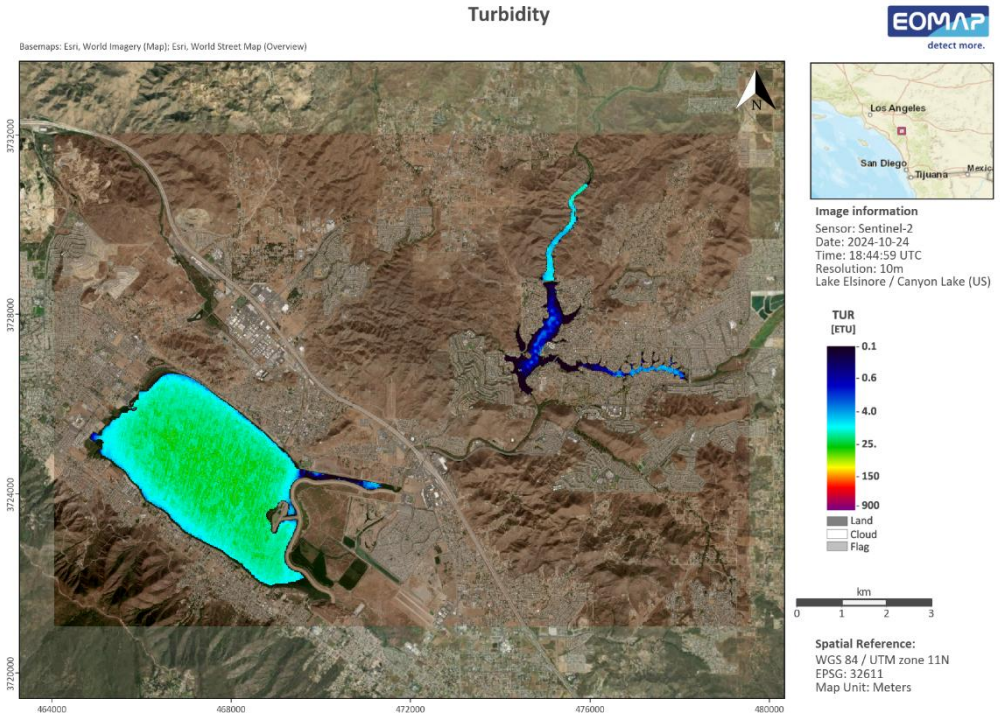


Figure 2: Turbidity product from 2024-10-24

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2024-10-24 is shown in Figure 3.

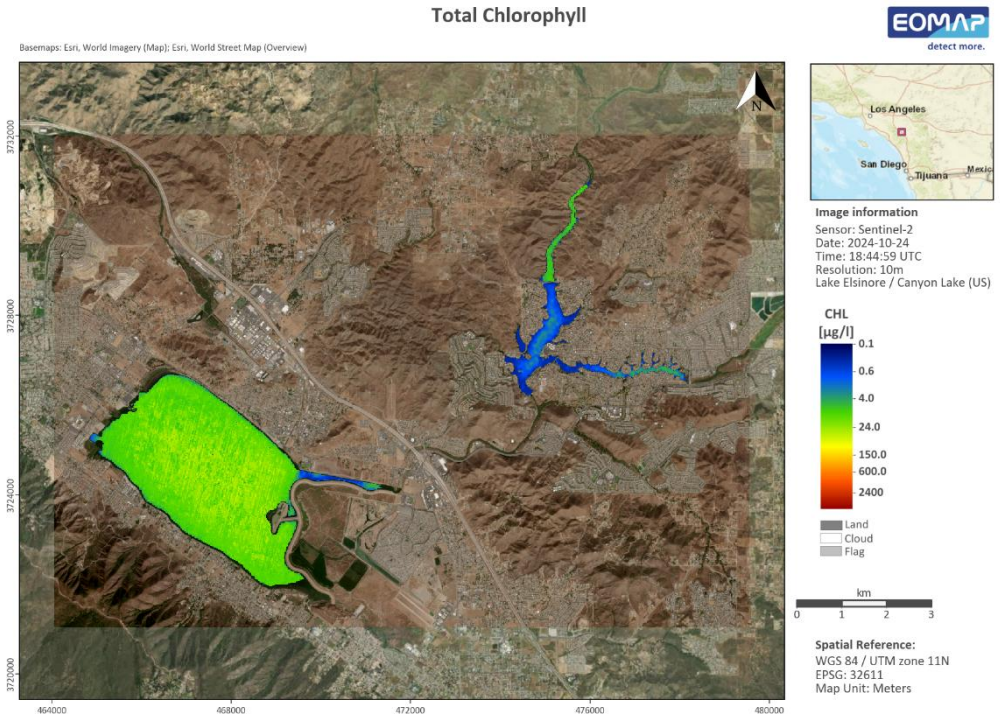


Figure 3: Chlorophyll-a product from 2024-10-24

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2024-10-24 is shown in Figure 4.

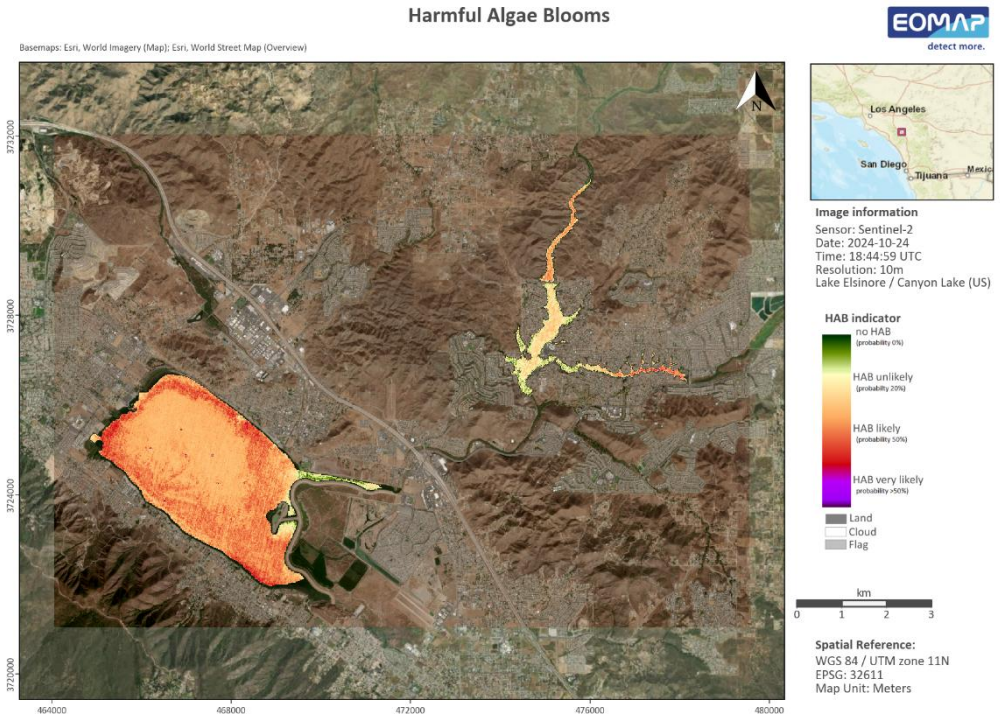


Figure 4: Harmful Algae Bloom Indicator product from 2024-10-24

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

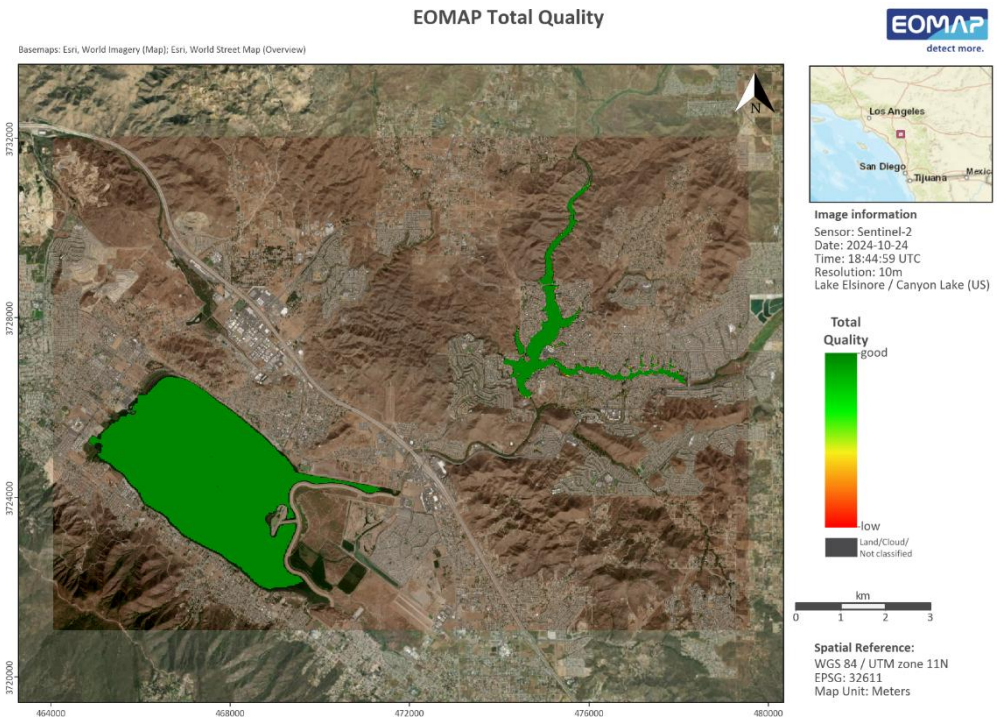


Figure 5: QUT product from 2024-10-24

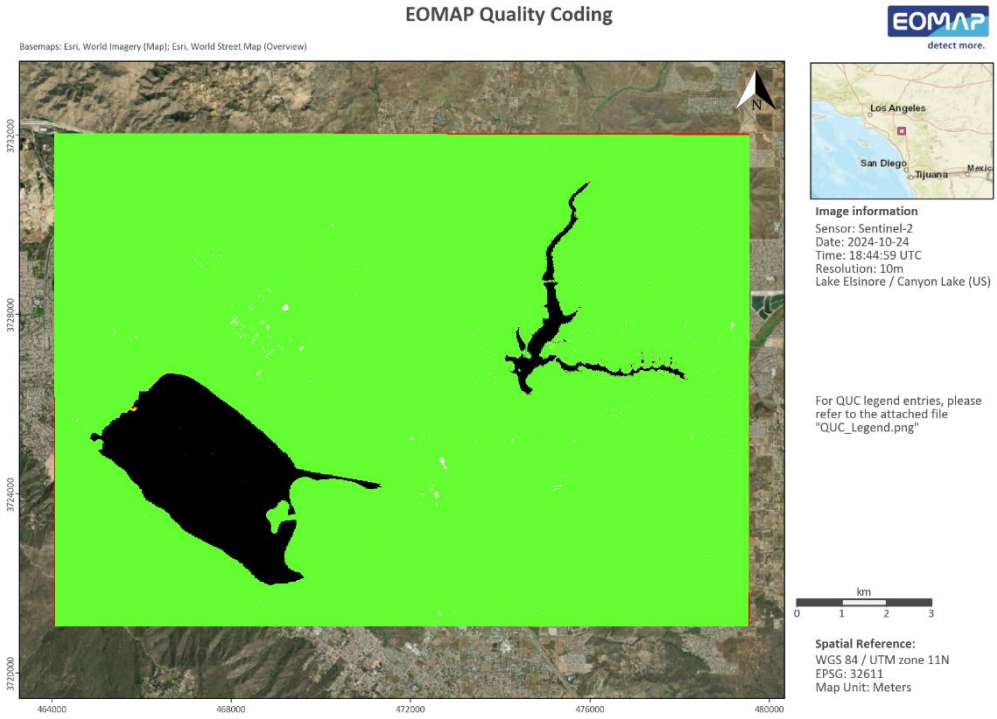


Figure 6: QUC product from 2024-10-24

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples: 25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 39

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	39

1.1. List of all delivered scenes

Sensor	Time of record
Landsat-9	2024-12-06 18:22:42 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs39_20250703.pdf	PDF	Delivery Report
CHL_us-california_040037_EOMAP_20241206_182242_LSAT9_m0030.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_040037_EOMAP_20241206_182242_LSAT9_m0030_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_040037_EOMAP_20241206_182242_LSAT9_m0030_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_040037_EOMAP_20241206_182242_LSAT9_m0030.kmz	KMZ	GoogleEarth overlay
CHL_us-california_040037_EOMAP_20241206_182242_LSAT9_m0030.xml	XML	Metadata
CHL_us-california_040037_EOMAP_20241206_182242_LSAT9_m0030_overview.pdf	PDF	Overview PDF, metadata and quicklook

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

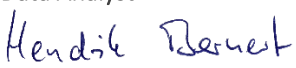
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

EOMAP detect more.

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings “Water Quality in Europe: Challenges and Best Practice” UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

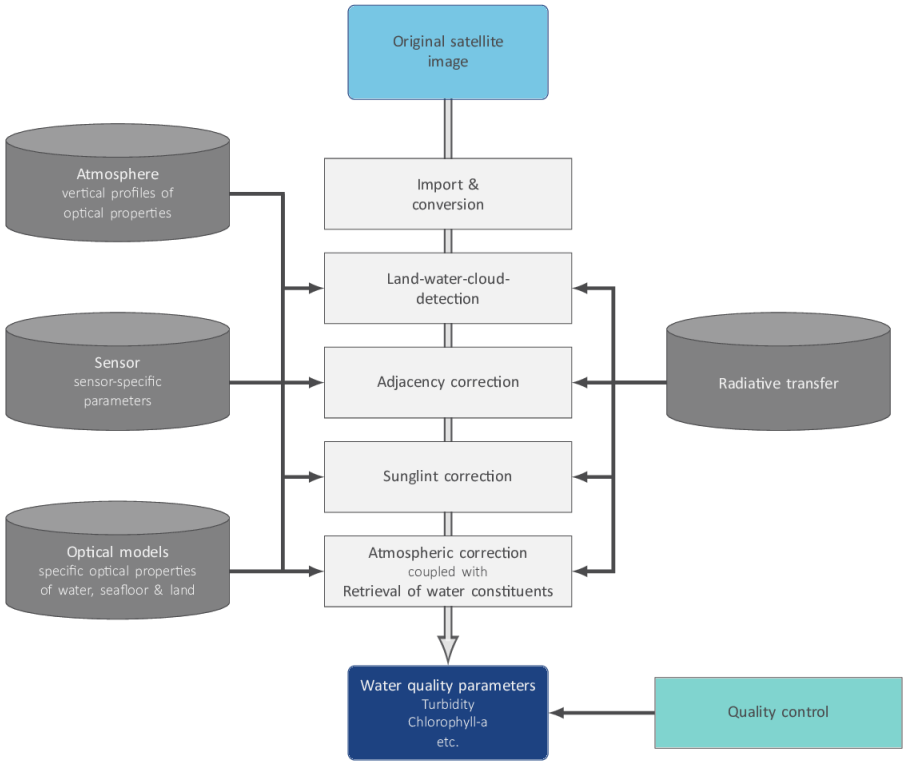


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2024-12-06 is shown in Figure 2.

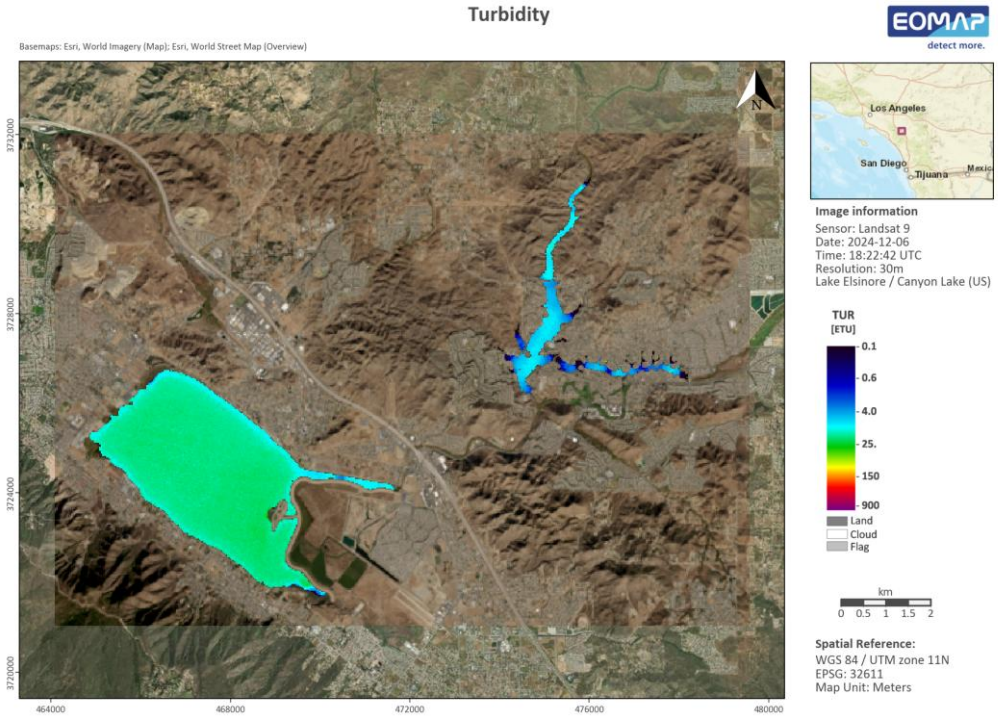


Figure 2: Turbidity product from 2024-12-06

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2024-12-06 is shown in Figure 3.

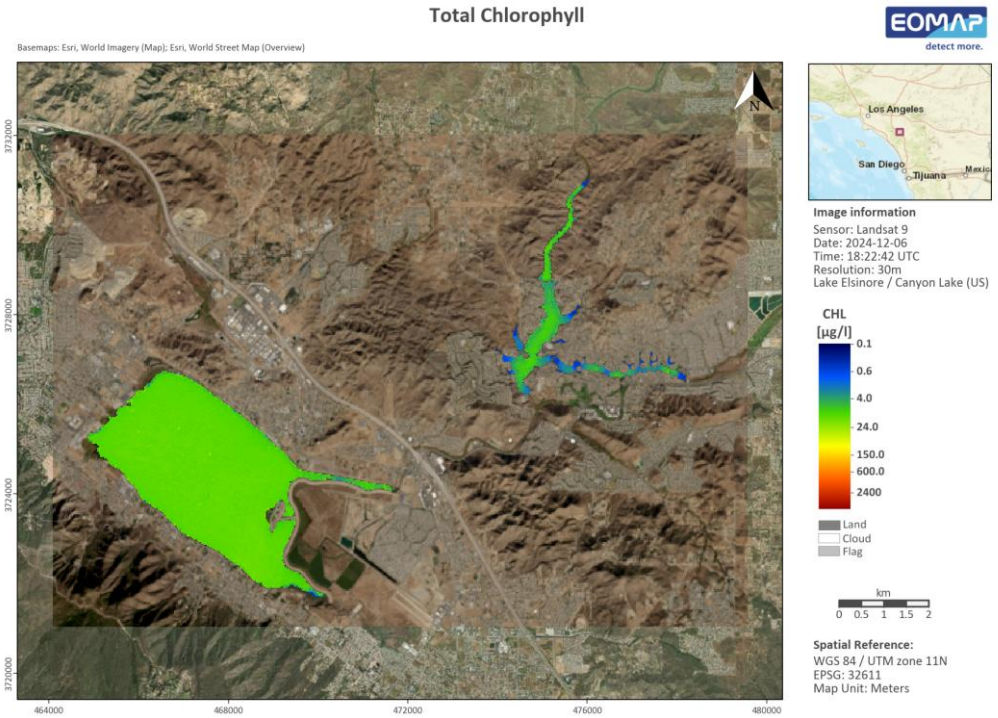


Figure 3: Chlorophyll-a product from 2024-12-06

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2024-12-06 is shown in Figure 4.

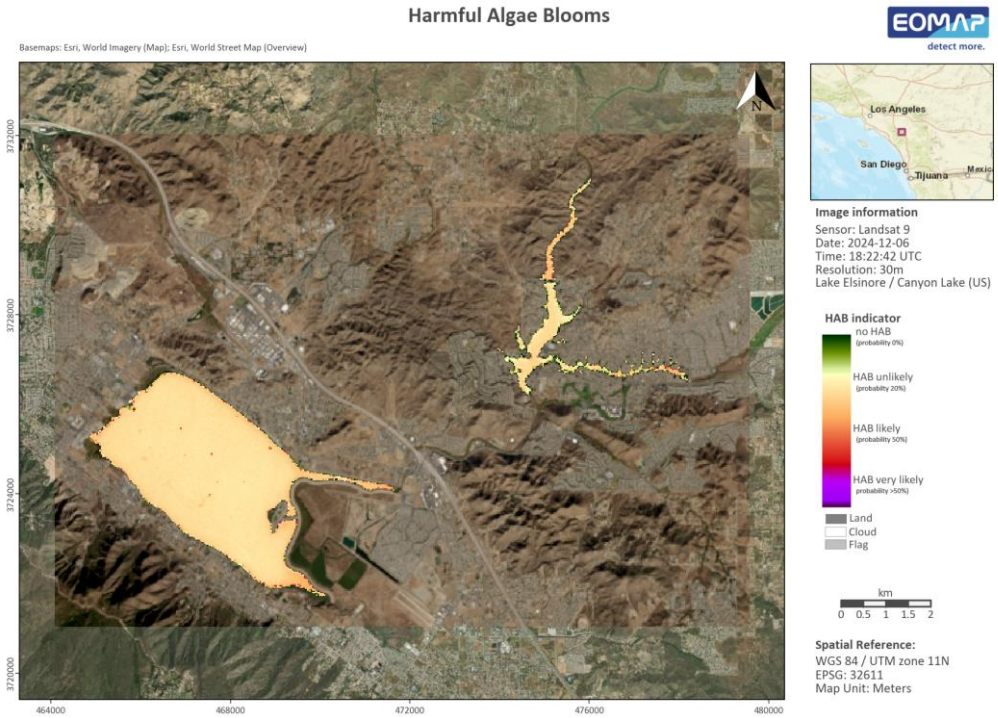


Figure 4: Harmful Algae Bloom Indicator product from 2024-12-06

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

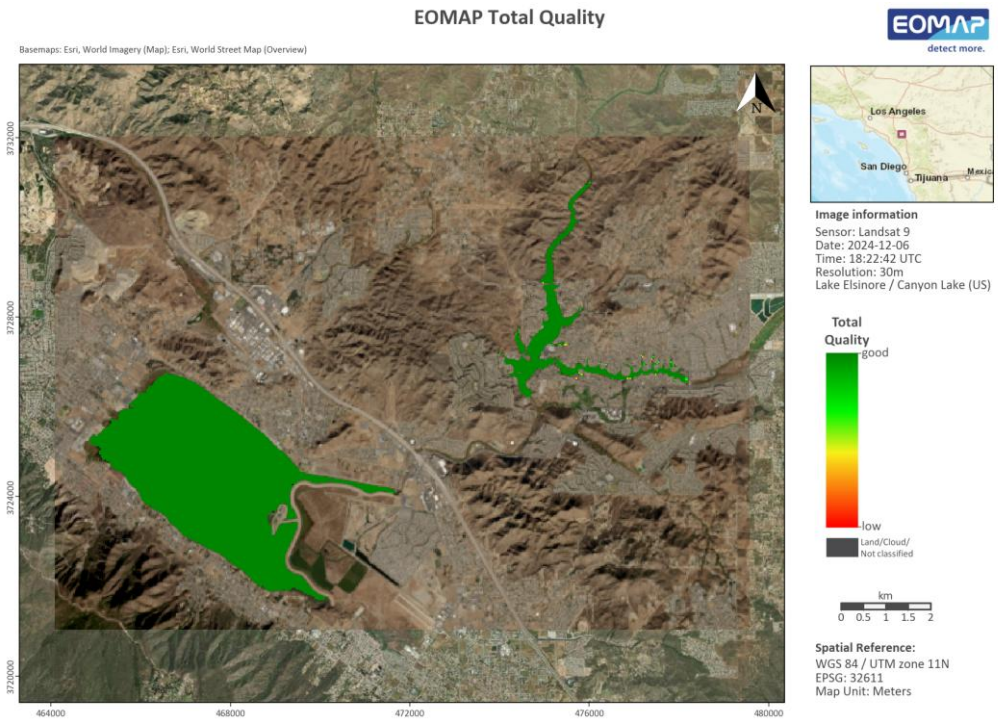


Figure 5: QUT product from 2024-12-06

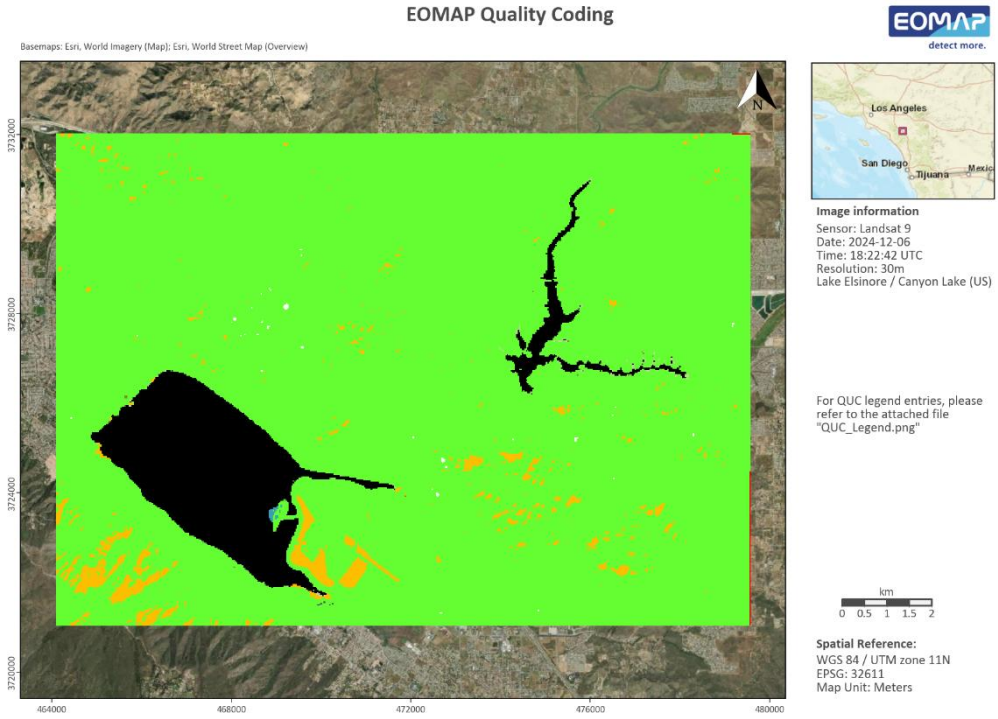


Figure 6: QUC product from 2024-12-06

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 41

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	41

1.1. List of all delivered scenes

Sensor	Time of record
Sentinel-2	2025-02-21 18:45:21 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs41_20250703.pdf	PDF	Delivery Report
CHL_us-california_11smt_EOMAP_20250221_184521_SENT2_m0010.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_11smt_EOMAP_20250221_184521_SENT2_m0010_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_11smt_EOMAP_20250221_184521_SENT2_m0010_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_11smt_EOMAP_20250221_184521_SENT2_m0010.kmz	KMZ	GoogleEarth overlay
CHL_us-california_11smt_EOMAP_20250221_184521_SENT2_m0010.xml	XML	Metadata
CHL_us-california_11smt_EOMAP_20250221_184521_SENT2_m0010_overview.pdf	PDF	Overview PDF, metadata and quicklook

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

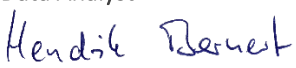
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings "Water Quality in Europe: Challenges and Best Practice" UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

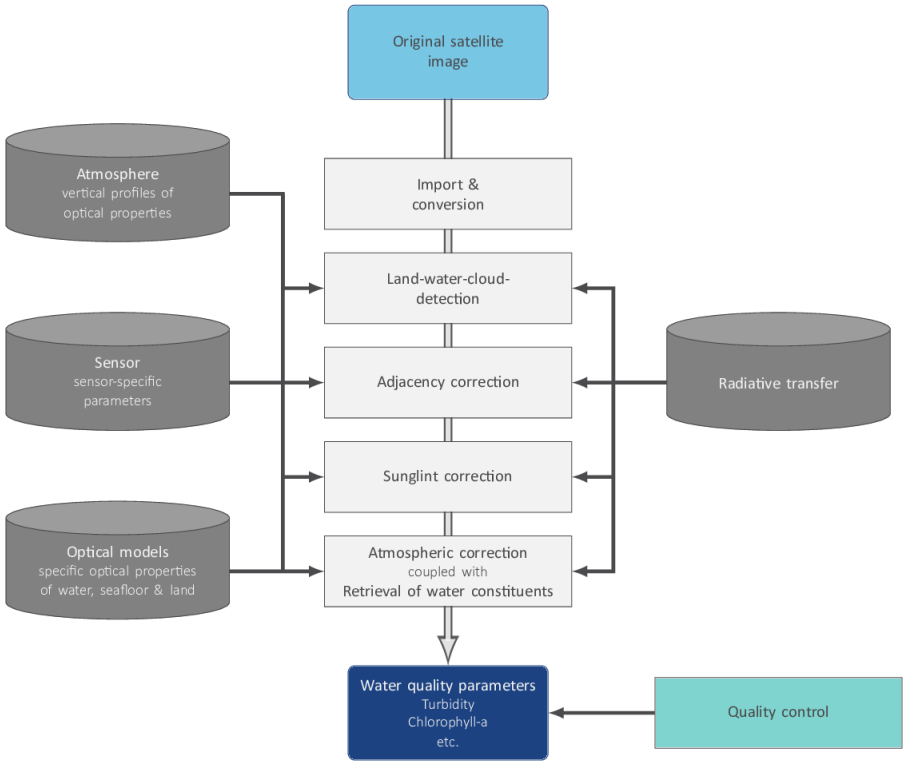


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2025-02-21 is shown in Figure 2.

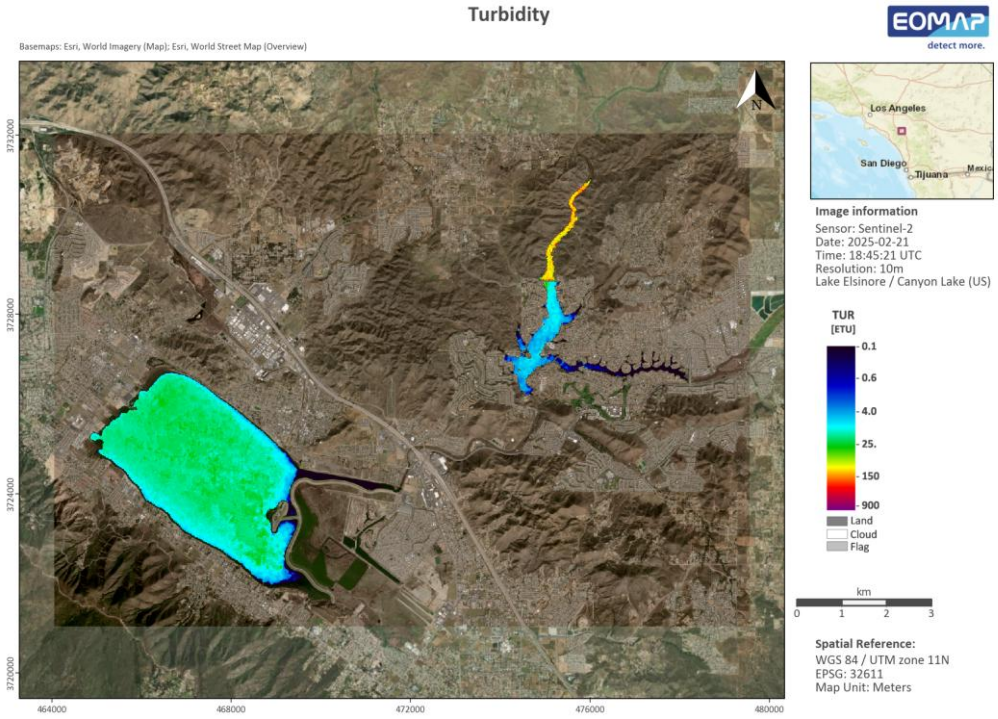


Figure 2: Turbidity product from 2025-02-21

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2025-02-21 is shown in Figure 3.

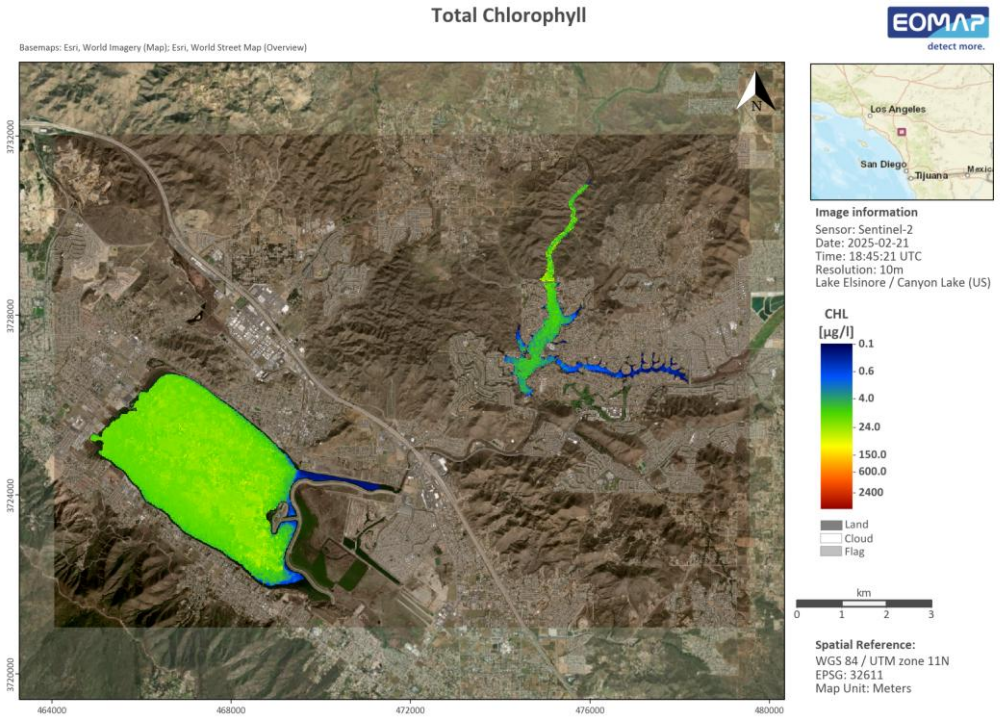


Figure 3: Chlorophyll-a product from 2025-02-21

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2025-02-21 is shown in Figure 4.

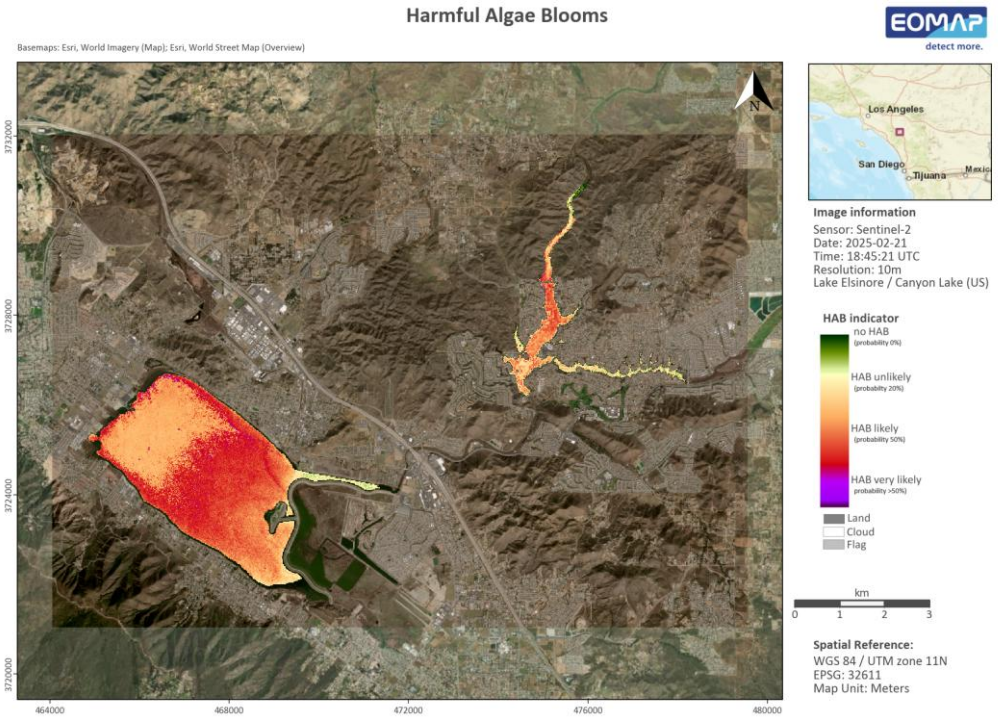


Figure 4: Harmful Algae Bloom Indicator product from 2025-02-21

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

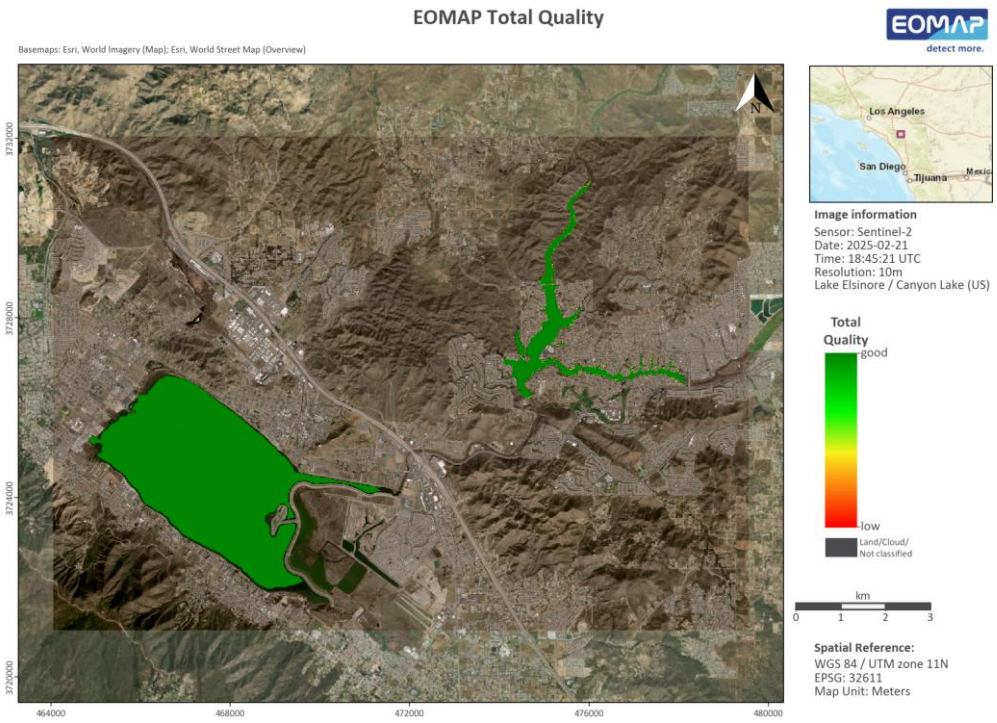


Figure 5: QUT product from 2025-02-21

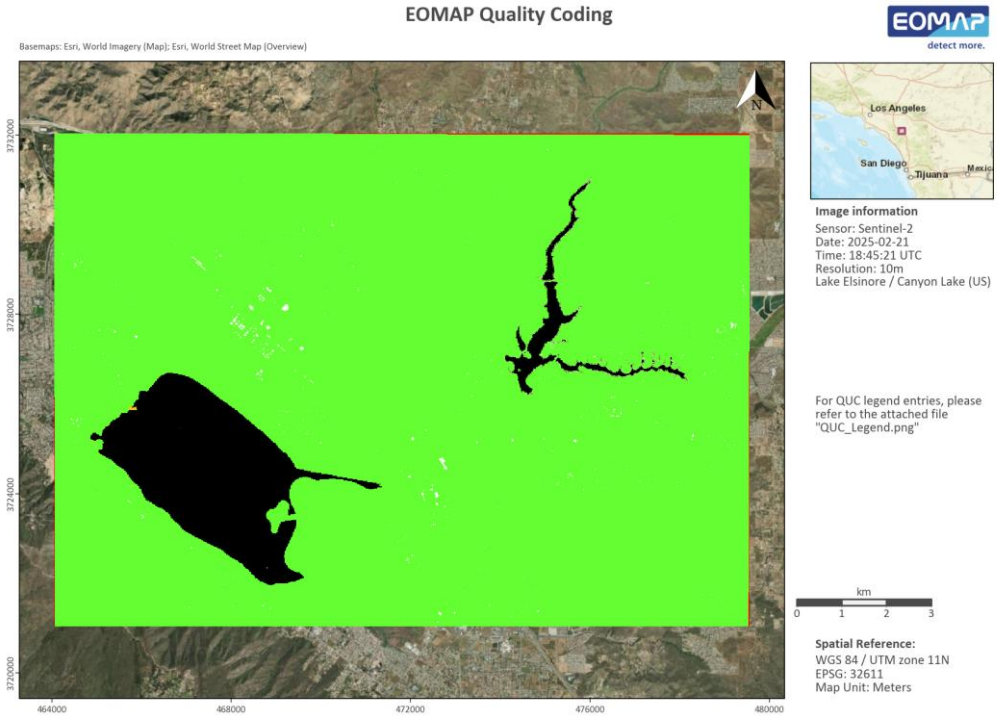


Figure 6: QUC product from 2025-02-21

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 42

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	42

1.1. List of all delivered scenes

Sensor	Time of record
Sentinel-2	2025-04-22 18:45:25 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs42_20250703.pdf	PDF	Delivery Report
CHL_us-california_11smt_EOMAP_20250422_184525_SENT2_m0010.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_11smt_EOMAP_20250422_184525_SENT2_m0010_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_11smt_EOMAP_20250422_184525_SENT2_m0010_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_11smt_EOMAP_20250422_184525_SENT2_m0010.kmz	KMZ	GoogleEarth overlay
CHL_us-california_11smt_EOMAP_20250422_184525_SENT2_m0010.xml	XML	Metadata
CHL_us-california_11smt_EOMAP_20250422_184525_SENT2_m0010_overview.pdf	PDF	Overview PDF, metadata and quicklook

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

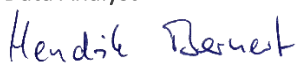
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

EOMAP detect more.

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings “Water Quality in Europe: Challenges and Best Practice” UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

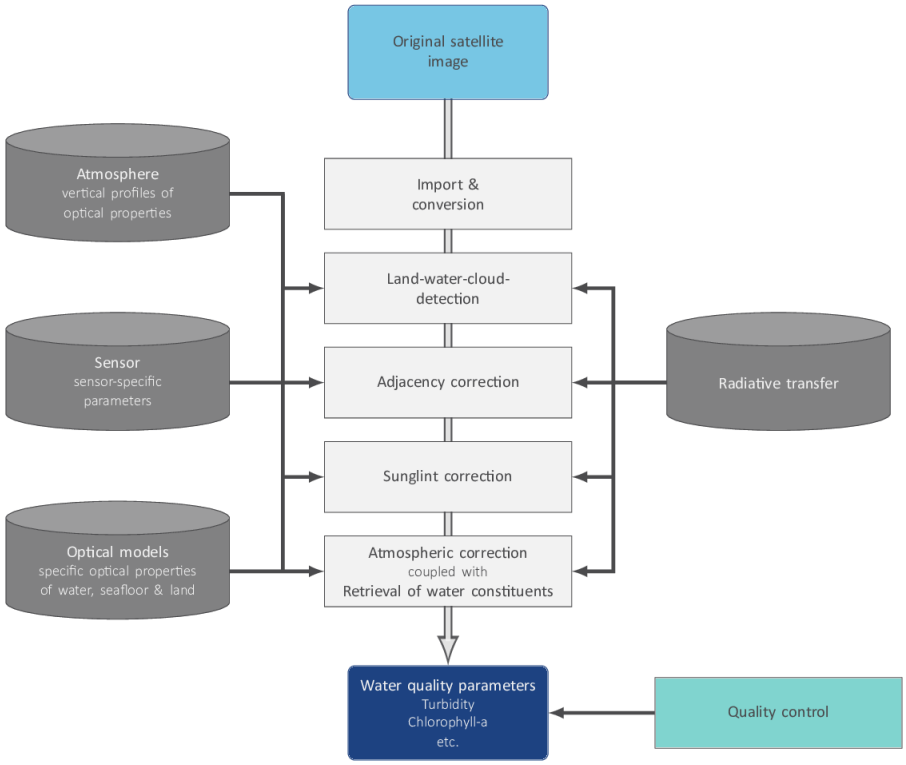


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2025-04-22 is shown in Figure 2.

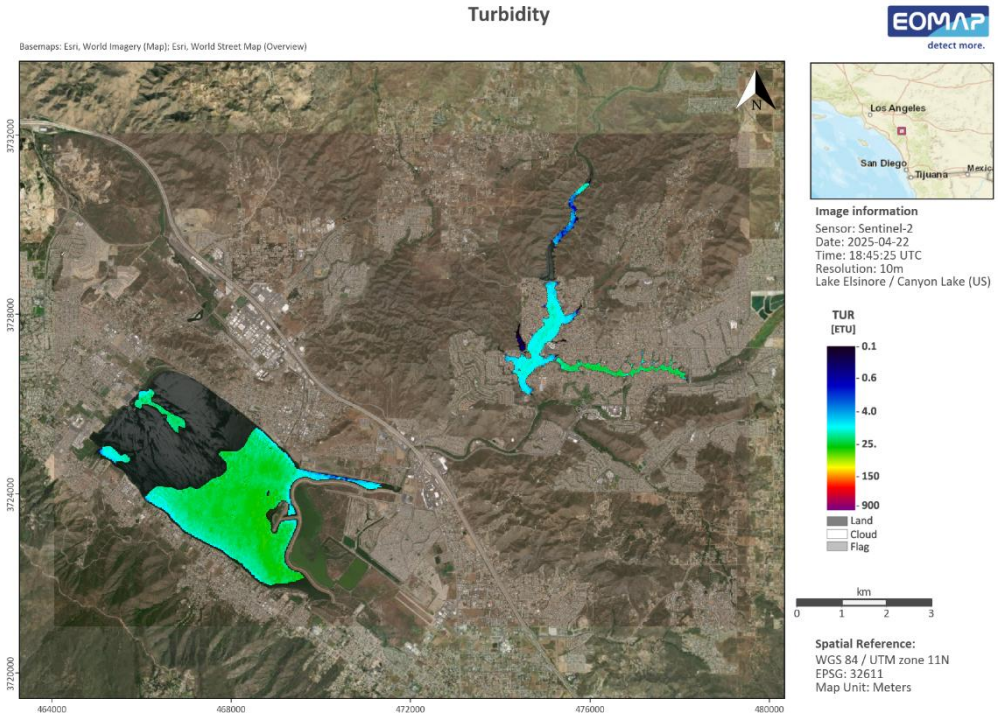


Figure 2: Turbidity product from 2025-04-22

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2025-04-22 is shown in Figure 3.

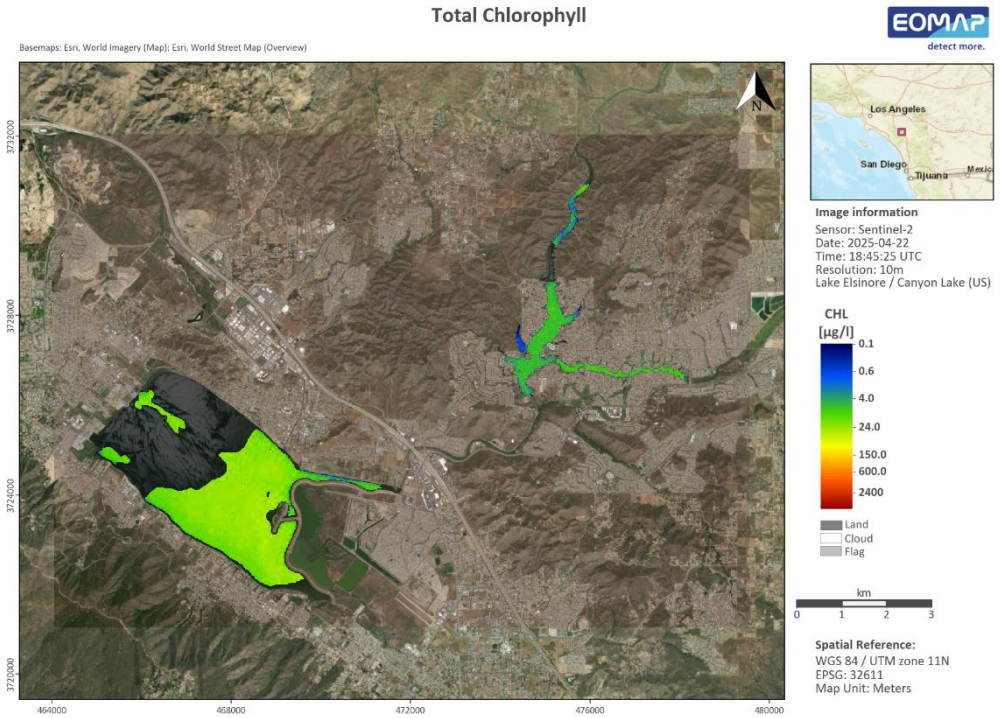


Figure 3: Chlorophyll-a product from 2025-04-22

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2025-04-22 is shown in Figure 4.

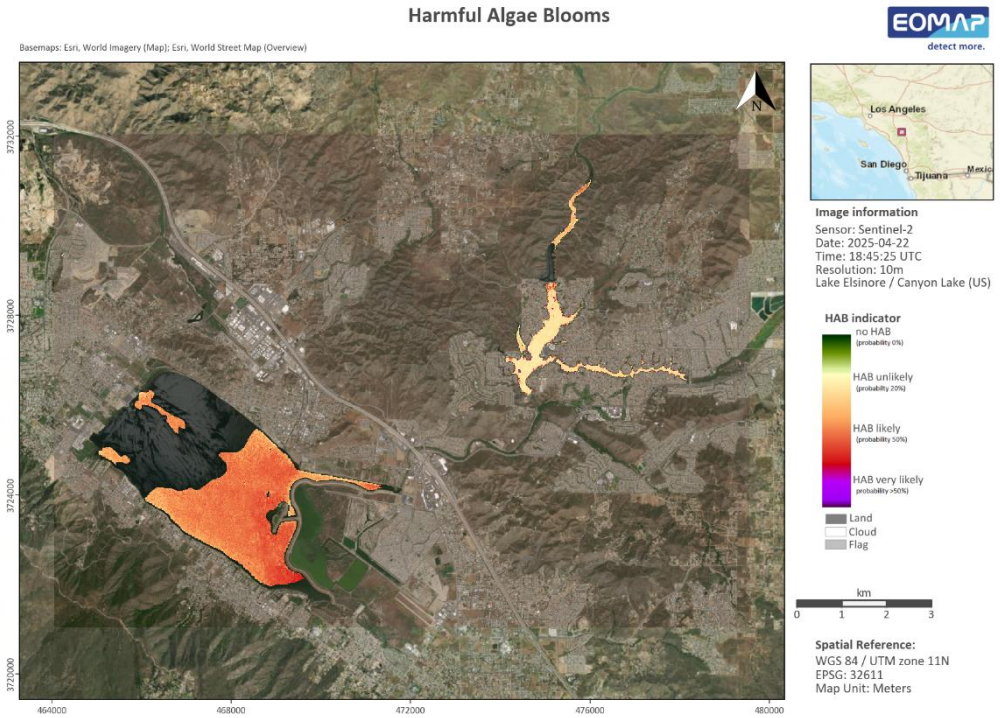


Figure 4: Harmful Algae Bloom Indicator product from 2025-04-22

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

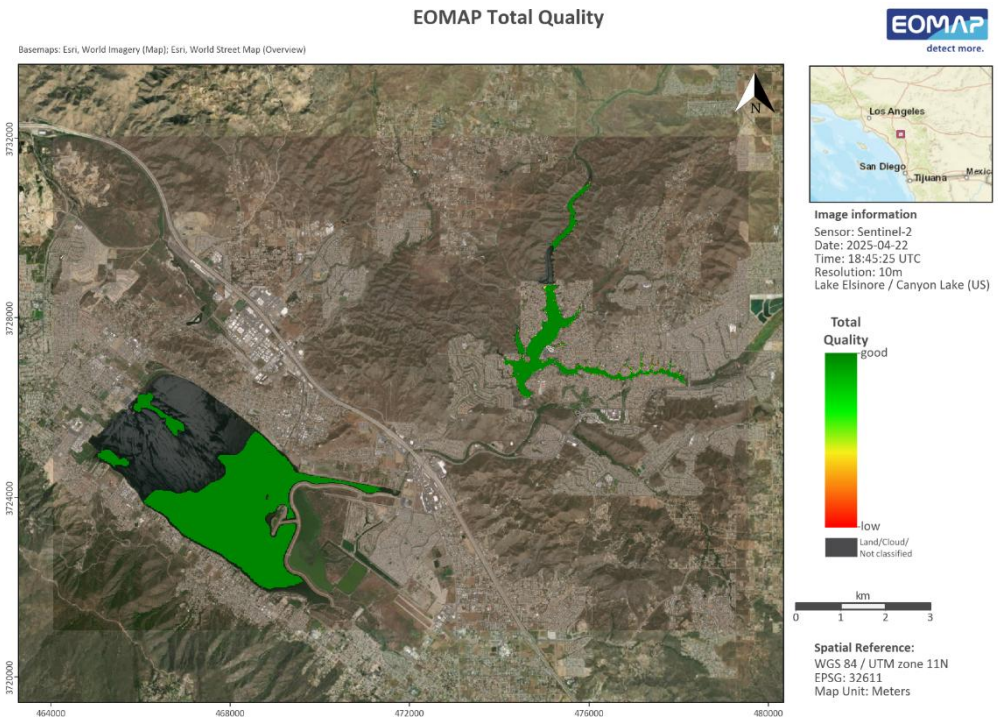


Figure 5: QUT product from 2025-04-22

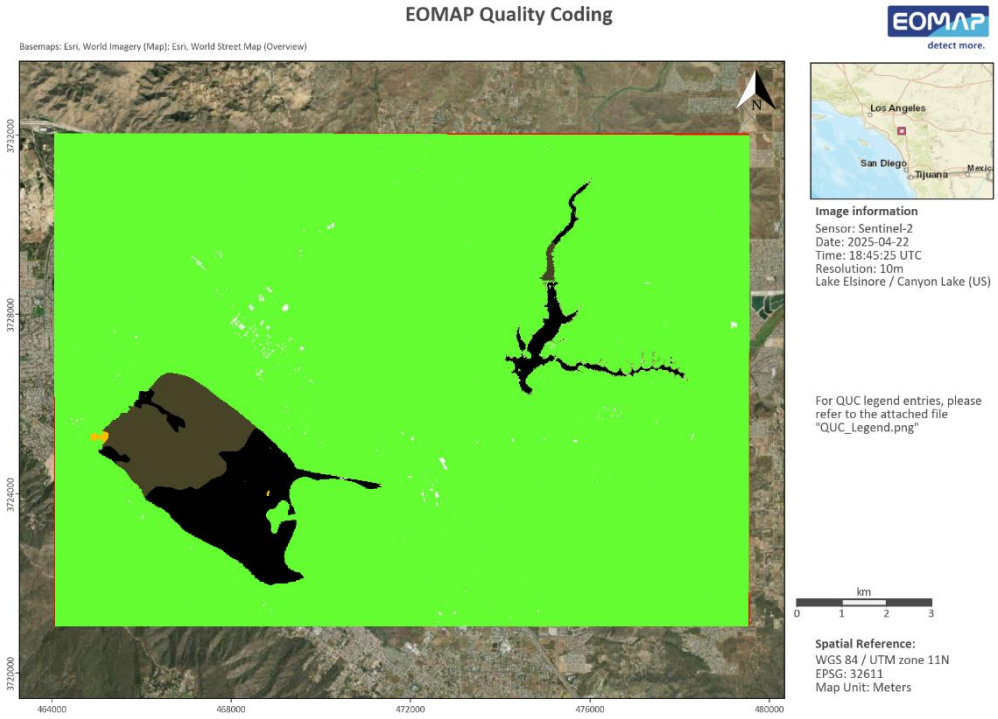


Figure 6: QUC product from 2025-04-22

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

Delivery report

Water Quality Monitoring: Lake Elsinore & Canyon Lake

Date: 2025-07-03
Version: 43

Clients: Wood Plc.
Reference: 2370_Delivery_EOMAP2WoodPlc

EOMAP GmbH & Co.KG,
Schlosshof 4, 82229 Seefeld
Germany

Authors:	Email	Phone
Hendrik Bernert	bernert@eomap.de	+49 8152 99861 14
Minha Sultan	sultan@eomap.de	+49 8152 99861 14

EOMAP detect more.

CONTENT

1. SERVICE PROVISION REPORT 3
1.1. LIST OF ALL DELIVERED SCENES 3
1.2. CONTENT 3
1.3. LIST OF DELIVERED FILES (ONE PRODUCT EXAMPLE) 3
1.4. FILE NAMING 4
1.5. NOTES (E.G. TECHNICAL ISSUES, EXCEPTIONAL CONDITIONS, ETC.) 4
2. METHODOLOGY: MODULAR INVERSION AND PROCESSING SYSTEM (MIP) 5
3. PRODUCTS 7
3.1. TURBIDITY (TUR) 7
3.2. CHLOROPHYLL-A (CHL) 8
3.3. HARMFUL ALGAE BLOOM INDICATOR (HAB) 9
3.4. TRUE COLOR COMPOSITE (RGB) 9
4. QUALITY CONTROL AND FLAGGING 10
5. DATA FORMAT 13
6. DATA SOURCES 13

EOMAP detect more.

1. Service Provision Report

Contractor Details	Service Provider Details
Wood Environment & Infrastructure Solutions, Inc.	EOMAP GmbH & Co. KG
9210 Sky Park Court, Suite 200	Schlosshof 4, 82229 Seefeld, Germany
San Diego, CA 92123, USA	
Point of Contact	**Point of Contact**
John D. Rudolph	Hendrik Bernert
john.rudolph@woodplc.com	bernert@eomap.de, +49 (0)8152 9986114

Contractor PO / Reference number	
Contractor project title	
Service Provider reference number	2370
Date of delivery	2025-07-03
Version	43

1.1. List of all delivered scenes

Sensor	Time of record
Landsat-8	2025-06-08 18:22:05 UTC

1.2. Content

Product	Abbreviation	Yes/No
Total Absorption	ABS	☐
Aerosol Optical Thickness	AOT	☐
Yellow Substances	CDM	☐
Chlorophyll-a	CHL	☒
Ratio of Absorption and Scattering	DIV	☐
Harmful Algae Bloom Indicator	HAB	☒
Diffuse Attenuation Coefficient	KDC	☐
Quality Coding	QUC	☒
Total Quality	QUT	☒
True Color/False Color Composite	RGB	☒
Remote Sensing Reflectance	RRS	☐
Secchi Disc Depth	SDD	☐
Sum of Inorganic Absorption	SIA	☐
Sum if Organic Absorption	SOA	☐
Surface Temperature	SST	☐
Turbidity	TUR	☒
Trophic State Index (Chlorophyll)	TSC	☐
Total Suspended Matter	TSM	☐
Light Penetration Depth	Z90	☐
Water Body Extent	WEX	☐

1.3. List of delivered files (one product example)

File name	File format	Content
2370_Delivery_EOMAP2WoodPlc_Vs43_20250703.pdf	PDF	Delivery Report
CHL_us-california_040037_EOMAP_20250608_182205_LSAT8_m0030.tif	GeoTIFF	Product raster file, 8bit scaled and coloured
CHL_us-california_040037_EOMAP_20250608_182205_LSAT8_m0030_32bit.tif	GeoTIFF	Product raster file, 32bit real values
CHL_us-california_040037_EOMAP_20250608_182205_LSAT8_m0030_32bit_wgs84.txt	ASCII	Product text file, real values
CHL_us-california_040037_EOMAP_20250608_182205_LSAT8_m0030.kmz	KMZ	GoogleEarth overlay
CHL_us-california_040037_EOMAP_20250608_182205_LSAT8_m0030.xml	XML	Metadata
CHL_us-california_040037_EOMAP_20250608_182205_LSAT8_m0030_overview.pdf	PDF	Overview PDF, metadata and quicklook

1.4. File naming

[Product abbreviation]_[Country code]-[Area]_EOMAP_[Date of satellite image recording]_[Time of satellite image recording]_[sensor code]_[spatial resolution]_[optional]

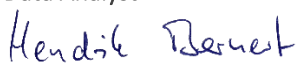
With

[Product abbreviation]	see list of product abbreviations
[Country code]	Country ID following ISO 3166 ALPHA-2 standards
[Area]	name of city/region or other relevant area characterization
[Date of satellite image rec.]	Satellite image date used for the analysis in YYMMDD (YY= Year, MM = Month, DD = Date) in UTC
[Time of satellite image rec.]	Satellite image date used for the analysis in HHMMSS (HH= Hours, MM = Minute, SS = Seconds) in UTC time
[sensor code]	Sensor in use
[spatial resolution]	Spatial resolution/grid spacing in meters
[optional]	is an optional parameter which can is used to support the intuitive use of the data, such as 'metadata' or 'XYZQ' for metadata files and ASCII XYZQ files.

1.5. Notes (e.g. technical issues, exceptional conditions, etc.)

- None

Data Analyst



Hendrik Bernert

QA/QC

Minha Sultan

EOMAP detect more.

2. Methodology: Modular Inversion and Processing System (MIP)

For the retrieval of satellite-derived water quality data, the physics-based Modular Inversion and Processing System (MIP), developed by EOMAP, has been applied to the satellite imagery. This sensor-independent approach includes all the relevant processing steps to guarantee a robust, standardised and operational retrieval of water quality parameters from various satellite data sources. The advantage of physics-based methods is that they do not require a priori information about the study area and can therefore be applied independently of satellite type and study area.

MIP imbeds sensor-independent algorithms and processing modules to derive consistent water quality parameters for multiple scales through a number of different satellite sensors. The algorithms take all relevant environmental impacts into account and do so for each individual measurement and pixel according to the current state-of-the-art, including:

a. water, land, cloud identification
b. estimation and correction of atmosphere and aerosol impacts[1] [2]
c. correction altitude level impacts[3]
d. correction of adjacency impact (light scattering into the water signal from adjacent land surfaces)[4]
e. correction[5] or flagging[6] of sunglitter impact
f. retrieval of in-water absorption and scattering as physical measures[7]
g. accounting for varying spectral slopes of specific inherent optical properties[8]
h. provision of uncertainty measures and flagging procedures
i. accounting for the full bidirectional effects in the atmosphere, at the water-atmosphere boundary layers and in-water, using a fully coupled radiative transfer model
j. application of procedures to minimize errors, resulting from the coupled interaction of light between atmosphere, water surface and in-water on the signal, through coupled inversion procedures

The different workflow steps from satellite raw imagery import to value-added water quality retrieval are displayed in Figure 1.

[1] Heege, T., Kiselev, V., Wettle, M., Hung N.N. (2014): Operational multi-sensor monitoring of turbidity for the entire Mekong Delta . Int. J. Remote Sensing, Special Issues Remote Sensing of the Mekong, Vol. 35 (8), pp. 2910-2926

[2] Richter, R., Heege, T., Kiselev, V., Schläpfer, D. (2014): Correction of ozone influence on TOA radiance. Int. J. of Remote Sensing. Vol. 35(23), pp. 8044-8056, doi: 10.1080/01431161.2014.978041

[3] Heege, T., Fischer, J. (2004): Mapping of water constituents in Lake Constance using multispectral airborne scanner data and a physically based processing scheme. Can. J. Remote Sensing, Vol. 30, No. 1, pp. 77-86

[4] Kiselev, V., Bulgarelli, B. and Heege, T., (2015). Sensor independent adjacency correction algorithm for coastal and inland water systems. Remote Sensing of Environment, 157: 85-95. , ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2014.07.025

[5] Heege, T. & Fischer, J. (2000): Sun glitter correction in remote sensing imaging spectrometry. SPIE Ocean Optics XV Conference, Monaco, Oct. 16-20.

[6] EU FP7-Projekt GLASS: WP4 Validation report (29.2.2016): www.glass-project.eu/assets/Deliverables/GLaSS-D4.2.pdf

[7] Bumberger J., Heege T., Klinger P., et al. (2017): Towards a Harmonized Validation Procedure for Inland Water Optical Remote Sensing Data using Inherent Optical Properties, Rem. Sens. 2017(9), 21p, submitted 28 Feb. 2017

[8] Heege T., Schenk K., Klinger P., Broszeit A., Wenzel J., Kiselev V. (2015): Monitoring status and trends of water quality in inland waters using earth observation technologies. Proceedings “Water Quality in Europe: Challenges and Best Practice” UNESCO-IHP European Regional Consultation Workshop, Koblenz, Germany, Dec 2015, p. 1-4

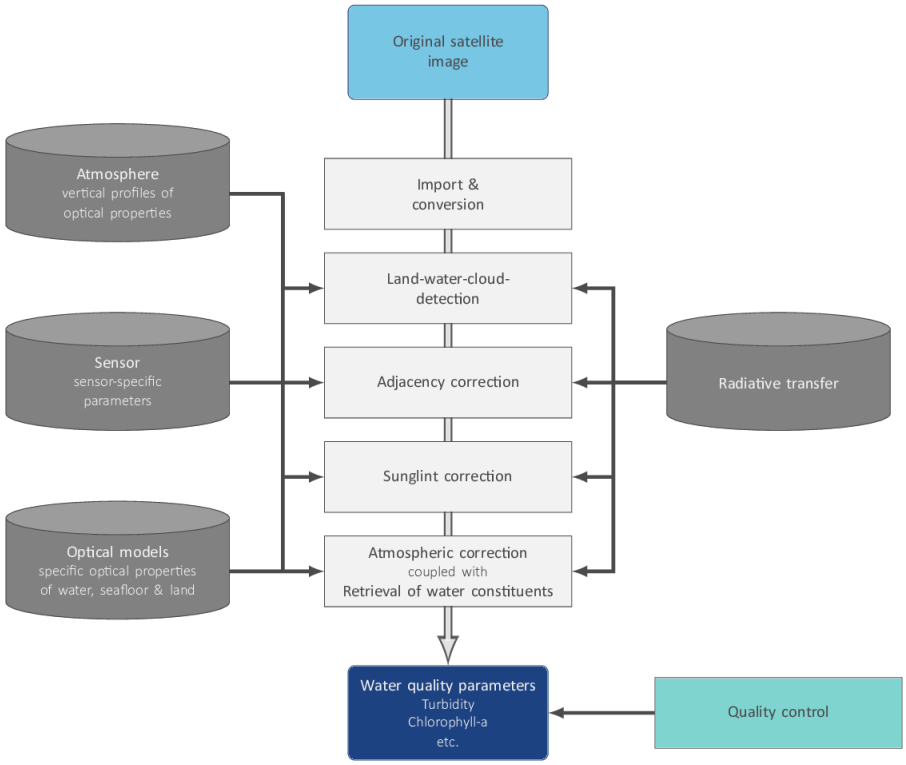


Figure 1: EOMAP's physics-based workflow to derive satellite-based water quality

MIP is the most established, sensor-independent and operational aquatic remote sensing processing system for the full range of high, medium and low-resolution satellite sensors. Fully-automated water monitoring processors are installed in satellite ground segments worldwide (Europe, Australia, Asia and America), to ensure fast and efficient access to a wide range of satellite data. The data processing and orchestration software, the EOMAP Workflow System (EWS) allows for continuous, daily production.

3. Products

3.1. Turbidity (TUR)

Turbidity (TUR) is a key parameter of water quality and is linearly related to the backward scattering of light of organic and inorganic particles in water. Turbidity is also linearly related to Total Suspended Matter (TSM) at low to moderate turbidity values. The measurement unit is Nephelometric Turbidity Unit (NTU). Satellite-derived turbidity is determined by the backward scattering of light between 450 to 800nm, which is physically retrieved using satellite data. The standard relation of EOMAP concentrations to inherent optical properties is defined as 1 NTU = 0.0118 1/m backward scattering at 550nm, or 1 NTU = 0.619 1/m total scattering at 550nm for an assumed ratio bb/b = 0.019. The linear relation between turbidity and suspended matter/solids in low to moderate concentrations is in most cases a regional constant, but can vary with particle size distribution. Note that the geometrical properties of an in-situ measurement device, and the wavelength in use, may differ in comparison to the satellite product. For example, the standard FTU determination, a measure of turbidity similar to NTU, is based on the measurement of light scattered within a 90° angle from a beam directed at the water sample. Alongside temporal differences in satellite and in situ measurements, different sampling depths and the measurement location, this needs to be considered when comparing and interpreting satellite derived vs. in situ measured turbidity values. The Turbidity product from 2025-06-08 is shown in Figure 2.

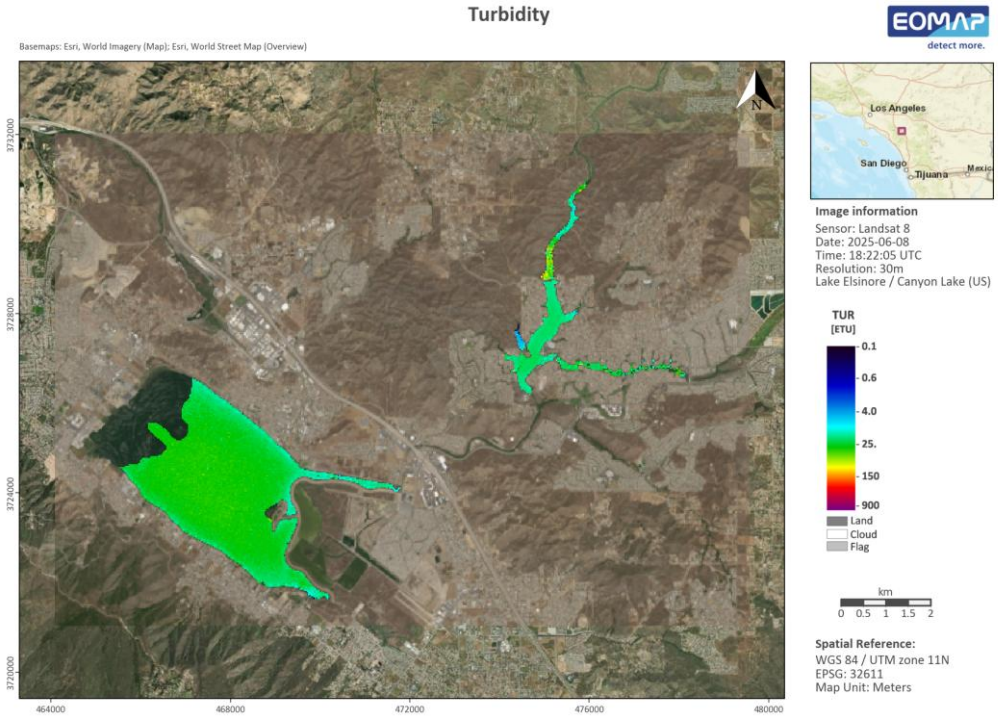


Figure 2: Turbidity product from 2025-06-08

3.2. Chlorophyll-a (CHL)

Chlorophyll-a (CHL) retrieval is based on the derived information of in-water organic absorption, in-water turbidity and spectral characteristics of each water body. Chlorophyll-a in [µg/l], is provided as a measure linearly related to the pigment-specific absorption at 440nm, with 1 µg/l Chl equal to 0.035 1/m pigment absorption. Phaeophytin and further pigments cannot be discriminated methodologically with the spectral resolution provided by Landsat 8/Sentinel-2 and similar sensors and is therefore included in this product. The pigment-related absorption is always smaller than the absorption of organic components (SOA). For clear water conditions (low chlorophyll/total suspended solids), the specific absorption chlorophyll increases significantly (Bricaud et al. 1995[9]). Chlorophyll values can vary over 4 magnitudes, for marine waters or clear lakes typical concentrations between 0.01 and 10 µg/l, while for eutrophic lakes concentrations can reach 100 µg/l and more. The chlorophyll products are typically reliable within a range of 10 – 50 % in comparison to in situ measures (Broszeit 2015[10]), which are typically based on one of three different methods, which include photometric, fluorescence and HPLC approaches and their subcategories. The Chlorophyll-a product from 2025-06-08 is shown in Figure 3.

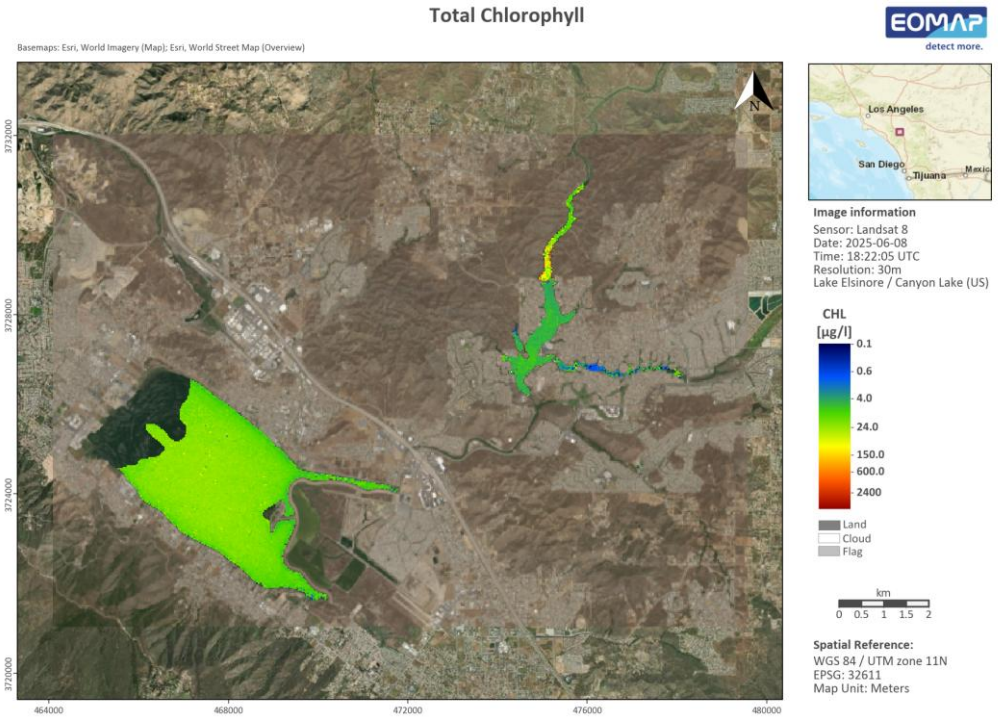


Figure 3: Chlorophyll-a product from 2025-06-08

[9] Bricaud, A., Babin, M., Morel, A., Claustre, H. (1995): Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. Journal of Geophysical Research Atmospheres, 100(C7):13,321-13,342

[10] Broszeit, A., 2015. Assessing long-term inland water quality using satellite imagery: A Feasibility and validation study of different lake types. MSc Thesis, Julius-Maximilian-University Würzburg, 96p

3.3. Harmful Algae Bloom Indicator (HAB)

The **Harmful Algae Bloom Indicator** (HAB) refers to the presence of cyanobacteria. It is sensitive to the appearance of cyanobacteria-related pigments, i.e. phycocyanin and phycoerythrin. Both pigments show absorption features in green wavelengths from 500 nm to approx. 640 nm; phycoerythrin shows its absorption maximum at 540-570 nm, phycocyanin at 610-620 (Colyer et al. 2005). Most satellite sensors support the identification of this feature with only two bands, i.e. one in the green wavelength region (e.g. L7 and L8 at 530 – 590 nm) and in the red wavelength region at approx. 640 – 670 nm. The used standard parameterisation of phytoplankton absorption in MIP as described above, however, does not account phycocyanin and phycoerythrin absorption in the retrieval process. The modelled phytoplankton absorption therefore lacks the absorption features of these pigments. Nonetheless, if these pigments are present in the water a slight spectral mismatch between modelled water leaving reflectance ($R_{modelled}$) and satellite derived reflectance ($R_{satellite}$) occurs. The algorithm then compares the slope of $R_{modelled}$ and $R_{satellite}$ between the green and red band ($\delta R = R_{green} - R_{red}$) in order to classify pixels with regard to phycocyanin and phycoerythrin occurrence, i.e. harmful algae bloom probability. The HAB indicator from 2025-06-08 is shown in Figure 4.

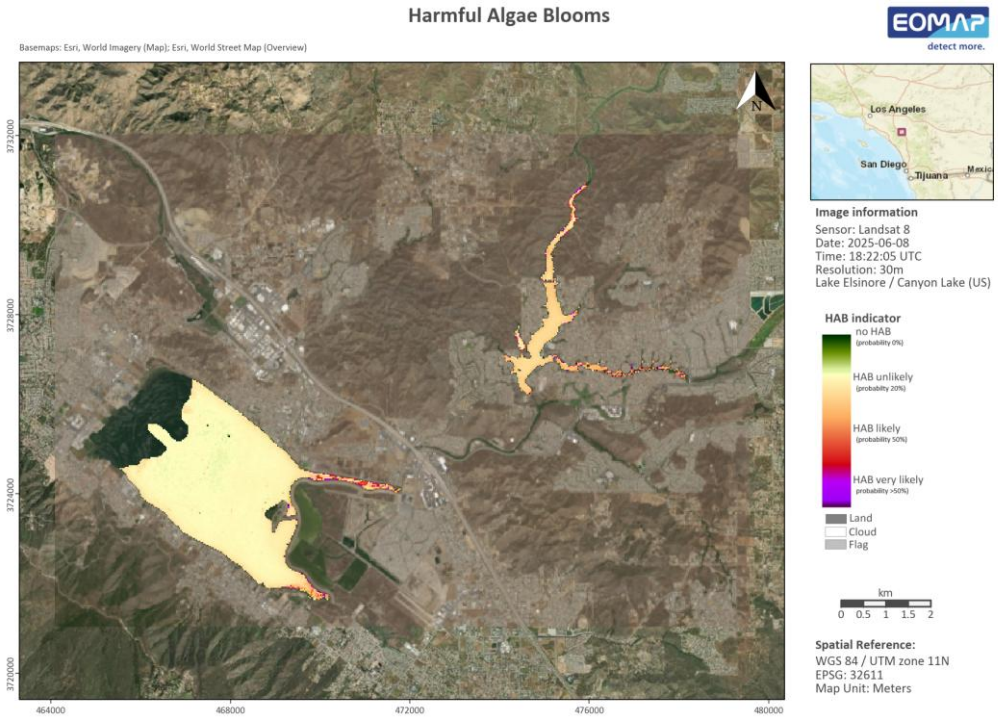


Figure 4: Harmful Algae Bloom Indicator product from 2025-06-08

3.4. True color composite (RGB)

RGB composite images represent the area of interest in true colour or false colour modes by combining predefined bands, depending on the sensor in use.

4. Quality Control and Flagging

As a standard output of the processing, an accuracy or quality indicator is calculated for each retrieved parameter and for each detected water pixel. This measure comprises a comprehensive range of factors that can impact the derived product quality, including:

- the geometry between sun, target, and sensor,
- the estimated sun glint probability,
- the retrieved aerosol optical depth,
- residuals of the measured and modelled sensor radiance and subsurface reflectance,
- the comparison of retrieved water species concentrations to extreme values as defined in the configuration files,
- pixels affected by cloud shadow and
- shallow water areas.

Threshold values define distinct values when a parameter is assumed to influence the quality. All parameters are integrated into one remaining quality parameter, allowing both an improved flagging and a quality weighting of pixels, that can later be merged into integrated 3rd level products.

The quality information is part of each standard geodata delivery and is visualized by two different 8bit GeoTIFFs:

- QUT - Total Quality, quantifying the overall quality of each pixel from low to high. Only valid water pixels - excluding land, cloud or flagged pixels - are represented in QUT indicator (Figure 5).
- QUC – EOMAP Quality coding (Figure 6), revealing the processor's internal quality check, split into the defined indicators (e.g. sunglint, shallow water risk, etc.). These are classified into 'no quality concerns', 'quality risk and 'bad quality' (flag). Note that 'quality risk' pixels are marked as such but not flagged.

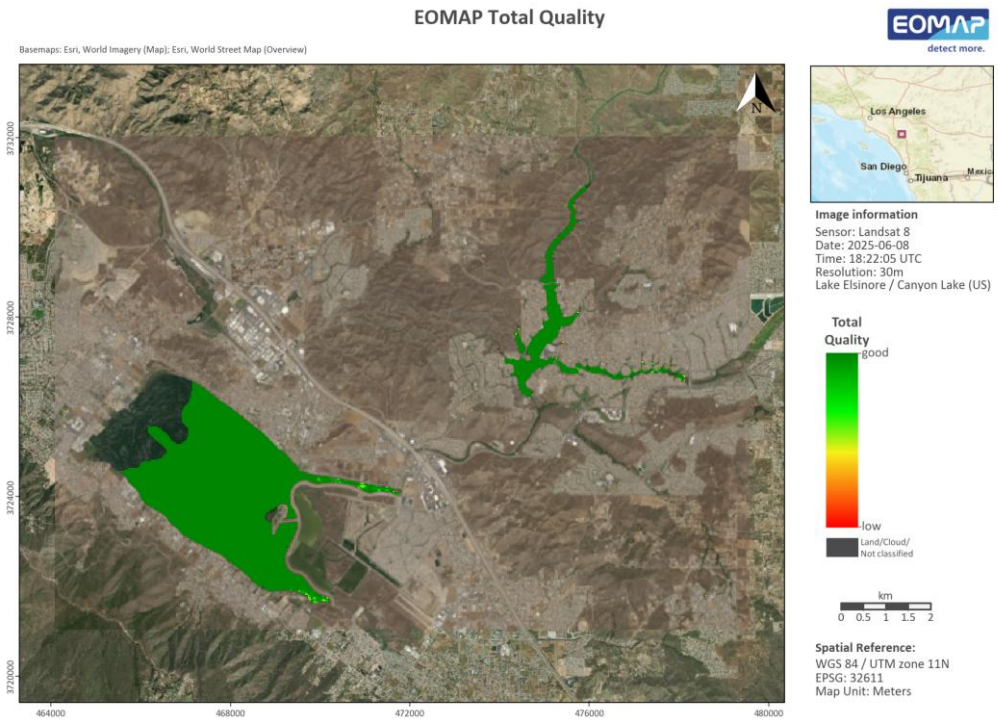


Figure 5: QUT product from 2025-06-08

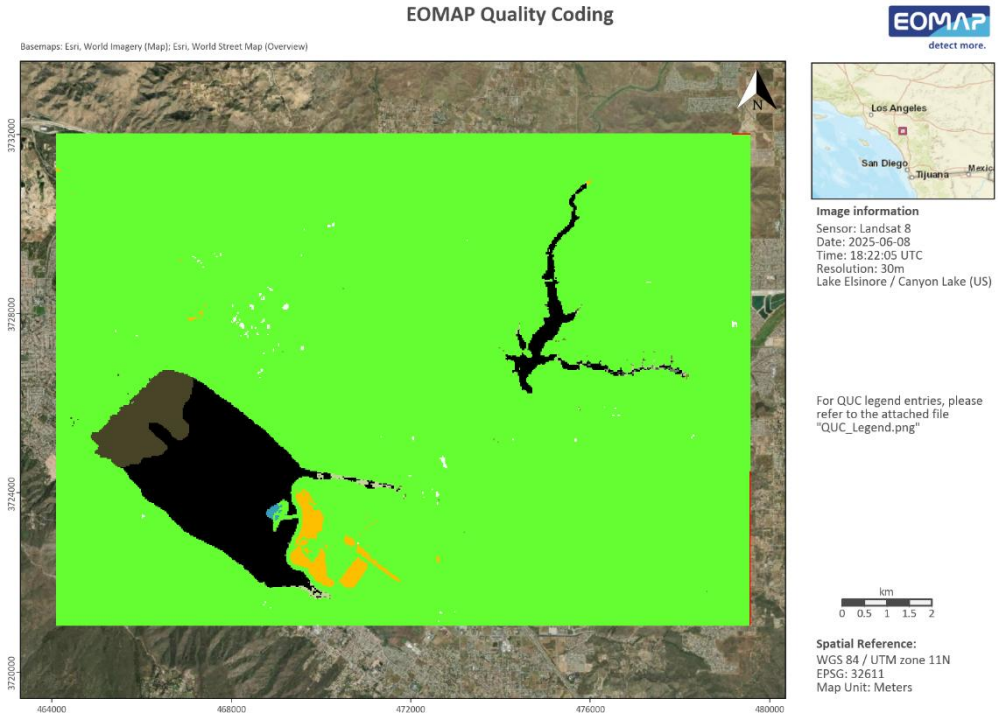


Figure 6: QUC product from 2025-06-08

The QUC file indicates the main quality influencing parameter using a specific EOMAP quality coding classification scheme with corresponding grey values (GV), shown in Figure 7.

Professional version allow combination of the two most relevant flags:

First number = most relevant flag
1-digit-number refer to second relevant flag, e.g. 1 for sunglint risk, 2 for large solar zenith angle

Examples:
25 Warning flag for large zenit solar angle and Whitecaps
114 Critical flag for sunglint, plus warning for aerosol above limits

GV	GV range	Flag status	Flag description	Color code	Color
0	0	Water	No risk identified	0 0 0	
10	10 - 19	Warning	sunglint risk	148 138 84	
20	20 - 29	Warning	large solar zenith angle	83 141 213	
30	30 - 39	Warning	large spacecraft zenith angle	218 150 148	
40	40 - 49	Warning	Aerosol above limit or Cirrus risk	196 215 155	
50	50 - 59	Warning	Cloud Shadow	177 160 199	
60	60 - 69	Warning	Shallow water risk	146 205 220	
70	70 - 79	Warning	Mixed pixel risk	250 191 143	
80	80 - 89	Warning	Retrieved concentration at configuration limit	190 190 190	
90	90 - 99	Warning	Retrieval / processor warning	210 210 210	
110	110 - 119	Critical	sunglint risk	73 69 41	
120	120 - 129	Critical	large solar zenith angle	22 54 92	
130	130 - 139	Critical	large spacecraft zenith angle	150 54 52	
140	140 - 149	Critical	Aerosol above limit or Cirrus risk	118 147 60	
150	150 - 159	Critical	Cloud Shadow	96 73 122	
160	160 - 169	Critical	Shallow water risk	49 134 155	
170	170 - 179	Critical	Mixed pixel risk	226 107 10	
180	180 - 189	Critical	Retrieved concentration at configuration limit	120 120 120	
190	190 - 199	Critical	Retrieval / processor warning	130 130 130	
220	220	No value	Transition Zone	102 255 51	
221	221	Unreliable	Shallow water automatically	146 205 220	
222	222	Unreliable	Shallow water manually	60 159 186	
223	223	Unreliable	Floating material	32 95 107	
230	230	No water	Land	102 255 51	
232	232	Unreliable	Invalid pixel manually	255 192 0	
240	240	No water	Cloud	255 255 255	
242	242	Unreliable	Cloud Shadow manually	96 73 122	
244	244	Unreliable	Hill shadow	73 57 93	
250	250	No retrieval	No retrieval / out of AOI or image extend	255 0 0	

Figure 7: EOMAP QUC quality coding

EOMAP's water quality products are accompanied by the processor's internal quality control mechanisms QUT and QUC, resulting in pixel flagging in case of unreliable values. Moreover, a manual quality check and - if required - additional masking is applied to each product.
As an example, cloud shadow effects typically occur in the vicinity of clouds, resulting in unrealistically low water parameter values. In order to detect and flag these areas, EOMAP has developed a specific algorithm based on geometric models, considering the sun angle and sensor viewing geometry, the retrieved aerosol properties, the height of the clouds, an analysis of the blue channel radiances and a statistical anomaly detection of the water species concentrations. When applying this cloud shadow detection algorithm, approx. 85% of the cloud shadows are detected and masked. Remaining cloud shadows are manually flagged and can be identified in the QUC file by GV 242.
Due to the spatial extent of single pixels (Sentinel-2: 10*10m, Landsat 8/9: 30*30m), it is likely that spectral mixing of signals from land and water can affect the pixels along the edge of the water body, leading to unreliable retrieval of water parameter values. Such pixels are labelled with the quality flag 'transition zone'. EOMAP uses a high-resolution land-water-mask database to determine the land-water-boundary, which is then filtered to create a transition zone that is automatically flagged during processing. In the 8bit water constituent products the transition zone is marked by GV 251, whereas in the QUC product it is 220.

5. Data Format

The water quality data are delivered as 32bit real value GeoTIFFs as well as 8bit scaled and colored GeoTIFFs for easier visualization. These colors are only a suggestion a corresponding to EOMAPs standard except for the HAB visualization, which has been changed according to a client-specific request. In addition, KMZ- as well as XYZ-files are delivered as per client request.

6. Data Sources

EOMAP uses the following the AWS data hub (https://registry.opendata.aws/index.html) to access and download satellite raw data from different sensors.

- Landsat 8/9: https://registry.opendata.aws/usgs-landsat/index.html
- Sentinel-2: https://registry.opendata.aws/sentinel-2/

© EOMAP GmbH & Co. KG February 2022

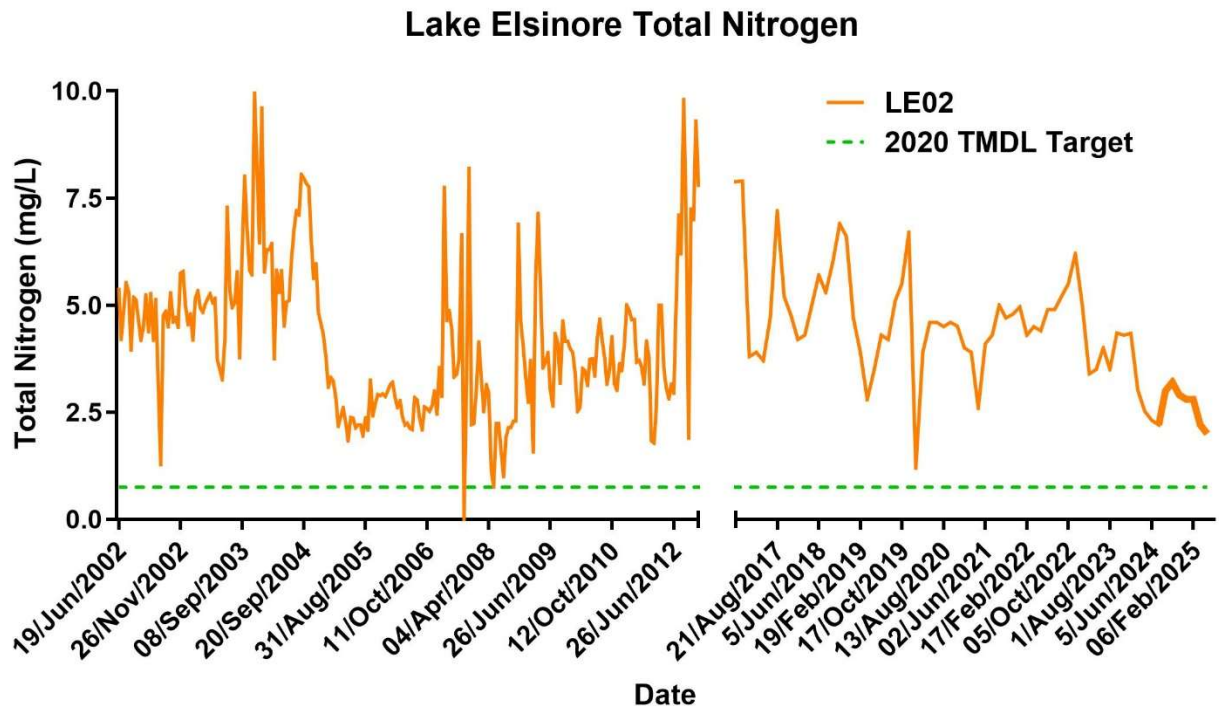
Disclaimer: This document contains confidential information that is intended only for the use by EOMAP's Client. It is not for public circulation or publication or to be used by any third party without the express permission of either the Client or EOMAP GmbH & Co. KG. The concepts and information contained in this document are the property of EOMAP GmbH & Co. KG. Use or copying of this document in whole or in part without the written permission of EOMAP GmbH & Co. KG constitutes an infringement of copyright.

While the findings presented in this report are based on information that EOMAP GmbH & Co. KG considers reliable un-less stated otherwise, the accuracy and completeness of source information cannot be guaranteed. Furthermore, the information compiled in this report addresses the specific needs of the client, so may not address the needs of third par-ties using this report for their own purposes. Thus, EOMAP GmbH & Co. KG and its employees accept no liability for any losses or damage for any action taken or not taken on the basis of any part of the contents of this report. Those acting on information provided in this report do so entirely at their own risk.

EOMAP
Schlosshof 4
82229 Seefeld
Germany
+49 (0)8152 99861 10
info@eomap.com
www.eomap.com

APPENDIX E

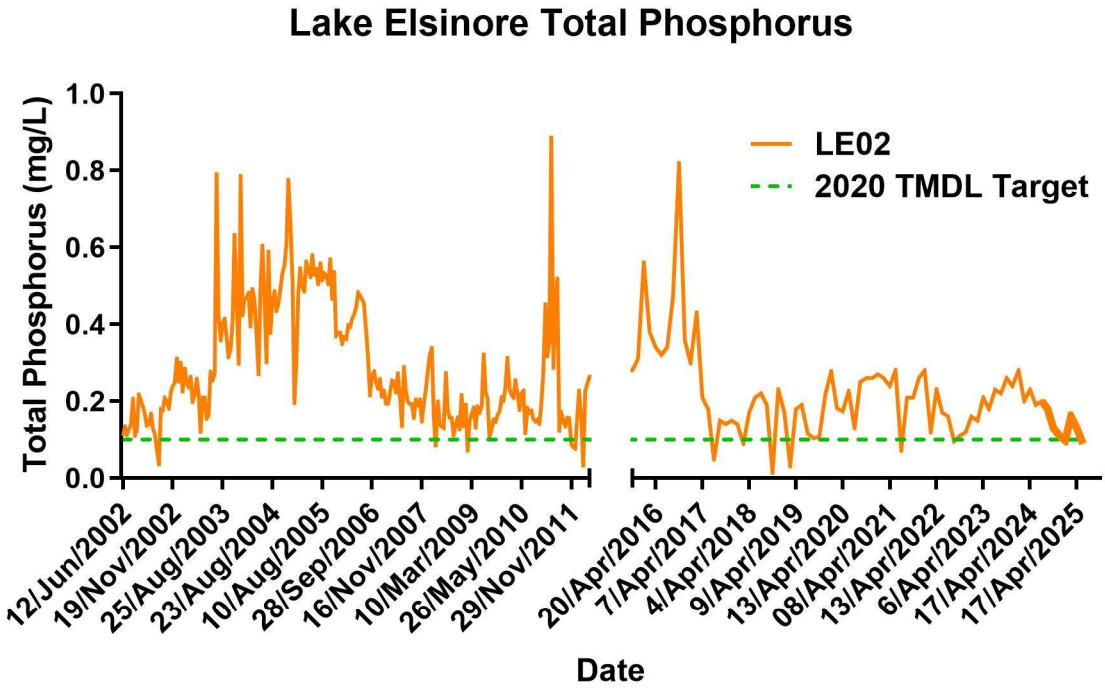
CURRENT DATA IN HISTORICAL CONTEXT



No data available from June 2012-July2015

TMDL target of 0.75 mg/L is annual average to be attained by 2020

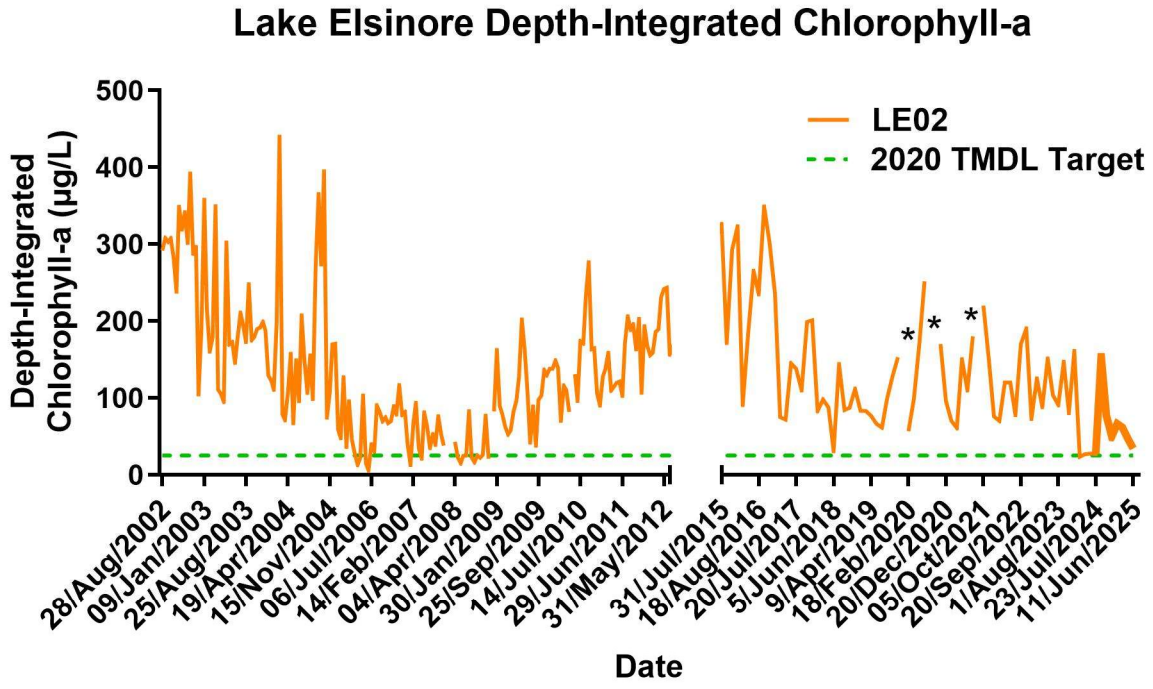
Bold represents current monitoring year July 2024-June 2025



No data available from June 2012-July2015

TMDL target of 0.1 mg/L is annual average to be attained by 2020

Bold represents current monitoring year July 2024-June 2025

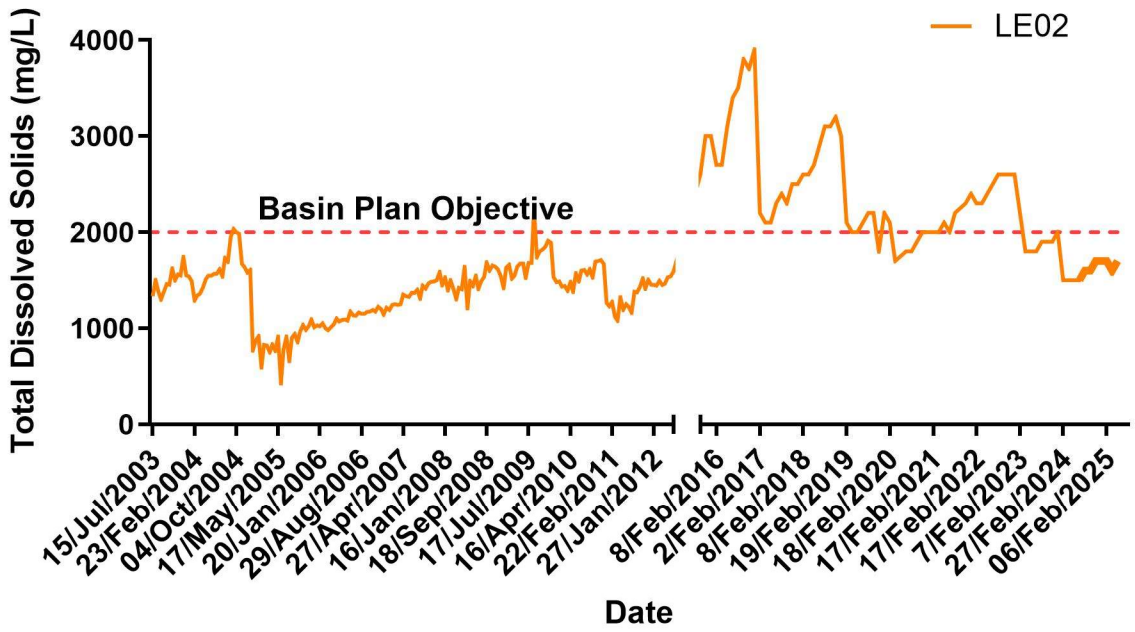


No data available from June 2012-July2015

TMDL target of 25 µg/L is summer average to be attained by 2020

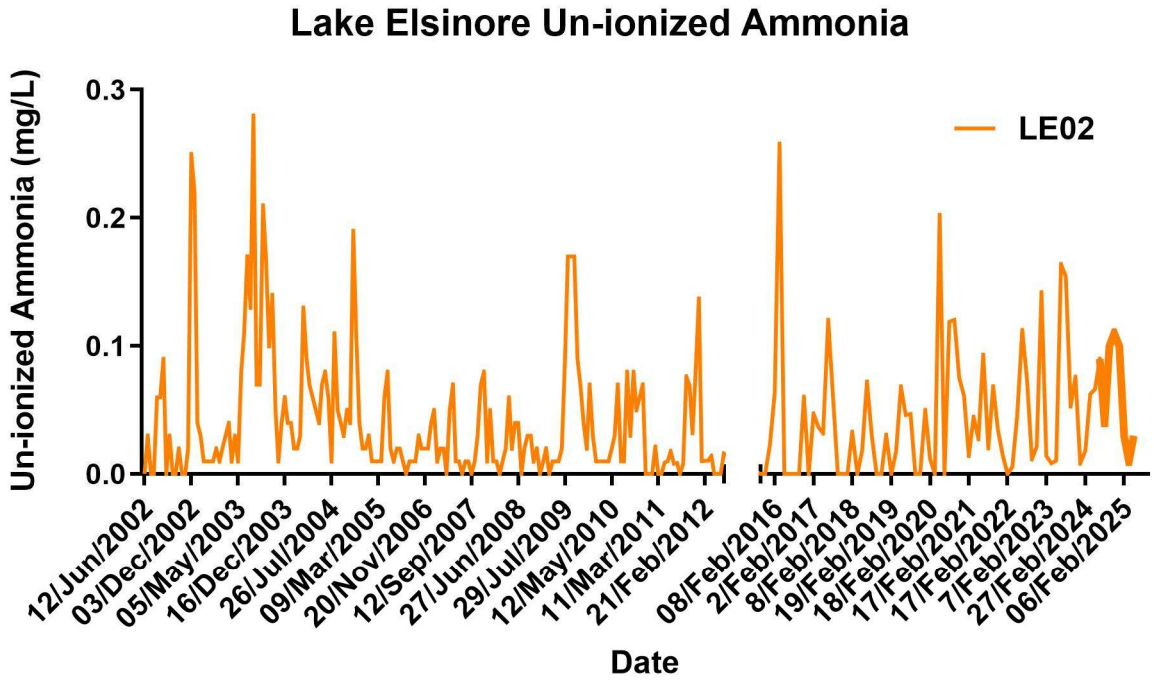
Bold represents current monitoring year July 2024- June 2025
***Not measured due to laboratory error. See report for details.**

Lake Elsinore Total Dissolved Solids



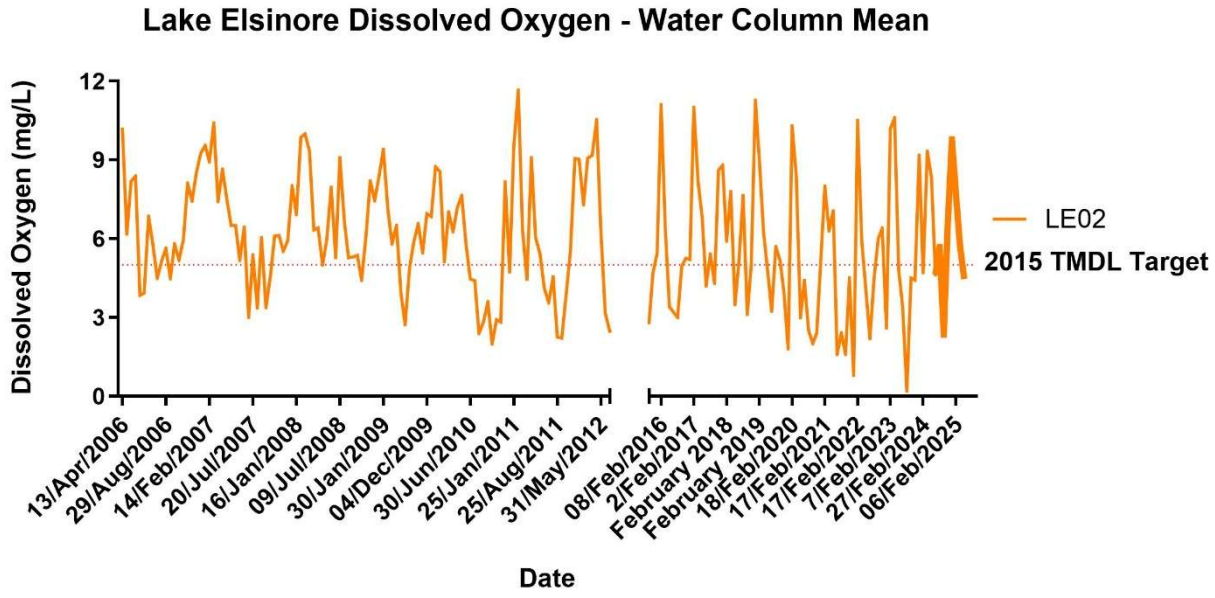
No data available from June 2012-July 2015

Bold represents current monitoring year July 2024-June 2025



No data available from June 2012-July2015

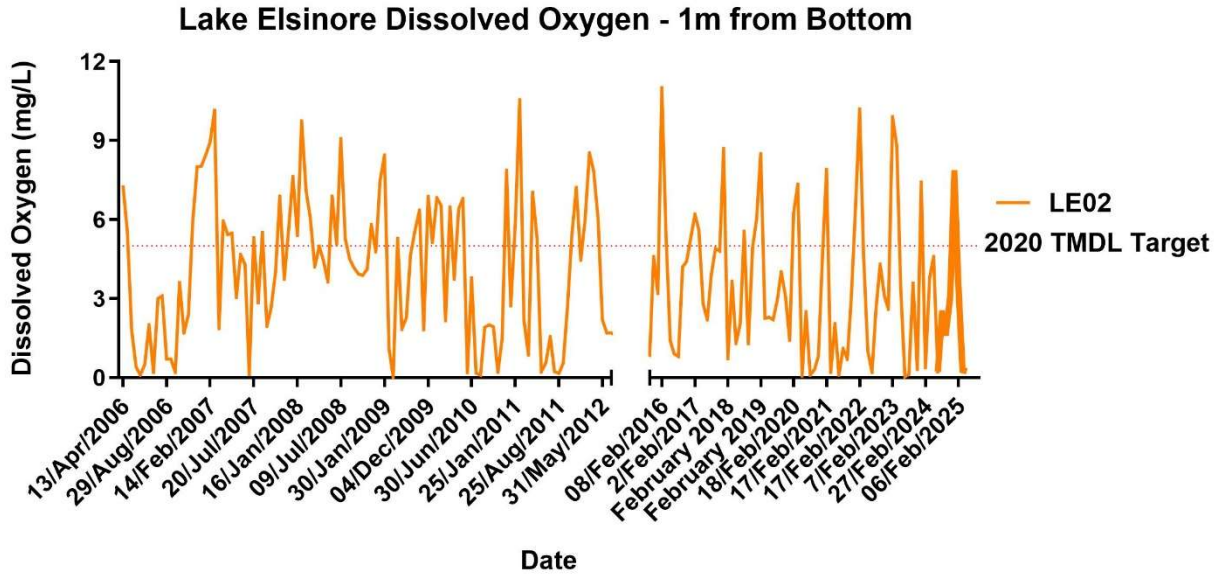
Bold represents current monitoring year July 2024-June 2025



No data available from June 2012-July2015

TMDL target of 5 mg/L is depth average to be attained by 2015

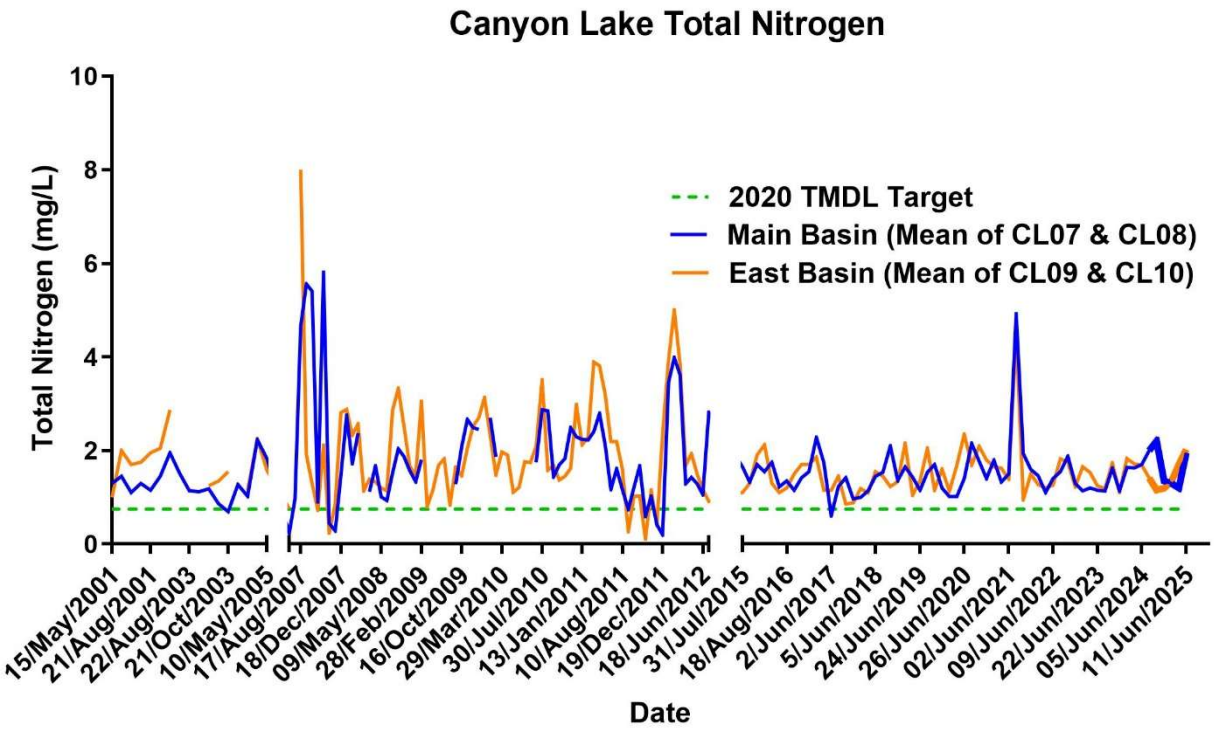
Bold represents current monitoring year July 2024-June 2025



No data available from June 2012-July2015

TMDL target of 5 mg/L is 1m off lake bottom to be attained by 2020

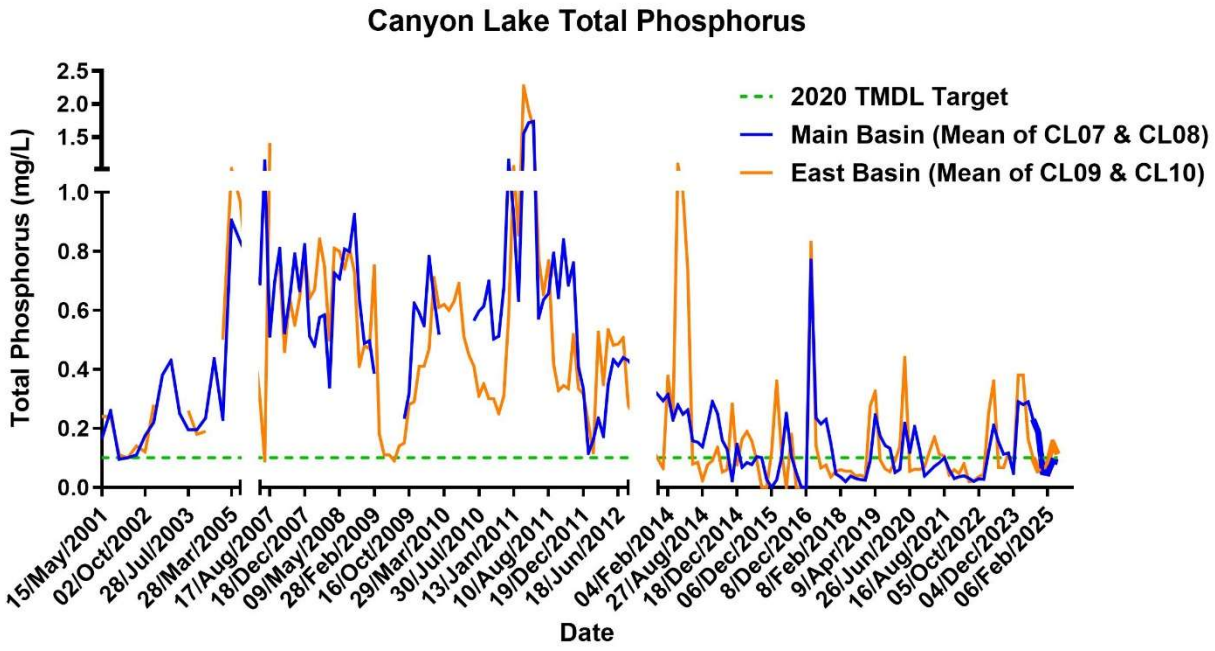
Bold represents current monitoring year July 2024-June 2025



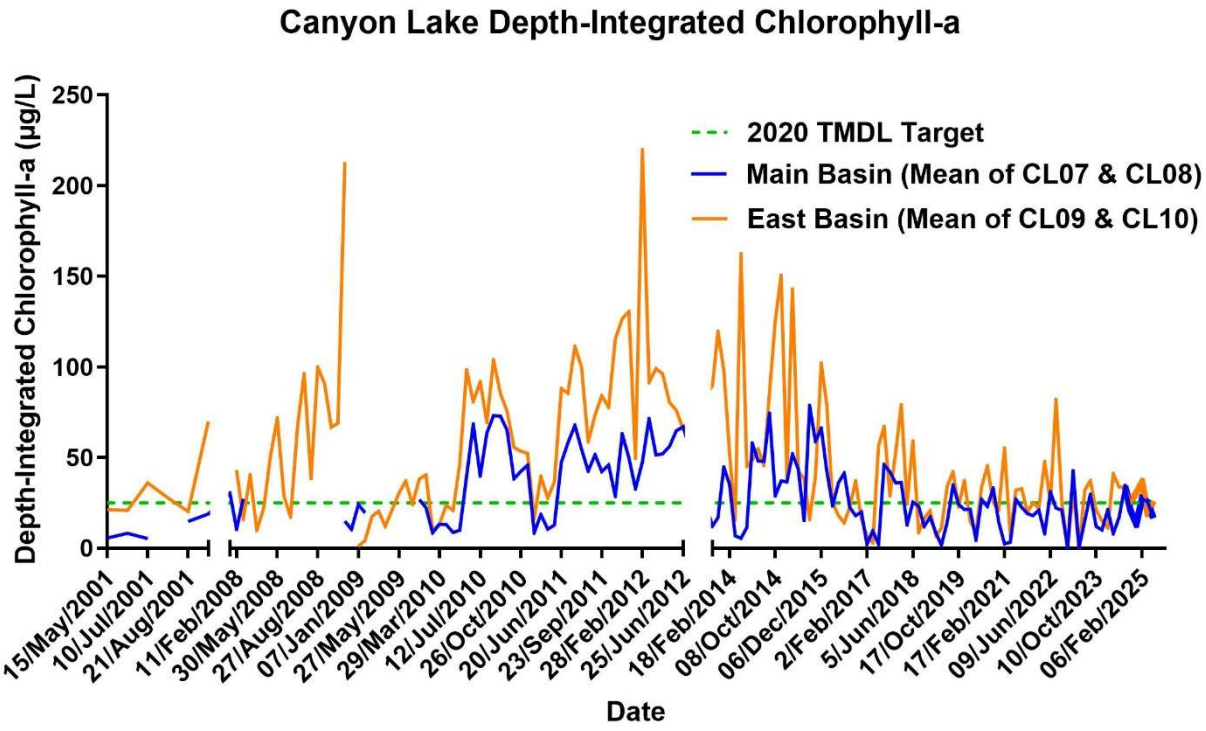
No data available from May 2005-July 2007; June 2012-July2015

TMDL target of 0.75 mg/L is annual average to be attained by 2020

Bold represents current monitoring year July 2024-June 2025



No data available from May 2005-July 2007; June 2012-Sept 2013
TMDL target of 0.1 mg/L is annual average to be attained by 2020
Bold represents current monitoring year July 2024-June 2025

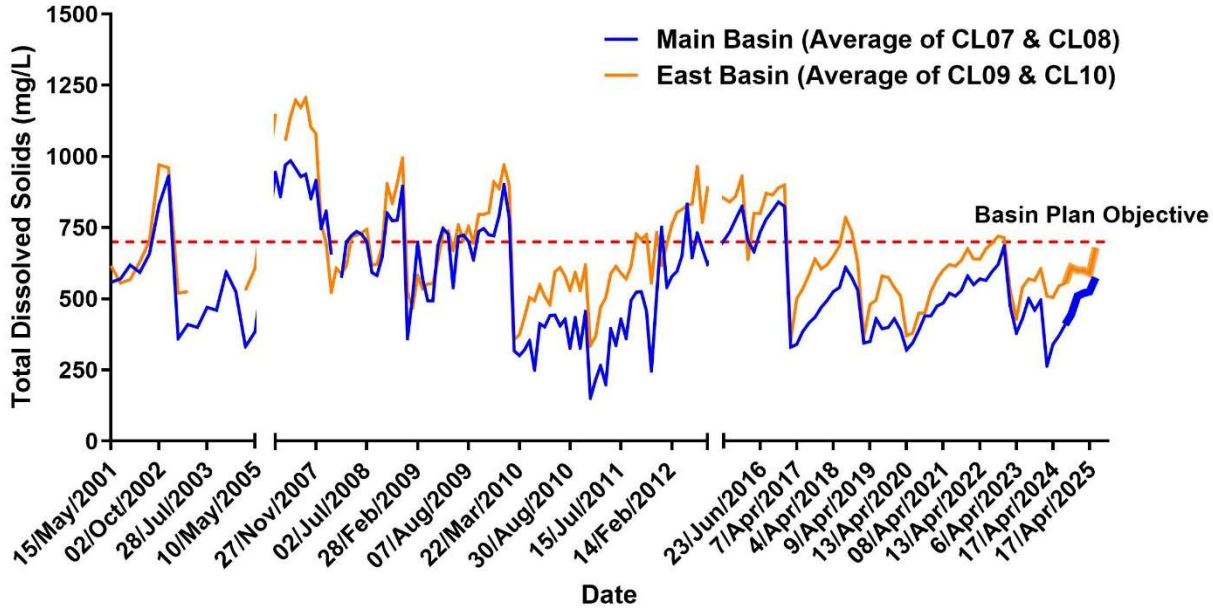


No data available from June 2012-July2015

2020 TMDL target of 25 µg/L is annual average to be attained by 2020

Bold represents current monitoring year July 2024-June 2025

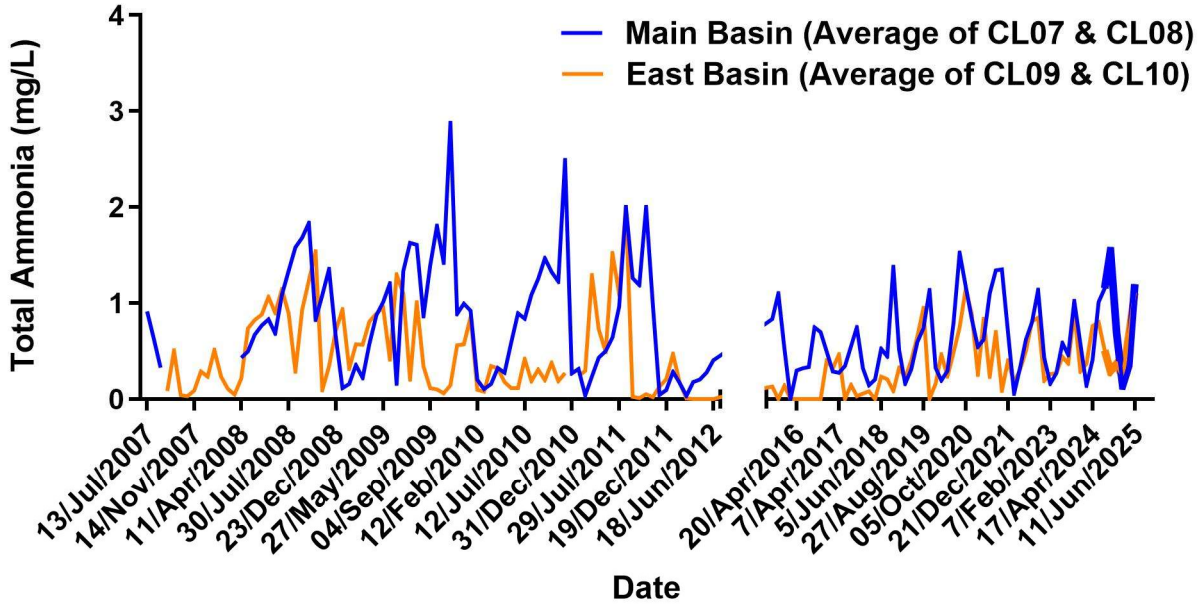
Canyon Lake Total Dissolved Solids



No data available from May 2005-July 2007; June 2012-July 2015

Bold represents current monitoring year July 2024-June 2025

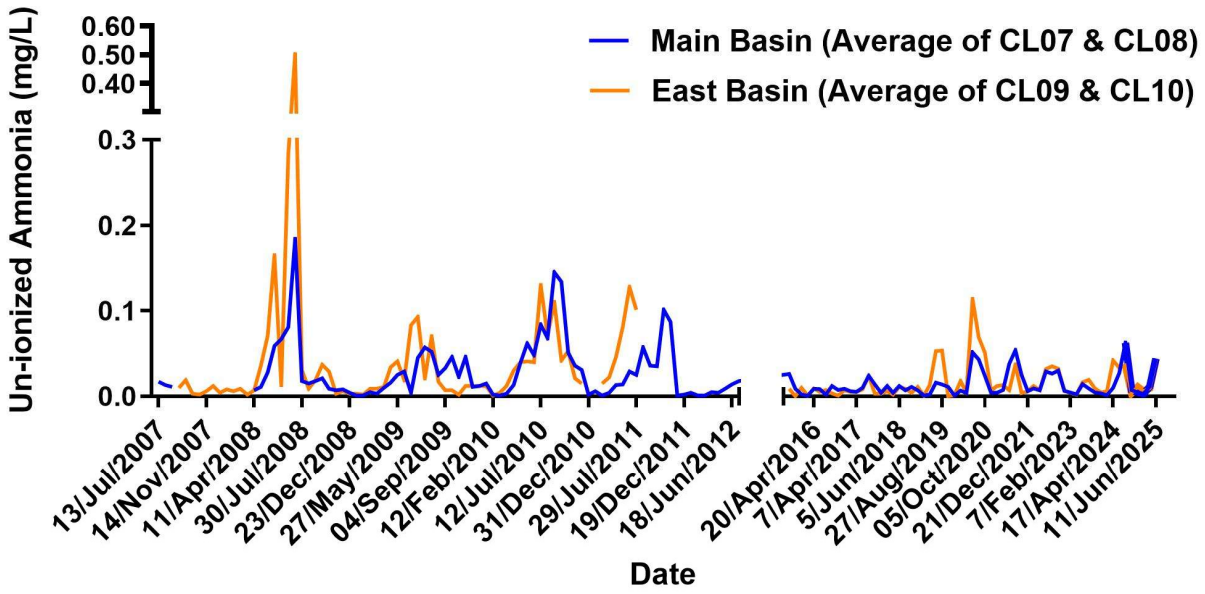
Canyon Lake Total Ammonia



No data available from June 2012-July2015

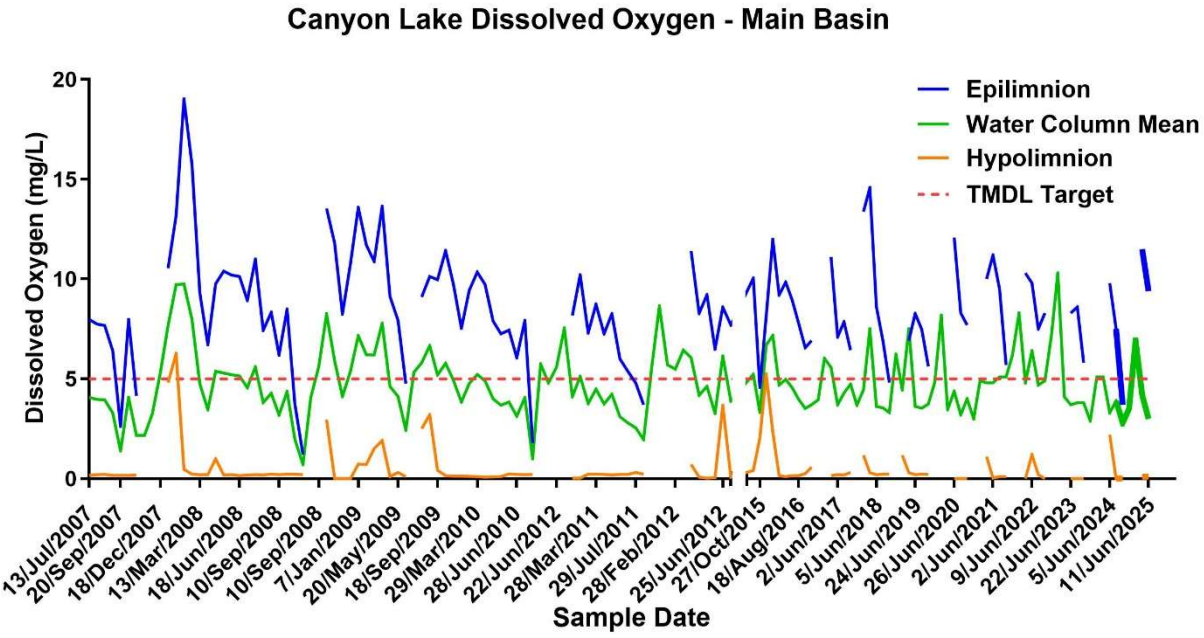
Bold represents current monitoring year July 2024-June 2025

Canyon Lake Un-ionized Ammonia



No data available from June 2012-July2015

Bold represents current monitoring year July 2024-June 2025

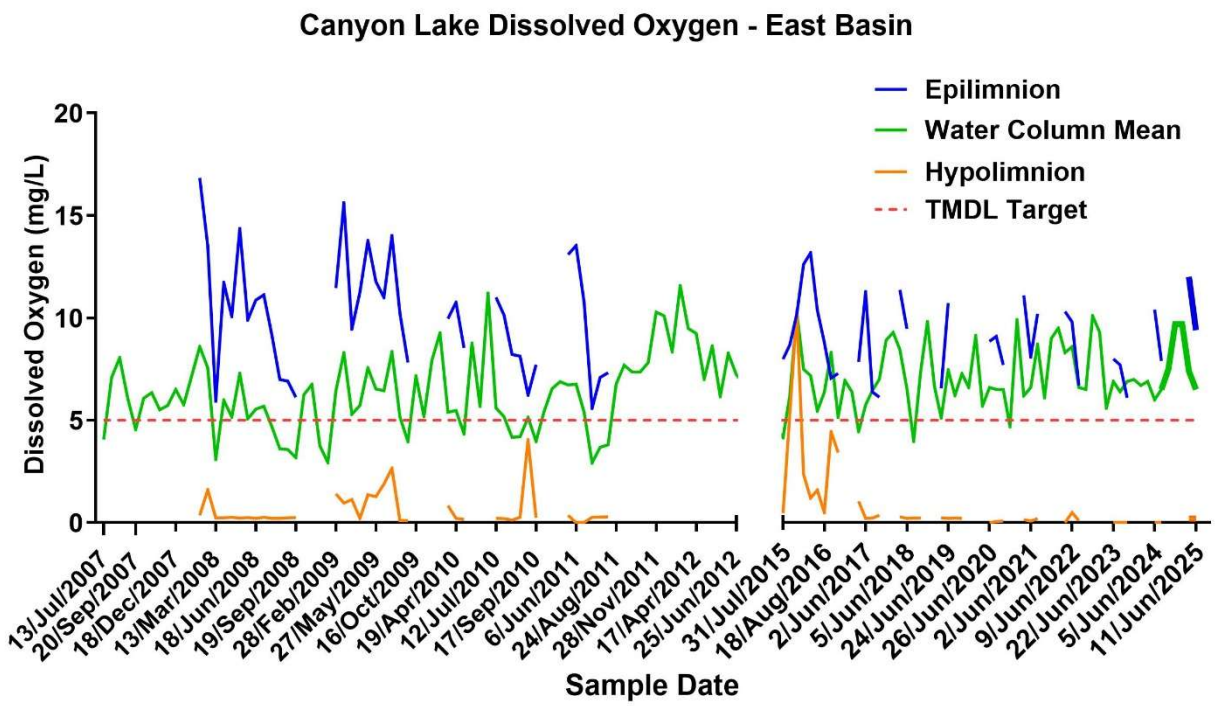


No data available from June 2012 - July 2015

Data represents average values of sites CL07 and CL08

TMDL 2015 target >5 mg/L in Epilimnion, 2020 target >5 mg/L in Hypolimnion

Bold represents current monitoring year July 2024-June 2025



No data available from June 2012 - July 2015

Data represents average values of sites CL09 and CL10

TMDL 2015 target >5 mg/L in Epilimnion, 2020 target >5 mg/L in Hypolimnion

Bold represents current monitoring year July 2024-June 2025

APPENDIX F

APRIL 2025 CANYON LAKE FISH KILL TECHNICAL MEMO

Technical Memorandum

A Summary of April 2025 Canyon Lake Fish Kill

This memorandum summarizes GEI Consultants Inc.'s (GEI) evaluation of water quality conditions in Canyon Lake in response to a *Prymnesium parvum* (Golden Algae) bloom that began around April 19, 2025. The bloom originated in the East Bay and spread to the Main Lake within three weeks, resulting in a significant fish die-off in both lake segments. The mortality event began with Threadfin Shad (*Dorosoma petenense*) and quickly expanded to include Largemouth Bass (*Micropterus salmoides*), Black Crappie (*Pomoxis nigromaculatus*), Common Carp (*Cyprinus carpio*), Bluegill (*Lepomis macrochirus*), and other sunfish species (*Lepomis* spp.).

Canyon Lake is home to an active fishing community and serves as a popular destination for recreational activities such as water skiing, paddleboarding, swimming, and boating. The recent fish kill has disrupted these uses, raised public concern about potential health risks from water exposure, and heightened awareness of the lake's overall ecological health.

Pre and Post-Fish Kill Data Gathered

The following is a timeline of events and data gathered pre and post fish kill.

- WSP Earth & Environment (WSP) conducted routine bi-monthly TMDL monitoring on Canyon Lake on April 17, 2025 prior to the start of the fish kill. Physical water quality profiles were recorded at the four TMDL stations (**Attachment Figure 1**) and are summarized in **Attachment Table 1**. In addition, nutrient, aluminum, and sulfide data were collected as part of the TMDL monitoring (**Attachment Table 2**).

- Around noon on Monday, April 21, 2025, SAWPA was informed by Darcy Burke of EVMWD via email that over the preceding weekend, residents had reported and shared photos numerous dead fish in the lake's East Arm and observed a brown discoloration in the water. Rick Whetsel of SAWPA forwarded this email to the technical support staff of the TMDL Task Force, including GEI Consultant staff.

- The morning of April 22, 2025 GEI sent a scope of work proposal to SAWPA to investigate the fish kill.

- GEI staff were mobilized to the lake the morning of April 23, 2025. At this point, fish mortality appeared to be limited to the East Bay. On this date, physical water quality parameters were recorded at three locations (**Attachment Table 3a).** Golden algae was suspected as a possible culprit due to the sudden onset, as well as the variety and

sizes of fish that were dying. Short-term drops in dissolved oxygen or spikes in ammonia will typically impact shad or other less robust fish species before larger and more tolerant species begin to be impacted. The color of the lake water had also changed from it's usual light green to a brown color characteristic of a golden algae bloom (**Attachment Figure 2**). Given that, samples for algae taxonomy were also collected at four locations: one in the Main Lake, and three in the East Bay. Additionally, total aluminum samples were collected at the same four locations (**Attachment Table 3b**).

- A second post-fish kill monitoring event was performed by EVMWD staff on May 23, 2025. Water quality profiles and algae taxonomy samples were collected at four locations in the East Bay of the lake (**Attachment Table 4 & Figure 4**).

- A third post–fish kill monitoring event was conducted by WSP and GEI staff on June 11, 2025, during routine bi-monthly TMDL sampling. Physical water quality profiles were collected, and algal taxonomy samples were taken at two depths at each of the four TMDL stations. Because there is no established analytical method for detecting prymnesin, the toxin produced by golden algae, the most effective way to assess toxin presence is through laboratory-based fish bioassays. To that end, water samples from TMDL Stations 8 and 10 were tested using the standard EPA 96-hour acute fathead minnow toxicity assay. Tests were performed on 100% undiluted lake water, both unfiltered and filtered through a 1.2 µm membrane to remove algae. A summary of water quality profile data is provided in **Attachment Table 5**. Nutrient and aluminum samples were also collected at all four stations as part of the routine TMDL monitoring.

- On June 25, 2025, GEI staff conducted the fourth post-fish kill monitoring event. Physical water quality profiles were recorded, and algae taxonomy samples were collected at all four TMDL stations. A water sample from TMDL Station 10 was collected for toxicity testing using the standard EPA 96-hour acute fathead minnow assay. Tests were performed on 100% undiluted lake water, as well as on 10% and 50% dilutions. Additionally, a separate sample was filtered through a 6 µm membrane to remove algae and tested at full strength (100% undiluted).Water quality profile data for this date are summarized in **Attachment Table 6**.

- On July 9, 2025, GEI staff conducted the fifth post-fish kill monitoring event. Physical water quality profiles were recorded, and algae taxonomy samples were collected at all four TMDL stations. A water sample from TMDL Stations 8 and 10 was collected for toxicity testing using the standard EPA 96-hour acute fathead minnow assay. Tests were performed on 100% undiluted lake water, as well as an undiluted sample filtered through a 6 µm membrane to remove algae. Water quality profile data for this date are summarized in **Attachment Table 7**.

- On July 31, 2025, GEI staff conducted the sixth post-fish kill monitoring event. Physical water quality profiles were recorded, and algae taxonomy samples were collected at all four TMDL stations. A water sample from TMDL Stations 8 and 10

was collected for toxicity testing using the standard EPA 96-hour acute fathead minnow assay. Tests were performed on 100% undiluted lake water only. Water quality profile data for this date are summarized in **Attachment Table 8**.

Water Quality Profiles

Water quality profiles from all sampling dates indicated that Canyon Lake had already entered a stratified state prior to the TMDL monitoring conducted on April 17, 2025. Typically, the upper 3 to 4 meters of the water column (epilimnion) maintained dissolved oxygen levels above 7.0 mg/L, while concentrations dropped sharply below this depth within the thermocline and hypolimnion. This pattern is consistent with seasonal trends in Canyon Lake, where the transition from a mixed (destratified) to a stratified condition generally occurs between mid-April and early May. Once stratification sets in, dissolved oxygen levels in deeper layers tend to decline rapidly due to limited mixing and consumption of oxygen due to both biological and chemical activity near the sediment.

Analytical Chemistry

Total nitrogen concentrations measured at the four TMDL monitoring stations on April 17, 2025 were consistent with typical historical levels for this time of year. In contrast, total phosphorus concentrations were lower than those observed during the previous two TMDL monitoring years. Total phosphorus concentrations on April 17, 2025 just before the fish kill ranged from 0.09 to 0.21 mg/L which were lower than those observed in the previous two Aprils of 2023 and 2024, which ranged from 0.20 to 0.36 mg/L and 0.25 to 0.43 mg/L, respectively. Additionally, all samples collected for total and dissolved aluminum, ammonia, and sulfide (including the April 23rd and June 11th aluminum samples), all of which can be toxic to aquatic life at elevated levels, were below thresholds of acute concern, and ruled out as a possibility of causing the fish kill.

Toxicity Testing

- Toxicity tests using fathead minnows on water samples collected on June 11, 2025, revealed 100% mortality within three hours in both the filtered and unfiltered samples for both sites tested. This strongly indicates the presence of high levels of toxins in both the Main Lake and East Bay at that time.

- Testing of East Bay samples collected on June 25, 2025, showed a marked improvement. Fathead minnows exhibited 100% survival in the 10% and 50% unfiltered samples, as well as in the 100% undiluted filtered sample, while the 100% undiluted unfiltered sample showed a slightly reduced survival rate of 70%, suggesting a significant decline in toxin levels from previous sampling event.

- Subsequent testing of samples collected on July 9, 2025, revealed increased toxicity. Undiluted, unfiltered samples from both sites resulted in 100% fathead minnow mortality within 24 hours of test initiation. However, when passed through a 6 µm

filter, the undiluted samples showed reduced toxicity. At Station 8, the filtered sample resulted in 15% minnow survival after 96 hours, an improvement compared to the unfiltered sample, which caused complete mortality within 24 hours. At Station 10, the filtered sample showed significantly better results, with 95% of minnows surviving the full 96-hour test.

- Samples collected on July 31, 2025, showed significant improvement, with fathead minnows exhibiting 95% survival in undiluted samples after the 96-hr bioassay test for both CL08 and CL10 sites.

Phytoplankton Taxonomy

A summary of golden algae densities recorded during each of the six post-fish kill monitoring events is provided in **Attachment Table 8**. Golden algae densities increased steadily through the June 11, 2025 sampling event, followed by a substantial decline in the June 25, 2025 samples. Golden alage densities then increased slightly in samples collected July 9, 2025, and were not detected in samples collected July 31, 2025. The progression of golden algae density was visually evident through changes in water color (see **Attachment Figure 2**). As the bloom developed, the water shifted from its typical blue-green hue (see April 2023 photo) to a yellowish-brown during the bloom and subsequent fish die off. After the decline in golden algae density on June 25th, the water's color visibly shifted back to its characteristic greenish tint.

Historical Water Quality Characteristics

Historical data for Canyon Lake shows high concentrations of total phosphorus at times reaching over 2.0 mg/L in the East Basin (April 2011), and regularly over 0.7 mg/L (**Attachment Figure 5**). Similarly, concentrations of chlorophyll-a (a surrogate for algal biomass) in the East Basin have been elevated historically, reaching over 200 ug/L in both November 2008 and February 2012 (**Attachment Figure 6)**. These two constituents, algal biomass and total phosphorus, are clearly linked in Canyon Lake.

In 2013, semi-annual (twice per year) alum applications were initiated in Canyon Lake. Since then, total phosphorus has exhibited a decrease in concentration and has remained low near the 2004 TMDL target with exception of an occasional spike as a result of a large storm events. Algal biomass (chlorophyll-a) while not exhibiting an immediate decrease after alum applications were started, shows a gradual decline and has remained at or near the 2004 TMDL target since 2016, with the exception of an occasional spike.

There also appears to be a general increase in dissolved oxygen (DO) concentrations throughout the water column. Starting in late 2011, data from the East Bay show a noticeable upward trend in DO levels, with average concentrations rarely falling below 5.0 mg/L (**Attachment Figure 7**). Although the trend is less pronounced in the Main Lake, DO levels there have also increased over time. Since late 2012, the large downward fluctuations in DO have diminished, giving way to more stable and moderate variability (**Attachment Figure 8)**.

This is particularly significant given that a substantial portion of the Main Lake lies below the thermocline, where low DO concentrations are typically expected.

Conclusions

The pattern of golden algae cell density closely mirrored the results of fathead minnow toxicity tests, with higher cell concentrations corresponding to increased mortality (Attachment Figure 3). Based on water quality profiles, changes in water color, analytical chemistry, golden algae densities, and toxicity testing, it is highly likely that golden algae were responsible for the April 2025 fish kill in Canyon Lake.

Historically, Canyon Lake has experienced much higher algal biomass than those observed during the April 2025 event, yet golden algae had never previously been detected. Notably, golden algae were suspected in a similar fish kill in Menifee Lakes in April 2014, located upstream of Canyon Lake. This algae has also caused fish kills in other Southern California lakes, including Lake Elsinore, Lake Mission Viejo, East Lake in Yorba Linda, and Lago Santa Margarita in Rancho Santa Margarita, as well as in other lakes across the arid Southwest.

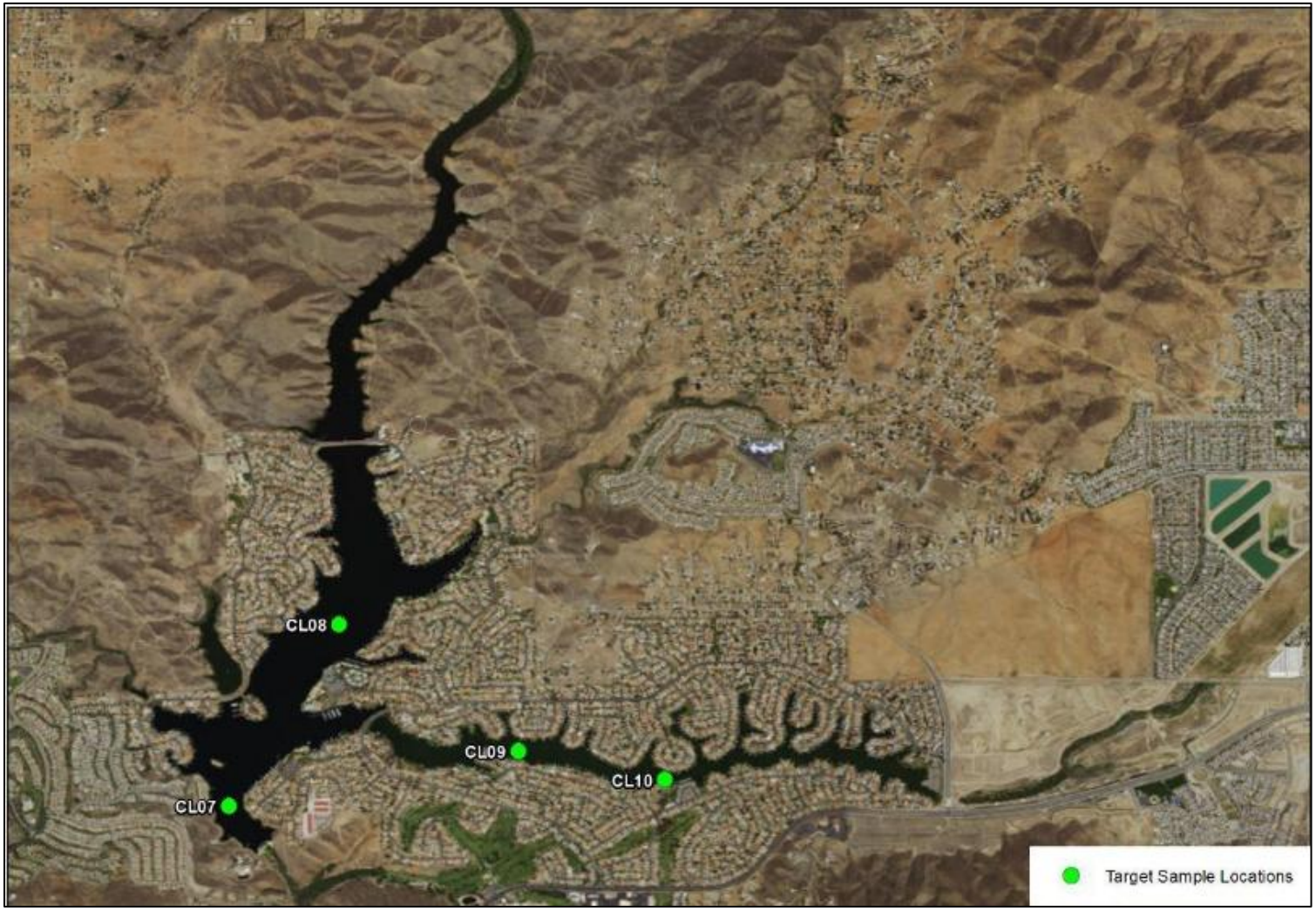
Golden algae prefer water with higher conductivity and cooler temperatures compared to green algae and cyanobacteria. They thrive in brackish environments and can tolerate a wide salinity range (1–30 parts per thousand (ppt)). While they can survive in freshwater, their growth and toxicity are often enhanced in slightly saline conditions above 1 ppt (approximately 1,500 µS/cm). Blooms typically occur during cooler periods, when water temperatures range from 10°C to 20°C, most commonly from late fall through early spring, though they can persist into early summer under favorable conditions. At the onset of the bloom in Canyon Lake's East Basin, conductivity ranged from 875 to 1,060 µS/cm, and temperatures from 12.3 to 18.9°C, a temperture span within an ideal range known for golden algae.

Additional factors such as low nutrient levels, especially low phosphorus, and high light availability can promote golden algae dominance, particularly when competing algal species are suppressed. An alum application conducted the week of March 24th was intended to reduce phosphorus concentrations in the lake. The golden algae bloom began approximately three weeks later, around April 19th, suggesting that the combination of cooler water, elevated conductivity, and reduced phosphorus may have created conditions conducive to the bloom. However, similar conductivity and temperature levels have been recorded in Canyon Lake since alum treatments began in 2013 (**Attachment Figure 9**), making it unclear why golden algae bloomed so aggressively in April 2025, resulting in a fish kill.

Surface water temperatures nearing 31°C in July likely contributed to the decline of the bloom. A similar pattern was observed in Lake Elsinore during a golden algae bloom and associated fish kill that began in December 2018 and continued through early February 2019. Although golden algae remained detectable through April 2019, the bloom dissipated as temperatures rose without any treatment being applied to the lake. That bloom coincided with a series of storms that mobilized sediment and debris flows from the Holy Fire burn scar in the upstream

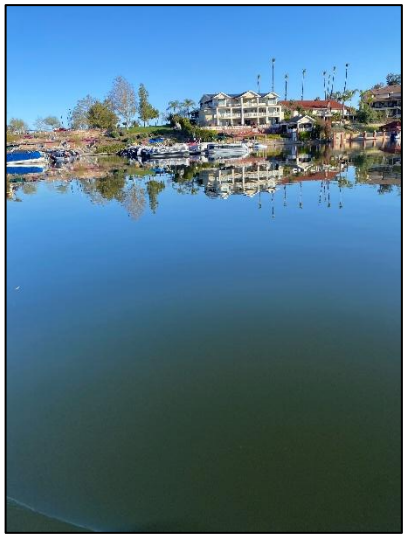
watershed. The influx of nutrient-rich, high-turbidity water caused a rapid and dramatic shift in lake water quality, likely triggering the bloom.

A comparable shift in water quality appears to have occurred in Canyon Lake just prior to the April 2025 bloom. Between March 6 and March 15, two storm systems delivered 2.7 to 3.3 inches of rain across the San Jacinto watershed. This led to a substantial inflow, raising lake levels to six inches above the dam crest, on top of a nearly three-foot rise from a previous storm on February 13–15, which brought 1.69 inches of rain to the area. Eleven days after the March storms, the alum application further altered water chemistry by stripping phosphorus from the water column. These successive changes may have disrupted the competitive balance among algal species, favoring golden algae and enabling their rapid proliferation.



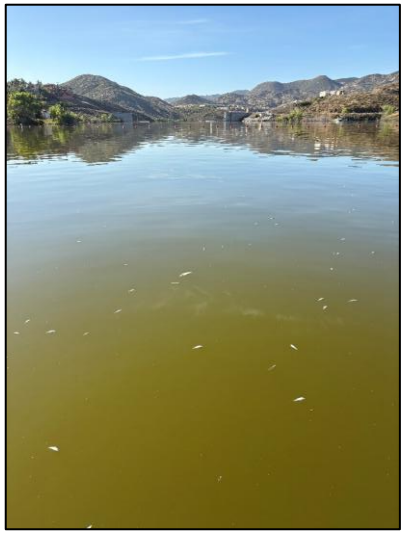
Attachment Figure 1. Routine TMDL Monitoring Locations on Canyon Lake

April, 2023
Typical Color



April 23

May 23

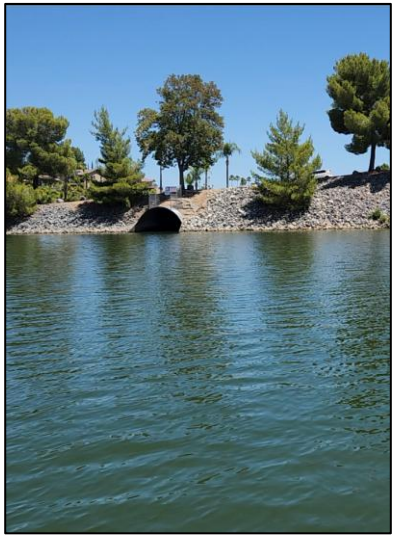


June 11

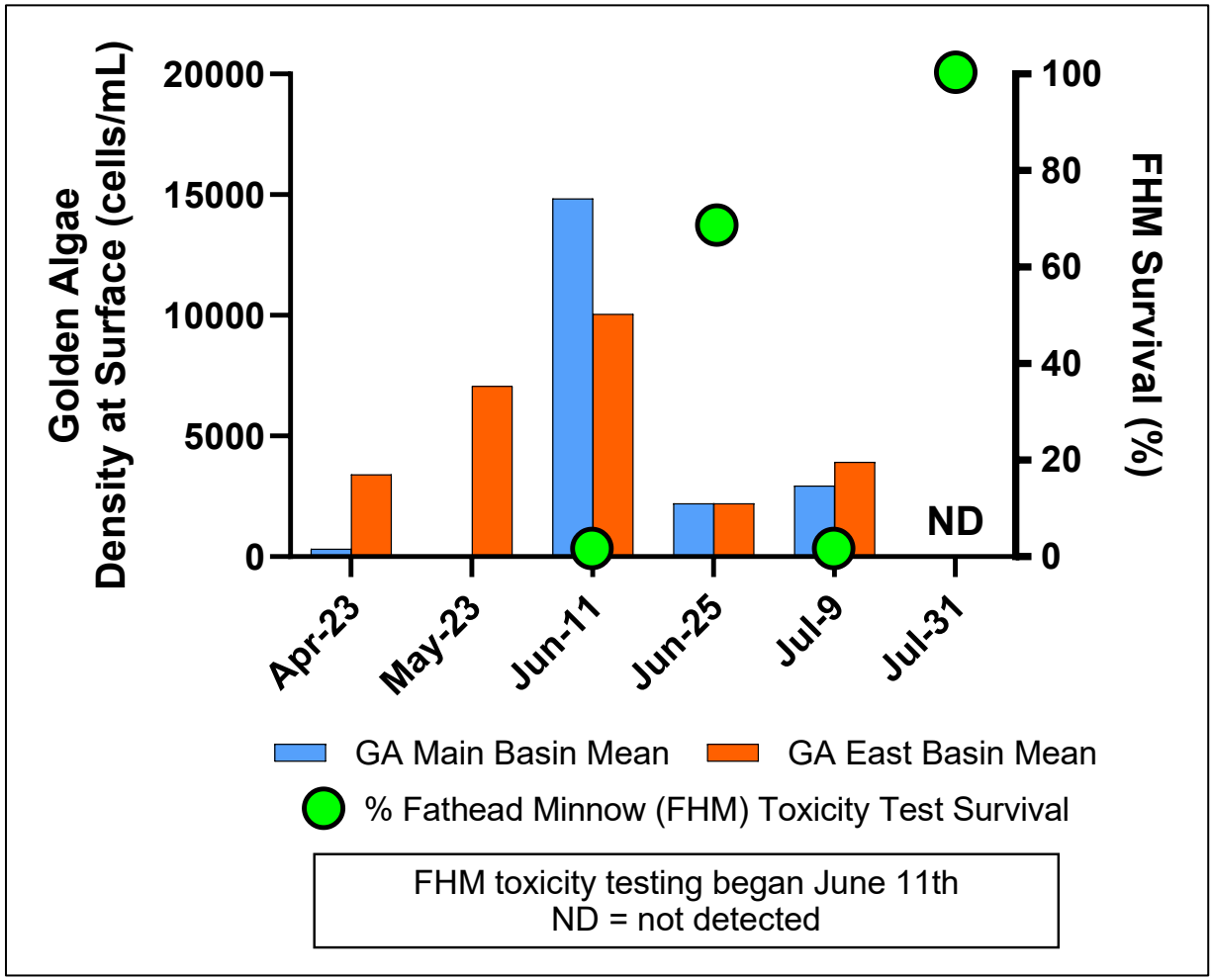
June 25

July 9

July 31



Attachment Figure 2. Canyon Lake Water Color Progression - Photo from April 2023 and During Fish Die Off of April - July 2025



Attachment Figure 3. Golden Algae Densities relative to Fathead Minnow Lab Toxicity

Attachment Table 1a. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – April 17, 2025

	Station CL07				Station CL08			
Depth (m)	Temp (°C)	SpCond (uS/cm)	pH (units)	DO (mg/L)	Temp (°C)	SpCond (uS/cm)	pH (units)	DO (mg/L)
Surface	18.5	815	9.46	11.53	18.7	810	8.74	11.28
1	18.4	815	9.29	11.52	18.7	812	8.71	11.36
2	18.3	815	9.01	11.28	18.6	812	8.69	11.37
3	18.3	816	8.92	11.12	18.4	814	8.69	10.95
4	16.5	857	8.17	3.38	16.2	869	7.96	0.92
5	15.5	860	7.76	0.53	15.2	875	7.57	0.43
6	14.2	879	7.61	0.21	14.7	879	7.49	0.15
7	13.2	880	8.74	0.10	13.6	872	7.41	0.60
8	13.0	884	7.87	0.04	13.4	878	7.47	0.03
9	12.4	887	7.90	0.00	12.8	883	7.48	0.00
10	12.4	887	7.89	0.00	–	–	–	–
11	12.4	888	7.85	0.00	–	–	–	–
12	12.4	888	7.83	0.00	–	–	–	–
13	12.3	887	7.79	0.00	–	–	–	–
14	12.3	891	7.56	0.00	–	–	–	–
15	12.2	893	7.37	0.00	–	–	–	–

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter

Attachment Table 1b. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – April 17, 2025

	Station CL09				Station CL10			
Depth (m)	Temp (°C)	SpCond (uS/cm)	pH (units)	DO (mg/L)	Temp (°C)	SpCond (uS/cm)	pH (units)	DO (mg/L)
Surface	18.6	875	8.83	12.40	18.7	919	8.52	12.95
1	18.7	881	8.84	12.88	18.9	918	8.52	12.75
2	18.7	882	8.86	12.89	18.9	916	8.64	12.88
3	17.5	963	8.25	7.83	18.4	1032	8.00	4.00
4	15.2	1048	7.54	0.63	17.9	1050	3.08	0.00
5	13.0	1028	7.32	0.19	–	–	–	–
6	12.4	1057	7.14	0.10	–	–	–	–
7	12.3	1060	6.92	0.70	–	–	–	–
8	12.3	1060	6.91	0.50	–	–	–	–
9	12.3	1060	6.92	0.05	–	–	–	–

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter

Attachment Table 2. Select Nutrient TMDL Data collected During Routine TMDL Monitoring on Canyon Lake – April 17, 2025. All aluminum concentrations were below the EPA 2018 Aluminum CMC threshold.

Analyte (mg/L)	Station CL07	Station CL08	Station CL09	Station CL10
Total Nitrogen	1.3	1.1	2.2	1.2
Total Phosphorus	0.088	0.091	0.210	0.088
Total Ammonia	0.51	0.19	1.3	ND <0.017
Total Sulfide	0.70	0.3	2.0	ND <0.05
Total Aluminum	0.087	0.170	0.240	0.470
Dissolved Aluminum	0.052	0.120	0.140	0.450

– mg/L = milligrams per liter

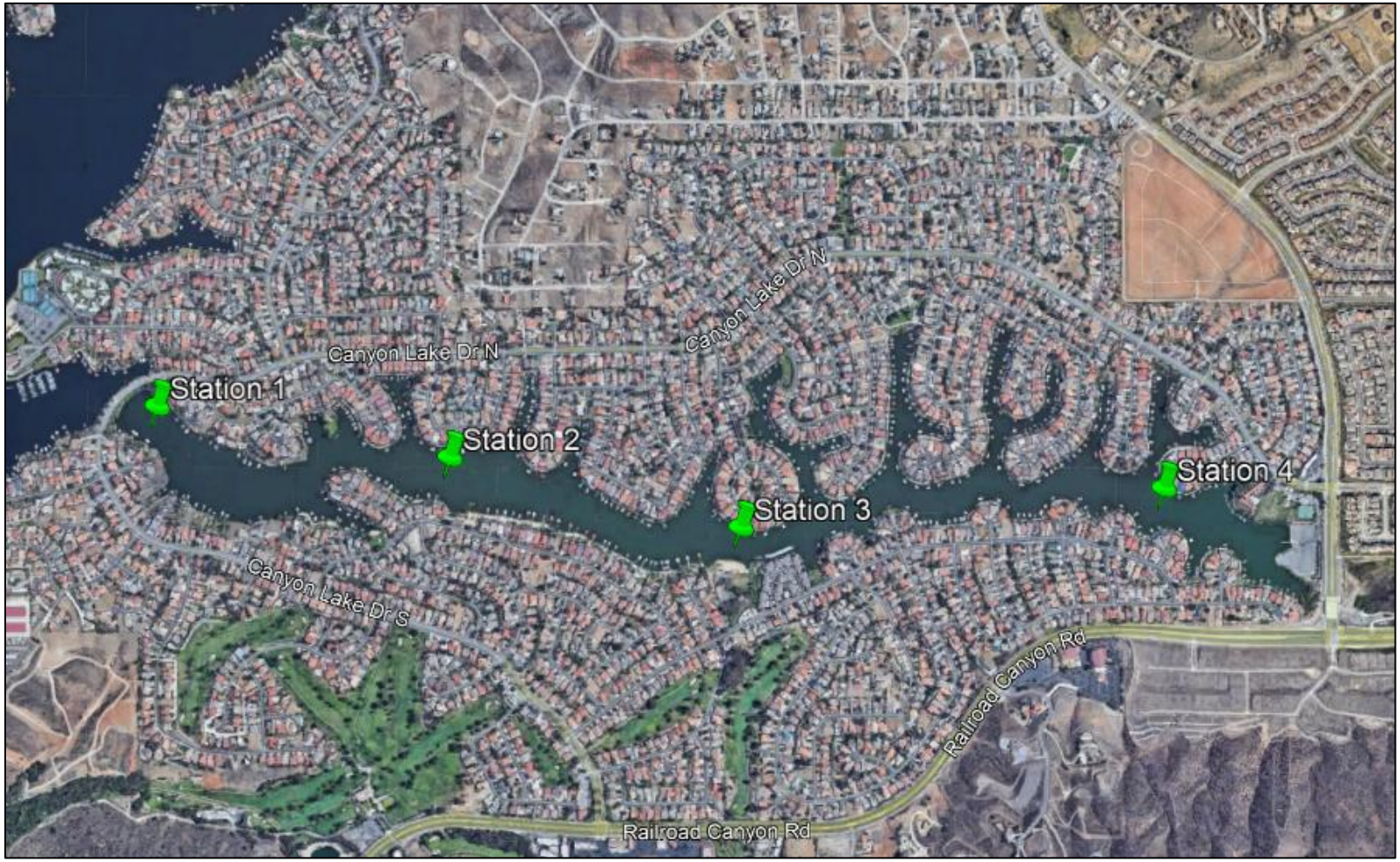
Attachment Table 3a. Water Quality Profiles Measured During Fish Kill Response Monitoring on Canyon Lake – April 23, 2025

	Station CL08					Near Station CL09					Near Station CL10				
Depth (m)	Temp (°C)	SpCond (uS/cm)	pH (units)	Turb (NTU)	DO (mg/L)	Temp (°C)	SpCond (uS/cm)	pH (units)	Turb (NTU)	DO (mg/L)	Temp (°C)	SpCond (uS/cm)	pH (units)	Turb (NTU)	DO (mg/L)
Surface	19.9	738	9.09	3.6	11.5	20.2	827	9.27	5.9	12.0	20.3	864	9.20	6.2	12.3
1	19.8	738	9.08	3.8	11.5	20.2	827	9.26	6.1	12.1	20.3	864	9.18	5.8	12.4
2	19.7	738	9.08	3.9	11.5	19.4	807	9.24	5.7	12.6	18.7	822	9.14	7.0	12.9
3	17.7	755	8.68	4.3	8.6	17.6	800	9.04	6.8	10.7	17.9	915	8.26	7.2	7.9
4	16.7	768	7.87	5.0	4.3	16.6	934	7.50	8.8	1.0	–	–	–	–	–
5	15.8	784	7.59	6.0	0.5	–	–	–	–	–	–	–	–	–	–
6	14.5	808	7.51	4.1	0.1	–	–	–	–	–	–	–	–	–	–
7	13.3	808	7.44	3.4	0.1	–	–	–	–	–	–	–	–	–	–
8	12.9	814	7.41	3.5	0.1	–	–	–	–	–	–	–	–	–	–

– not applicable; mg/L = milligrams per liter; uS/cm = microsiemens per centimeter

Attachment Table 3b. Results of Total Aluminum Samples Collected During Fish Kill Response Monitoring on Canyon Lake – April 23, 2025. All aluminum concentrations were below the EPA 2018 Aluminum CMC threshold.

Analyte (mg/L)	Station CL08	Near Station CL09	Near Station CL10	Far End East Bay
Total Aluminum	0.287	0.372	0.416	0.406



Attachment Figure 4. EVMWD Monitoring Locations on Canyon Lake – May 23, 2025

Attachment Table 4a. Water Quality Profiles Measured During Canyon Lake East Bay Hydrolab Testing – May 23, 2025

Depth (ft)	Station 1 Time: 13:00–14:30 Secchi Depth (ft): 2.7						Station 2 Time: 13:00–14:30 Secchi Depth (ft): 2.7					
	Temp (°C)	pH (units)	DO (mg/L)	Turb (NTU)	TDS (mg/L)	CHL (ug/L)	Temp (°C)	pH (units)	DO (mg/L)	Turb (NTU)	TDS (mg/L)	CHL (ug/L)
1	26.02	10.57	9.36	1.7	592.9	1.26	24.98	10.67	9.05	5.7	62.04	1.09
3	25.62	10.62	9.41	2.5	591.7	1.76	24.89	10.71	9.85	6.1	61.4	2.01
6	24.39	10.65	9.55	3.1	586.6	3.46	23.10	10.77	10.37	6.4	592.1	5.86
9	21.83	10.45	8.49	3.4	579.9	9.80	20.94	10.49	7.59	7.0	620.0	16.09
12	20.23	9.87	4.08	3.7	631.8	7.79	19.36	9.51	1.23	11.3	682.5	5.55
15	17.57	9.25	0.09	5.0	669.4	4.89	16.76	9.25	0.09	14.6	690.5	4.04
18	15.12	9.25	0.04	5.4	673.9	3.38	16.87 [1]	9.19 [1]	0.07 [1]	17.0 [1]	691.6 [1]	4.55 [1]
21	13.48	9.20	0.05	5.0	673.8	2.94	–	–	–	–	–	–
24	12.99	9.15	0.06	4.6	681.8	2.66	–	–	–	–	–	–
27	12.80	9.15	0.06	4.3	680.4	2.61	–	–	–	–	–	–
30	12.96	9.13	0.06	4.0	679.0	2.58	–	–	–	–	–	–
33	12.57	8.97	0.06	3.9	720.3	2.56	–	–	–	–	–	–
35	12.57	8.96	0.07	8.9	728.8	2.13	–	–	–	–	–	–

Notes:

1. Measurement recorded at a depth of 16 feet.

– not applicable; CHL = chlorophyll; ft = feet; ug/L = micrograms per liter; mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

Attachment Table 4b. Water Quality Profiles Measured During Canyon Lake East Bay Hydrolab Testing – May 23, 2025

Depth (ft)	Station 3 Time: 13:00–14:30 Secchi Depth (ft): 2.7						Station 4 Time: 13:00–14:30 Secchi Depth (ft): 2.7					
	Temp (°C)	pH (units)	DO (mg/L)	Turb (NTU)	TDS (mg/L)	CHL (ug/L)	Temp (°C)	pH (units)	DO (mg/L)	Turb (NTU)	TDS (mg/L)	CHL (ug/L)
1	26.46	10.68	9.44	2.1	637.3	1.22	26.07	10.69	9.71	5.0	662.3	1.20
3	24.98	10.74	9.87	2.5	630.0	2.35	25.06	10.74	9.99	5.2	659.3	2.02
6	22.69	10.82	10.63	3.0	616.5	12.28	22.58	10.87	10.97	5.8	644.7	12.29
9	21.38	10.01	7.22	3.5	659.0	9.38	21.35 [1]	9.68	3.35	7.8	703.3	6.07
12	19.68	9.17	0.62	3.5	672.7	7.60	–	–	–	–	–	–

Notes:
1. Measurement recorded at a depth of 10 feet.
– - not applicable; CHL = chlorophyll; ft = feet; ug/L = micrograms per liter; mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

Attachment Table 5a. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – June 11, 2025

Depth (m)	Station CL07				Station CL08			
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)
Surface	27.2	909	9.20	10.02	27.2	913	9.33	9.99
1	26.8	909	9.10	10.36	26.9	908	9.25	10.16
2	25.9	906	9.08	10.38	26.5	907	9.18	10.12
3	25.6	924	8.74	4.40	22.8	925	8.34	1.02
4	19.5	933	7.87	0.79	21.8	924	7.95	0.44
5	18.5	944	7.70	0.21	18.2	939	7.81	0.29
6	16.7	941	7.51	0.11	16.4	932	7.66	0.18
7	15.0	932	7.42	0.05	15.0	930	7.60	0.13
8	13.9	932	7.36	0.03	14.0	934	7.49	0.10
9	13.5	931	7.21	0.00	13.3	938	7.39	0.05
10	13.1	931	7.23	0.00	–	–	–	–
11	13.0	930	7.22	0.00	–	–	–	–
12	13.0	932	7.20	0.00	–	–	–	–
13	12.9	931	7.20	0.00	–	–	–	–
14	12.6	934	7.24	0.00	–	–	–	–
15	12.9	939	7.20	0.00	–	–	–	–

- not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter

Attachment Table 5b. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – June 11, 2025

Depth (m)	Station CL09				Station CL10			
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)
Surface	26.4	988	9.14	9.30	26.2	1,028	8.96	9.51
1	26.5	992	9.01	9.25	26.2	1,027	8.94	9.53
2	26.2	994	8.96	9.21	26.2	1,032	8.96	8.95
3	24.3	1,054	8.2	9.58	25.9	1,122	8.56	8.75
4	22.1	1,118	8.06	0.58	25.1 [1]	1,091 [1]	8.65 [1]	10.70 [1]
5	17.5	1,132	7.47	0.22	–	–	–	–
6	15.0	1,118	7.42	0.10	–	–	–	–
7	13.6	1,118	7.37	0.05	–	–	–	–
8	13.0	1,129	7.29	0.03	–	–	–	–
9	13.0	1,129	7.20	0.02	–	–	–	–

Notes:
1. Measurement recorded at a depth of 3.7 meters.
– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter

Attachment Table 6a. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – June 25, 2025

Depth (m)	Station CL07						Station CL08					
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Surface	28.3	813	9.02	9.64	31.0	2.56	27.2	807	9.05	10.08	70.7	2.96
1	26.9	812	9.06	10.23	33.6	2.72	26.4	805	9.07	10.16	67.2	3.24
2	26.3	811	9.01	9.56	36.1	2.54	25.9	804	9.02	9.60	66.7	3.10
3	25.5	810	8.99	9.52	38.5	2.60	25.5	806	8.94	9.02	67.3	2.91
4	21.9	832	7.82	1.10	50.6	11.96	22.3	818	7.84	1.02	78.1	5.13
5	18.2	831	7.64	0.44	-179.9	24.92	17.9	827	7.61	0.33	-227.4	11.1
6	15.9	826	7.58	0.24	-255.9	3.54	16.2	822	7.57	0.19	-269.4	4.64
7	14.6	823	7.56	0.13	-273.6	2.61	14.9	826	7.52	0.12	-282.5	2.91
8	13.7	825	7.55	0.08	-280.4	2.43	14.1	832	7.48	0.10	-293.5	5.46
9	13.5	826	7.54	0.05	-283.9	2.36	–	–	–	–	–	–
10	13.4	828	7.54	0.04	-287.8	2.51	–	–	–	–	–	–
11	13.0	828	7.65	0.02	-289.7	2.48	–	–	–	–	–	–
12	13.2	830	7.53	0.01	-290.8	2.79	–	–	–	–	–	–
13	13.2	831	7.51	0.00	-293.1	2.55	–	–	–	–	–	–
14	13.2	830	7.51	0.00	-293.1	2.82	–	–	–	–	–	–

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

Attachment Table 6b. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – June 25, 2025

Depth (m)	Station CL09						Station CL10					
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Surface	27.1	883	9.06	10.80	78.4	2.66	27.9	906	8.99	10.47	25.5	2.41
1	26.4	885	9.05	10.88	78.6	2.61	26.4	913	9.01	11.01	29.4	2.95
2	26.1	886	9.04	10.81	79.2	2.75	26.1	915	8.99	10.88	32.1	2.98
3	25.7	897	8.85	9.84	81.4	3.06	25.9	916	8.96	10.65	24.6	2.80
4	22.0	968	7.62	0.76	-103.4	26.50	25.7 [1]	937 [1]	7.40 [1]	7.51 [1]	-56.2 [1]	4.80 [1]
5	16.5	996	7.44	0.68	-286.6	4.16	–	–	–	–	–	–
6.5	14.7	994	7.40	0.33	-305.9	3.07	–	–	–	–	–	–

Notes:

1. Measurement recorded at a depth of 3.5 meters.

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

Attachment Table 7a. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – July 9, 2025

Depth (m)	Station CL07						Station CL08					
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Surface	28.6	831	8.83	8.83	44.2	2.03	27.9	828	8.88	8.65	85.9	2.27
1	28.1	831	8.80	8.72	42.2	2.19	27.7	828	8.83	8.80	55.5	2.22
2	27.9	831	8.83	9.00	42.3	2.15	27.5	828	8.83	8.89	54.5	2.25
3	27.1	833	8.80	8.72	43.3	2.15	27.0	828	8.80	8.60	54.4	2.42
4	22.7	833	7.72	0.80	53.6	10.88	24.7	829	8.06	3.96	62.1	4.33
5	19.3	840	7.62	0.28	-218.7	23.54	18.4	831	7.58	0.56	-253.9	18.0
6	16.1	826	7.54	0.17	-217.1	4.20	16.3	826	7.57	0.21	-297.0	5.22
7	14.3	826	7.57	0.11	-295.1	2.49	14.7	828	7.55	0.10	-316.2	3.31
8	13.8	828	7.55	0.08	-303.6	2.56	14.1	837	7.51	0.07	-319.2	13.9
9	13.5	826	7.58	0.04	-307.8	2.47	13.9 [1]	807 [1]	7.47 [1]	0.02 [1]	-335.7 [1]	36.2 [1]
10	13.4	830	7.54	0.02	-310.4	2.79	–	–	–	–	–	–
11	13.3	832	7.52	0.02	-311.8	2.94	–	–	–	–	–	–
12	13.3	833	7.50	0.01	-312.8	2.77	–	–	–	–	–	–
13	13.3	833	7.50	0.01	-313.5	2.92	–	–	–	–	–	–
14	13.3	832	7.50	0.01	-313.8	2.99	–	–	–	–	–	–
14.5	13.2	836	7.46	0.01	-315.8	8.02	–	–	–	–	–	–

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

1. Measurement recorded at a depth of 8.2 meters.

Attachment Table 7b. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – July 9, 2025

Depth (m)	Station CL09						Station CL10					
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Surface	27.5	911	8.89	9.42	78.8	2.18	27.6	932	8.90	9.31	45.7	2.49
1	27.4	914	8.86	9.48	69.4	2.24	27.6	931	8.87	9.48	48.0	2.36
2	27.4	915	8.83	9.38	67.8	2.02	27.5	931	8.85	9.37	49.9	2.31
3	27.2	935	8.75	9.15	68.2	2.76	27.2	982	8.07	6.30	59.2	5.20
4	23.6	986	7.45	0.45	-69.0	76.8	27.0 [2]	1005 [2]	7.88 [2]	2.80 [2]	-133.0 [2]	16.91 [2]
5	16.5	1005	7.41	0.18	-316.0	4.80	–	–	–	–	–	–
6	14.8	1003	7.35	0.12	-325.4	3.61	–	–	–	–	–	–

Notes:

2. Measurement recorded at a depth of 3.4 meters.

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

Attachment Table 8a. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – July 31, 2025

Depth (m)	Station CL07						Station CL08					
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Surface	29.3	861	8.89	9.9	20.2	1.85	29.7	859	8.87	9.5	57.7	1.76
1	28.8	860	8.91	10.2	26.7	1.96	28.4	856	8.91	9.9	59.3	1.90
2	27.6	856	8.93	10.6	32.8	2.07	27.7	856	8.91	10.1	61.0	1.92
3	27.4	856	8.92	10.5	37.3	2.15	27.5	856	8.87	9.6	62.7	2.01
4	26.7	859	8.59	7.6	43.3	3.03	26.8	856	8.67	7.9	67.0	2.57
5	18.4	838	7.51	0.6	-252.4	18.35	21.1	856	7.62	0.3	-215.6	31.7
6	17.7	825	7.51	0.4	-298.4	8.3	16.5	833	7.45	0.2	-283.8	4.2
7	15.2	828	7.49	0.2	-310.8	3.13	15.5	832	7.42	0.1	-308.3	3.82
8	14.2	830	7.48	0.1	-318.8	6.20	–	–	–	–	–	–
9	13.9	832	7.51	0.2	-283.5	2.54	–	–	–	–	–	–
10	13.5	831	7.50	0.3	-310.2	2.73	–	–	–	–	–	–
11	13.5	837	7.45	0.2	-317.3	3.01	–	–	–	–	–	–
12	13.4	837	7.41	0.1	-321.1	2.97	–	–	–	–	–	–
13	13.4	837	7.38	0.1	-322.9	3.06	–	–	–	–	–	–

– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

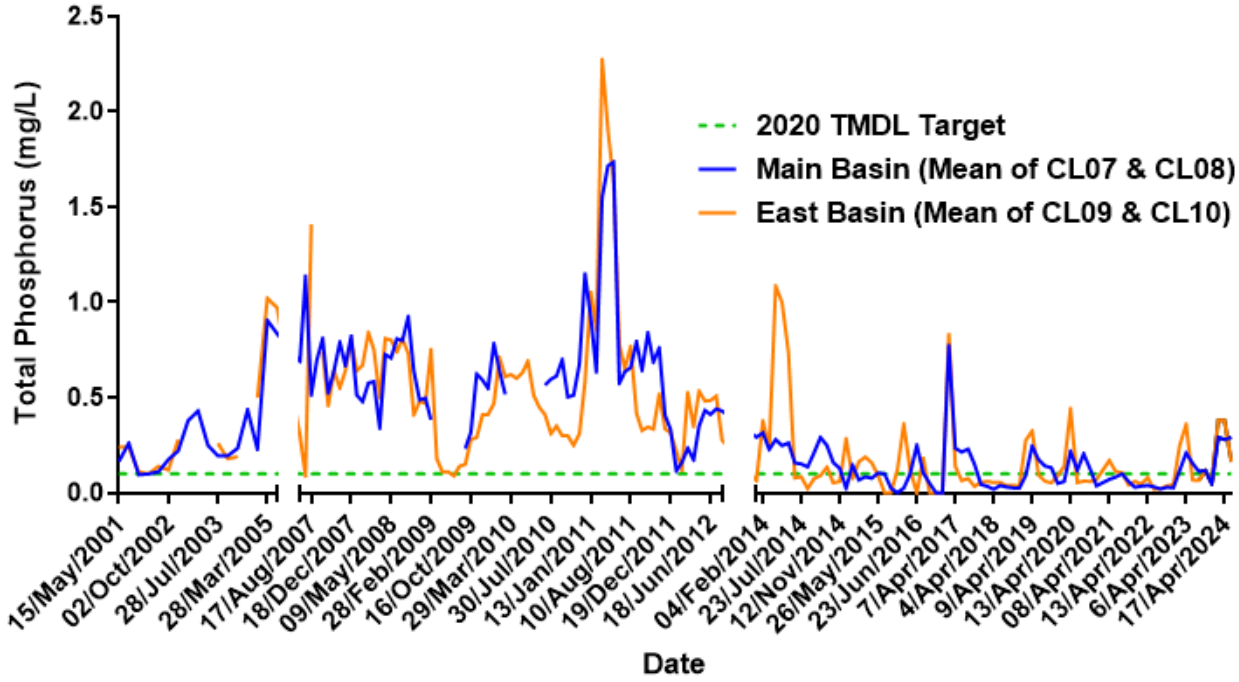
Attachment Table 8b. Water Quality Profiles Measured During Routine TMDL Monitoring on Canyon Lake – July 31, 2025

Depth (m)	Station CL09						Station CL10					
	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Temp (°C)	Sp. Cond (uS/cm)	pH (units)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
Surface	30.5	937	8.92	11.1	89.6	1.83	30.7	959	8.93	12.0	80.4	2.48
1	28.3	932	8.99	12.3	71.9	2.50	28.2	966	9.06	14.5	82.4	4.17
2	27.5	932	9.00	12.1	75.2	72.71	27.4	951	9.04	14.4	85.6	3.88
3	27.1	947	8.80	10.6	79.3	2.96	27.1	985	8.48	9.1	94.6	6.72
4	26.7	982	8.08	4.7	88.5	4.24	26.9 [1]	1013 [1]	7.97 [1]	1.3 [1]	-180.5 [1]	21.3 [1]
5	22.9	1000	7.39	0.5	-275.3	37.2	–	–	–	–	–	–

Notes:
1. Measurement recorded at a depth of 3.5 meters.
– not applicable; uS/cm = microsiemens per centimeter; m = meter(s); mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity unit

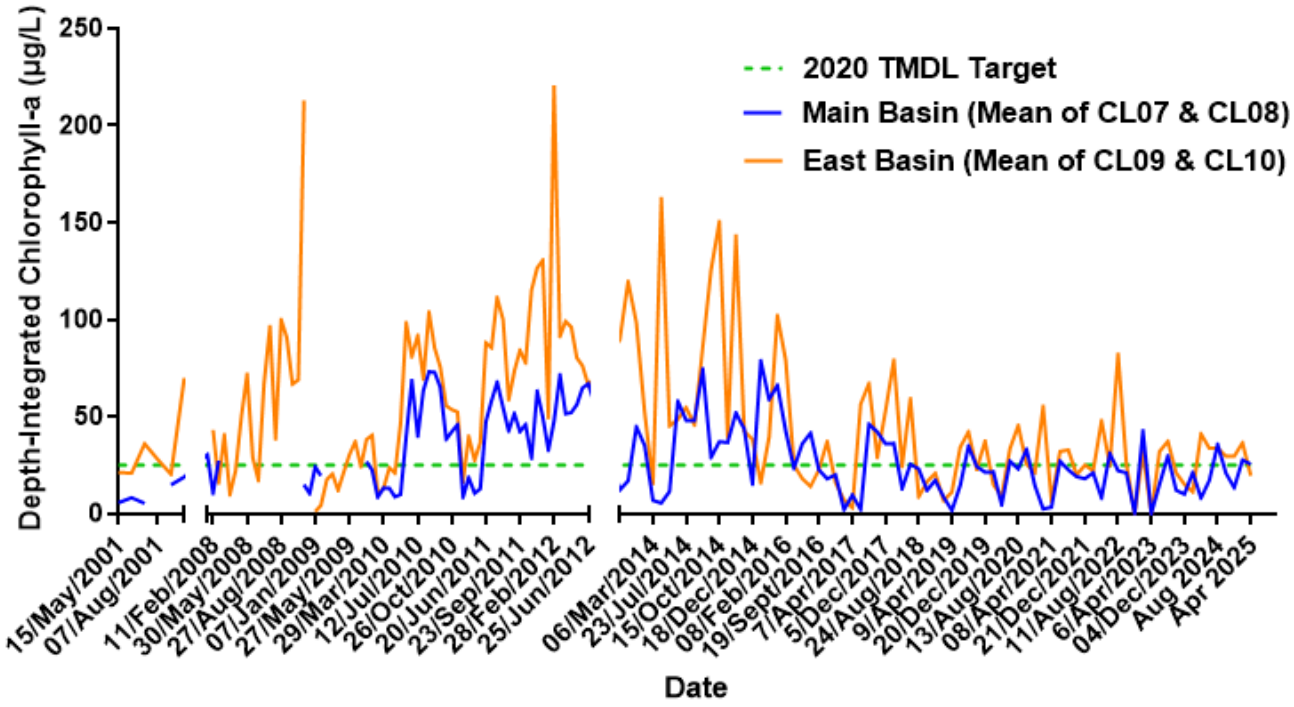
Attachment Table 8. Golden Algae Density for the Five Rounds of Samples Collected

Date	Site-Depth	Golden Algae Density (cells/mL)
April 23, 2025	Station CL08	327
	Near Station CL09	1,212
	Near Station CL10	1,718
	Far End East Bay	7,272
May 23, 2025	East Port Park	5,450
	Indian Beach Park	8,700
June 11, 2025	CL07 - Surf	17,800
	CL07 - 4m	14,480
	CL08 - Surf	11,900
	CL08 - 3.5m	5,800
	CL09 - Surf	3,750
	CL09 - 4m	1,300
	CL10 - Surf	16,350
	CL10 - 4m	29,400
June 25, 2025	CL07 - Surf	982
	CL08 - Surf	3,436
	CL09 - Surf	2,291
	CL10 - Surf	2,127
July 9, 2025	CL07 - Surf	2,291
	CL08 - Surf	3,600
	CL08 – 5m	1,473
	CL09 - Surf	4,091
	CL09 – 4m	4,909
	CL10 - Surf	3,763
July 31, 2025	CL07 - Surf	Not Detected
	CL08 - Surf	Not Detected
	CL09 - Surf	Not Detected
	CL10 - Surf	Not Detected



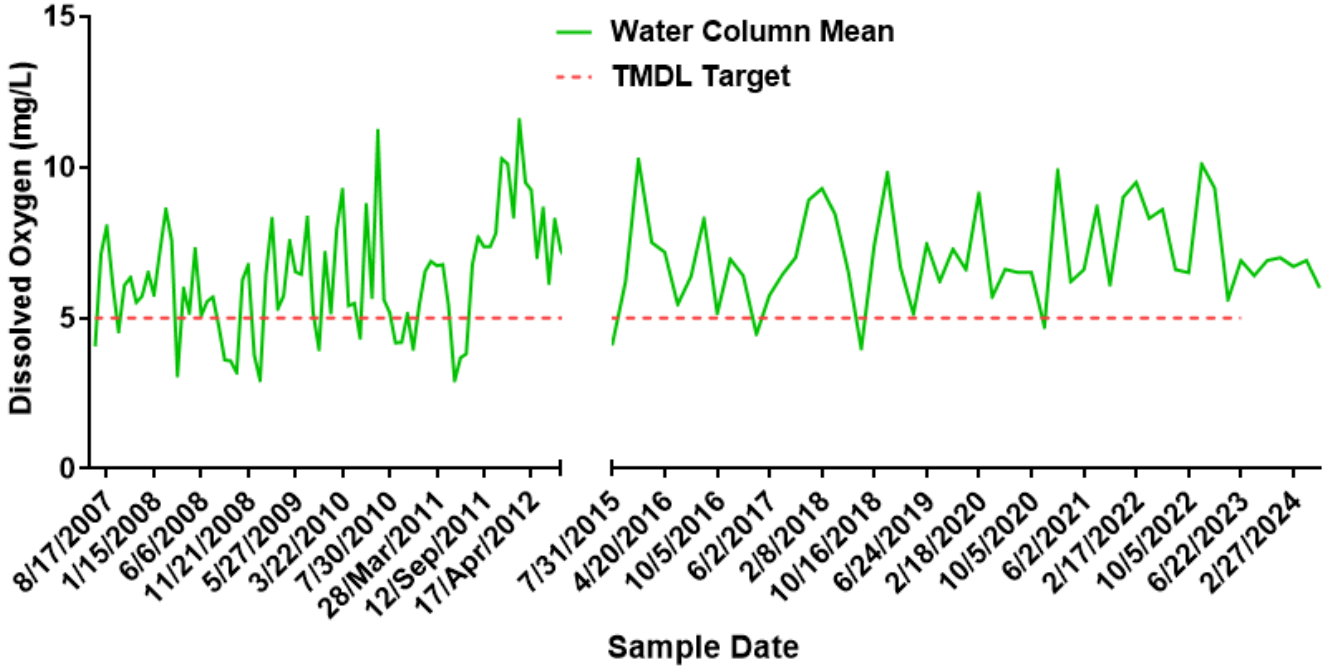
Attachment Figure 5. Historical Total Phosphorus Concentrations in Canyon Lake

No monitoring occurred between July 2012 and June 2015



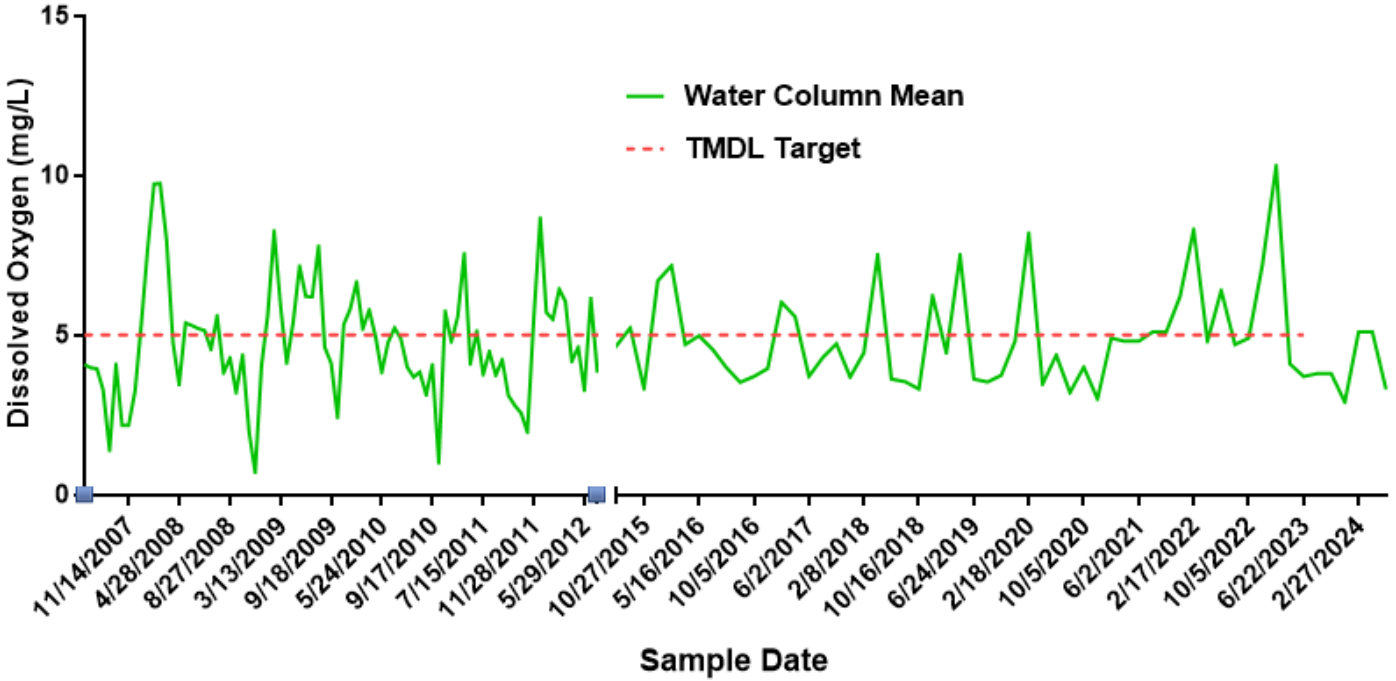
Attachment Figure 6. Historical Chlorophyll-a Concentrations in Canyon Lake

No monitoring occurred between July 2012 and June 2015



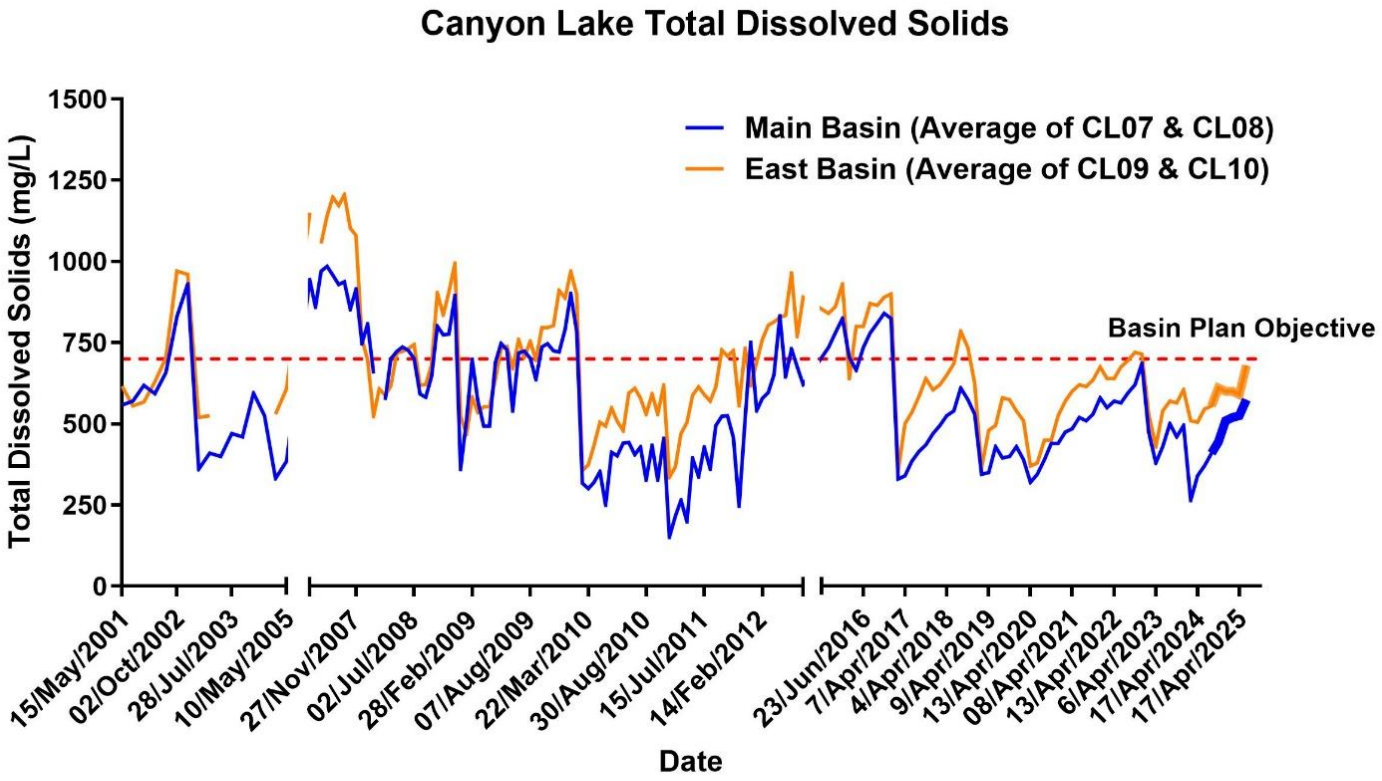
Attachment Figure 7. Historical Dissolved Oxygen Concentrations in Canyon Lake – East Bay

No monitoring occurred between July 2012 and June 2015



Attachment Figure 8. Historical Dissolved Oxygen Concentrations in Canyon Lake – Main Lake

No monitoring occurred between July 2012 and June 2015



Attachment Figure 9. Historical TDS Concentrations in Canyon Lake

No monitoring occurred between July 2012 and June 2015