OUTFALL ID: Flagstaff		
Monitoring Season	**Summer 2018**	**Summer 2018**
Sampling Date	**7/16/18**	**7/20/18**
Event Data		
Duration (Hours)	2.7	0.6
Duration between the storm events (Days)	2.9	2.8
Volume (Gallons)	--	--
Number of aliquots	30	15
Total Rain (in)	2.04	0.66
Previous event end	7/12/2018	7/16/2018
Event start	7/15/2018	7/19/2018
Event end	7/15/2018	7/19/2018

OUTFALL ID: Sedona			
Monitoring Season	**Summer 2018**	**Summer 2018**	**Winter 2018-19**
Sampling Date	**7/27/18**	**10/2/18**	**2/14/19**
Event Data			
Duration (Hours)	0.4	26.0	14.0
Duration between the storm events (Days)	11.1	13.5	8.9
Volume (Gallons)	25,770	--	--
Number of aliquots	30	--	30
Total Rain (in)	0.35	2.92	0.94
Previous event end	7/16/2018	9/19/2018	2/5/2019
Event start	7/27/2018	10/2/2018	2/14/2019
Event end	7/27/2018	10/3/2018	2/14/2019

OUTFALL ID: Phoenix			
Monitoring Season	**Summer 2018**	**Summer 2018**	**Winter 2018-19**
Sampling Date	**8/11/18**	**10/2/18**	**2/21/19**
Event Data			
Duration (Hours)	1.6	17.5	22.7
Duration between the storm events (Days)	30.0	48.9	7.4
Volume (Gallons)	6,842	--	--
Number of aliquots	30	--	--
Total Rain (in)	0.37	1.28	1.25
Previous event end	7/12/2018	8/14/2018	2/14/2019
Event start	8/10/2018	10/2/2018	2/21/2019
Event end	8/11/2018	10/2/2018	2/22/2019

OUTFALL ID: Tucson			
Monitoring Season	**Summer 2018**	**Winter 2018-19**	**Winter 2018-19**
Sampling Date	**6/16/18**	**2/14/19**	**2/22/19**
Event Data			
Duration (Hours)	67.8	8.5	23.9
Duration between the storm events (Days)	110.3	8.7	4.0
Volume (Gallons)	9,793	16,450	--
Number of aliquots	6	38	--
Total Rain (in)	0.5	0.52	1.05
Previous event end	2/28/2018	2/6/2019	2/18/2019
Event start	6/15/2018	2/14/2019	2/21/2019
Event end	6/18/2018	2/15/2019	2/22/2019

OUTFALL ID: Nogales			
Monitoring Season	**Summer 2018**	**Summer 2018**	**Winter 2018-19**
Sampling Date	**7/9/18**	**7/16/18**	**12/7/18**
Event Data			
Duration (Hours)	6.2	2.4	8.1
Duration between the storm events (Days)	1.1	3.8	0.6
Volume (Gallons)	49,295	--	--
Number of aliquots	30	30	14
Total Rain (in)	0.46	0.34	0.44
Previous event end	7/8/2018	7/12/2018	12/6/2018
Event start	7/9/2018	7/16/2018	12/7/2018
Event end	7/9/2018	7/16/2018	12/7/2018

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-106064-1
TestAmerica Sample Delivery Group: Flagstaff
Client Project/Site: ADEQ Stormwater

For:
NV5, Inc
7620 North Hartman Lane
Suite 162
Tucson, Arizona 85743

Attn: Mark Murphy

Authorized for release by:
8/6/2018 2:46:49 PM

Mary Hamilton, Project Manager I
(602)437-3340
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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Qualifiers

Metals

Qualifier	Qualifier Description
B3	Target analyte detected in calibration blank at or above the method reporting limit.
B7	Target analyte detected in method blank at or above method reporting limit. Concentration found in the sample was 10 times above the concentration found in the blank.
B1	Target analyte detected in method blank at or above the method reporting limit.

General Chemistry

Qualifier	Qualifier Description
D2	Sample required dilution due to high concentration of analyte.
K5	The dilution water D.O. depletion was > 0.2 mg/L.
N1	See case narrative.
K1	The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Any reported result is an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Job ID: 550-106064-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-106064-1

Comments
No additional comments.

Receipt
The sample was received on 7/16/2018 4:43 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method(s) 200.8 LL: The continuing calibration blank (CCB) for analytical batch 550-152882 contained Copper above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) SM 5210B: The following analytical batch deviated from the Standard Operating Procedure for Biochemical Oxygen Demand (BOD) by method SM 5210B; 550-151959 . Only two of the Glucose-Glutamic Acid (GGA) bottles were used to calculate the average for the LCS/GGA result. The third bottle was not used due to the occurrence of a preparation error in which the bottle stopper had not been set in place during the incubation period; therefore, the analysis was not performed according to method requirements and the result was excluded from the calculation. The average of the two remaining GGA bottles passed within the acceptable range. As such, data have been reported and qualified with N1 flags.

Method(s) SM 5210B: The Biochemical Oxygen Demand (BOD) method blank (MB) result for the dilution water D.O. depletion associated with analytical batch 550-151959 was higher than the method-required limit of 0.2 mg/L. As such, these data have been reported and qualified with K5 flags.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-106064-1	FLAGMS4180715	Water	07/16/18 14:00	07/16/18 16:43

Detection Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Client Sample ID: FLAGMS4180715 — Lab Sample ID: 550-106064-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	0.021		0.020		ug/L	1		8270C SIM	Total/NA
Nitrate as N	0.25		0.10		mg/L	1		300.0	Total/NA
Calcium	11		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Sodium	3.3		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Arsenic	0.0022		0.00050		mg/L	1		200.8 LL	Total/NA
Barium	0.13		0.00050		mg/L	1		200.8 LL	Total/NA
Cadmium	0.00019		0.00010		mg/L	1		200.8 LL	Total/NA
Copper	0.030	B3 B7	0.00050		mg/L	1		200.8 LL	Total/NA
Lead	0.012		0.00050		mg/L	1		200.8 LL	Total/NA
Nickel	0.0096		0.00050		mg/L	1		200.8 LL	Total/NA
Selenium	0.00091		0.00050		mg/L	1		200.8 LL	Total/NA
Zinc	0.12		0.013		mg/L	1		200.8 LL	Total/NA
Chromium	0.013		0.0010		mg/L	1		200.8 LL	Total/NA
Biochemical Oxygen Demand	13	K5 N1	5.0		mg/L	1		SM 5210B	Total/NA
Chemical Oxygen Demand	46		20		mg/L	1		SM 5220D	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Turbidity	15		0.20		NTU	1		180.1	Total/NA
Total Suspended Solids	230		10		mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: FLAGMS4180715

Date Collected: 07/16/18 14:00
Date Received: 07/16/18 16:43

Lab Sample ID: 550-106064-1

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Acenaphthylene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Anthracene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Benzo[a]anthracene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Benzo[a]pyrene	**0.021**		0.020		ug/L		07/18/18 13:20	07/20/18 19:20	1
Benzo[b]fluoranthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Benzo[k]fluoranthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Chrysene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Fluoranthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Fluorene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Naphthalene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Phenanthrene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
Pyrene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 19:20	1
1-Methylnaphthalene	ND		0.50		ug/L		07/18/18 13:20	07/20/18 19:20	1
2-Methylnaphthalene	ND		0.50		ug/L		07/18/18 13:20	07/20/18 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*73*		*18 - 138*	*07/18/18 13:20*	*07/20/18 19:20*	*1*
2-Fluorobiphenyl (Surr)	*71*		*22 - 120*	*07/18/18 13:20*	*07/20/18 19:20*	*1*
p-Terphenyl-d14	*74*		*10 - 120*	*07/18/18 13:20*	*07/20/18 19:20*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.25**		0.10		mg/L			07/16/18 21:04	1
Nitrite as N	ND		0.10		mg/L			07/16/18 21:04	1
Chloride	ND		2.0		mg/L			07/16/18 21:04	1
Sulfate	ND		2.0		mg/L			07/16/18 21:04	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**11**		2.0		mg/L		07/23/18 19:05	07/24/18 15:16	1
Sodium	**3.3**		0.50		mg/L		07/23/18 19:05	07/24/18 15:16	1

Method: 200.8 LL - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0022**		0.00050		mg/L		07/24/18 10:05	07/30/18 15:02	1
Barium	**0.13**		0.00050		mg/L		07/24/18 10:05	07/30/18 15:02	1
Cadmium	**0.00019**		0.00010		mg/L		07/24/18 10:05	07/30/18 15:02	1
Copper	**0.030**	**B3 B7**	0.00050		mg/L		07/24/18 10:05	07/30/18 15:02	1
Lead	**0.012**		0.00050		mg/L		07/24/18 10:05	07/30/18 15:02	1
Nickel	**0.0096**		0.00050		mg/L		07/24/18 10:05	07/30/18 15:02	1
Selenium	**0.00091**		0.00050		mg/L		07/24/18 10:05	07/30/18 15:02	1
Silver	ND		0.00010		mg/L		07/24/18 10:05	07/31/18 18:01	1
Zinc	**0.12**		0.013		mg/L		07/24/18 10:05	07/30/18 15:02	1
Chromium	**0.013**		0.0010		mg/L		07/24/18 10:05	07/30/18 15:02	1

Client Sample Results

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Client Sample ID: FLAGMS4180715
Date Collected: 07/16/18 14:00
Date Received: 07/16/18 16:43

Lab Sample ID: 550-106064-1
Matrix: Water

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/18/18 15:38	07/19/18 17:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		20		mg/L			07/18/18 09:39	1
Biochemical Oxygen Demand	**13**	**K5 N1**	5.0		mg/L			07/17/18 13:44	1
Chemical Oxygen Demand	**46**		20		mg/L		07/24/18 07:45	07/24/18 14:00	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**15**		0.20		NTU			07/18/18 09:50	1
Total Suspended Solids	**230**		10		mg/L			07/19/18 12:47	1

Surrogate Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHd14
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)
550-106064-1	FLAGMS4180715	73	71	74
550-106064-1 MS	FLAGMS4180715	80	84	89
550-106064-1 MSD	FLAGMS4180715	83	81	84
LCS 550-152056/2-A	Lab Control Sample	76	82	85
LCSD 550-152056/3-A	Lab Control Sample Dup	67	70	74
MB 550-152056/1-A	Method Blank	54	85	63

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-152056/1-A
Matrix: Water
Analysis Batch: 152201

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Acenaphthylene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Anthracene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Benzo[a]anthracene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Benzo[a]pyrene	ND		0.020		ug/L		07/18/18 13:20	07/20/18 17:12	1
Benzo[b]fluoranthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Benzo[k]fluoranthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Chrysene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Fluoranthene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Fluorene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Naphthalene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Phenanthrene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
Pyrene	ND		0.10		ug/L		07/18/18 13:20	07/20/18 17:12	1
1-Methylnaphthalene	ND		0.50		ug/L		07/18/18 13:20	07/20/18 17:12	1
2-Methylnaphthalene	ND		0.50		ug/L		07/18/18 13:20	07/20/18 17:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*54*		*18 - 138*	*07/18/18 13:20*	*07/20/18 17:12*	*1*
2-Fluorobiphenyl (Surr)	*85*		*22 - 120*	*07/18/18 13:20*	*07/20/18 17:12*	*1*
p-Terphenyl-d14	*63*		*10 - 120*	*07/18/18 13:20*	*07/20/18 17:12*	*1*

Lab Sample ID: LCS 550-152056/2-A
Matrix: Water
Analysis Batch: 152201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.600		ug/L		75	35 - 104
Acenaphthylene	0.800	0.548		ug/L		69	35 - 100
Anthracene	0.800	0.528		ug/L		66	37 - 100
Benzo[a]anthracene	0.800	0.589		ug/L		74	46 - 106
Benzo[a]pyrene	0.800	0.510		ug/L		64	36 - 117
Benzo[b]fluoranthene	0.800	0.618		ug/L		77	33 - 126
Benzo[g,h,i]perylene	0.800	0.569		ug/L		71	31 - 124
Benzo[k]fluoranthene	0.800	0.568		ug/L		71	26 - 131
Chrysene	0.800	0.629		ug/L		79	46 - 103
Dibenz(a,h)anthracene	0.800	0.563		ug/L		70	30 - 125
Fluoranthene	0.800	0.622		ug/L		78	47 - 107
Fluorene	0.800	0.606		ug/L		76	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.558		ug/L		70	32 - 125
Naphthalene	0.800	0.605		ug/L		76	38 - 103
Phenanthrene	0.800	0.613		ug/L		77	41 - 107
Pyrene	0.800	0.612		ug/L		76	44 - 108
1-Methylnaphthalene	0.800	0.613		ug/L		77	38 - 106
2-Methylnaphthalene	0.800	0.592		ug/L		74	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-152056/2-A
Matrix: Water
Analysis Batch: 152201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152056

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	76		18 - 138
2-Fluorobiphenyl (Surr)	82		22 - 120
p-Terphenyl-d14	85		10 - 120

Lab Sample ID: LCSD 550-152056/3-A
Matrix: Water
Analysis Batch: 152201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152056

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			0.800	0.511		ug/L		64	35 - 104	16	35
Acenaphthylene			0.800	0.459		ug/L		57	35 - 100	18	35
Anthracene			0.800	0.463		ug/L		58	37 - 100	13	35
Benzo[a]anthracene			0.800	0.513		ug/L		64	46 - 106	14	35
Benzo[a]pyrene			0.800	0.438		ug/L		55	36 - 117	15	35
Benzo[b]fluoranthene			0.800	0.536		ug/L		67	33 - 126	14	35
Benzo[g,h,i]perylene			0.800	0.504		ug/L		63	31 - 124	12	35
Benzo[k]fluoranthene			0.800	0.493		ug/L		62	26 - 131	14	35
Chrysene			0.800	0.528		ug/L		66	46 - 103	17	35
Dibenz(a,h)anthracene			0.800	0.493		ug/L		62	30 - 125	13	35
Fluoranthene			0.800	0.541		ug/L		68	47 - 107	14	35
Fluorene			0.800	0.518		ug/L		65	36 - 108	16	35
Indeno[1,2,3-cd]pyrene			0.800	0.497		ug/L		62	32 - 125	12	35
Naphthalene			0.800	0.523		ug/L		65	38 - 103	14	35
Phenanthrene			0.800	0.534		ug/L		67	41 - 107	14	35
Pyrene			0.800	0.526		ug/L		66	44 - 108	15	35
1-Methylnaphthalene			0.800	0.538		ug/L		67	38 - 106	13	35
2-Methylnaphthalene			0.800	0.511		ug/L		64	38 - 106	15	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Nitrobenzene-d5	67		18 - 138
2-Fluorobiphenyl (Surr)	70		22 - 120
p-Terphenyl-d14	74		10 - 120

Lab Sample ID: 550-106064-1 MS
Matrix: Water
Analysis Batch: 152201

Client Sample ID: FLAGMS4180715
Prep Type: Total/NA
Prep Batch: 152056

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		0.800	0.586		ug/L		73	45 - 104
Acenaphthylene	ND		0.800	0.467		ug/L		58	48 - 107
Anthracene	ND		0.800	0.551		ug/L		69	48 - 114
Benzo[a]anthracene	ND		0.800	0.640		ug/L		80	46 - 113
Benzo[a]pyrene	0.021		0.800	0.633		ug/L		76	47 - 115
Benzo[b]fluoranthene	ND		0.800	0.690		ug/L		79	47 - 113
Benzo[g,h,i]perylene	ND		0.800	0.666		ug/L		83	43 - 116
Benzo[k]fluoranthene	ND		0.800	0.632		ug/L		79	44 - 115
Chrysene	ND		0.800	0.633		ug/L		79	44 - 114
Dibenz(a,h)anthracene	ND		0.800	0.687		ug/L		86	41 - 115

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 550-106064-1 MS
Matrix: Water
Analysis Batch: 152201

Client Sample ID: FLAGMS4180715
Prep Type: Total/NA
Prep Batch: 152056

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	ND		0.800	0.643		ug/L		80	49 - 116
Fluorene	ND		0.800	0.599		ug/L		75	45 - 106
Indeno[1,2,3-cd]pyrene	ND		0.800	0.696		ug/L		87	42 - 112
Naphthalene	ND		0.800	0.598		ug/L		75	46 - 103
Phenanthrene	ND		0.800	0.609		ug/L		76	49 - 113
Pyrene	ND		0.800	0.630		ug/L		79	47 - 113
1-Methylnaphthalene	ND		0.800	0.614		ug/L		77	70 - 130
2-Methylnaphthalene	ND		0.800	0.592		ug/L		74	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*80*		*18 - 138*
2-Fluorobiphenyl (Surr)	*84*		*22 - 120*
p-Terphenyl-d14	*89*		*10 - 120*

Lab Sample ID: 550-106064-1 MSD
Matrix: Water
Analysis Batch: 152201

Client Sample ID: FLAGMS4180715
Prep Type: Total/NA
Prep Batch: 152056

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		0.800	0.587		ug/L		73	45 - 104	0	27
Acenaphthylene	ND		0.800	0.512		ug/L		64	48 - 107	9	27
Anthracene	ND		0.800	0.553		ug/L		69	48 - 114	0	24
Benzo[a]anthracene	ND		0.800	0.648		ug/L		81	46 - 113	1	21
Benzo[a]pyrene	0.021		0.800	0.615		ug/L		74	47 - 115	3	24
Benzo[b]fluoranthene	ND		0.800	0.642		ug/L		73	47 - 113	7	22
Benzo[g,h,i]perylene	ND		0.800	0.631		ug/L		79	43 - 116	5	22
Benzo[k]fluoranthene	ND		0.800	0.622		ug/L		78	44 - 115	2	25
Chrysene	ND		0.800	0.620		ug/L		77	44 - 114	2	21
Dibenz(a,h)anthracene	ND		0.800	0.661		ug/L		83	41 - 115	4	27
Fluoranthene	ND		0.800	0.647		ug/L		81	49 - 116	1	20
Fluorene	ND		0.800	0.600		ug/L		75	45 - 106	0	27
Indeno[1,2,3-cd]pyrene	ND		0.800	0.659		ug/L		82	42 - 112	5	25
Naphthalene	ND		0.800	0.599		ug/L		75	46 - 103	0	34
Phenanthrene	ND		0.800	0.611		ug/L		76	49 - 113	0	22
Pyrene	ND		0.800	0.627		ug/L		78	47 - 113	0	19
1-Methylnaphthalene	ND		0.800	0.642		ug/L		80	70 - 130	5	20
2-Methylnaphthalene	ND		0.800	0.610		ug/L		76	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*83*		*18 - 138*
2-Fluorobiphenyl (Surr)	*81*		*22 - 120*
p-Terphenyl-d14	*84*		*10 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 550-151878/2
Matrix: Water
Analysis Batch: 151878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.10		mg/L			07/16/18 14:40	1
Nitrite as N	ND		0.10		mg/L			07/16/18 14:40	1
Chloride	ND		2.0		mg/L			07/16/18 14:40	1
Sulfate	ND		2.0		mg/L			07/16/18 14:40	1

Lab Sample ID: LCS 550-151878/9
Matrix: Water
Analysis Batch: 151878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			4.00	4.09		mg/L		102	90 - 110		
Nitrite as N			4.00	4.24		mg/L		106	90 - 110		
Chloride			20.0	20.3		mg/L		102	90 - 110		
Sulfate			20.0	20.5		mg/L		102	90 - 110		

Lab Sample ID: LCSD 550-151878/10
Matrix: Water
Analysis Batch: 151878

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N			4.00	4.09		mg/L		102	90 - 110	0	20
Nitrite as N			4.00	4.24		mg/L		106	90 - 110	0	20
Chloride			20.0	20.4		mg/L		102	90 - 110	0	20
Sulfate			20.0	20.5		mg/L		102	90 - 110	0	20

Lab Sample ID: 550-106044-A-1 MS
Matrix: Water
Analysis Batch: 151878

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	6.4		4.00	10.3		mg/L		97	80 - 120		
Nitrite as N	ND		4.00	4.20		mg/L		105	80 - 120		
Chloride	ND		20.0	20.2		mg/L		101	80 - 120		
Sulfate	ND		20.0	20.4		mg/L		100	80 - 120		

Lab Sample ID: 550-106044-A-1 MSD
Matrix: Water
Analysis Batch: 151878

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	6.4		4.00	10.3		mg/L		96	80 - 120	0	20
Nitrite as N	ND		4.00	4.18		mg/L		104	80 - 120	1	20
Chloride	ND		20.0	19.9		mg/L		100	80 - 120	1	20
Sulfate	ND		20.0	20.2		mg/L		99	80 - 120	1	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 550-152359/1-A
Matrix: Water
Analysis Batch: 152453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152359

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0		mg/L		07/23/18 19:05	07/24/18 14:37	1
Sodium	ND		0.50		mg/L		07/23/18 19:05	07/24/18 14:37	1

Lab Sample ID: LCS 550-152359/2-A
Matrix: Water
Analysis Batch: 152453

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	21.0	20.3		mg/L		97	85 - 115
Sodium	20.0	18.9		mg/L		95	85 - 115

Lab Sample ID: LCSD 550-152359/3-A
Matrix: Water
Analysis Batch: 152453

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152359

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	21.0	20.2		mg/L		96	85 - 115	0	20
Sodium	20.0	18.6		mg/L		93	85 - 115	2	20

Lab Sample ID: 550-106007-C-2-F MS
Matrix: Water
Analysis Batch: 152453

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 152359

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	71		21.0	93.5		mg/L		106	70 - 130
Sodium	54		20.0	75.1		mg/L		107	70 - 130

Lab Sample ID: 550-106007-C-2-G MSD
Matrix: Water
Analysis Batch: 152453

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 152359

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	71		21.0	90.7		mg/L		93	70 - 130	3	20
Sodium	54		20.0	74.2		mg/L		103	70 - 130	1	20

Method: 200.8 LL - Metals (ICP/MS)

Lab Sample ID: MB 550-152411/1-A
Matrix: Water
Analysis Batch: 152882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152411

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.00050		mg/L		07/24/18 10:05	07/30/18 14:34	1
Barium	ND		0.00050		mg/L		07/24/18 10:05	07/30/18 14:34	1
Cadmium	ND		0.00010		mg/L		07/24/18 10:05	07/30/18 14:34	1
Copper	0.00139	B1	0.00050		mg/L		07/24/18 10:05	07/30/18 14:34	1
Lead	ND		0.00050		mg/L		07/24/18 10:05	07/30/18 14:34	1
Nickel	ND		0.00050		mg/L		07/24/18 10:05	07/30/18 14:34	1
Selenium	ND		0.00050		mg/L		07/24/18 10:05	07/30/18 14:34	1

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 550-152411/1-A
Matrix: Water
Analysis Batch: 152882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152411

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		0.013		mg/L		07/24/18 10:05	07/30/18 14:34	1
Chromium	ND		0.0010		mg/L		07/24/18 10:05	07/30/18 14:34	1

Lab Sample ID: MB 550-152411/1-A
Matrix: Water
Analysis Batch: 153006

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152411

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.00010		mg/L		07/24/18 10:05	07/31/18 17:45	1

Lab Sample ID: LCS 550-152411/2-A
Matrix: Water
Analysis Batch: 152882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.100	0.0943		mg/L		94	85 - 115
Barium	0.100	0.0952		mg/L		95	85 - 115
Cadmium	0.100	0.0899		mg/L		90	85 - 115
Copper	0.100	0.0905		mg/L		90	85 - 115
Lead	0.100	0.0898		mg/L		90	85 - 115
Nickel	0.100	0.0876		mg/L		88	85 - 115
Selenium	0.100	0.0978		mg/L		98	85 - 115
Zinc	0.100	0.0911		mg/L		91	85 - 115
Chromium	0.100	0.0894		mg/L		89	85 - 115

Lab Sample ID: LCS 550-152411/2-A
Matrix: Water
Analysis Batch: 153006

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.100	0.0959		mg/L		96	85 - 115

Lab Sample ID: LCSD 550-152411/3-A
Matrix: Water
Analysis Batch: 152882

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.100	0.0926		mg/L		93	85 - 115	2	20
Barium	0.100	0.0949		mg/L		95	85 - 115	0	20
Cadmium	0.100	0.0900		mg/L		90	85 - 115	0	20
Copper	0.100	0.0884		mg/L		88	85 - 115	2	20
Lead	0.100	0.0892		mg/L		89	85 - 115	1	20
Nickel	0.100	0.0865		mg/L		86	85 - 115	1	20
Selenium	0.100	0.0979		mg/L		98	85 - 115	0	20
Zinc	0.100	0.0895		mg/L		90	85 - 115	2	20
Chromium	0.100	0.0879		mg/L		88	85 - 115	2	20

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 550-152411/3-A
Matrix: Water
Analysis Batch: 153006

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152411

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver			0.100	0.0952		mg/L		95	85 - 115	1	20

Lab Sample ID: 550-106090-L-1-D MS
Matrix: Water
Analysis Batch: 152882

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0018		0.100	0.0962		mg/L		94	70 - 130
Barium	0.086		0.100	0.182		mg/L		96	70 - 130
Cadmium	ND		0.100	0.0865		mg/L		87	70 - 130
Copper	0.0018	B1	0.100	0.0841		mg/L		82	70 - 130
Lead	ND		0.100	0.0848		mg/L		85	70 - 130
Nickel	0.0020		0.100	0.0838		mg/L		82	70 - 130
Selenium	0.00052		0.100	0.0999		mg/L		99	70 - 130
Zinc	ND		0.100	0.0880		mg/L		88	70 - 130
Chromium	0.0014		0.100	0.0883		mg/L		87	70 - 130

Lab Sample ID: 550-106090-L-1-D MS ^T
Matrix: Water
Analysis Batch: 153006

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		0.100	0.0890		mg/L		89	70 - 130

Lab Sample ID: 550-106090-L-1-E MSD
Matrix: Water
Analysis Batch: 152882

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0018		0.100	0.0974		mg/L		96	70 - 130	1	20
Barium	0.086		0.100	0.181		mg/L		95	70 - 130	0	20
Cadmium	ND		0.100	0.0864		mg/L		86	70 - 130	0	20
Copper	0.0018	B1	0.100	0.0841		mg/L		82	70 - 130	0	20
Lead	ND		0.100	0.0848		mg/L		85	70 - 130	0	20
Nickel	0.0020		0.100	0.0842		mg/L		82	70 - 130	0	20
Selenium	0.00052		0.100	0.0986		mg/L		98	70 - 130	1	20
Zinc	ND		0.100	0.0888		mg/L		89	70 - 130	1	20
Chromium	0.0014		0.100	0.0890		mg/L		88	70 - 130	1	20

Lab Sample ID: 550-106090-L-1-E MSD ^T
Matrix: Water
Analysis Batch: 153006

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 152411

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		0.100	0.0890		mg/L		89	70 - 130	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 550-152069/1-A
Matrix: Water
Analysis Batch: 152189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152069

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/18/18 15:38	07/19/18 16:45	1

Lab Sample ID: LCS 550-152069/2-A
Matrix: Water
Analysis Batch: 152189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0100	0.00905		mg/L		91	85 - 115

Lab Sample ID: LCSD 550-152069/3-A
Matrix: Water
Analysis Batch: 152189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152069

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0100	0.00862		mg/L		86	85 - 115	5	20

Lab Sample ID: 550-106007-C-2-C MS
Matrix: Water
Analysis Batch: 152189

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 152069

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.0100	0.00938		mg/L		94	70 - 130

Lab Sample ID: 550-106007-C-2-D MSD
Matrix: Water
Analysis Batch: 152189

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 152069

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.0100	0.00904		mg/L		90	70 - 130	4	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 550-151997/3
Matrix: Water
Analysis Batch: 151997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.20		NTU			07/18/18 09:48	1

Lab Sample ID: LCS 550-151997/4
Matrix: Water
Analysis Batch: 151997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Turbidity	20.0	20.7		NTU		104	90 - 110

Method: 180.1 - Turbidity, Nephelometric (Continued)

Lab Sample ID: LCSD 550-151997/5
Matrix: Water
Analysis Batch: 151997

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Turbidity			20.0	20.4		NTU		102	90 - 110	1	20

Lab Sample ID: 550-106064-1 DU
Matrix: Water
Analysis Batch: 151997

Client Sample ID: FLAGMS4180715
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Turbidity	15			15.0		NTU				0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 550-152020/1
Matrix: Water
Analysis Batch: 152020

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		20		mg/L			07/18/18 09:39	1

Lab Sample ID: LCS 550-152020/2
Matrix: Water
Analysis Batch: 152020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	990		mg/L		99	90 - 110		

Lab Sample ID: LCSD 550-152020/3
Matrix: Water
Analysis Batch: 152020

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			1000	966		mg/L		97	90 - 110	2	10

Lab Sample ID: 550-105983-F-1 DU
Matrix: Water
Analysis Batch: 152020

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2900	D2		2930	D2	mg/L				0.5	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 550-152143/1
Matrix: Water
Analysis Batch: 152143

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			07/19/18 12:47	1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 550-152143/2
Matrix: Water
Analysis Batch: 152143

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			200	190		mg/L		95	90 - 110		

Lab Sample ID: LCSD 550-152143/3
Matrix: Water
Analysis Batch: 152143

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			200	189		mg/L		95	90 - 110	1	10

Lab Sample ID: 550-106192-C-1 DU
Matrix: Water
Analysis Batch: 152143

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	ND			ND		mg/L				NC	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: MB 550-151959/1
Matrix: Water
Analysis Batch: 151959

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND	K5	5.0		mg/L			07/17/18 13:44	1

Lab Sample ID: LCS 550-151959/2
Matrix: Water
Analysis Batch: 151959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			198	197	K1 K5 N1	mg/L		99	84.6 - 115.4		

Lab Sample ID: 550-106042-A-1 DU
Matrix: Water
Analysis Batch: 151959

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	260	K5 N1		257	K5 N1	mg/L				0.5	20

Method: SM 5220D - COD

Lab Sample ID: MB 550-152381/3-A
Matrix: Water
Analysis Batch: 152444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152381

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		20		mg/L		07/24/18 07:45	07/24/18 14:00	1

Method: SM 5220D - COD (Continued)

Lab Sample ID: LCS 550-152381/4-A
Matrix: Water
Analysis Batch: 152444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152381

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	400	427		mg/L		107	90 - 110

Lab Sample ID: LCSD 550-152381/5-A
Matrix: Water
Analysis Batch: 152444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152381

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	400	436		mg/L		109	90 - 110	2	20

Lab Sample ID: 550-106064-1 MS
Matrix: Water
Analysis Batch: 152444

Client Sample ID: FLAGMS4180715
Prep Type: Total/NA
Prep Batch: 152381

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	46		400	498		mg/L		113	80 - 120

Lab Sample ID: 550-106064-1 MSD
Matrix: Water
Analysis Batch: 152444

Client Sample ID: FLAGMS4180715
Prep Type: Total/NA
Prep Batch: 152381

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	46		400	498		mg/L		113	80 - 120	0	20

GC/MS Semi VOA

Prep Batch: 152056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	3510C	
MB 550-152056/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-152056/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-152056/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
550-106064-1 MS	FLAGMS4180715	Total/NA	Water	3510C	
550-106064-1 MSD	FLAGMS4180715	Total/NA	Water	3510C	

Analysis Batch: 152201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	8270C SIM	152056
MB 550-152056/1-A	Method Blank	Total/NA	Water	8270C SIM	152056
LCS 550-152056/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	152056
LCSD 550-152056/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	152056
550-106064-1 MS	FLAGMS4180715	Total/NA	Water	8270C SIM	152056
550-106064-1 MSD	FLAGMS4180715	Total/NA	Water	8270C SIM	152056

HPLC/IC

Analysis Batch: 151878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	300.0	
MB 550-151878/2	Method Blank	Total/NA	Water	300.0	
LCS 550-151878/9	Lab Control Sample	Total/NA	Water	300.0	
LCSD 550-151878/10	Lab Control Sample Dup	Total/NA	Water	300.0	
550-106044-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
550-106044-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Metals

Prep Batch: 152069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	245.1	
MB 550-152069/1-A	Method Blank	Total/NA	Water	245.1	
LCS 550-152069/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 550-152069/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
550-106007-C-2-C MS	Matrix Spike	Total/NA	Water	245.1	
550-106007-C-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 152189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	245.1	152069
MB 550-152069/1-A	Method Blank	Total/NA	Water	245.1	152069
LCS 550-152069/2-A	Lab Control Sample	Total/NA	Water	245.1	152069
LCSD 550-152069/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	152069
550-106007-C-2-C MS	Matrix Spike	Total/NA	Water	245.1	152069
550-106007-C-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	152069

Prep Batch: 152359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	200.7	

Metals (Continued)

Prep Batch: 152359 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 550-152359/1-A	Method Blank	Total/NA	Water	200.7	
LCS 550-152359/2-A	Lab Control Sample	Total/NA	Water	200.7	
LCSD 550-152359/3-A	Lab Control Sample Dup	Total/NA	Water	200.7	
550-106007-C-2-F MS	Matrix Spike	Total/NA	Water	200.7	
550-106007-C-2-G MSD	Matrix Spike Duplicate	Total/NA	Water	200.7	

Prep Batch: 152411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	200.8	
MB 550-152411/1-A	Method Blank	Total/NA	Water	200.8	
LCS 550-152411/2-A	Lab Control Sample	Total/NA	Water	200.8	
LCSD 550-152411/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
550-106090-L-1-D MS	Matrix Spike	Total/NA	Water	200.8	
550-106090-L-1-D MS ^T	Matrix Spike	Total/NA	Water	200.8	
550-106090-L-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	200.8	
550-106090-L-1-E MSD ^T	Matrix Spike Duplicate	Total/NA	Water	200.8	

Analysis Batch: 152453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	200.7 Rev 4.4	152359
MB 550-152359/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	152359
LCS 550-152359/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	152359
LCSD 550-152359/3-A	Lab Control Sample Dup	Total/NA	Water	200.7 Rev 4.4	152359
550-106007-C-2-F MS	Matrix Spike	Total/NA	Water	200.7 Rev 4.4	152359
550-106007-C-2-G MSD	Matrix Spike Duplicate	Total/NA	Water	200.7 Rev 4.4	152359

Analysis Batch: 152882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	200.8 LL	152411
MB 550-152411/1-A	Method Blank	Total/NA	Water	200.8 LL	152411
LCS 550-152411/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	152411
LCSD 550-152411/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	152411
550-106090-L-1-D MS	Matrix Spike	Total/NA	Water	200.8 LL	152411
550-106090-L-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	200.8 LL	152411

Analysis Batch: 153006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	200.8 LL	152411
MB 550-152411/1-A	Method Blank	Total/NA	Water	200.8 LL	152411
LCS 550-152411/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	152411
LCSD 550-152411/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	152411
550-106090-L-1-D MS ^T	Matrix Spike	Total/NA	Water	200.8 LL	152411
550-106090-L-1-E MSD ^T	Matrix Spike Duplicate	Total/NA	Water	200.8 LL	152411

General Chemistry

Analysis Batch: 151959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	SM 5210B	
MB 550-151959/1	Method Blank	Total/NA	Water	SM 5210B	

General Chemistry (Continued)

Analysis Batch: 151959 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 550-151959/2	Lab Control Sample	Total/NA	Water	SM 5210B	
550-106042-A-1 DU	Duplicate	Total/NA	Water	SM 5210B	

Analysis Batch: 151997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	180.1	
MB 550-151997/3	Method Blank	Total/NA	Water	180.1	
LCS 550-151997/4	Lab Control Sample	Total/NA	Water	180.1	
LCSD 550-151997/5	Lab Control Sample Dup	Total/NA	Water	180.1	
550-106064-1 DU	FLAGMS4180715	Total/NA	Water	180.1	

Analysis Batch: 152020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	SM 2540C	
MB 550-152020/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 550-152020/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 550-152020/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
550-105983-F-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 152143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	SM 2540D	
MB 550-152143/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 550-152143/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 550-152143/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
550-106192-C-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 152381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	SM 5220	
MB 550-152381/3-A	Method Blank	Total/NA	Water	SM 5220	
LCS 550-152381/4-A	Lab Control Sample	Total/NA	Water	SM 5220	
LCSD 550-152381/5-A	Lab Control Sample Dup	Total/NA	Water	SM 5220	
550-106064-1 MS	FLAGMS4180715	Total/NA	Water	SM 5220	
550-106064-1 MSD	FLAGMS4180715	Total/NA	Water	SM 5220	

Analysis Batch: 152444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106064-1	FLAGMS4180715	Total/NA	Water	SM 5220D	152381
MB 550-152381/3-A	Method Blank	Total/NA	Water	SM 5220D	152381
LCS 550-152381/4-A	Lab Control Sample	Total/NA	Water	SM 5220D	152381
LCSD 550-152381/5-A	Lab Control Sample Dup	Total/NA	Water	SM 5220D	152381
550-106064-1 MS	FLAGMS4180715	Total/NA	Water	SM 5220D	152381
550-106064-1 MSD	FLAGMS4180715	Total/NA	Water	SM 5220D	152381

Lab Chronicle

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Client Sample ID: FLAGMS4180715

Date Collected: 07/16/18 14:00
Date Received: 07/16/18 16:43

Lab Sample ID: 550-106064-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			152056	07/18/18 13:20	REM	TAL PHX
Total/NA	Analysis	8270C SIM		1	152201	07/20/18 19:20	R1K	TAL PHX
Total/NA	Analysis	300.0		1	151878	07/16/18 21:04	NBL	TAL PHX
Total/NA	Prep	200.7			152359	07/23/18 19:05	EXZ	TAL PHX
Total/NA	Analysis	200.7 Rev 4.4		1	152453	07/24/18 15:16	ARE	TAL PHX
Total/NA	Prep	200.8			152411	07/24/18 10:05	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		1	152882	07/30/18 15:02	TEK	TAL PHX
Total/NA	Prep	200.8			152411	07/24/18 10:05	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		1	153006	07/31/18 18:01	TEK	TAL PHX
Total/NA	Prep	245.1			152069	07/18/18 15:38	JTG	TAL PHX
Total/NA	Analysis	245.1		1	152189	07/19/18 17:13	JTG	TAL PHX
Total/NA	Analysis	180.1		1	151997	07/18/18 09:50	YET	TAL PHX
Total/NA	Analysis	SM 2540C		1	152020	(Start) 07/18/18 09:39 (End) 07/19/18 11:30	YET	TAL PHX
Total/NA	Analysis	SM 2540D		1	152143	(Start) 07/19/18 12:47 (End) 07/20/18 11:35	YET	TAL PHX
Total/NA	Analysis	SM 5210B		1	151959	(Start) 07/17/18 13:44 (End) 07/22/18 14:08	TLN	TAL PHX
Total/NA	Prep	SM 5220			152381	07/24/18 07:45	YET	TAL PHX
Total/NA	Analysis	SM 5220D		1	152444	07/24/18 14:00	YET	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-106064-1
SDG: Flagstaff

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
300.0	Anions, Ion Chromatography	MCAWW	TAL PHX
200.7 Rev 4.4	Metals (ICP)	40CFR136A	TAL PHX
200.8 LL	Metals (ICP/MS)	EPA	TAL PHX
245.1	Mercury (CVAA)	EPA	TAL PHX
180.1	Turbidity, Nephelometric	MCAWW	TAL PHX
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PHX
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL PHX
SM 5210B	BOD, 5-Day	SM	TAL PHX
SM 5220D	COD	SM	TAL PHX
200.7	Preparation, Total Metals	EPA	TAL PHX
200.8	Preparation, Total Metals	EPA	TAL PHX
245.1	Preparation, Mercury	EPA	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX
SM 5220	COD	SM	TAL PHX

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

106064

Chain of Custody Record

TestAmerica Phoenix
4625 East Cotton Center Boulevard
Suite 189
Phoenix, AZ 85040-4807
phone 602.437.3340 fax 602.454.9303

Quote Number: 55008818 - 1

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Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Mark Murphy	Site Contact:	Date:	COC No:
NV5, Inc	Tel/Fax: 520.302.9297	Lab Contact: Jacqueline Dominguez	Carrier:	1 of 1 COCs
1 W. Deer Valley Road, Bldg. 2, Suite 305	Analysis Turnaround Time			Sampler: KEITH SCOVILLE
Phoenix, AZ 85027	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
623.374.6637 Phone	TAT if different from Below ____			Walk-in Client:
623.738.3690 FAX	☑ 2 weeks			Lab Sampling:
Project Name: ADOT Stormwater	☐ 1 week			
Site: Flagstaff	☐ 2 days			Job / SDG No.:
P O # 444117-0250000.11	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	BOD, 5-Day	COD	Chloride, Nitrate, Nitrite, Sulfate	Ca, Na by ICP	As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn by ICP-MS	Mercury	TDS	TSS	Turbidity	PAHs	E. Coli	Coliforms, Fecal (Colilert - Quanti Tray)	Sample Specific Notes:
FLAGMS4180715	7/16/18	14:00	C	W	6	N	N	x	x	x	x	x	x	x	x	x	x		x	-01
			G	W													x	x	x	

550-106064 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐Return to Client ☐Disposal by Lab ☐Archive for ____ Months

Special Instructions/QC Requirements & Comments:

3.9c

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: NV5	Date/Time: 7/16/18	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: APHX	Date/Time: 7-16-18 1643

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-106064-1
SDG Number: Flagstaff

Login Number: 106064
List Number: 1
Creator: Doerr, Bret C

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-106424-1
Client Project/Site: General Water

For:
NV5, Inc
7620 North Hartman Lane
Suite 162
Tucson, Arizona 85743

Attn: Mark Murphy

Authorized for release by:
7/27/2018 2:04:50 PM

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
M2	Matrix spike recovery was low, the associated blank spike recovery was acceptable.
B1	Target analyte detected in method blank at or above the method reporting limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-106424-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-106424-1

Comments
No additional comments.

Receipt
The sample was received on 7/20/2018 12:08 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

GC/MS Semi VOA
Method(s) 8270C SIM: The method blank for preparation batch 550-152346 contained Dibenz(a,h)anthracene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Biology
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-106424-1	Flag - ADOT	Water	07/20/18 08:44	07/20/18 12:08

Detection Summary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Client Sample ID: Flag - ADOT

Lab Sample ID: 550-106424-1

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Coliform, Total	Absent				No Unit	1		SM 9223B	Total/NA
Escherichia coli	Absent				No Unit	1		SM 9223B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.17		0.10		ug/L	1		8270C SIM	Total/NA
Benzo[a]pyrene	0.026		0.020		ug/L	1		8270C SIM	Total/NA
Benzo[b]fluoranthene	0.21		0.10		ug/L	1		8270C SIM	Total/NA
Chrysene	0.12		0.10		ug/L	1		8270C SIM	Total/NA
Fluoranthene	0.22		0.10		ug/L	1		8270C SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.10		0.10		ug/L	1		8270C SIM	Total/NA
Pyrene	0.18		0.10		ug/L	1		8270C SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Client Sample ID: Flag - ADOT

Date Collected: 07/20/18 08:44
Date Received: 07/20/18 12:08

Lab Sample ID: 550-106424-1

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Acenaphthylene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Anthracene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Benzo[a]anthracene	**0.17**		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Benzo[a]pyrene	**0.026**		0.020		ug/L		07/23/18 14:59	07/24/18 20:43	1
Benzo[b]fluoranthene	**0.21**		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Benzo[k]fluoranthene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Chrysene	**0.12**		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Fluoranthene	**0.22**		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Fluorene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Indeno[1,2,3-cd]pyrene	**0.10**		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Naphthalene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Phenanthrene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
Pyrene	**0.18**		0.10		ug/L		07/23/18 14:59	07/24/18 20:43	1
1-Methylnaphthalene	ND	M2	0.50		ug/L		07/23/18 14:59	07/24/18 20:43	1
2-Methylnaphthalene	ND	M2	0.50		ug/L		07/23/18 14:59	07/24/18 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*80*		*18 - 138*	*07/23/18 14:59*	*07/24/18 20:43*	*1*
2-Fluorobiphenyl (Surr)	*80*		*22 - 120*	*07/23/18 14:59*	*07/24/18 20:43*	*1*
p-Terphenyl-d14	*111*		*10 - 120*	*07/23/18 14:59*	*07/24/18 20:43*	*1*

Method: SM 9223B - Coliforms, Total, and E.Coli (Presence/Absence)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Total	**Absent**				No Unit			07/20/18 18:25	1
Escherichia coli	**Absent**				No Unit			07/20/18 18:25	1

Surrogate Summary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHd14
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)
550-106424-1	Flag - ADOT	80	80	111
550-106424-1 MS	Flag - ADOT	70	76	82
550-106424-1 MSD	Flag - ADOT	71	74	87
LCS 550-152346/2-A	Lab Control Sample	63	88	94
LCSD 550-152346/3-A	Lab Control Sample Dup	82	87	93
MB 550-152346/1-A	Method Blank	66	71	91

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-152346/1-A
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152346

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Acenaphthylene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Anthracene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Benzo[a]anthracene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Benzo[a]pyrene	ND		0.020		ug/L		07/23/18 14:59	07/24/18 18:34	1
Benzo[b]fluoranthene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Benzo[k]fluoranthene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Chrysene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Dibenz(a,h)anthracene	0.112	B1	0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Fluoranthene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Fluorene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Naphthalene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Phenanthrene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
Pyrene	ND		0.10		ug/L		07/23/18 14:59	07/24/18 18:34	1
1-Methylnaphthalene	ND		0.50		ug/L		07/23/18 14:59	07/24/18 18:34	1
2-Methylnaphthalene	ND		0.50		ug/L		07/23/18 14:59	07/24/18 18:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*66*		*18 - 138*	*07/23/18 14:59*	*07/24/18 18:34*	*1*
2-Fluorobiphenyl (Surr)	*71*		*22 - 120*	*07/23/18 14:59*	*07/24/18 18:34*	*1*
p-Terphenyl-d14	*91*		*10 - 120*	*07/23/18 14:59*	*07/24/18 18:34*	*1*

Lab Sample ID: LCS 550-152346/2-A
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152346

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.500		ug/L		62	35 - 104
Acenaphthylene	0.800	0.433		ug/L		54	35 - 100
Anthracene	0.800	0.432		ug/L		54	37 - 100
Benzo[a]anthracene	0.800	0.478		ug/L		60	46 - 106
Benzo[a]pyrene	0.800	0.400		ug/L		50	36 - 117
Benzo[b]fluoranthene	0.800	0.510		ug/L		64	33 - 126
Benzo[g,h,i]perylene	0.800	0.484		ug/L		61	31 - 124
Benzo[k]fluoranthene	0.800	0.467		ug/L		58	26 - 131
Chrysene	0.800	0.522		ug/L		65	46 - 103
Dibenz(a,h)anthracene	0.800	0.483		ug/L		60	30 - 125
Fluoranthene	0.800	0.492		ug/L		62	47 - 107
Fluorene	0.800	0.502		ug/L		63	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.479		ug/L		60	32 - 125
Naphthalene	0.800	0.477		ug/L		60	38 - 103
Phenanthrene	0.800	0.505		ug/L		63	41 - 107
Pyrene	0.800	0.499		ug/L		62	44 - 108
1-Methylnaphthalene	0.800	0.539		ug/L		67	38 - 106
2-Methylnaphthalene	0.800	0.512		ug/L		64	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-152346/2-A
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152346

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*63*		*18 - 138*
2-Fluorobiphenyl (Surr)	*88*		*22 - 120*
p-Terphenyl-d14	*94*		*10 - 120*

Lab Sample ID: LCSD 550-152346/3-A
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152346

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			0.800	0.610		ug/L		76	35 - 104	20	35
Acenaphthylene			0.800	0.549		ug/L		69	35 - 100	24	35
Anthracene			0.800	0.563		ug/L		70	37 - 100	26	35
Benzo[a]anthracene			0.800	0.632		ug/L		79	46 - 106	28	35
Benzo[a]pyrene			0.800	0.536		ug/L		67	36 - 117	29	35
Benzo[b]fluoranthene			0.800	0.660		ug/L		83	33 - 126	26	35
Benzo[g,h,i]perylene			0.800	0.635		ug/L		79	31 - 124	27	35
Benzo[k]fluoranthene			0.800	0.647		ug/L		81	26 - 131	32	35
Chrysene			0.800	0.643		ug/L		80	46 - 103	21	35
Dibenz(a,h)anthracene			0.800	0.636		ug/L		80	30 - 125	27	35
Fluoranthene			0.800	0.651		ug/L		81	47 - 107	28	35
Fluorene			0.800	0.625		ug/L		78	36 - 108	22	35
Indeno[1,2,3-cd]pyrene			0.800	0.623		ug/L		78	32 - 125	26	35
Naphthalene			0.800	0.603		ug/L		75	38 - 103	23	35
Phenanthrene			0.800	0.653		ug/L		82	41 - 107	26	35
Pyrene			0.800	0.654		ug/L		82	44 - 108	27	35
1-Methylnaphthalene			0.800	0.637		ug/L		80	38 - 106	17	35
2-Methylnaphthalene			0.800	0.612		ug/L		77	38 - 106	18	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*82*		*18 - 138*
2-Fluorobiphenyl (Surr)	*87*		*22 - 120*
p-Terphenyl-d14	*93*		*10 - 120*

Lab Sample ID: 550-106424-1 MS
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Flag - ADOT
Prep Type: Total/NA
Prep Batch: 152346

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		0.800	0.521		ug/L		65	45 - 104
Acenaphthylene	ND		0.800	0.504		ug/L		63	48 - 107
Anthracene	ND		0.800	0.513		ug/L		64	48 - 114
Benzo[a]anthracene	0.17		0.800	0.608		ug/L		55	46 - 113
Benzo[a]pyrene	0.026		0.800	0.580		ug/L		69	47 - 115
Benzo[b]fluoranthene	0.21		0.800	0.602		ug/L		48	47 - 113
Benzo[g,h,i]perylene	ND		0.800	0.616		ug/L		70	43 - 116
Benzo[k]fluoranthene	ND		0.800	0.567		ug/L		59	44 - 115
Chrysene	0.12		0.800	0.598		ug/L		59	44 - 114
Dibenz(a,h)anthracene	ND		0.800	0.658		ug/L		76	41 - 115

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 550-106424-1 MS
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Flag - ADOT
Prep Type: Total/NA
Prep Batch: 152346

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	0.22		0.800	0.618		ug/L		50	49 - 116
Fluorene	ND		0.800	0.546		ug/L		68	45 - 106
Indeno[1,2,3-cd]pyrene	0.10		0.800	0.663		ug/L		70	42 - 112
Naphthalene	ND		0.800	0.526		ug/L		66	46 - 103
Phenanthrene	ND		0.800	0.568		ug/L		59	49 - 113
Pyrene	0.18		0.800	0.590		ug/L		51	47 - 113
1-Methylnaphthalene	ND	M2	0.800	0.572		ug/L		72	70 - 130
2-Methylnaphthalene	ND	M2	0.800	0.537	M2	ug/L		67	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*70*		*18 - 138*
2-Fluorobiphenyl (Surr)	*76*		*22 - 120*
p-Terphenyl-d14	*82*		*10 - 120*

Lab Sample ID: 550-106424-1 MSD
Matrix: Water
Analysis Batch: 152470

Client Sample ID: Flag - ADOT
Prep Type: Total/NA
Prep Batch: 152346

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		0.800	0.490		ug/L		61	45 - 104	6	27
Acenaphthylene	ND		0.800	0.496		ug/L		62	48 - 107	2	27
Anthracene	ND		0.800	0.533		ug/L		67	48 - 114	4	24
Benzo[a]anthracene	0.17		0.800	0.634		ug/L		59	46 - 113	4	21
Benzo[a]pyrene	0.026		0.800	0.604		ug/L		72	47 - 115	4	24
Benzo[b]fluoranthene	0.21		0.800	0.630		ug/L		52	47 - 113	4	22
Benzo[g,h,i]perylene	ND		0.800	0.609		ug/L		69	43 - 116	1	22
Benzo[k]fluoranthene	ND		0.800	0.595		ug/L		63	44 - 115	5	25
Chrysene	0.12		0.800	0.617		ug/L		62	44 - 114	3	21
Dibenz(a,h)anthracene	ND		0.800	0.655		ug/L		75	41 - 115	1	27
Fluoranthene	0.22		0.800	0.623		ug/L		51	49 - 116	1	20
Fluorene	ND		0.800	0.524		ug/L		65	45 - 106	4	27
Indeno[1,2,3-cd]pyrene	0.10		0.800	0.667		ug/L		70	42 - 112	1	25
Naphthalene	ND		0.800	0.503		ug/L		63	46 - 103	4	34
Phenanthrene	ND		0.800	0.576		ug/L		60	49 - 113	1	22
Pyrene	0.18		0.800	0.598		ug/L		52	47 - 113	1	19
1-Methylnaphthalene	ND	M2	0.800	0.527	M2	ug/L		66	70 - 130	8	20
2-Methylnaphthalene	ND	M2	0.800	0.504	M2	ug/L		63	70 - 130	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*71*		*18 - 138*
2-Fluorobiphenyl (Surr)	*74*		*22 - 120*
p-Terphenyl-d14	*87*		*10 - 120*

Method: SM 9223B - Coliforms, Total, and E.Coli (Presence/Absence)

Lab Sample ID: MB 550-152269/1
Matrix: Water
Analysis Batch: 152269

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Total	Absent				No Unit			07/20/18 18:25	1
Escherichia coli	Absent				No Unit			07/20/18 18:25	1

QC Association Summary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

GC/MS Semi VOA

Prep Batch: 152346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106424-1	Flag - ADOT	Total/NA	Water	3510C	
MB 550-152346/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-152346/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-152346/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
550-106424-1 MS	Flag - ADOT	Total/NA	Water	3510C	
550-106424-1 MSD	Flag - ADOT	Total/NA	Water	3510C	

Analysis Batch: 152470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106424-1	Flag - ADOT	Total/NA	Water	8270C SIM	152346
MB 550-152346/1-A	Method Blank	Total/NA	Water	8270C SIM	152346
LCS 550-152346/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	152346
LCSD 550-152346/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	152346
550-106424-1 MS	Flag - ADOT	Total/NA	Water	8270C SIM	152346
550-106424-1 MSD	Flag - ADOT	Total/NA	Water	8270C SIM	152346

Biology

Analysis Batch: 152269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-106424-1	Flag - ADOT	Total/NA	Water	SM 9223B	
MB 550-152269/1	Method Blank	Total/NA	Water	SM 9223B	

Lab Chronicle

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Client Sample ID: Flag - ADOT

Date Collected: 07/20/18 08:44
Date Received: 07/20/18 12:08

Lab Sample ID: 550-106424-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			152346	07/23/18 14:59	REM	TAL PHX
Total/NA	Analysis	8270C SIM		1	152470	07/24/18 20:43	R1K	TAL PHX
Total/NA	Analysis	SM 9223B		1	152269		TLN	TAL PHX
					(Start)	07/20/18 18:25		
					(End)	07/21/18 12:55		

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: General Water

TestAmerica Job ID: 550-106424-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
SM 9223B	Coliforms, Total, and E.Coli (Presence/Absence)	SM	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

7/27/2018

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Client Name/Address: ADOT – NV5	Project/PO Number:	Analysis Required
Project Manager: Mark.murphy@nv5.com Sampler: John Cummings	Phone Number: Email Address: Mark.murphy@nv5.com	RAH, Rad I

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	RAH	Rad I	Special Instructions
Flag – ADOT	G		2	7-20-18	0844		2		
Flag – ADOT	G		1	7-20-18	0844			1	

550-106424 Chain of Custody

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
	7-20-18 1208			same day ____ 72 hours ____
Relinquished By:	Date/Time:	Received By:	Date/Time:	24 hours ____ 5 days ____
				48 hours ____ normal ____
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:	Sample Integrity: (Check)
			7/20/18 1208	intact ✓ on ice ✓

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

TA-PHX

3.2

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-106424-1

Login Number: 106424
List Number: 1
Creator: Maycock, Lisa

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

August 07, 2018

Mark Murphy
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18G0285
Order Name: Storm Water

RE: Storm Water

Dear Mark Murphy,

Turner Laboratories, Inc. received 1 sample(s) on 07/10/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Elizabeth Kasik
Business Development

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

Order: Storm Water

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18G0285-01	NOGMS4180709	Storm Water	07/09/2018 1605

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

Case Narrative

The 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

K5	The dilution water D.O depletion was >0.2 mg/L.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5 **Client Sample ID:** NOGMS4180709
Project: Storm Water **Collection Date/Time:** 07/09/2018 1605
Work Order: 18G0285 **Matrix:** Storm Water
Lab Sample ID: 18G0285-01 **Order Name:** Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation								
Hardness, Calcium/Magnesium (As CaCO3)	84			mg/L	1	07/17/2018 1100	07/18/2018 1054	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)								
Copper	0.021	0.00050		mg/L	1	07/13/2018 1630	07/17/2018 1243	MH
Turbidity-E180.1								
Turbidity	95	0.50		NTU	5	07/11/2018 1405	07/11/2018 1420	AR
ICP Total Metals-E200.7 (4.4)								
Calcium	23	4.0		mg/L	1	07/17/2018 1100	07/18/2018 1054	MH
Magnesium	6.3	3.0		mg/L	1	07/17/2018 1100	07/18/2018 1054	MH
Sodium	ND	5.0		mg/L	1	07/17/2018 1100	07/18/2018 1054	MH
Zinc	0.30	0.040		mg/L	1	07/17/2018 1100	07/18/2018 1054	MH
ICP/MS Total Metals-E200.8 (5.4)								
Arsenic	0.0077	0.00050		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Barium	0.23	0.00050		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Cadmium	ND	0.00025		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Chromium	0.019	0.00050		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Copper	0.085	0.00050		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Lead	0.047	0.00050		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Nickel	0.019	0.0050		mg/L	10	07/24/2018 1100	07/25/2018 1228	MH
Selenium	ND	0.0025		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
Silver	ND	0.00050		mg/L	1	07/20/2018 1020	07/23/2018 1353	MH
CVAA Total Mercury-E245.1								
Mercury	ND	0.0010		mg/L	1	07/18/2018 1020	07/18/2018 1543	AR
Anions by Ion Chromatography-E300.0 (2.1)								
Chloride	1.5	1.0		mg/L	1	07/11/2018 1048	07/11/2018 1219	EJ
Nitrogen, Nitrate (As N)	0.85	0.50		mg/L	1	07/11/2018 1048	07/11/2018 1219	EJ
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	07/11/2018 1048	07/11/2018 1219	EJ
Sulfate	ND	5.0		mg/L	1	07/11/2018 1048	07/11/2018 1219	EJ
Chemical Oxygen Demand-Hach 8000								
Chemical Oxygen Demand	140	20		mg/L	1	07/12/2018 0930	07/13/2018 0850	AP
Total Dissolved Solids (Residue, Filterable)-SM2540 C								

Client: NV5
Project: Storm Water
Work Order: 18G0285
Lab Sample ID: 18G0285-01

Client Sample ID: NOGMS4180709
Collection Date/Time: 07/09/2018 1605
Matrix: Storm Water
Order Name: Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	89	20		mg/L	1	07/16/2018 0927	07/25/2018 1240	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	310	10		mg/L	1	07/12/2018 0930	07/13/2018 0930	AJ
Ammonia as N-SM4500-NH3 B,C								
Nitrogen, Ammonia (As N)	ND	0.50		mg/L	1	07/11/2018 1015	07/11/2018 1455	EJ
BOD, 5 day-SM5210 B								
Biochemical Oxygen Demand	12	2.0		mg/L	1	07/11/2018 1650	07/16/2018 1700	EJ

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807159 - E 200.8 (5.4)										
Blank (1807159-BLK1)				Prepared & Analyzed: 07/17/2018						
Copper	ND	0.00050	mg/L							
LCS (1807159-BS1)				Prepared & Analyzed: 07/17/2018						
Copper	0.050	0.00050	mg/L	0.05000		100	85-115			
LCS Dup (1807159-BSD1)				Prepared & Analyzed: 07/17/2018						
Copper	0.050	0.00050	mg/L	0.05000		99	85-115	0.1	20	
Matrix Spike (1807159-MS1)		**Source: 18G0163-01**		Prepared & Analyzed: 07/17/2018						
Copper	0.052	0.00050	mg/L	0.05000	0.0061	92	70-130			
Batch 1807170 - E200.7 (4.4)										
Blank (1807170-BLK1)				Prepared: 07/17/2018 Analyzed: 07/18/2018						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
Sodium	ND	5.0	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1807170-BS1)				Prepared: 07/17/2018 Analyzed: 07/18/2018						
Calcium	9.6	4.0	mg/L	10.00		96	85-115			
Magnesium	9.9	3.0	mg/L	10.00		99	85-115			
Sodium	9.9	5.0	mg/L	10.00		99	85-115			
Zinc	0.49	0.040	mg/L	0.5000		97	85-115			
LCS Dup (1807170-BSD1)				Prepared: 07/17/2018 Analyzed: 07/18/2018						
Calcium	9.6	4.0	mg/L	10.00		96	85-115	0.7	20	
Magnesium	10	3.0	mg/L	10.00		100	85-115	1	20	
Sodium	10	5.0	mg/L	10.00		103	85-115	4	20	
Zinc	0.49	0.040	mg/L	0.5000		97	85-115	0.2	20	
Matrix Spike (1807170-MS1)		**Source: 18G0230-03**		Prepared: 07/17/2018 Analyzed: 07/18/2018						
Calcium	29	4.0	mg/L	10.00	19	96	70-130			
Magnesium	12	3.0	mg/L	10.00	1.8	101	70-130			
Sodium	15	5.0	mg/L	10.00	4.6	105	70-130			
Zinc	0.57	0.040	mg/L	0.5000	0.085	97	70-130			
Batch 1807189 - E245.1										
Blank (1807189-BLK1)				Prepared & Analyzed: 07/18/2018						
Mercury	ND	0.0010	mg/L							
LCS (1807189-BS1)				Prepared & Analyzed: 07/18/2018						
Mercury	0.0052	0.0010	mg/L	0.005000		104	85-115			
LCS Dup (1807189-BSD1)				Prepared & Analyzed: 07/18/2018						
Mercury	0.0052	0.0010	mg/L	0.005000		105	85-115	0.4	20	
Matrix Spike (1807189-MS1)		**Source: 18G0239-02**		Prepared & Analyzed: 07/18/2018						
Mercury	0.0054	0.0010	mg/L	0.005000	0.00045	99	85-115			

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807189 - E245.1										
Matrix Spike Dup (1807189-MSD1)		**Source: 18G0239-02**		Prepared & Analyzed: 07/18/2018						
Mercury	0.0055	0.0010	mg/L	0.005000	0.00045	101	85-115	2	20	
Batch 1807230 - E200.8 (5.4)										
Blank (1807230-BLK1)				Prepared: 07/20/2018 Analyzed: 07/23/2018						
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Silver	ND	0.00050	mg/L							
LCS (1807230-BS1)				Prepared: 07/20/2018 Analyzed: 07/23/2018						
Arsenic	0.051	0.00050	mg/L	0.05000		102	85-115			
Barium	0.052	0.00050	mg/L	0.05000		104	85-115			
Cadmium	0.052	0.00025	mg/L	0.05000		104	85-115			
Chromium	0.052	0.00050	mg/L	0.05000		103	85-115			
Copper	0.052	0.00050	mg/L	0.05000		104	85-115			
Lead	0.051	0.00050	mg/L	0.05000		102	85-115			
Selenium	0.050	0.0025	mg/L	0.05000		100	85-115			
Silver	0.047	0.00050	mg/L	0.05000		93	85-115			
LCS Dup (1807230-BSD1)				Prepared: 07/20/2018 Analyzed: 07/23/2018						
Arsenic	0.049	0.00050	mg/L	0.05000		97	85-115	4	20	
Barium	0.050	0.00050	mg/L	0.05000		100	85-115	4	20	
Cadmium	0.049	0.00025	mg/L	0.05000		98	85-115	5	20	
Chromium	0.049	0.00050	mg/L	0.05000		99	85-115	4	20	
Copper	0.049	0.00050	mg/L	0.05000		99	85-115	5	20	
Lead	0.049	0.00050	mg/L	0.05000		98	85-115	4	20	
Selenium	0.047	0.0025	mg/L	0.05000		95	85-115	5	20	
Silver	0.045	0.00050	mg/L	0.05000		89	85-115	4	20	
Matrix Spike (1807230-MS1)		**Source: 18G0340-01**		Prepared: 07/20/2018 Analyzed: 07/23/2018						
Arsenic	0.059	0.00050	mg/L	0.05000	0.0070	103	70-130			
Barium	0.18	0.00050	mg/L	0.05000	0.12	114	70-130			
Cadmium	0.048	0.00025	mg/L	0.05000	ND	97	70-130			
Chromium	0.063	0.0025	mg/L	0.05000	0.0067	112	70-130			
Copper	0.050	0.00050	mg/L	0.05000	0.0025	96	70-130			
Lead	0.053	0.00050	mg/L	0.05000	0.00064	104	70-130			
Selenium	0.050	0.0025	mg/L	0.05000	0.0023	95	70-130			
Silver	0.044	0.00050	mg/L	0.05000	ND	87	70-130			

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807230 - E200.8 (5.4)										
Matrix Spike (1807230-MS2)		**Source: 18G0516-01**		Prepared: 07/20/2018 Analyzed: 07/23/2018						
Arsenic	0.053	0.00050	mg/L	0.05000	0.0038	99	70-130			
Barium	0.054	0.00050	mg/L	0.05000	0.0014	106	70-130			
Cadmium	0.047	0.00025	mg/L	0.05000	ND	94	70-130			
Chromium	0.063	0.00050	mg/L	0.05000	ND	127	70-130			
Copper	0.079	0.00050	mg/L	0.05000	0.032	94	70-130			
Lead	0.052	0.00050	mg/L	0.05000	0.00019	104	70-130			
Selenium	0.047	0.0025	mg/L	0.05000	0.0013	92	70-130			
Silver	0.055	0.00050	mg/L	0.05000	0.017	74	70-130			
Batch 1807256 - E200.8 (5.4)										
Blank (1807256-BLK1)				Prepared: 07/24/2018 Analyzed: 07/25/2018						
Nickel	ND	0.00050	mg/L							
LCS (1807256-BS1)				Prepared: 07/24/2018 Analyzed: 07/25/2018						
Nickel	0.049	0.00050	mg/L	0.05000		97	85-115			
LCS Dup (1807256-BSD1)				Prepared: 07/24/2018 Analyzed: 07/25/2018						
Nickel	0.049	0.00050	mg/L	0.05000		99	85-115	1	20	
Matrix Spike (1807256-MS1)		**Source: 18G0523-01**		Prepared: 07/24/2018 Analyzed: 07/25/2018						
Nickel	0.060	0.00050	mg/L	0.05000	0.012	96	70-130			

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807109 - SM4500-NH3 B,C										
Blank (1807109-BLK1)				Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	ND	0.50	mg/L							
LCS (1807109-BS1)				Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		101	90-110			
LCS Dup (1807109-BSD1)				Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		101	90-110	0	10	
Matrix Spike (1807109-MS1)		**Source: 18G0001-03**		Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000	ND	101	70-130			
Matrix Spike (1807109-MS2)		**Source: 18G0062-03**		Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000	ND	101	70-130			
Matrix Spike Dup (1807109-MSD1)		**Source: 18G0001-03**		Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000	ND	102	70-130	0.5	20	
Matrix Spike Dup (1807109-MSD2)		**Source: 18G0062-03**		Prepared & Analyzed: 07/11/2018						
Nitrogen, Ammonia (As N)	5.0	0.50	mg/L	5.000	ND	100	70-130	0.9	20	
Batch 1807111 - E180.1										
Duplicate (1807111-DUP1)		**Source: 18G0090-01**		Prepared & Analyzed: 07/11/2018						
Turbidity	1.2	0.10	NTU		1.3			8	10	
Batch 1807120 - SM2540 D										
Duplicate (1807120-DUP1)		**Source: 18G0087-01**		Prepared: 07/12/2018 Analyzed: 07/13/2018						
Total Suspended Solids	ND	10	mg/L		0.0				5	Q9
Duplicate (1807120-DUP2)		**Source: 18G0284-01**		Prepared: 07/12/2018 Analyzed: 07/13/2018						
Total Suspended Solids	ND	10	mg/L		0.0				5	Q9
Batch 1807130 - Hach 8000										
Blank (1807130-BLK1)				Prepared: 07/12/2018 Analyzed: 07/13/2018						
Chemical Oxygen Demand	ND	20	mg/L							
LCS (1807130-BS1)				Prepared: 07/12/2018 Analyzed: 07/13/2018						
Chemical Oxygen Demand	530	20	mg/L	500.0		106	70-130			
LCS Dup (1807130-BSD1)				Prepared: 07/12/2018 Analyzed: 07/13/2018						
Chemical Oxygen Demand	530	20	mg/L	500.0		106	70-130	0.6	20	
Matrix Spike (1807130-MS1)		**Source: 18G0009-01**		Prepared: 07/12/2018 Analyzed: 07/13/2018						
Chemical Oxygen Demand	600	20	mg/L	500.0	55	108	70-130			
Matrix Spike Dup (1807130-MSD1)		**Source: 18G0009-01**		Prepared: 07/12/2018 Analyzed: 07/13/2018						
Chemical Oxygen Demand	560	20	mg/L	500.0	55	101	70-130	7	20	
Batch 1807148 - SM2540 C										
Duplicate (1807148-DUP1)		**Source: 18G0393-01**		Prepared: 07/16/2018 Analyzed: 07/18/2018						
Total Dissolved Solids (Residue, Filterable)	530	20	mg/L		510			3	5	

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807148 - SM2540 C										
Duplicate (1807148-DUP2)		**Source: 18G0400-02**		Prepared: 07/16/2018 Analyzed: 07/19/2018						
Total Dissolved Solids (Residue, Filterable)	470	20	mg/L		470			1	5	
Batch 1807163 - SM5210 B										
Blank (1807163-BLK1)				Prepared: 07/11/2018 Analyzed: 07/16/2018						
Biochemical Oxygen Demand	ND	2.0	mg/L							K5
LCS (1807163-BS1)				Prepared: 07/11/2018 Analyzed: 07/16/2018						
Biochemical Oxygen Demand	200		mg/L	198.0		99	85-115			
Duplicate (1807163-DUP1)		**Source: 18G0284-01**		Prepared: 07/11/2018 Analyzed: 07/16/2018						
Biochemical Oxygen Demand	1.2	2.0	mg/L		1.2			1	20	

Client: NV5
Project: Storm Water
Work Order: 18G0285
Date Received: 07/10/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807097 - E300.0 (2.1)										
Blank (1807097-BLK1)				Prepared & Analyzed: 07/11/2018						
Chloride	ND	1.0	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1807097-BS1)				Prepared & Analyzed: 07/11/2018						
Chloride	12	1.0	mg/L	12.50		96	90-110			
Nitrogen, Nitrate (As N)	4.8	0.50	mg/L	5.000		96	90-110			
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500		105	90-110			
Sulfate	12	5.0	mg/L	12.50		98	90-110			
LCS Dup (1807097-BSD1)				Prepared & Analyzed: 07/11/2018						
Chloride	12	1.0	mg/L	12.50		96	90-110	0.5	10	
Nitrogen, Nitrate (As N)	4.8	0.50	mg/L	5.000		96	90-110	0.4	10	
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500		105	90-110	0.3	10	
Sulfate	12	5.0	mg/L	12.50		98	90-110	0.09	10	
Matrix Spike (1807097-MS1)		**Source: 18G0285-01**		Prepared & Analyzed: 07/11/2018						
Chloride	13	1.0	mg/L	12.50	1.5	92	80-120			
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.85	93	80-120			
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500	0.073	101	80-120			
Matrix Spike (1807097-MS2)		**Source: 18G0286-01**		Prepared & Analyzed: 07/11/2018						
Chloride	13	1.0	mg/L	12.50	1.3	91	80-120			
Nitrogen, Nitrate (As N)	5.6	0.50	mg/L	5.000	0.92	93	80-120			
Nitrogen, Nitrite (As N)	2.7	0.10	mg/L	2.500	0.14	102	80-120			
Sulfate	13	5.0	mg/L	12.50	2.1	89	80-120			
Matrix Spike Dup (1807097-MSD1)		**Source: 18G0285-01**		Prepared & Analyzed: 07/11/2018						
Chloride	13	1.0	mg/L	12.50	1.5	91	80-120	0.5	10	
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.85	93	80-120	0.6	10	
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500	0.073	101	80-120	0.5	10	
Matrix Spike Dup (1807097-MSD2)		**Source: 18G0286-01**		Prepared & Analyzed: 07/11/2018						
Chloride	13	1.0	mg/L	12.50	1.3	91	80-120	0.5	10	
Nitrogen, Nitrate (As N)	5.6	0.50	mg/L	5.000	0.92	93	80-120	0.4	10	
Nitrogen, Nitrite (As N)	2.7	0.10	mg/L	2.500	0.14	102	80-120	0.2	10	
Sulfate	13	5.0	mg/L	12.50	2.1	89	80-120	0.2	10	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 1860285 DATE 7/10/18 PAGE 1 OF 1

PROJECT NAME ADOT Stormwater # 444117-0250000.11
CONTACT NAME : Mark Murphy
COMPANY NAME : NV5
ADDRESS :
CITY Tucson STATE AZ ZIP CODE
PHONE 520302 FAX
SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Total Coliform & E. Coli, MPN-SM 9223B	BOD, COD, TSS, SM2540 C and D, 180.1 TDS	Metals 200,7/200.8	Nitrate, Nitrie, TKN, Sulfate, Chloride, ~~Ammonia~~, 300	Mercury, 245.1	PAH, 8310	dissolved Copper, 200.7	Hardness, SM 2340B	~~TDS~~ Ammonia SM4500
NOGMS4180709	7/9/18	1605		SW		X	X	X	X	X	X	X	X	X

SAMPLE NO: NOGMS4180709
NV5
ADOT Stormwater Monitoring
7620 N. Hartman Lane, Suite 162
Tucson, AZ 85743

1. RELINQUISHED BY:
Signature
Printed Name MARK MURPHY
Firm NV5
Date/Time 7/10/18 1455

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
X Standard (approx.10 days)*
___Next day ___2 Day ___5 Day*
___ Email Preliminary Results To:
___Mark.Murphy@NV5.com___
* Working Days

REPORT REQUIREMENTS:
X I. Routine Report
___ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account ___ Y ___ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 10
Temperature 8.3
☑ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature
Printed Name
Firm TURNER LABORATORIES, INC.
Date/Time 7/10/18 1455

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis:	☐ Yes	☐ No	Custody Seals	☐	Preservation Confirmation	☑
ADEQ Forms:	☐ Yes	☐ No	Container Intact	☑	Appropriate Head Space	☑
Mail ADEQ Forms:	☐ Yes	☐ No	COC/Labels Agree	☑	Received Within Hold Time	☑

NO MPN submitted

Kevin Brim

From: Rebecca Davey <Rebecca.Davey@nv5.com>
Sent: Tuesday, July 10, 2018 3:54 PM
To: Kevin Brim
Cc: Mark Murphy
Subject: Nogales stormwater sample from today

Hi Kevin,

We need these metals: As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Ca, Na, Hg

This is our list of analytes for this sample. Let me know if you have questions. Thanks.

Chloride Sulfate NO_2/NO_3 TDS TSS Turbidity
BOD
COD NH3
Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Ca, Na) Hardness Mercury
PAH
E coli
Fecal Coliform
Copper Dissolved

Rebecca Davey | Environmental Specialist | **NV5**
7620 North Hartman Lane, Suite 162 | Tucson, AZ 85743 | C: 520.271.3726

Electronic Communications Disclaimer

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

4620 East Elwood Street, Suite 4 Phoenix, AZ 85040

(480) 736-0960

Laboratory Certification (ADHS) No.: AZ0558, AZ0646
Expiration Date: 2018

Laboratory Director's Name:
Mark Noorani

Client: Turner Laboratories, Inc.

Laboratory Reference: TLI AZ11411

Project Name: 18G0285

Project Number:

Date Received: 7/13/2018

Date Reported: 7/16/2018

Chain of Custody Received: ☑

Analytical Method: 8310,

Mark Noorani, Laboratory Director

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Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11411
Project Name: 18G0285
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 6ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11411
Project Name: 18G0285
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
18G0285-01	AZ11411-001	7/13/2018	7/9/2018	Water

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11411
Project Name: 18G0285
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
18G0285-01	AZ11411-001	7/13/2018	7/9/2018	7/13/2018	7/16/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	100

* Acceptable Recovery: D-190 %

Dilution Factor: 1
Data Qualifiers: None

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11411
Project Name: 18G0285
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV0713182			7/13/2018	7/16/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	97

* Acceptable Recovery: D-190 %

Dilution Factor: 1
Data Qualifiers: None

© Orange Coast Analytical, Inc (AZ0646)

QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 7/13/2018
Date of Analysis: 7/16/2018
Dup Date of Analysis: 7/16/2018
Laboratory Sample #: AV0713182
MS/MSD Qualifiers: None
Reference #: TLI AZ11411

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.257	0.242	103	97	6	43-132	24	☐
Anthracene	0.250	0.210	0.180	84	72	15	52-130	23	☐
Pyrene	0.250	0.247	0.223	99	89	10	57-130	20	☐
Chrysene	0.250	0.267	0.229	107	92	15	62-130	20	☐
Benzo(a)pyrene	0.250	0.243	0.189	97	76	25	51-130	25	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	108	92	☐

ACP % RC
D-190

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

© Orange Coast Analytical, Inc

AZ11411

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18G0285

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Max DiSante

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18G0285-01 Non-Potable Wat Sampled:07/09/2018 16:05			
PAHs by SW 8310	07/16/2018 16:05		
Containers Supplied:			

Released By	Date	Received By	Date
	7/12/18 1600	UPS	7/12/18 16K
			7/13/18 1014 5.6°
Released By	Date	Received By	Date

July 23, 2018

Mark Murphy
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18G0464
Order Name: Storm Water

RE: Storm Water

Dear Mark Murphy,

Turner Laboratories, Inc. received 1 sample(s) on 07/16/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Kevin Brim
Project Manager

Client: NV5
Project: Storm Water
Work Order: 18G0464
Date Received: 07/16/2018

Order: Storm Water

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18G0464-01	NOGMS4180716	Non-Potable Water	07/16/2018 1756

Client: NV5
Project: Storm Water
Work Order: 18G0464
Date Received: 07/16/2018

Case Narrative

E3 Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND Not Detected at or above the PQL

PQL Practical Quantitation Limit

DF Dilution Factor

Client: NV5
Project: Storm Water
Work Order: 18G0464
Lab Sample ID: 18G0464-01

Client Sample ID: NOGMS4180716
Collection Date/Time: 07/16/2018 1756
Matrix: Non-Potable Water
Order Name: Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Coliform & E. Coli, MPN-SM 9223B								
E.Coli	2400	1.0	E3	MPN/100mL	1	07/16/2018 1925	07/17/2018 1730	EJ
Fecal coliforms	2400	1.0	E3	MPN/100mL	1	07/16/2018 1925	07/17/2018 1510	EJ
Total Coliform	2400	1.0	E3	MPN/100mL	1	07/16/2018 1925	07/17/2018 1730	EJ

Client: NV5
Project: Storm Water
Work Order: 18G0464
Date Received: 07/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807178 - SM 9223B										
Duplicate (1807178-DUP1)		**Source: 18G0403-01**		Prepared: 07/16/2018 Analyzed: 07/17/2018						
E.Coli	ND	1.0	MPN/100mL		ND				20	
Total Coliform	ND	1.0	MPN/100mL		ND				20	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
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Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 1800464 DATE 7/16/18 PAGE 1 OF 1

PROJECT NAME ADOT Stormwater # 444117-0250000.11

CONTACT NAME : Mark Murphy

COMPANY NAME : NV5

ADDRESS :

CITY Tucson STATE AZ ZIP CODE

PHONE 520302 FAX

SAMPLER'S SIGNATURE

NUMBER OF CONTAINERS

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	Total Coliform & E. Coli, MPN-SM 9223B	Fecal 18
NOGMS4180709 7/6	7/16/18	1756			X	X

SAMPLE NO: NOGMS4180709 7/6

NV5 ADOT Stormwater Monitoring
7620 N. Hartman Lane, Suite 162
Tucson, AZ 85743

1. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time 7/16/18 1910

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____Standard (approx.10 days)*
____Next day ____2 Day ____5 Day*
____ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account ____Y ____N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 2
Temperature 5.1
☒ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature
Printed Name TURNER LABORATORIES, INC.
Firm
Date/Time 7/16/18 1910

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis:	☐ Yes ☐ No	Custody Seals	☐	Preservation Confirmation	☒
ADEQ Forms:	☐ Yes ☐ No	Container Intact	☒	Appropriate Head Space	☒
Mail ADEQ Forms:	☐ Yes ☐ No	COC/Labels Agree	☒	Received Within Hold Time	☒

July 06, 2018

Mark Murphy
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18F0502
Order Name: Storm Water

RE: Storm Water

Dear Mark Murphy,

Turner Laboratories, Inc. received 1 sample(s) on 06/16/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Max DiSante
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 18F0502
Date Received: 06/16/2018

Order: Storm Water

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18F0502-01	NOGYARD180615	Storm Water	06/16/2018 1213

Client: NV5
Project: Storm Water
Work Order: 18F0502
Date Received: 06/16/2018

Case Narrative

Microbiological sample was received above recommended temperature.

The 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

E3	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5 **Client Sample ID:** NOGYARD180615
Project: Storm Water **Collection Date/Time:** 06/16/2018 1213
Work Order: 18F0502 **Matrix:** Storm Water
Lab Sample ID: 18F0502-01 **Order Name:** Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation								
Hardness, Calcium/Magnesium (As CaCO3)	120			mg/L	1	06/26/2018 0911	06/28/2018 1436	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)								
Copper	0.031	0.00050		mg/L	1	06/20/2018 1200	06/25/2018 1416	MH
ICP Total Metals-E200.7 (4.4)								
Calcium	36	4.0		mg/L	1	06/26/2018 0911	06/28/2018 1436	MH
Magnesium	7.6	3.0		mg/L	1	06/26/2018 0911	06/28/2018 1436	MH
ICP/MS Total Metals-E200.8 (5.4)								
Copper	0.057	0.00050		mg/L	1	06/25/2018 1200	06/27/2018 1227	MH
Total Coliform & E. Coli, MPN-SM 9223B								
E.Coli	220	1.0		MPN/100mL	1	06/16/2018 1420	06/17/2018 1520	MH
Total Coliform	2400	1.0	E3	MPN/100mL	1	06/16/2018 1420	06/17/2018 1520	MH
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	200	20		mg/L	1	06/20/2018 0915	06/21/2018 1615	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	110	10		mg/L	1	06/18/2018 0845	06/19/2018 0920	EJ
Ammonia as N-SM4500-NH3 B,C								
Nitrogen, Ammonia (As N)	ND	0.50		mg/L	1	06/27/2018 0900	06/27/2018 1340	AP

Client: NV5
Project: Storm Water
Work Order: 18F0502
Date Received: 06/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1806246 - E 200.8 (5.4)										
Blank (1806246-BLK1)				Prepared & Analyzed: 06/25/2018						
Copper	ND	0.00050	mg/L							
LCS (1806246-BS1)				Prepared & Analyzed: 06/25/2018						
Copper	0.051	0.00050	mg/L	0.05000		102	85-115			
LCS Dup (1806246-BSD1)				Prepared & Analyzed: 06/25/2018						
Copper	0.051	0.00050	mg/L	0.05000		102	85-115	0.6	20	
Matrix Spike (1806246-MS1)		**Source: 18F0412-01**		Prepared & Analyzed: 06/25/2018						
Copper	0.056	0.00050	mg/L	0.05000	0.011	90	70-130			
Batch 1806250 - E200.8 (5.4)										
Blank (1806250-BLK1)				Prepared: 06/25/2018 Analyzed: 06/27/2018						
Copper	ND	0.00050	mg/L							
LCS (1806250-BS1)				Prepared: 06/25/2018 Analyzed: 06/27/2018						
Copper	0.051	0.00050	mg/L	0.05000		101	85-115			
LCS Dup (1806250-BSD1)				Prepared: 06/25/2018 Analyzed: 06/27/2018						
Copper	0.051	0.00050	mg/L	0.05000		102	85-115	1	20	
Matrix Spike (1806250-MS1)		**Source: 18F0562-01**		Prepared: 06/25/2018 Analyzed: 06/27/2018						
Copper	0.056	0.00050	mg/L	0.05000	0.0090	95	70-130			
Matrix Spike (1806250-MS2)		**Source: 18F0508-02RE1**		Prepared: 06/25/2018 Analyzed: 06/27/2018						
Copper	75		ug/L	50.00	24	101	70-130			
Batch 1806266 - E200.7 (4.4)										
Blank (1806266-BLK1)				Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
LCS (1806266-BS1)				Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	9.5	4.0	mg/L	10.00		95	85-115			
Magnesium	9.9	3.0	mg/L	10.00		99	85-115			
LCS Dup (1806266-BSD1)				Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	9.5	4.0	mg/L	10.00		95	85-115	0.2	20	
Magnesium	9.8	3.0	mg/L	10.00		98	85-115	0.8	20	
Matrix Spike (1806266-MS1)		**Source: 18F0030-01**		Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	68	4.0	mg/L	10.00	60	87	70-130			
Magnesium	43	3.0	mg/L	10.00	33	91	70-130			
Matrix Spike (1806266-MS2)		**Source: 18F0460-01**		Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	210	4.0	mg/L	10.00	200	53	70-130			M3
Magnesium	35	3.0	mg/L	10.00	26	97	70-130			

Client: NV5
Project: Storm Water
Work Order: 18F0502
Date Received: 06/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1806176 - SM2540 D										
Duplicate (1806176-DUP1)		**Source: 18F0421-01**		Prepared: 06/18/2018 Analyzed: 06/19/2018						
Total Suspended Solids	6.0	10	mg/L		6.0			0	5	Q9
Duplicate (1806176-DUP2)		**Source: 18F0500-01**		Prepared: 06/18/2018 Analyzed: 06/19/2018						
Total Suspended Solids	34	10	mg/L		33			3	5	
Batch 1806205 - SM2540 C										
Duplicate (1806205-DUP1)		**Source: 18F0036-01**		Prepared: 06/20/2018 Analyzed: 06/21/2018						
Total Dissolved Solids (Residue, Filterable)	210	20	mg/L		200			4	5	
Duplicate (1806205-DUP2)		**Source: 18F0527-01**		Prepared: 06/20/2018 Analyzed: 06/21/2018						
Total Dissolved Solids (Residue, Filterable)	190	20	mg/L		190			1	5	
Batch 1806276 - SM4500-NH3 B,C										
Blank (1806276-BLK1)				Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	ND	0.50	mg/L							
LCS (1806276-BS1)				Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		103	90-110			
LCS Dup (1806276-BSD1)				Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		103	90-110	0	10	
Matrix Spike (1806276-MS1)		**Source: 18F0659-01**		Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	4.8	0.50	mg/L	5.000	ND	95	70-130			
Matrix Spike (1806276-MS2)		**Source: 18F0659-06**		Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	5.0	0.50	mg/L	5.000	ND	99	70-130			
Matrix Spike Dup (1806276-MSD1)		**Source: 18F0659-01**		Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	4.7	0.50	mg/L	5.000	ND	94	70-130	1	20	
Matrix Spike Dup (1806276-MSD2)		**Source: 18F0659-06**		Prepared & Analyzed: 06/27/2018						
Nitrogen, Ammonia (As N)	5.0	0.50	mg/L	5.000	ND	100	70-130	0.4	20	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # K8F0502 DATE 6/14/18 PAGE 1 OF 1

PROJECT NAME ADOT Stormwater # 444117-0250000.11
CONTACT NAME : Mark Murphy
COMPANY NAME : NV5
ADDRESS :
CITY Tucson STATE AZ ZIP CODE
PHONE 520302 FAX
SAMPLER'S SIGNATURE

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	E. Coli, MPN-SM 9223B	TDS, TSS, SM2540 C and D	PAH, 8310	Dissolved copper	Hardness, SM2340B, METALS	Ammonia, 300
NOGYARD180615	6/14	1213									

SAMPLE NO: NOGYARD180615
NV5 ADOT Stormwater Monitoring
7620 N. Hartman Lane, Suite 162
Tucson, AZ 85743

1. RELINQUISHED BY:
Signature MARK MURPHY
Printed Name NV5
Firm
Date/Time 6/16/18 1410hr

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____Standard (approx.10 days)*
____Next day ____2 Day ____5 Day*
____Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
____ III. Date Validation Report (includes All Raw Data)
Add 10% to Invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 7
Temperature 12.0
☒ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature Marissa Huff
Printed Name TURNER LABORATORIES, INC.
Firm
6/14/18 1410
Date/Time

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis:	☐ Yes	☐ No	Custody Seals	☐	Preservation Confirmation	☑
ADEQ Forms:	☐ Yes	☐ No	Container Intact	☒	Appropriate Head Space	☑
Mail ADEQ Forms:	☐ Yes	☐ No	COC/Labels Agree	☑	Received Within Hold Time	☑

Added total Cr per Client request
VRM 6/18/19

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

4620 East Elwood Street, Suite 4 Phoenix, AZ 85040

(480) 736-0960

Laboratory Certification (ADHS) No.: AZ0558, AZ0646
Expiration Date: 2018

Laboratory Director's Name:
Mark Noorani

Client: Turner Laboratories, Inc.

Laboratory Reference: TLI AZ11384

Project Name: 18F0502

Project Number:

Date Received: 6/20/2018

Date Reported: 6/27/2018

Chain of Custody Received: ☑

Analytical Method: 8310,

Mark Noorani, Laboratory Director

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Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11384
Project Name: 18F0502
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 0ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11384
Project Name: 18F0502
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
18F0502-01	AZ11384-001	6/20/2018	6/16/2018	Water

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11384
Project Name: 18F0502
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
18F0502-01	AZ11384-001	6/20/2018	6/16/2018	6/22/2018	6/26/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	0.52
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	141

* Acceptable Recovery: D-190 %

Dilution Factor: 1
Data Qualifiers: C8,

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Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11384
Project Name: 18F0502
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL0622181			6/22/2018	6/26/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	76

* Acceptable Recovery: D-190 %

Dilution Factor: 1
Data Qualifiers: None

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QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 6/22/2018
Date of Analysis: 6/26/2018
Dup Date of Analysis: 6/26/2018
Laboratory Sample #: BL0622181
MS/MSD Qualifiers: None
Reference #: TLI AZ11384

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.178	0.179	71	72	1	43-132	24	☐
Anthracene	0.250	0.201	0.201	80	80	0	52-130	23	☐
Pyrene	0.250	0.209	0.208	84	83	0	57-130	20	☐
Chrysene	0.250	0.238	0.233	95	93	2	62-130	20	☐
Benzo(a)pyrene	0.250	0.201	0.232	80	93	14	51-130	25	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	77	80	☐

ACP % RC
D-190

Data Qualifier Definitions

Qualifier

C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.

AZ11384-001	8310	Nitrobenzene-d5

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

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SUBCONTRACT ORDER

Turner Laboratories, Inc.

18F0502

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Max DiSante

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18F0502-01 Non-Potable Wat Sampled:06/16/2018 12:13			
PAHs by SW 8310	06/23/2018 12:13		
Containers Supplied:			

Released By	Date	Received By	Date
	6/19/18 1600	VBS	6/19/18 1600
Released By	Date	Received By	Date
		OCA,CA	6/20/18 0.4° 10:22

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-107826-1
Client Project/Site: ADOT Stormwater

For:
NV5, Inc
7620 North Hartman Lane
Suite 162
Tucson, Arizona 85743

Attn: Mark Murphy

Michele R Kersey

Authorized for release by:
8/27/2018 10:35:59 AM
Michele Kersey, Project Manager II
(912)250-0282
michele.kersey@testamericainc.com

Designee for

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
M2	Matrix spike recovery was low, the associated blank spike recovery was acceptable.
N1	See case narrative.

HPLC/IC

Qualifier	Qualifier Description
N1	See case narrative.
H3	Sample was received and/ or analysis requested past holding time.

Metals

Qualifier	Qualifier Description
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike was acceptable.

General Chemistry

Qualifier	Qualifier Description
E2	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to sample matrix.
H3	Sample was received and/ or analysis requested past holding time.
D2	Sample required dilution due to high concentration of analyte.
D1	Sample required dilution due to matrix.
K9	Test replicates show more than 30% difference between high and low values.
R8	Sample RPD exceeded the method acceptance limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Job ID: 550-107826-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-107826-1

Comments
No additional comments.

Receipt
The samples were received on 8/13/2018 10:29 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

Receipt Exceptions

The following samples was received with less than 40 minutes remaining of hold time for BOD, Nitrates and Turbidity. As such, the laboratory had insufficient time remaining to perform the analysis Nitrates and BOD within holding time: PHX_YYMMDD (550-107826-1) and PHX_YYMMDD (550-107826-2).

GC/MS Semi VOA
Method(s) 8270C SIM: 2-Methylnaphthalene result in laboratory control spike duplicate sample was recovered below RL but met the required acceptable limits. The LCSD was spiked within calibration range. The analytes were flagged with an N1 qualifier.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method(s) 300.0: The multi-anion spike compounds were inadvertently omitted during the preparation process for the matrix spike/matrix spike duplicate (MS/MSD) for anions by method EPA 300.0; therefore, matrix spike recoveries were unavailable for analytical batch 550-153959. The recoveries for the associated laboratory control sample/laboratory control sample duplicate (LCS) met acceptance criteria and may be used to verify accuracy and precision data. As such, these data have been reported.

Method(s) 300.0: The following sample was received at the laboratory with less than 40 minutes remaining on the 48 hour analytical holding time for Nitrate as N and Nitrite as N by method EPA 300.0; PHX_YYMMDD (550-107826-1). Insufficient time had remained to complete the analysis within the method holding time requirement. The laboratory proceeded with the analysis and these data have been qualified with H3 flags.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) SM 5210B: The following samples were received at the laboratory with 40 minutes remaining on the 48 hour holding times for Biochemical Oxygen Demand (BOD) by method SM 5210B; PHX_YYMMDD (550-107826-1). There was insufficient time to complete the requested analysis within the method holding time requirement. As such, these data have been reported and qualified with H3 flags.

Method(s) SM 5210B: The sample duplicate (DU) precision for analytical batch 550-154039 was outside control limits. Sample non-homogeneity was suspected. As such, these data have been reported and qualified with R8 flags.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-107826-1	PHX_YYMMDD	Water	08/11/18 11:10	08/13/18 10:29
550-107826-2	PHX_YYMMDD	Water	08/11/18 11:10	08/13/18 10:29

Detection Summary

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Client Sample ID: PHX_YYMMDD — Lab Sample ID: 550-107826-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	1.1	H3 N1	0.10		mg/L	1		300.0	Total/NA
Nitrite as N	0.22	H3 N1	0.10		mg/L	1		300.0	Total/NA
Chloride	8.0	N1	2.0		mg/L	1		300.0	Total/NA
Sulfate	13	N1	2.0		mg/L	1		300.0	Total/NA
Calcium	28		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Sodium	6.7		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Arsenic	0.0037		0.00050		mg/L	1		200.8 LL	Total/NA
Barium	0.14		0.00050		mg/L	1		200.8 LL	Total/NA
Cadmium	0.00019		0.00010		mg/L	1		200.8 LL	Total/NA
Copper	0.072		0.00050		mg/L	1		200.8 LL	Total/NA
Lead	0.011		0.00050		mg/L	1		200.8 LL	Total/NA
Nickel	0.016		0.00050		mg/L	1		200.8 LL	Total/NA
Selenium	0.0013		0.00050		mg/L	1		200.8 LL	Total/NA
Zinc	0.37		0.013		mg/L	1		200.8 LL	Total/NA
Chromium	0.010		0.0010		mg/L	1		200.8 LL	Total/NA
Total Dissolved Solids	150		20		mg/L	1		SM 2540C	Total/NA
Biochemical Oxygen Demand	18	H3	5.0		mg/L	1		SM 5210B	Total/NA
Chemical Oxygen Demand	190		20		mg/L	1		SM 5220D	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Turbidity	21		0.20		NTU	1		180.1	Total/NA
Total Suspended Solids	430	D2	40		mg/L	1		SM 2540D	Total/NA

Client Sample ID: PHX_YYMMDD — Lab Sample ID: 550-107826-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: PHX_YYMMDD — **Lab Sample ID: 550-107826-1**
Date Collected: 08/11/18 11:10 — **Matrix: Water**
Date Received: 08/13/18 10:29

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.1	H3 N1	0.10		mg/L			08/14/18 00:53	1
Nitrite as N	0.22	H3 N1	0.10		mg/L			08/14/18 00:53	1
Chloride	8.0	N1	2.0		mg/L			08/14/18 00:53	1
Sulfate	13	N1	2.0		mg/L			08/14/18 00:53	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	28		2.0		mg/L		08/16/18 08:13	08/17/18 12:04	1
Sodium	6.7		0.50		mg/L		08/16/18 08:13	08/17/18 12:04	1

Method: 200.8 LL - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0037		0.00050		mg/L		08/20/18 09:26	08/21/18 09:37	1
Barium	0.14		0.00050		mg/L		08/20/18 09:26	08/21/18 09:37	1
Cadmium	0.00019		0.00010		mg/L		08/20/18 09:26	08/21/18 09:37	1
Copper	0.072		0.00050		mg/L		08/20/18 09:26	08/21/18 09:37	1
Lead	0.011		0.00050		mg/L		08/20/18 09:26	08/21/18 09:37	1
Nickel	0.016		0.00050		mg/L		08/20/18 09:26	08/21/18 09:37	1
Selenium	0.0013		0.00050		mg/L		08/20/18 09:26	08/21/18 09:37	1
Silver	ND		0.00010		mg/L		08/20/18 09:26	08/21/18 09:37	1
Zinc	0.37		0.013		mg/L		08/20/18 09:26	08/21/18 09:37	1
Chromium	0.010		0.0010		mg/L		08/20/18 09:26	08/21/18 09:37	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/16/18 11:05	08/17/18 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	150		20		mg/L			08/17/18 08:02	1
Biochemical Oxygen Demand	18	H3	5.0		mg/L			08/14/18 21:01	1
Chemical Oxygen Demand	190		20		mg/L		08/22/18 07:50	08/22/18 14:05	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	21		0.20		NTU			08/13/18 10:49	1
Total Suspended Solids	430	D2	40		mg/L			08/15/18 17:13	1

Client Sample ID: PHX_YYMMDD — **Lab Sample ID: 550-107826-2**
Date Collected: 08/11/18 11:10 — **Matrix: Water**
Date Received: 08/13/18 10:29

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Acenaphthylene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Anthracene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Benzo[a]anthracene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Benzo[a]pyrene	ND		0.020		ug/L		08/14/18 12:00	08/16/18 18:18	1
Benzo[b]fluoranthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Benzo[k]fluoranthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Client Sample ID: PHX_YYMMDD
Date Collected: 08/11/18 11:10
Date Received: 08/13/18 10:29

Lab Sample ID: 550-107826-2
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Fluoranthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Fluorene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Naphthalene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Phenanthrene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
Pyrene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 18:18	1
1-Methylnaphthalene	ND		0.50		ug/L		08/14/18 12:00	08/16/18 18:18	1
2-Methylnaphthalene	ND	M2	0.50		ug/L		08/14/18 12:00	08/16/18 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*72*		*18 - 138*	*08/14/18 12:00*	*08/16/18 18:18*	*1*
2-Fluorobiphenyl (Surr)	*79*		*22 - 120*	*08/14/18 12:00*	*08/16/18 18:18*	*1*
p-Terphenyl-d14	*85*		*10 - 120*	*08/14/18 12:00*	*08/16/18 18:18*	*1*

Surrogate Summary

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
		NBZ	FBP	TPHd14						
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)						
550-107826-2	PHX_YYMMDD	72	79	85						
550-107826-2 MS	PHX_YYMMDD	64	73	82						
550-107826-2 MSD	PHX_YYMMDD	77	87	87						
LCS 550-153975/2-A	Lab Control Sample	67	82	76						
LCSD 550-153975/3-A	Lab Control Sample Dup	61	69	70						
MB 550-153975/1-A	Method Blank	68	84	77						

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-153975/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154183 — **Prep Batch: 153975**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Acenaphthylene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Anthracene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Benzo[a]anthracene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Benzo[a]pyrene	ND		0.020		ug/L		08/14/18 12:00	08/16/18 16:09	1
Benzo[b]fluoranthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Benzo[k]fluoranthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Chrysene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Fluoranthene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Fluorene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Naphthalene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Phenanthrene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
Pyrene	ND		0.10		ug/L		08/14/18 12:00	08/16/18 16:09	1
1-Methylnaphthalene	ND		0.50		ug/L		08/14/18 12:00	08/16/18 16:09	1
2-Methylnaphthalene	ND		0.50		ug/L		08/14/18 12:00	08/16/18 16:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*68*		*18 - 138*	*08/14/18 12:00*	*08/16/18 16:09*	*1*
2-Fluorobiphenyl (Surr)	*84*		*22 - 120*	*08/14/18 12:00*	*08/16/18 16:09*	*1*
p-Terphenyl-d14	*77*		*10 - 120*	*08/14/18 12:00*	*08/16/18 16:09*	*1*

Lab Sample ID: LCS 550-153975/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154183 — **Prep Batch: 153975**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.508		ug/L		64	35 - 104
Acenaphthylene	0.800	0.502		ug/L		63	35 - 100
Anthracene	0.800	0.490		ug/L		61	37 - 100
Benzo[a]anthracene	0.800	0.557		ug/L		70	46 - 106
Benzo[a]pyrene	0.800	0.512		ug/L		64	36 - 117
Benzo[b]fluoranthene	0.800	0.554		ug/L		69	33 - 126
Benzo[g,h,i]perylene	0.800	0.498		ug/L		62	31 - 124
Benzo[k]fluoranthene	0.800	0.514		ug/L		64	26 - 131
Chrysene	0.800	0.518		ug/L		65	46 - 103
Dibenz(a,h)anthracene	0.800	0.562		ug/L		70	30 - 125
Fluoranthene	0.800	0.568		ug/L		71	47 - 107
Fluorene	0.800	0.539		ug/L		67	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.548		ug/L		68	32 - 125
Naphthalene	0.800	0.523		ug/L		65	38 - 103
Phenanthrene	0.800	0.518		ug/L		65	41 - 107
Pyrene	0.800	0.515		ug/L		64	44 - 108
1-Methylnaphthalene	0.800	0.574		ug/L		72	38 - 106
2-Methylnaphthalene	0.800	0.551		ug/L		69	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-153975/2-A
Matrix: Water
Analysis Batch: 154183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153975

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	*67*		*18 - 138*
2-Fluorobiphenyl (Surr)	*82*		*22 - 120*
p-Terphenyl-d14	*76*		*10 - 120*

Lab Sample ID: LCSD 550-153975/3-A
Matrix: Water
Analysis Batch: 154183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 153975

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	0.800	0.467		ug/L		58	35 - 104	8	35
Acenaphthylene	0.800	0.465		ug/L		58	35 - 100	8	35
Anthracene	0.800	0.456		ug/L		57	37 - 100	7	35
Benzo[a]anthracene	0.800	0.530		ug/L		66	46 - 106	5	35
Benzo[a]pyrene	0.800	0.498		ug/L		62	36 - 117	3	35
Benzo[b]fluoranthene	0.800	0.530		ug/L		66	33 - 126	4	35
Benzo[g,h,i]perylene	0.800	0.494		ug/L		62	31 - 124	1	35
Benzo[k]fluoranthene	0.800	0.492		ug/L		61	26 - 131	5	35
Chrysene	0.800	0.475		ug/L		59	46 - 103	9	35
Dibenz(a,h)anthracene	0.800	0.554		ug/L		69	30 - 125	1	35
Fluoranthene	0.800	0.534		ug/L		67	47 - 107	6	35
Fluorene	0.800	0.492		ug/L		61	36 - 108	9	35
Indeno[1,2,3-cd]pyrene	0.800	0.545		ug/L		68	32 - 125	0	35
Naphthalene	0.800	0.483		ug/L		60	38 - 103	8	35
Phenanthrene	0.800	0.482		ug/L		60	41 - 107	7	35
Pyrene	0.800	0.492		ug/L		62	44 - 108	5	35
1-Methylnaphthalene	0.800	0.513		ug/L		64	38 - 106	11	35
2-Methylnaphthalene	0.800	0.492	N1	ug/L		61	38 - 106	11	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Nitrobenzene-d5	*61*		*18 - 138*
2-Fluorobiphenyl (Surr)	*69*		*22 - 120*
p-Terphenyl-d14	*70*		*10 - 120*

Lab Sample ID: 550-107826-2 MS
Matrix: Water
Analysis Batch: 154183

Client Sample ID: PHX_YYMMDD
Prep Type: Total/NA
Prep Batch: 153975

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		0.800	0.503		ug/L		63	45 - 104
Acenaphthylene	ND		0.800	0.527		ug/L		66	48 - 107
Anthracene	ND		0.800	0.561		ug/L		70	48 - 114
Benzo[a]anthracene	ND		0.800	0.637		ug/L		80	46 - 113
Benzo[a]pyrene	ND		0.800	0.589		ug/L		74	47 - 115
Benzo[b]fluoranthene	ND		0.800	0.581		ug/L		73	47 - 113
Benzo[g,h,i]perylene	ND		0.800	0.550		ug/L		69	43 - 116
Benzo[k]fluoranthene	ND		0.800	0.528		ug/L		66	44 - 115
Chrysene	ND		0.800	0.589		ug/L		74	44 - 114
Dibenz(a,h)anthracene	ND		0.800	0.641		ug/L		80	41 - 115

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 550-107826-2 MS | **Client Sample ID: PHX_YYMMDD**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 154183 | **Prep Batch: 153975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	ND		0.800	0.645		ug/L		81	49 - 116
Fluorene	ND		0.800	0.545		ug/L		68	45 - 106
Indeno[1,2,3-cd]pyrene	ND		0.800	0.656		ug/L		82	42 - 112
Naphthalene	ND		0.800	0.498		ug/L		62	46 - 103
Phenanthrene	ND		0.800	0.548		ug/L		68	49 - 113
Pyrene	ND		0.800	0.584		ug/L		73	47 - 113
1-Methylnaphthalene	ND		0.800	0.582		ug/L		73	70 - 130
2-Methylnaphthalene	ND	M2	0.800	0.536	M2	ug/L		67	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*64*		*18 - 138*
2-Fluorobiphenyl (Surr)	*73*		*22 - 120*
p-Terphenyl-d14	*82*		*10 - 120*

Lab Sample ID: 550-107826-2 MSD | **Client Sample ID: PHX_YYMMDD**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 154183 | **Prep Batch: 153975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		0.800	0.583		ug/L		73	45 - 104	15	27
Acenaphthylene	ND		0.800	0.642		ug/L		80	48 - 107	20	27
Anthracene	ND		0.800	0.656		ug/L		82	48 - 114	16	24
Benzo[a]anthracene	ND		0.800	0.748		ug/L		94	46 - 113	16	21
Benzo[a]pyrene	ND		0.800	0.692		ug/L		87	47 - 115	16	24
Benzo[b]fluoranthene	ND		0.800	0.662		ug/L		83	47 - 113	13	22
Benzo[g,h,i]perylene	ND		0.800	0.663		ug/L		83	43 - 116	19	22
Benzo[k]fluoranthene	ND		0.800	0.606		ug/L		76	44 - 115	14	25
Chrysene	ND		0.800	0.688		ug/L		86	44 - 114	16	21
Dibenz(a,h)anthracene	ND		0.800	0.736		ug/L		92	41 - 115	14	27
Fluoranthene	ND		0.800	0.677		ug/L		85	49 - 116	5	20
Fluorene	ND		0.800	0.648		ug/L		81	45 - 106	17	27
Indeno[1,2,3-cd]pyrene	ND		0.800	0.755		ug/L		94	42 - 112	14	25
Naphthalene	ND		0.800	0.586		ug/L		73	46 - 103	16	34
Phenanthrene	ND		0.800	0.628		ug/L		78	49 - 113	14	22
Pyrene	ND		0.800	0.645		ug/L		81	47 - 113	10	19
1-Methylnaphthalene	ND		0.800	0.687		ug/L		86	70 - 130	17	20
2-Methylnaphthalene	ND	M2	0.800	0.642		ug/L		80	70 - 130	18	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*77*		*18 - 138*
2-Fluorobiphenyl (Surr)	*87*		*22 - 120*
p-Terphenyl-d14	*87*		*10 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 550-153959/2
Matrix: Water
Analysis Batch: 153959

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.10		mg/L			08/13/18 19:24	1
Nitrite as N	ND		0.10		mg/L			08/13/18 19:24	1
Chloride	ND		2.0		mg/L			08/13/18 19:24	1
Sulfate	ND		2.0		mg/L			08/13/18 19:24	1

Lab Sample ID: LCS 550-153959/5
Matrix: Water
Analysis Batch: 153959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	4.00	4.11		mg/L		103	90 - 110
Nitrite as N	4.00	4.24		mg/L		106	90 - 110
Chloride	20.0	20.6		mg/L		103	90 - 110
Sulfate	20.0	20.2		mg/L		101	90 - 110

Lab Sample ID: LCSD 550-153959/6
Matrix: Water
Analysis Batch: 153959

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	4.00	4.11		mg/L		103	90 - 110	0	20
Nitrite as N	4.00	4.25		mg/L		106	90 - 110	0	20
Chloride	20.0	20.6		mg/L		103	90 - 110	0	20
Sulfate	20.0	20.2		mg/L		101	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 550-154174/1-A
Matrix: Water
Analysis Batch: 154350

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0		mg/L		08/16/18 08:13	08/17/18 11:05	1
Sodium	ND		0.50		mg/L		08/16/18 08:13	08/17/18 11:05	1

Lab Sample ID: LCS 550-154174/2-A
Matrix: Water
Analysis Batch: 154350

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	21.0	20.9		mg/L		100	85 - 115
Sodium	20.0	19.0		mg/L		95	85 - 115

Lab Sample ID: LCSD 550-154174/3-A
Matrix: Water
Analysis Batch: 154350

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154174

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	21.0	21.1		mg/L		101	85 - 115	1	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCSD 550-154174/3-A
Matrix: Water
Analysis Batch: 154350

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154174

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sodium			20.0	19.4		mg/L		97	85 - 115	3	20

Lab Sample ID: 550-107823-B-1-B MS
Matrix: Water
Analysis Batch: 154350

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154174

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	8.5		21.0	28.9		mg/L		97	70 - 130
Sodium	100	M3	20.0	118	M3	mg/L		69	70 - 130

Lab Sample ID: 550-107823-B-1-C MSD
Matrix: Water
Analysis Batch: 154350

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154174

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	8.5		21.0	29.3		mg/L		99	70 - 130	2	20
Sodium	100	M3	20.0	122	M3	mg/L		92	70 - 130	4	20

Method: 200.8 LL - Metals (ICP/MS)

Lab Sample ID: MB 550-154443/1-A
Matrix: Water
Analysis Batch: 154588

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154443

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.00050		mg/L		08/20/18 09:26	08/21/18 09:05	1
Barium	ND		0.00050		mg/L		08/20/18 09:26	08/21/18 09:05	1
Cadmium	ND		0.00010		mg/L		08/20/18 09:26	08/21/18 09:05	1
Copper	ND		0.00050		mg/L		08/20/18 09:26	08/21/18 09:05	1
Lead	ND		0.00050		mg/L		08/20/18 09:26	08/21/18 09:05	1
Nickel	ND		0.00050		mg/L		08/20/18 09:26	08/21/18 09:05	1
Selenium	ND		0.00050		mg/L		08/20/18 09:26	08/21/18 09:05	1
Silver	ND		0.00010		mg/L		08/20/18 09:26	08/21/18 09:05	1
Zinc	ND		0.013		mg/L		08/20/18 09:26	08/21/18 09:05	1
Chromium	ND		0.0010		mg/L		08/20/18 09:26	08/21/18 09:05	1

Lab Sample ID: LCS 550-154443/2-A
Matrix: Water
Analysis Batch: 154588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154443

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic			0.100	0.0963		mg/L		96	85 - 115
Barium			0.100	0.0969		mg/L		97	85 - 115
Cadmium			0.100	0.0975		mg/L		97	85 - 115
Copper			0.100	0.0990		mg/L		99	85 - 115
Lead			0.100	0.0981		mg/L		98	85 - 115
Nickel			0.100	0.0971		mg/L		97	85 - 115
Selenium			0.100	0.0968		mg/L		97	85 - 115
Silver			0.100	0.100		mg/L		100	85 - 115

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 550-154443/2-A
Matrix: Water
Analysis Batch: 154588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154443

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	0.100	0.0993		mg/L		99	85 - 115
Chromium	0.100	0.0965		mg/L		96	85 - 115

Lab Sample ID: LCSD 550-154443/3-A
Matrix: Water
Analysis Batch: 154588

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154443

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.100	0.0988		mg/L		99	85 - 115	3	20
Barium	0.100	0.0998		mg/L		100	85 - 115	3	20
Cadmium	0.100	0.101		mg/L		101	85 - 115	3	20
Copper	0.100	0.102		mg/L		102	85 - 115	3	20
Lead	0.100	0.101		mg/L		101	85 - 115	3	20
Nickel	0.100	0.0997		mg/L		100	85 - 115	3	20
Selenium	0.100	0.0989		mg/L		99	85 - 115	2	20
Silver	0.100	0.103		mg/L		103	85 - 115	3	20
Zinc	0.100	0.102		mg/L		102	85 - 115	2	20
Chromium	0.100	0.0994		mg/L		99	85 - 115	3	20

Lab Sample ID: 550-108029-B-1-B MS
Matrix: Water
Analysis Batch: 154588

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154443

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0020		0.100	0.102		mg/L		100	70 - 130
Barium	0.11		0.100	0.207		mg/L		95	70 - 130
Cadmium	ND		0.100	0.0953		mg/L		95	70 - 130
Copper	0.0011		0.100	0.0954		mg/L		94	70 - 130
Lead	ND		0.100	0.0928		mg/L		93	70 - 130
Nickel	0.00064		0.100	0.0960		mg/L		95	70 - 130
Selenium	0.0014		0.100	0.0992		mg/L		98	70 - 130
Silver	ND		0.100	0.0944		mg/L		94	70 - 130
Zinc	ND		0.100	0.0967		mg/L		97	70 - 130
Chromium	ND		0.100	0.0986		mg/L		98	70 - 130

Lab Sample ID: 550-108029-B-1-C MSD
Matrix: Water
Analysis Batch: 154588

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154443

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0020		0.100	0.0995		mg/L		97	70 - 130	2	20
Barium	0.11		0.100	0.205		mg/L		92	70 - 130	1	20
Cadmium	ND		0.100	0.0939		mg/L		94	70 - 130	1	20
Copper	0.0011		0.100	0.0930		mg/L		92	70 - 130	3	20
Lead	ND		0.100	0.0921		mg/L		92	70 - 130	1	20
Nickel	0.00064		0.100	0.0923		mg/L		92	70 - 130	4	20
Selenium	0.0014		0.100	0.0981		mg/L		97	70 - 130	1	20
Silver	ND		0.100	0.0925		mg/L		92	70 - 130	2	20
Zinc	ND		0.100	0.0948		mg/L		95	70 - 130	2	20

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: 550-108029-B-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154588 — **Prep Batch: 154443**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	ND		0.100	0.0969		mg/L		96	70 - 130	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 550-154199/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154365 — **Prep Batch: 154199**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/16/18 11:05	08/17/18 15:11	1

Lab Sample ID: LCS 550-154199/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154365 — **Prep Batch: 154199**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0100	0.00949		mg/L		95	85 - 115

Lab Sample ID: LCSD 550-154199/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154365 — **Prep Batch: 154199**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0100	0.00974		mg/L		97	85 - 115	3	20

Lab Sample ID: 550-107812-D-2-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154365 — **Prep Batch: 154199**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.0100	0.00872		mg/L		87	70 - 130

Lab Sample ID: 550-107812-D-2-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 154365 — **Prep Batch: 154199**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.0100	0.00866		mg/L		87	70 - 130	1	20

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: MB 550-153846/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 153846

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.20		NTU			08/13/18 10:47	1

Method: 180.1 - Turbidity, Nephelometric (Continued)

Lab Sample ID: LCS 550-153846/4
Matrix: Water
Analysis Batch: 153846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Turbidity	20.0	20.7		NTU		104	90 - 110

Lab Sample ID: LCSD 550-153846/5
Matrix: Water
Analysis Batch: 153846

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Turbidity	20.0	20.6		NTU		103	90 - 110	0	20

Lab Sample ID: 550-107826-1 DU
Matrix: Water
Analysis Batch: 153846

Client Sample ID: PHX_YYMMDD
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	21		21.5		NTU		0.5	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 550-154296/1
Matrix: Water
Analysis Batch: 154296

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		20		mg/L			08/17/18 08:02	1

Lab Sample ID: LCS 550-154296/2
Matrix: Water
Analysis Batch: 154296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1010		mg/L		101	90 - 110

Lab Sample ID: LCSD 550-154296/3
Matrix: Water
Analysis Batch: 154296

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1010		mg/L		101	90 - 110	1	10

Lab Sample ID: 550-108022-A-1 DU
Matrix: Water
Analysis Batch: 154296

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1400		1430		mg/L		2	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 550-154142/1
Matrix: Water
Analysis Batch: 154142

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			08/15/18 17:13	1

Lab Sample ID: LCS 550-154142/2
Matrix: Water
Analysis Batch: 154142

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			200	191		mg/L		96	90 - 110		

Lab Sample ID: LCSD 550-154142/3
Matrix: Water
Analysis Batch: 154142

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			200	196		mg/L		98	90 - 110	2	10

Lab Sample ID: 550-107803-A-1 DU
Matrix: Water
Analysis Batch: 154142

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	150			158		mg/L				2	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: MB 550-154039/1
Matrix: Water
Analysis Batch: 154039

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		5.0		mg/L			08/14/18 21:01	1

Lab Sample ID: LCS 550-154039/2
Matrix: Water
Analysis Batch: 154039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			198	185		mg/L		94	84.6 - 115.4		

Lab Sample ID: 550-107885-A-1 DU
Matrix: Water
Analysis Batch: 154039

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	230	D1 K9 R8		93.4	D1 K9 R8	mg/L				83	20

Method: SM 5220D - COD

Lab Sample ID: MB 550-154673/3-A
Matrix: Water
Analysis Batch: 154724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154673

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		20		mg/L		08/22/18 07:50	08/22/18 14:05	1

Lab Sample ID: LCS 550-154673/4-A
Matrix: Water
Analysis Batch: 154724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154673

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	400	419		mg/L		105	90 - 110

Lab Sample ID: LCSD 550-154673/5-A
Matrix: Water
Analysis Batch: 154724

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154673

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	400	426		mg/L		107	90 - 110	2	20

Lab Sample ID: 550-107743-C-1-B MS
Matrix: Water
Analysis Batch: 154724

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154673

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	470		400	860	E2	mg/L		97	80 - 120

Lab Sample ID: 550-107743-C-1-C MSD
Matrix: Water
Analysis Batch: 154724

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154673

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	470		400	857	E2	mg/L		96	80 - 120	0	20

GC/MS Semi VOA

Prep Batch: 153975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-2	PHX_YYMMDD	Total/NA	Water	3510C	
MB 550-153975/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-153975/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-153975/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
550-107826-2 MS	PHX_YYMMDD	Total/NA	Water	3510C	
550-107826-2 MSD	PHX_YYMMDD	Total/NA	Water	3510C	

Analysis Batch: 154183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-2	PHX_YYMMDD	Total/NA	Water	8270C SIM	153975
MB 550-153975/1-A	Method Blank	Total/NA	Water	8270C SIM	153975
LCS 550-153975/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	153975
LCSD 550-153975/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	153975
550-107826-2 MS	PHX_YYMMDD	Total/NA	Water	8270C SIM	153975
550-107826-2 MSD	PHX_YYMMDD	Total/NA	Water	8270C SIM	153975

HPLC/IC

Analysis Batch: 153959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	300.0	
MB 550-153959/2	Method Blank	Total/NA	Water	300.0	
LCS 550-153959/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 550-153959/6	Lab Control Sample Dup	Total/NA	Water	300.0	

Metals

Prep Batch: 154174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	200.7	
MB 550-154174/1-A	Method Blank	Total/NA	Water	200.7	
LCS 550-154174/2-A	Lab Control Sample	Total/NA	Water	200.7	
LCSD 550-154174/3-A	Lab Control Sample Dup	Total/NA	Water	200.7	
550-107823-B-1-B MS	Matrix Spike	Total/NA	Water	200.7	
550-107823-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.7	

Prep Batch: 154199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	245.1	
MB 550-154199/1-A	Method Blank	Total/NA	Water	245.1	
LCS 550-154199/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 550-154199/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
550-107812-D-2-B MS	Matrix Spike	Total/NA	Water	245.1	
550-107812-D-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 154350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	200.7 Rev 4.4	154174
MB 550-154174/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	154174
LCS 550-154174/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	154174

Metals (Continued)

Analysis Batch: 154350 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 550-154174/3-A	Lab Control Sample Dup	Total/NA	Water	200.7 Rev 4.4	154174
550-107823-B-1-B MS	Matrix Spike	Total/NA	Water	200.7 Rev 4.4	154174
550-107823-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.7 Rev 4.4	154174

Analysis Batch: 154365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	245.1	154199
MB 550-154199/1-A	Method Blank	Total/NA	Water	245.1	154199
LCS 550-154199/2-A	Lab Control Sample	Total/NA	Water	245.1	154199
LCSD 550-154199/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	154199
550-107812-D-2-B MS	Matrix Spike	Total/NA	Water	245.1	154199
550-107812-D-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	154199

Prep Batch: 154443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	200.8	
MB 550-154443/1-A	Method Blank	Total/NA	Water	200.8	
LCS 550-154443/2-A	Lab Control Sample	Total/NA	Water	200.8	
LCSD 550-154443/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
550-108029-B-1-B MS	Matrix Spike	Total/NA	Water	200.8	
550-108029-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.8	

Analysis Batch: 154588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	200.8 LL	154443
MB 550-154443/1-A	Method Blank	Total/NA	Water	200.8 LL	154443
LCS 550-154443/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	154443
LCSD 550-154443/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	154443
550-108029-B-1-B MS	Matrix Spike	Total/NA	Water	200.8 LL	154443
550-108029-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.8 LL	154443

General Chemistry

Analysis Batch: 153846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	180.1	
MB 550-153846/3	Method Blank	Total/NA	Water	180.1	
LCS 550-153846/4	Lab Control Sample	Total/NA	Water	180.1	
LCSD 550-153846/5	Lab Control Sample Dup	Total/NA	Water	180.1	
550-107826-1 DU	PHX_YYMMDD	Total/NA	Water	180.1	

Analysis Batch: 154039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	SM 5210B	
MB 550-154039/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 550-154039/2	Lab Control Sample	Total/NA	Water	SM 5210B	
550-107885-A-1 DU	Duplicate	Total/NA	Water	SM 5210B	

General Chemistry (Continued)

Analysis Batch: 154142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	SM 2540D	
MB 550-154142/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 550-154142/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 550-154142/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
550-107803-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 154296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	SM 2540C	
MB 550-154296/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 550-154296/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 550-154296/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
550-108022-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Prep Batch: 154673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	SM 5220	
MB 550-154673/3-A	Method Blank	Total/NA	Water	SM 5220	
LCS 550-154673/4-A	Lab Control Sample	Total/NA	Water	SM 5220	
LCSD 550-154673/5-A	Lab Control Sample Dup	Total/NA	Water	SM 5220	
550-107743-C-1-B MS	Matrix Spike	Total/NA	Water	SM 5220	
550-107743-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5220	

Analysis Batch: 154724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107826-1	PHX_YYMMDD	Total/NA	Water	SM 5220D	154673
MB 550-154673/3-A	Method Blank	Total/NA	Water	SM 5220D	154673
LCS 550-154673/4-A	Lab Control Sample	Total/NA	Water	SM 5220D	154673
LCSD 550-154673/5-A	Lab Control Sample Dup	Total/NA	Water	SM 5220D	154673
550-107743-C-1-B MS	Matrix Spike	Total/NA	Water	SM 5220D	154673
550-107743-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5220D	154673

Lab Chronicle

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Client Sample ID: PHX_YYMMDD

Lab Sample ID: 550-107826-1

Date Collected: 08/11/18 11:10

Matrix: Water

Date Received: 08/13/18 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	153959	08/14/18 00:53	NEL	TAL PHX
Total/NA	Prep	200.7			154174	08/16/18 08:13	SGO	TAL PHX
Total/NA	Analysis	200.7 Rev 4.4		1	154350	08/17/18 12:04	ARE	TAL PHX
Total/NA	Prep	200.8			154443	08/20/18 09:26	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		1	154588	08/21/18 09:37	TEK	TAL PHX
Total/NA	Prep	245.1			154199	08/16/18 11:05	JTG	TAL PHX
Total/NA	Analysis	245.1		1	154365	08/17/18 15:29	JTG	TAL PHX
Total/NA	Analysis	180.1		1	153846	08/13/18 10:49	YET	TAL PHX
Total/NA	Analysis	SM 2540C		1	154296		DGS	TAL PHX
					(Start)	08/17/18 08:02		
					(End)	08/20/18 11:35		
Total/NA	Analysis	SM 2540D		1	154142		DGS	TAL PHX
					(Start)	08/15/18 17:13		
					(End)	08/16/18 09:15		
Total/NA	Analysis	SM 5210B		1	154039		NEL	TAL PHX
					(Start)	08/14/18 21:01		
					(End)	08/19/18 16:24		
Total/NA	Prep	SM 5220			154673	08/22/18 07:50	YET	TAL PHX
Total/NA	Analysis	SM 5220D		1	154724	08/22/18 14:05	YET	TAL PHX

Client Sample ID: PHX_YYMMDD

Lab Sample ID: 550-107826-2

Date Collected: 08/11/18 11:10

Matrix: Water

Date Received: 08/13/18 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153975	08/14/18 12:00	REM	TAL PHX
Total/NA	Analysis	8270C SIM		1	154183	08/16/18 18:18	R1K	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: ADOT Stormwater

TestAmerica Job ID: 550-107826-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
300.0	Anions, Ion Chromatography	MCAWW	TAL PHX
200.7 Rev 4.4	Metals (ICP)	40CFR136A	TAL PHX
200.8 LL	Metals (ICP/MS)	EPA	TAL PHX
245.1	Mercury (CVAA)	EPA	TAL PHX
180.1	Turbidity, Nephelometric	MCAWW	TAL PHX
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PHX
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL PHX
SM 5210B	BOD, 5-Day	SM	TAL PHX
SM 5220D	COD	SM	TAL PHX
200.7	Preparation, Total Metals	EPA	TAL PHX
200.8	Preparation, Total Metals	EPA	TAL PHX
245.1	Preparation, Mercury	EPA	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX
SM 5220	COD	SM	TAL PHX

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

COC

TestAmerica Phoenix

4625 East Cotton Center Boulevard
Suite 189
Phoenix, AZ 85040-4807
phone 602.437.3340 fax 602.454.9303

Quote Number: 55008818 - 1

Chain of Custody Record

107826

TestAmerica

Client Contact	Regulatory Program:	Site Contact:	Date: 8/11/18	TestAmerica Laboratories, Inc.
NV5, Inc	Project Manager: Mark Murphy	Lab Contact: Mary Hamilton	Carrier: M Dakley	COC No:
1 W. Deer Valley Road, Bldg. 2, Suite 305	Tel/Fax: 520.302.9297			1 of 1 COCs
Phoenix, AZ 85027	Analysis Turnaround Time			Sampler: MO
623.374.6637 Phone	TAT if different from Below			For Lab Use Only:
623.738.3690 FAX				Walk-in Client:
Project Name: ADOT Stormwater				Lab Sampling:
Site: Phoenix				Job / SDG No.:
P O # 444117-0250000.11				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	BOD-5-Day	COD	Chloride-Nitrate-Nitrite-Sulfate	Ca-Na by ICP	As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn by ICP-MS	Mercury	TDS	TSS	Turbidity	PAHs	E Coli	Coliform Fecal (Colilert-Quanti Tray)	Sample Specific Notes:
PHX_YYMMDD -01			C	W				x	x	x	x	x	x	x	x	x			MO	
-02			G	W													x		MO	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments:

Custody Seals Intact:	Custody Seal No.:	Cooler Temp. (oC): Obs'd:	Corr'd:	Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	NV5	8/13/18 953	[signature]	NV5	8/13/18 953
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-PHX	Date/Time: 8/13/18 1029

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

3.9:

550-107826 Chain of Custody

COC

TestAmerica Phoenix

4625 East Cotton Center Boulevard

Suite 189

Phoenix, AZ 85040-4807

phone 602.437.3340 fax 602.454.9303

Quote Number: 55008818 - 1

Chain of Custody Record

107826

Client Contact	Regulatory Program:	Site Contact:	Date: 8/11/18
AMV5, Inc	Project Manager: Mark Murphy	Lab Contact: Mary Hamilton	Carrier: M D
1 W. Deer Valley Road, Bldg. 2, Suite 305	Tel/Fax: 520.302.9297		
Phoenix, AZ 85027	Analysis Turnaround Time		
623.374.6637 Phone	TAT if different from Below		
623.738.3690 FAX			
Project Name: ADOT Stormwater			
Site: Phoenix			
P O # 444117-0250000.11			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	BOD - 5 Day	COD	Chloride - Nitrate - Sulfate	Ca - Na by ICP	As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn by ICP-MS	Mercury	TDS	TSS	Turbidity	PAHs	E - Coli	Colifor Feca (Colile Quan Tray
PHX_YYMMDD -01			C	W				x	x	x	x	x		x	x	x	x		
-02			G	W														x	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the samples in the Comments

Sample Disposal (A fee may be assessed if samples are ret

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-107826-1

Login Number: 107826

List Source: TestAmerica Phoenix

List Number: 1

Creator: Gravlin, Andrea

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No sample date and/or time on COC, logged in per container labels.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-110697-1
Client Project/Site: ADOT

For:
NV5, Inc
1 W. Deer Valley Rd
Bldg 2, Suite 305
Phoenix, Arizona 85027

Attn: Michelle Oakley

Authorized for release by:
10/8/2018 9:17:08 PM

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

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Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
M2	Matrix spike recovery was low, the associated blank spike recovery was acceptable.
N1	See case narrative.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-110697-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-110697-1

Comments
No additional comments.

Receipt
The sample was received on 10/2/2018 11:37 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0º C.

GC/MS Semi VOA
Method(s) 8270C SIM: The final results for the matrix spike/matrix spike duplicate (MS/MSD) were calculated below the reporting limit (RL) for analytical batch 550-158490 for analytes: 1-Methylnaphthalene and 2-Methylnaphthalene. The MS/MSD were spiked within calibration range; all affected results were flagged with an N1 qualifier.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Biology
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-110697-1	PHX-181002	Water	10/02/18 10:20	10/02/18 11:37

Detection Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Client Sample ID: PHX-181002 — Lab Sample ID: 550-110697-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Escherichia coli	520		1.0		MPN/100mL	1		9223B	Total/NA
Coliform, Total	>2419.6		1.0		MPN/100mL	1		9223B	Total/NA
Coliform, Fecal	>2419.6		1.0		MPN/100mL	1		SM 9223B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Client Sample ID: PHX-181002
Date Collected: 10/02/18 10:20
Date Received: 10/02/18 11:37

Lab Sample ID: 550-110697-1
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Acenaphthylene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Benzo[a]anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Benzo[a]pyrene	ND		0.020		ug/L		10/03/18 15:25	10/05/18 21:27	1
Benzo[b]fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Benzo[k]fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Chrysene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Fluorene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Naphthalene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Phenanthrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
Pyrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 21:27	1
1-Methylnaphthalene	ND	M2 N1	0.50		ug/L		10/03/18 15:25	10/05/18 21:27	1
2-Methylnaphthalene	ND	M2 N1	0.50		ug/L		10/03/18 15:25	10/05/18 21:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*61*		*18 - 138*	*10/03/18 15:25*	*10/05/18 21:27*	*1*
2-Fluorobiphenyl (Surr)	*52*		*22 - 120*	*10/03/18 15:25*	*10/05/18 21:27*	*1*
p-Terphenyl-d14	*67*		*10 - 120*	*10/03/18 15:25*	*10/05/18 21:27*	*1*

Method: 9223B - Total Coliforms and E. coli by Colilert - QT

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	**520**		1.0		MPN/100mL			10/02/18 14:26	1
Coliform, Total	**>2419.6**		1.0		MPN/100mL			10/02/18 14:26	1

Method: SM 9223B - Coliforms, Fecal (Colilert - Quanti Tray)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	**>2419.6**		1.0		MPN/100mL			10/02/18 14:20	1

Surrogate Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHd14
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)
550-110697-1	PHX-181002	61	52	67
550-110697-1 MS	PHX-181002	76	66	72
550-110697-1 MSD	PHX-181002	80	65	80
LCS 550-158298/2-A	Lab Control Sample	80	77	82
LCSD 550-158298/3-A	Lab Control Sample Dup	87	73	82
MB 550-158298/1-A	Method Blank	90	77	92

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-158298/1-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158298

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Acenaphthylene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[a]anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[a]pyrene	ND		0.020		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[b]fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[k]fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Chrysene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Fluorene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Naphthalene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Phenanthrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Pyrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
1-Methylnaphthalene	ND		0.50		ug/L		10/03/18 15:25	10/05/18 19:17	1
2-Methylnaphthalene	ND		0.50		ug/L		10/03/18 15:25	10/05/18 19:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*90*		*18 - 138*	*10/03/18 15:25*	*10/05/18 19:17*	*1*
2-Fluorobiphenyl (Surr)	*77*		*22 - 120*	*10/03/18 15:25*	*10/05/18 19:17*	*1*
p-Terphenyl-d14	*92*		*10 - 120*	*10/03/18 15:25*	*10/05/18 19:17*	*1*

Lab Sample ID: LCS 550-158298/2-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.509		ug/L		64	35 - 104
Acenaphthylene	0.800	0.513		ug/L		64	35 - 100
Anthracene	0.800	0.507		ug/L		63	37 - 100
Benzo[a]anthracene	0.800	0.591		ug/L		74	46 - 106
Benzo[a]pyrene	0.800	0.582		ug/L		73	36 - 117
Benzo[b]fluoranthene	0.800	0.537		ug/L		67	33 - 126
Benzo[g,h,i]perylene	0.800	0.622		ug/L		78	31 - 124
Benzo[k]fluoranthene	0.800	0.523		ug/L		65	26 - 131
Chrysene	0.800	0.527		ug/L		66	46 - 103
Dibenz(a,h)anthracene	0.800	0.628		ug/L		79	30 - 125
Fluoranthene	0.800	0.559		ug/L		70	47 - 107
Fluorene	0.800	0.534		ug/L		67	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.587		ug/L		73	32 - 125
Naphthalene	0.800	0.515		ug/L		64	38 - 103
Phenanthrene	0.800	0.524		ug/L		65	41 - 107
Pyrene	0.800	0.564		ug/L		71	44 - 108
1-Methylnaphthalene	0.800	0.510		ug/L		64	38 - 106
2-Methylnaphthalene	0.800	0.517		ug/L		65	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-158298/2-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158298

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*80*		*18 - 138*
2-Fluorobiphenyl (Surr)	*77*		*22 - 120*
p-Terphenyl-d14	*82*		*10 - 120*

Lab Sample ID: LCSD 550-158298/3-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 158298

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			0.800	0.527		ug/L		66	35 - 104	3	35
Acenaphthylene			0.800	0.533		ug/L		67	35 - 100	4	35
Anthracene			0.800	0.533		ug/L		67	37 - 100	5	35
Benzo[a]anthracene			0.800	0.616		ug/L		77	46 - 106	4	35
Benzo[a]pyrene			0.800	0.613		ug/L		77	36 - 117	5	35
Benzo[b]fluoranthene			0.800	0.588		ug/L		74	33 - 126	9	35
Benzo[g,h,i]perylene			0.800	0.615		ug/L		77	31 - 124	1	35
Benzo[k]fluoranthene			0.800	0.535		ug/L		67	26 - 131	2	35
Chrysene			0.800	0.561		ug/L		70	46 - 103	6	35
Dibenz(a,h)anthracene			0.800	0.667		ug/L		83	30 - 125	6	35
Fluoranthene			0.800	0.570		ug/L		71	47 - 107	2	35
Fluorene			0.800	0.560		ug/L		70	36 - 108	5	35
Indeno[1,2,3-cd]pyrene			0.800	0.610		ug/L		76	32 - 125	4	35
Naphthalene			0.800	0.532		ug/L		67	38 - 103	3	35
Phenanthrene			0.800	0.543		ug/L		68	41 - 107	4	35
Pyrene			0.800	0.594		ug/L		74	44 - 108	5	35
1-Methylnaphthalene			0.800	0.524		ug/L		65	38 - 106	3	35
2-Methylnaphthalene			0.800	0.539		ug/L		67	38 - 106	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*87*		*18 - 138*
2-Fluorobiphenyl (Surr)	*73*		*22 - 120*
p-Terphenyl-d14	*82*		*10 - 120*

Lab Sample ID: 550-110697-1 MS
Matrix: Water
Analysis Batch: 158490

Client Sample ID: PHX-181002
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		0.800	0.464		ug/L		58	45 - 104
Acenaphthylene	ND		0.800	0.478		ug/L		60	48 - 107
Anthracene	ND		0.800	0.502		ug/L		63	48 - 114
Benzo[a]anthracene	ND		0.800	0.576		ug/L		72	46 - 113
Benzo[a]pyrene	ND		0.800	0.567		ug/L		71	47 - 115
Benzo[b]fluoranthene	ND		0.800	0.506		ug/L		63	47 - 113
Benzo[g,h,i]perylene	ND		0.800	0.586		ug/L		73	43 - 116
Benzo[k]fluoranthene	ND		0.800	0.490		ug/L		52	44 - 115
Chrysene	ND		0.800	0.488		ug/L		61	44 - 114
Dibenz(a,h)anthracene	ND		0.800	0.586		ug/L		73	41 - 115

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 550-110697-1 MS
Matrix: Water
Analysis Batch: 158490

Client Sample ID: PHX-181002
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	ND		0.800	0.568		ug/L		71	49 - 116
Fluorene	ND		0.800	0.512		ug/L		64	45 - 106
Indeno[1,2,3-cd]pyrene	ND		0.800	0.559		ug/L		70	42 - 112
Naphthalene	ND		0.800	0.465		ug/L		58	46 - 103
Phenanthrene	ND		0.800	0.501		ug/L		63	49 - 113
Pyrene	ND		0.800	0.561		ug/L		70	47 - 113
1-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		59	70 - 130
2-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		61	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*76*		*18 - 138*
2-Fluorobiphenyl (Surr)	*66*		*22 - 120*
p-Terphenyl-d14	*72*		*10 - 120*

Lab Sample ID: 550-110697-1 MSD
Matrix: Water
Analysis Batch: 158490

Client Sample ID: PHX-181002
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		0.800	0.490		ug/L		61	45 - 104	5	27
Acenaphthylene	ND		0.800	0.526		ug/L		66	48 - 107	10	27
Anthracene	ND		0.800	0.566		ug/L		71	48 - 114	12	24
Benzo[a]anthracene	ND		0.800	0.662		ug/L		83	46 - 113	14	21
Benzo[a]pyrene	ND		0.800	0.665		ug/L		83	47 - 115	16	24
Benzo[b]fluoranthene	ND		0.800	0.586		ug/L		73	47 - 113	15	22
Benzo[g,h,i]perylene	ND		0.800	0.683		ug/L		85	43 - 116	15	22
Benzo[k]fluoranthene	ND		0.800	0.506		ug/L		54	44 - 115	3	25
Chrysene	ND		0.800	0.576		ug/L		72	44 - 114	16	21
Dibenz(a,h)anthracene	ND		0.800	0.660		ug/L		82	41 - 115	12	27
Fluoranthene	ND		0.800	0.618		ug/L		77	49 - 116	8	20
Fluorene	ND		0.800	0.542		ug/L		68	45 - 106	6	27
Indeno[1,2,3-cd]pyrene	ND		0.800	0.672		ug/L		84	42 - 112	18	25
Naphthalene	ND		0.800	0.477		ug/L		60	46 - 103	3	34
Phenanthrene	ND		0.800	0.550		ug/L		69	49 - 113	9	22
Pyrene	ND		0.800	0.653		ug/L		82	47 - 113	15	19
1-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		60	70 - 130	2	20
2-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		61	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*80*		*18 - 138*
2-Fluorobiphenyl (Surr)	*65*		*22 - 120*
p-Terphenyl-d14	*80*		*10 - 120*

Method: 9223B - Total Coliforms and E. coli by Colilert - QT

Lab Sample ID: MB 550-158175/1
Matrix: Water
Analysis Batch: 158175

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	<1.0		1.0			MPN/100mL			10/02/18 14:26	1
Coliform, Total	<1.0		1.0			MPN/100mL			10/02/18 14:26	1

Lab Sample ID: 550-110690-A-2 DU
Matrix: Water
Analysis Batch: 158175

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Escherichia coli	<1.0			<1.0		MPN/100ml				NC	
Coliform, Total	<1.0			<1.0		MPN/100ml				NC	

Method: SM 9223B - Coliforms, Fecal (Colilert - Quanti Tray)

Lab Sample ID: MB 550-158176/1
Matrix: Water
Analysis Batch: 158176

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	<1.0		1.0			MPN/100mL			10/02/18 14:20	1

Lab Sample ID: 550-110690-A-3 DU
Matrix: Water
Analysis Batch: 158176

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Coliform, Fecal	<1.0			<1.0		MPN/100ml				NC	

GC/MS Semi VOA

Prep Batch: 158298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110697-1	PHX-181002	Total/NA	Water	3510C	
MB 550-158298/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-158298/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-158298/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
550-110697-1 MS	PHX-181002	Total/NA	Water	3510C	
550-110697-1 MSD	PHX-181002	Total/NA	Water	3510C	

Analysis Batch: 158490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110697-1	PHX-181002	Total/NA	Water	8270C SIM	158298
MB 550-158298/1-A	Method Blank	Total/NA	Water	8270C SIM	158298
LCS 550-158298/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	158298
LCSD 550-158298/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	158298
550-110697-1 MS	PHX-181002	Total/NA	Water	8270C SIM	158298
550-110697-1 MSD	PHX-181002	Total/NA	Water	8270C SIM	158298

Biology

Analysis Batch: 158175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110697-1	PHX-181002	Total/NA	Water	9223B	
MB 550-158175/1	Method Blank	Total/NA	Water	9223B	
550-110690-A-2 DU	Duplicate	Total/NA	Water	9223B	

Analysis Batch: 158176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110697-1	PHX-181002	Total/NA	Water	SM 9223B	
MB 550-158176/1	Method Blank	Total/NA	Water	SM 9223B	
550-110690-A-3 DU	Duplicate	Total/NA	Water	SM 9223B	

Lab Chronicle

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Client Sample ID: PHX-181002

Date Collected: 10/02/18 10:20
Date Received: 10/02/18 11:37

Lab Sample ID: 550-110697-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			158298	10/03/18 15:25	HKT	TAL PHX
Total/NA	Analysis	8270C SIM		1	158490	10/05/18 21:27	RTH	TAL PHX
Total/NA	Analysis	9223B		1	158175		MDS	TAL PHX
					(Start)	10/02/18 14:26		
					(End)	10/03/18 10:55		
Total/NA	Analysis	SM 9223B		1	158176		MDS	TAL PHX
					(Start)	10/02/18 14:20		
					(End)	10/03/18 10:55		

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-110697-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
9223B	Total Coliforms and E. coli by Colilert - QT	SM	TAL PHX
SM 9223B	Coliforms, Fecal (Colilert - Quanti Tray)	SM	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

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TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

10/8/2018

Page 1 of 1

Client Name / Address:	Project / PO Number:
NV5	ADOT
Project Manager: Michelle Oakley	Phone Number:
Sampler: Michelle Oakley	Email Address:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: PAHs	Analysis Required: E Coli	Analysis Required: Fecal Coliforms	Special Instructions
PHX-181002	W	-	3	10/2/18	1020	-	X	X	X	

550-110697 Chain of Custody

Relinquished By:	Date / Time:	Received By:	Date / Time:
	1102		10/2/18 11:00
Relinquished By:	Date / Time:	Received By:	Date / Time:
	10/2/18 1137		
Relinquished By:	Date / Time:	Received in Lab By:	Date / Time:
		TARN	10/2-18 1137

Turnaround Time: (Check)

same day _____ 72 hours _____

24 hours _____ 5 days _____

48 hours _____ normal _____

Sample Integrity: (Check)

intact _____ on ice X

cooler temp 2.0°C

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-110697-1

Login Number: 110697
List Number: 1
Creator: Maycock, Lisa

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-107855-1
Client Project/Site: ADOT

For:
NV5, Inc
7620 North Hartman Lane
Suite 162
Tucson, Arizona 85743

Attn: Mark Murphy

Authorized for release by:
8/30/2018 11:08:03 PM

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Qualifiers

Metals

Qualifier	Qualifier Description
D2	Sample required dilution due to high concentration of analyte.
H6	The filtration was not done within the required 15 minutes of sampling, the sample was filtered in the laboratory.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-107855-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-107855-1

Comments
No additional comments.

Receipt
The samples were received on 8/13/2018 12:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 14.9º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-107855-1	Queen Creek 081318	Water	08/13/18 11:43	08/13/18 12:55
550-107855-2	Queen Creek 081318	Water	08/13/18 11:43	08/13/18 12:55

Detection Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Client Sample ID: Queen Creek 081318 — Lab Sample ID: 550-107855-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	50		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Magnesium	22		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Lead	1.4	D2	0.0050		mg/L	10		200.8 LL	Total/NA
Selenium	0.0064		0.00050		mg/L	1		200.8 LL	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	220		13		mg/L	1		SM 2340B	Total/NA

Client Sample ID: Queen Creek 081318 — Lab Sample ID: 550-107855-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	0.10	H6	0.00050		mg/L	1		200.8 LL	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Client Sample ID: Queen Creek 081318

Lab Sample ID: 550-107855-1

Date Collected: 08/13/18 11:43

Matrix: Water

Date Received: 08/13/18 12:55

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	50		2.0		mg/L		08/21/18 10:53	08/22/18 16:28	1
Magnesium	22		2.0		mg/L		08/21/18 10:53	08/22/18 16:28	1

Method: 200.8 LL - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	1.4	D2	0.0050		mg/L		08/16/18 11:39	08/18/18 20:12	10
Selenium	0.0064		0.00050		mg/L		08/16/18 11:39	08/18/18 20:09	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	220		13		mg/L			08/23/18 15:26	1

Client Sample ID: Queen Creek 081318

Lab Sample ID: 550-107855-2

Date Collected: 08/13/18 11:43

Matrix: Water

Date Received: 08/13/18 12:55

Method: 200.8 LL - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	0.10	H6	0.00050		mg/L		08/25/18 13:50	08/28/18 11:06	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 550-154594/1-A
Matrix: Water
Analysis Batch: 154739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0		mg/L		08/21/18 10:53	08/22/18 15:27	1
Magnesium	ND		2.0		mg/L		08/21/18 10:53	08/22/18 15:27	1

Lab Sample ID: LCS 550-154594/2-A
Matrix: Water
Analysis Batch: 154739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	21.0	21.3		mg/L		102	85 - 115
Magnesium	21.0	21.3		mg/L		101	85 - 115

Lab Sample ID: LCSD 550-154594/3-A
Matrix: Water
Analysis Batch: 154739

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154594

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	21.0	21.6		mg/L		103	85 - 115	1	20
Magnesium	21.0	21.5		mg/L		103	85 - 115	1	20

Lab Sample ID: 550-108090-C-1-B MS
Matrix: Water
Analysis Batch: 154739

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154594

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	8.4		21.0	29.6		mg/L		101	70 - 130
Magnesium	ND		21.0	22.9		mg/L		100	70 - 130

Lab Sample ID: 550-108090-C-1-C MSD
Matrix: Water
Analysis Batch: 154739

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154594

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	8.4		21.0	29.5		mg/L		100	70 - 130	0	20
Magnesium	ND		21.0	22.7		mg/L		100	70 - 130	1	20

Method: 200.8 LL - Metals (ICP/MS)

Lab Sample ID: MB 550-154208/1-A
Matrix: Water
Analysis Batch: 154387

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154208

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00050		mg/L		08/16/18 11:39	08/17/18 14:36	1

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 550-154208/1-A
Matrix: Water
Analysis Batch: 154402

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154208

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00050		mg/L		08/16/18 11:39	08/18/18 19:07	1
Selenium	ND		0.00050		mg/L		08/16/18 11:39	08/18/18 19:07	1

Lab Sample ID: LCS 550-154208/2-A
Matrix: Water
Analysis Batch: 154387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.100	0.0999		mg/L		100	85 - 115

Lab Sample ID: LCS 550-154208/2-A
Matrix: Water
Analysis Batch: 154402

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.100	0.110		mg/L		110	85 - 115
Selenium	0.100	0.0951		mg/L		95	85 - 115

Lab Sample ID: LCSD 550-154208/3-A
Matrix: Water
Analysis Batch: 154387

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.100	0.0996		mg/L		100	85 - 115	0	20

Lab Sample ID: LCSD 550-154208/3-A
Matrix: Water
Analysis Batch: 154402

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.100	0.110		mg/L		110	85 - 115	0	20
Selenium	0.100	0.0962		mg/L		96	85 - 115	1	20

Lab Sample ID: 550-107667-C-1-D MS
Matrix: Water
Analysis Batch: 154387

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		0.100	0.0933		mg/L		93	70 - 130

Lab Sample ID: 550-107667-C-1-D MS
Matrix: Water
Analysis Batch: 154402

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		0.100	0.101		mg/L		101	70 - 130
Selenium	ND		0.100	0.105		mg/L		104	70 - 130

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: 550-107667-C-1-E MSD
Matrix: Water
Analysis Batch: 154387

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		0.100	0.0949		mg/L		95	70 - 130	2	20

Lab Sample ID: 550-107667-C-1-E MSD
Matrix: Water
Analysis Batch: 154402

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154208

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		0.100	0.103		mg/L		102	70 - 130	2	20
Selenium	ND		0.100	0.109		mg/L		108	70 - 130	4	20

Lab Sample ID: MB 550-155018/1-A
Matrix: Water
Analysis Batch: 155227

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 155018

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.00050		mg/L		08/25/18 13:50	08/28/18 10:47	1

Lab Sample ID: LCS 550-155018/2-A
Matrix: Water
Analysis Batch: 155227

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 155018

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	0.100	0.101		mg/L		101	85 - 115

Lab Sample ID: LCSD 550-155018/3-A
Matrix: Water
Analysis Batch: 155227

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 155018

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	0.100	0.103		mg/L		103	85 - 115	2	20

Lab Sample ID: MB 550-154101/1-G
Matrix: Water
Analysis Batch: 155227

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 155018

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.00050		mg/L		08/25/18 13:50	08/28/18 11:03	1

Lab Sample ID: 550-107659-A-2-E MS
Matrix: Water
Analysis Batch: 155227

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 155018

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	0.037	H6	0.100	0.139		mg/L		103	70 - 130

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: 550-107659-A-2-F MSD
Matrix: Water
Analysis Batch: 155227

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 155018

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	0.037	H6	0.100	0.141		mg/L		105	70 - 130	1	20

Metals

Filtration Batch: 154101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-2	Queen Creek 081318	Dissolved	Water	Filtration	
MB 550-154101/1-G	Method Blank	Dissolved	Water	Filtration	

Prep Batch: 154208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-1	Queen Creek 081318	Total/NA	Water	200.8	
MB 550-154208/1-A	Method Blank	Total/NA	Water	200.8	
LCS 550-154208/2-A	Lab Control Sample	Total/NA	Water	200.8	
LCSD 550-154208/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
550-107667-C-1-D MS	Matrix Spike	Total/NA	Water	200.8	
550-107667-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	200.8	

Analysis Batch: 154387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 550-154208/1-A	Method Blank	Total/NA	Water	200.8 LL	154208
LCS 550-154208/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	154208
LCSD 550-154208/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	154208
550-107667-C-1-D MS	Matrix Spike	Total/NA	Water	200.8 LL	154208
550-107667-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	200.8 LL	154208

Analysis Batch: 154402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-1	Queen Creek 081318	Total/NA	Water	200.8 LL	154208
550-107855-1	Queen Creek 081318	Total/NA	Water	200.8 LL	154208
MB 550-154208/1-A	Method Blank	Total/NA	Water	200.8 LL	154208
LCS 550-154208/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	154208
LCSD 550-154208/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	154208
550-107667-C-1-D MS	Matrix Spike	Total/NA	Water	200.8 LL	154208
550-107667-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	200.8 LL	154208

Prep Batch: 154594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-1	Queen Creek 081318	Total/NA	Water	200.7	
MB 550-154594/1-A	Method Blank	Total/NA	Water	200.7	
LCS 550-154594/2-A	Lab Control Sample	Total/NA	Water	200.7	
LCSD 550-154594/3-A	Lab Control Sample Dup	Total/NA	Water	200.7	
550-108090-C-1-B MS	Matrix Spike	Total/NA	Water	200.7	
550-108090-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.7	

Analysis Batch: 154739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 550-154594/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	154594
LCS 550-154594/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	154594
LCSD 550-154594/3-A	Lab Control Sample Dup	Total/NA	Water	200.7 Rev 4.4	154594
550-108090-C-1-B MS	Matrix Spike	Total/NA	Water	200.7 Rev 4.4	154594
550-108090-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.7 Rev 4.4	154594

Analysis Batch: 154751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-1	Queen Creek 081318	Total/NA	Water	200.7 Rev 4.4	154594

Metals (Continued)

Analysis Batch: 154855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-1	Queen Creek 081318	Total/NA	Water	SM 2340B	

Prep Batch: 155018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-2	Queen Creek 081318	Dissolved	Water	200.8	154101
MB 550-154101/1-G	Method Blank	Dissolved	Water	200.8	154101
MB 550-155018/1-A	Method Blank	Total/NA	Water	200.8	
LCS 550-155018/2-A	Lab Control Sample	Total/NA	Water	200.8	
LCSD 550-155018/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
550-107659-A-2-E MS	Matrix Spike	Dissolved	Water	200.8	
550-107659-A-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	

Analysis Batch: 155227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-107855-2	Queen Creek 081318	Dissolved	Water	200.8 LL	155018
MB 550-154101/1-G	Method Blank	Dissolved	Water	200.8 LL	155018
MB 550-155018/1-A	Method Blank	Total/NA	Water	200.8 LL	155018
LCS 550-155018/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	155018
LCSD 550-155018/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	155018
550-107659-A-2-E MS	Matrix Spike	Dissolved	Water	200.8 LL	155018
550-107659-A-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.8 LL	155018

Lab Chronicle

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Client Sample ID: Queen Creek 081318

Lab Sample ID: 550-107855-1

Date Collected: 08/13/18 11:43

Matrix: Water

Date Received: 08/13/18 12:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			154594	08/21/18 10:53	SGO	TAL PHX
Total/NA	Analysis	200.7 Rev 4.4		1	154751	08/22/18 16:28	ARE	TAL PHX
Total/NA	Prep	200.8			154208	08/16/18 11:39	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		1	154402	08/18/18 20:09	TEK	TAL PHX
Total/NA	Prep	200.8			154208	08/16/18 11:39	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		10	154402	08/18/18 20:12	TEK	TAL PHX
Total/NA	Analysis	SM 2340B		1	154855	08/23/18 15:26	ARE	TAL PHX

Client Sample ID: Queen Creek 081318

Lab Sample ID: 550-107855-2

Date Collected: 08/13/18 11:43

Matrix: Water

Date Received: 08/13/18 12:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			154101	08/15/18 12:45	SGO	TAL PHX
Dissolved	Prep	200.8			155018	08/25/18 13:50	SLS	TAL PHX
Dissolved	Analysis	200.8 LL		1	155227	08/28/18 11:06	TEK	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Laboratory: TestAmerica Phoenix

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

Method Summary

Client: NV5, Inc
Project/Site: ADOT

TestAmerica Job ID: 550-107855-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	40CFR136A	TAL PHX
200.8 LL	Metals (ICP/MS)	EPA	TAL PHX
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL PHX
200.7	Preparation, Total Metals	EPA	TAL PHX
200.8	Preparation, Total Metals	EPA	TAL PHX
Filtration	Sample Filtration	None	TAL PHX

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

107855

Page 1 of 1

Client Name / Address: NV5, Inc.

Project / PO Number: ADOT

Project Manager: Mark Murphy

Sampler: M Oakley

Phone Number:

Email Address:

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Pb, Se	Cu Dissolved	Hardness							Special Instructions
QueenCreek 081318	H2O	Poly	2	8/13/18	1143		X	X	X							

550-107855 Chain of Custody

Relinquished By:	Date / Time:	Received By:	Date / Time:
[signature]	8/13/18 1255		
Relinquished By:	Date / Time:	Received By:	Date / Time:
Relinquished By:	Date / Time: C.D.O	Received in Lab By: [signature]	Date / Time: 8/13/18 12:55

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal ____

Sample Integrity: (Check)
intact ✓ on ice ✓

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

TA-PHX

14, 9:

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-107855-1
SDG Number:

Login Number: 107855
List Number: 1
Creator: Maycock, Lisa

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-104568-1
Client Project/Site: ADEQ Stormwater

For:
NV5, Inc
7620 North Hartman Lane
Suite 162
Tucson, Arizona 85743

Attn: Mark Murphy

Authorized for release by:
7/12/2018 11:53:56 AM

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
D5	Minimum Reporting Limit (MRL) adjusted due to sample dilution; analyte was non-detect in the sample.
Q9	Insufficient sample received to meet method QC requirements.
N1	See case narrative.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Job ID: 550-104568-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-104568-1

Comments
No additional comments.

Receipt
The sample was received on 6/18/2018 2:00 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4º C.

The following sample was activated for an 8270 SIM analysis by the client on after the sample had been received: ROSVLT061618 (550-104568-1). This analysis was not originally requested on the chain of custody (COC).

GC/MS Semi VOA
Method(s) 8270C SIM: 2-Methylnaphthalene in the laboratory control spike sample and laboratory control spike duplicate sample were recovered below RL but met the required acceptable limits. The LCS/LCSD were spiked within calibration range. The analytes were flagged with an N1 qualifier: (LCS 550-150192/2-A) and (LCSD 550-150192/3-A).

Method(s) 8270C SIM: The following sample was diluted due to the dark coloration of the final sample extract: ROSVLT061618 (550-104568-1). Due to the nature of a SIM injection, matrix interference may not be present in the chromatograms. Elevated reporting limits (RL) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) SM 2540C: Total Dissolved Solids (TDS) by method SM 2450C could not be reported for the following sample: ROSVLT061618 (550-104568-1). The sample was initially analyzed with in the 7 day holding time, but the original result did not adhere to the expected conductivity to TDS ratio. There was insufficient volume remaining for a reanalysis.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 3510C.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-104568-1	ROSVLT061618	Water	06/16/18 15:32	06/18/18 14:00

Detection Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Client Sample ID: ROSVLT061618 — Lab Sample ID: 550-104568-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	210		10		mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Client Sample ID: ROSVLT061618
Date Collected: 06/16/18 15:32
Date Received: 06/18/18 14:00

Lab Sample ID: 550-104568-1
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Acenaphthylene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Anthracene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Benzo[a]anthracene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Benzo[a]pyrene	ND	D5 Q9	0.040		ug/L		06/22/18 14:53	06/26/18 17:49	2
Benzo[b]fluoranthene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Benzo[g,h,i]perylene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Benzo[k]fluoranthene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Chrysene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Dibenz(a,h)anthracene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Fluoranthene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Fluorene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Indeno[1,2,3-cd]pyrene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Naphthalene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Phenanthrene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
Pyrene	ND	D5 Q9	0.20		ug/L		06/22/18 14:53	06/26/18 17:49	2
1-Methylnaphthalene	ND	D5 Q9	1.0		ug/L		06/22/18 14:53	06/26/18 17:49	2
2-Methylnaphthalene	ND	D5 Q9	1.0		ug/L		06/22/18 14:53	06/26/18 17:49	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*69*		*18 - 138*	*06/22/18 14:53*	*06/26/18 17:49*	*2*
2-Fluorobiphenyl (Surr)	*64*		*22 - 120*	*06/22/18 14:53*	*06/26/18 17:49*	*2*
p-Terphenyl-d14	*76*		*10 - 120*	*06/22/18 14:53*	*06/26/18 17:49*	*2*

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		06/22/18 12:44	06/25/18 16:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**210**		10		mg/L			06/22/18 11:27	1

Surrogate Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHd14
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)
550-104568-1 - DL	ROSVLT061618	69	64	76
LCS 550-150192/2-A	Lab Control Sample	72	68	74
LCSD 550-150192/3-A	Lab Control Sample Dup	73	67	73
MB 550-150192/1-A	Method Blank	69	65	69

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-150192/1-A
Matrix: Water
Analysis Batch: 150405

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150192

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Acenaphthylene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Anthracene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Benzo[a]anthracene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Benzo[a]pyrene	ND		0.020		ug/L		06/22/18 14:53	06/26/18 16:38	1
Benzo[b]fluoranthene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Benzo[k]fluoranthene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Chrysene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Fluoranthene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Fluorene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Naphthalene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Phenanthrene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
Pyrene	ND		0.10		ug/L		06/22/18 14:53	06/26/18 16:38	1
1-Methylnaphthalene	ND		0.50		ug/L		06/22/18 14:53	06/26/18 16:38	1
2-Methylnaphthalene	ND		0.50		ug/L		06/22/18 14:53	06/26/18 16:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*69*		*18 - 138*	*06/22/18 14:53*	*06/26/18 16:38*	*1*
2-Fluorobiphenyl (Surr)	*65*		*22 - 120*	*06/22/18 14:53*	*06/26/18 16:38*	*1*
p-Terphenyl-d14	*69*		*10 - 120*	*06/22/18 14:53*	*06/26/18 16:38*	*1*

Lab Sample ID: LCS 550-150192/2-A
Matrix: Water
Analysis Batch: 150405

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150192

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.493		ug/L		62	35 - 104
Acenaphthylene	0.800	0.465		ug/L		58	35 - 100
Anthracene	0.800	0.433		ug/L		54	37 - 100
Benzo[a]anthracene	0.800	0.494		ug/L		62	46 - 106
Benzo[a]pyrene	0.800	0.456		ug/L		57	36 - 117
Benzo[b]fluoranthene	0.800	0.485		ug/L		61	33 - 126
Benzo[g,h,i]perylene	0.800	0.501		ug/L		63	31 - 124
Benzo[k]fluoranthene	0.800	0.525		ug/L		66	26 - 131
Chrysene	0.800	0.531		ug/L		66	46 - 103
Dibenz(a,h)anthracene	0.800	0.483		ug/L		60	30 - 125
Fluoranthene	0.800	0.486		ug/L		61	47 - 107
Fluorene	0.800	0.461		ug/L		58	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.459		ug/L		57	32 - 125
Naphthalene	0.800	0.501		ug/L		63	38 - 103
Phenanthrene	0.800	0.497		ug/L		62	41 - 107
Pyrene	0.800	0.503		ug/L		63	44 - 108
1-Methylnaphthalene	0.800	0.512		ug/L		64	38 - 106
2-Methylnaphthalene	0.800	0.477	N1	ug/L		60	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-150192/2-A
Matrix: Water
Analysis Batch: 150405

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150192

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*72*		*18 - 138*
2-Fluorobiphenyl (Surr)	*68*		*22 - 120*
p-Terphenyl-d14	*74*		*10 - 120*

Lab Sample ID: LCSD 550-150192/3-A
Matrix: Water
Analysis Batch: 150405

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150192

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			0.800	0.505		ug/L		63	35 - 104	2	35
Acenaphthylene			0.800	0.487		ug/L		61	35 - 100	5	35
Anthracene			0.800	0.462		ug/L		58	37 - 100	7	35
Benzo[a]anthracene			0.800	0.510		ug/L		64	46 - 106	3	35
Benzo[a]pyrene			0.800	0.483		ug/L		60	36 - 117	6	35
Benzo[b]fluoranthene			0.800	0.497		ug/L		62	33 - 126	2	35
Benzo[g,h,i]perylene			0.800	0.495		ug/L		62	31 - 124	1	35
Benzo[k]fluoranthene			0.800	0.514		ug/L		64	26 - 131	2	35
Chrysene			0.800	0.536		ug/L		67	46 - 103	1	35
Dibenz(a,h)anthracene			0.800	0.493		ug/L		62	30 - 125	2	35
Fluoranthene			0.800	0.508		ug/L		63	47 - 107	4	35
Fluorene			0.800	0.468		ug/L		58	36 - 108	1	35
Indeno[1,2,3-cd]pyrene			0.800	0.457		ug/L		57	32 - 125	1	35
Naphthalene			0.800	0.510		ug/L		64	38 - 103	2	35
Phenanthrene			0.800	0.522		ug/L		65	41 - 107	5	35
Pyrene			0.800	0.523		ug/L		65	44 - 108	4	35
1-Methylnaphthalene			0.800	0.521		ug/L		65	38 - 106	2	35
2-Methylnaphthalene			0.800	0.489	N1	ug/L		61	38 - 106	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*73*		*18 - 138*
2-Fluorobiphenyl (Surr)	*67*		*22 - 120*
p-Terphenyl-d14	*73*		*10 - 120*

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 550-150174/1-A
Matrix: Water
Analysis Batch: 150362

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		06/22/18 12:44	06/25/18 15:51	1

Lab Sample ID: LCS 550-150174/2-A
Matrix: Water
Analysis Batch: 150362

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150174

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.0100	0.0103		mg/L		103	85 - 115		

Lab Sample ID: LCSD 550-150174/3-A
Matrix: Water
Analysis Batch: 150362

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150174

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.0100	0.0104		mg/L		104	85 - 115	1	20

Lab Sample ID: 550-104618-C-1-D MS
Matrix: Water
Analysis Batch: 150362

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 150174

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		0.0100	0.00915		mg/L		91	70 - 130		

Lab Sample ID: 550-104618-C-1-E MSD
Matrix: Water
Analysis Batch: 150362

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 150174

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.0100	0.00985		mg/L		98	70 - 130	7	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 550-150166/1
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			06/22/18 11:27	1

Lab Sample ID: LCS 550-150166/2
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			200	190		mg/L		95	90 - 110		

Lab Sample ID: LCSD 550-150166/3
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			200	190		mg/L		95	90 - 110	0	10

Lab Sample ID: 550-104668-A-1 DU
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	ND			ND		mg/L				NC	10

QC Association Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

GC/MS Semi VOA

Prep Batch: 150192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104568-1 - DL	ROSVLT061618	Total/NA	Water	3510C	
MB 550-150192/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-150192/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-150192/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 150405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104568-1 - DL	ROSVLT061618	Total/NA	Water	8270C SIM	150192
MB 550-150192/1-A	Method Blank	Total/NA	Water	8270C SIM	150192
LCS 550-150192/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	150192
LCSD 550-150192/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	150192

Metals

Prep Batch: 150174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104568-1	ROSVLT061618	Total/NA	Water	245.1	
MB 550-150174/1-A	Method Blank	Total/NA	Water	245.1	
LCS 550-150174/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 550-150174/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
550-104618-C-1-D MS	Matrix Spike	Total/NA	Water	245.1	
550-104618-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Analysis Batch: 150362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104568-1	ROSVLT061618	Total/NA	Water	245.1	150174
MB 550-150174/1-A	Method Blank	Total/NA	Water	245.1	150174
LCS 550-150174/2-A	Lab Control Sample	Total/NA	Water	245.1	150174
LCSD 550-150174/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	150174
550-104618-C-1-D MS	Matrix Spike	Total/NA	Water	245.1	150174
550-104618-C-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	150174

General Chemistry

Analysis Batch: 150166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104568-1	ROSVLT061618	Total/NA	Water	SM 2540D	
MB 550-150166/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 550-150166/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 550-150166/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
550-104668-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Client Sample ID: ROSVLT061618
Date Collected: 06/16/18 15:32
Date Received: 06/18/18 14:00

Lab Sample ID: 550-104568-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C	DL		150192	06/22/18 14:53	REM	TAL PHX
Total/NA	Analysis	8270C SIM	DL	2	150405	06/26/18 17:49	RTH	TAL PHX
Total/NA	Prep	245.1			150174	06/22/18 12:44	JTG	TAL PHX
Total/NA	Analysis	245.1		1	150362	06/25/18 16:06	JTG	TAL PHX
Total/NA	Analysis	SM 2540D		1	150166		YET	TAL PHX
					(Start)	06/22/18 11:27		
					(End)	06/25/18 11:30		

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104568-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
245.1	Mercury (CVAA)	EPA	TAL PHX
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL PHX
245.1	Preparation, Mercury	EPA	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

104568

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

7/12/2018

Page 1 of 1

Client Name / Address:
NV5, INC.
1W DEER VALLEY RD, BLDG 2, STE 325
PHOENIX, AZ 85027

Project / PO Number:
444117-0250000.11

Project Manager: MARK MURPHY

Phone Number:

Sampler: KIRK CRESWICK

Email Address:
MARK.MURPHY@NV5.COM

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: TSS/TDS	Analysis Required: MERCURY	Special Instructions
ROSVLT061618	SW	500ml POLY	2	6/16/18	1532	NONE / HNO_3	X	X	

TA-PHX

550-104568 Chain of Custody

Relinquished By:	Date / Time:	Received By:	Date / Time:
	6/18/18 13:03		6/18/18 13:05
Relinquished By:	Date / Time:	Received By:	Date / Time:
	6/18/18 14:00		
Relinquished By:	Date / Time:	Received in Lab By:	Date / Time:
		06-18-18	14:00

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal ✓

Sample Integrity: (Check)
intact ✓ on ice ✓ 2-4c

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-104568-1

Login Number: 104568
List Number: 1
Creator: Maycock, Lisa

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

August 15, 2018

Mark Murphy
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18G0728
Order Name: ADOT Stormwater
#444117-0250000.11

RE: Storm Water

Dear Mark Murphy,

Turner Laboratories, Inc. received 1 sample(s) on 07/29/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Elizabeth Kasik
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

Order: ADOT Stormwater #444117-0250000.11

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18G0728-01	SEDMS4180727	Storm Water	07/27/2018 1700

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

Case Narrative

The 8310 PAH analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

K5	The dilution water D.O depletion was >0.2 mg/L.
K9	Test replicates show more than 30% difference between high and low values.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5 **Client Sample ID:** SEDMS4180727
Project: Storm Water **Collection Date/Time:** 07/27/2018 1700
Work Order: 18G0728 **Matrix:** Storm Water
Lab Sample ID: 18G0728-01 **Order Name:** ADOT Stormwater #444117-0250000.11

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation								
Hardness, Calcium/Magnesium (As CaCO3)	29			mg/L	1	07/30/2018 1000	07/31/2018 1039	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)								
Copper	0.0042	0.00050		mg/L	1	07/31/2018 1125	07/31/2018 1442	MH
Turbidity-E180.1								
Turbidity	95	0.50		NTU	5	07/29/2018 1145	07/29/2018 1155	AR
ICP Total Metals-E200.7 (4.4)								
Calcium	11	4.0		mg/L	1	07/30/2018 1000	07/31/2018 1039	MH
Magnesium	ND	3.0		mg/L	1	07/30/2018 1000	07/31/2018 1039	MH
Sodium	ND	5.0		mg/L	1	07/30/2018 1000	07/31/2018 1039	MH
Zinc	0.11	0.040		mg/L	1	07/30/2018 1000	07/31/2018 1040	MH
ICP/MS Total Metals-E200.8 (5.4)								
Arsenic	0.0012	0.00050		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Barium	0.043	0.00050		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Cadmium	ND	0.00025		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Chromium	0.0026	0.00050		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Copper	0.015	0.00050		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Lead	0.0026	0.00050		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Nickel	0.0052	0.0010		mg/L	2	07/31/2018 1030	08/06/2018 1350	MH
Selenium	ND	0.0025		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
Silver	ND	0.00050		mg/L	1	07/31/2018 1030	08/01/2018 1456	MH
CVAA Total Mercury-E245.1								
Mercury	ND	0.0010		mg/L	1	07/31/2018 0920	07/31/2018 1339	AR
Anions by Ion Chromatography-E300.0 (2.1)								
Chloride	1.1	1.0		mg/L	1	07/29/2018 1046	07/29/2018 1228	MH
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	1	07/29/2018 1046	07/29/2018 1228	MH
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	07/29/2018 1046	07/29/2018 1228	MH
Sulfate	ND	5.0		mg/L	1	07/29/2018 1046	07/29/2018 1228	MH
Chemical Oxygen Demand-Hach 8000								
Chemical Oxygen Demand	ND	20		mg/L	1	08/03/2018 1000	08/03/2018 1700	EJ
Total Dissolved Solids (Residue, Filterable)-SM2540 C								

Client: NV5
Project: Storm Water
Work Order: 18G0728
Lab Sample ID: 18G0728-01

Client Sample ID: SEDMS4180727
Collection Date/Time: 07/27/2018 1700
Matrix: Storm Water
Order Name: ADOT Stormwater #444117-0250000.11

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	52	20		mg/L	1	08/01/2018 0819	08/07/2018 1500	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	130	10		mg/L	1	07/31/2018 1142	08/01/2018 1300	EJ
Ammonia as N-SM4500-NH3 B,C								
Nitrogen, Ammonia (As N)	ND	0.50		mg/L	1	08/06/2018 1130	08/06/2018 1500	EJ
BOD, 5 day-SM5210 B								
Biochemical Oxygen Demand	26	2.0	K9	mg/L	1	07/29/2018 1200	08/03/2018 1500	AJ

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807326 - E200.7 (4.4)										
Blank (1807326-BLK1)				Prepared: 07/30/2018 Analyzed: 07/31/2018						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
Sodium	ND	5.0	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1807326-BS1)				Prepared: 07/30/2018 Analyzed: 07/31/2018						
Calcium	9.7	4.0	mg/L	10.00		97	85-115			
Magnesium	10	3.0	mg/L	10.00		100	85-115			
Sodium	10	5.0	mg/L	10.00		104	85-115			
Zinc	0.47	0.040	mg/L	0.5000		95	85-115			
LCS Dup (1807326-BSD1)				Prepared: 07/30/2018 Analyzed: 07/31/2018						
Calcium	9.5	4.0	mg/L	10.00		95	85-115	2	20	
Magnesium	9.8	3.0	mg/L	10.00		98	85-115	2	20	
Sodium	10	5.0	mg/L	10.00		102	85-115	1	20	
Zinc	0.46	0.040	mg/L	0.5000		93	85-115	2	20	
Matrix Spike (1807326-MS1)		**Source: 18G0638-01**		Prepared: 07/30/2018 Analyzed: 07/31/2018						
Calcium	42	4.0	mg/L	10.00	34	84	70-130			
Magnesium	13	3.0	mg/L	10.00	3.8	97	70-130			
Sodium	49	5.0	mg/L	10.00	40	87	70-130			
Zinc	0.47	0.040	mg/L	0.5000	0.0042	93	70-130			
Batch 1807338 - E 200.8 (5.4)										
Blank (1807338-BLK1)				Prepared & Analyzed: 07/31/2018						
Copper	ND	0.00050	mg/L							
LCS (1807338-BS1)				Prepared & Analyzed: 07/31/2018						
Copper	0.051	0.00050	mg/L	0.05000		102	85-115			
LCS Dup (1807338-BSD1)				Prepared & Analyzed: 07/31/2018						
Copper	0.051	0.00050	mg/L	0.05000		102	85-115	0.4	20	
Matrix Spike (1807338-MS1)		**Source: 18G0724-01**		Prepared & Analyzed: 07/31/2018						
Copper	0.047	0.00050	mg/L	0.05000	0.00038	93	70-130			
Batch 1807341 - E245.1										
Blank (1807341-BLK1)				Prepared & Analyzed: 07/31/2018						
Mercury	ND	0.0010	mg/L							
LCS (1807341-BS1)				Prepared & Analyzed: 07/31/2018						
Mercury	0.0050	0.0010	mg/L	0.005000		100	85-115			
LCS Dup (1807341-BSD1)				Prepared & Analyzed: 07/31/2018						
Mercury	0.0050	0.0010	mg/L	0.005000		101	85-115	1	20	
Matrix Spike (1807341-MS1)		**Source: 18G0643-01**		Prepared & Analyzed: 07/31/2018						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	98	85-115			

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807341 - E245.1										
Matrix Spike Dup (1807341-MSD1)		**Source: 18G0643-01**		Prepared & Analyzed: 07/31/2018						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	98	85-115	0.05	20	
Batch 1808001 - E200.8 (5.4)										
Blank (1808001-BLK1)				Prepared: 07/31/2018 Analyzed: 08/01/2018						
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Silver	ND	0.00050	mg/L							
LCS (1808001-BS1)				Prepared: 07/31/2018 Analyzed: 08/01/2018						
Arsenic	0.050	0.00050	mg/L	0.05000		99	85-115			
Barium	0.048	0.00050	mg/L	0.05000		96	85-115			
Cadmium	0.051	0.00025	mg/L	0.05000		102	85-115			
Chromium	0.052	0.00050	mg/L	0.05000		104	85-115			
Copper	0.052	0.00050	mg/L	0.05000		104	85-115			
Lead	0.050	0.00050	mg/L	0.05000		100	85-115			
Nickel	0.050	0.00050	mg/L	0.05000		101	85-115			
Selenium	0.049	0.0025	mg/L	0.05000		99	85-115			
Silver	0.046	0.00050	mg/L	0.05000		92	85-115			
LCS Dup (1808001-BSD1)				Prepared: 07/31/2018 Analyzed: 08/01/2018						
Arsenic	0.051	0.00050	mg/L	0.05000		101	85-115	2	20	
Barium	0.048	0.00050	mg/L	0.05000		96	85-115	0.5	20	
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115	2	20	
Chromium	0.050	0.00050	mg/L	0.05000		100	85-115	4	20	
Copper	0.053	0.00050	mg/L	0.05000		106	85-115	2	20	
Lead	0.050	0.00050	mg/L	0.05000		100	85-115	0.2	20	
Nickel	0.053	0.00050	mg/L	0.05000		106	85-115	5	20	
Selenium	0.051	0.0025	mg/L	0.05000		101	85-115	3	20	
Silver	0.047	0.00050	mg/L	0.05000		94	85-115	2	20	
Matrix Spike (1808001-MS1)		**Source: 18G0635-04**		Prepared: 07/31/2018 Analyzed: 08/01/2018						
Arsenic	0.057	0.00050	mg/L	0.05000	0.0077	99	70-130			
Barium	0.053	0.00050	mg/L	0.05000	0.0050	96	70-130			
Cadmium	0.050	0.00025	mg/L	0.05000	ND	99	70-130			
Chromium	0.064	0.00050	mg/L	0.05000	0.011	104	70-130			
Copper	0.11	0.00050	mg/L	0.05000	0.044	128	70-130			
Lead	0.058	0.00050	mg/L	0.05000	0.0090	98	70-130			
Nickel	0.054	0.00050	mg/L	0.05000	0.0010	107	70-130			
Selenium	0.050	0.0025	mg/L	0.05000	0.0012	98	70-130			
Silver	0.041	0.00050	mg/L	0.05000	0.000050	82	70-130			

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807303 - E180.1										
Duplicate (1807303-DUP1)		**Source: 18G0728-01**		Prepared & Analyzed: 07/29/2018						
Turbidity	95	0.50	NTU		95			0	10	
Batch 1807314 - SM5210 B										
Blank (1807314-BLK1)				Prepared: 07/29/2018 Analyzed: 08/03/2018						
Biochemical Oxygen Demand	ND	2.0	mg/L							K5
LCS (1807314-BS1)				Prepared: 07/29/2018 Analyzed: 08/03/2018						
Biochemical Oxygen Demand	210		mg/L	198.0		106	85-115			K9
Duplicate (1807314-DUP1)		**Source: 18G0728-01**		Prepared: 07/29/2018 Analyzed: 08/03/2018						
Biochemical Oxygen Demand	22	2.0	mg/L		26			17	20	K9
Batch 1807340 - SM2540 D										
Duplicate (1807340-DUP1)		**Source: 18G0637-01**		Prepared: 07/31/2018 Analyzed: 08/01/2018						
Total Suspended Solids	7.0	10	mg/L		7.0			0	5	Q9
Duplicate (1807340-DUP2)		**Source: 18G0350-01**		Prepared: 07/31/2018 Analyzed: 08/01/2018						
Total Suspended Solids	4.0	10	mg/L		4.0			0	5	Q9
Batch 1808002 - SM2540 C										
Duplicate (1808002-DUP1)		**Source: 18G0699-14**		Prepared: 08/01/2018 Analyzed: 08/07/2018						
Total Dissolved Solids (Residue, Filterable)	200	20	mg/L		210			5	5	
Duplicate (1808002-DUP2)		**Source: 18G0710-01**		Prepared: 08/01/2018 Analyzed: 08/07/2018						
Total Dissolved Solids (Residue, Filterable)	1200	20	mg/L		1200			0.3	5	
Batch 1808079 - Hach 8000										
Blank (1808079-BLK1)				Prepared & Analyzed: 08/03/2018						
Chemical Oxygen Demand	ND	20	mg/L							
LCS (1808079-BS1)				Prepared & Analyzed: 08/03/2018						
Chemical Oxygen Demand	490	20	mg/L	500.0		97	70-130			
LCS Dup (1808079-BSD1)				Prepared & Analyzed: 08/03/2018						
Chemical Oxygen Demand	480	20	mg/L	500.0		96	70-130	0.8	20	
Matrix Spike (1808079-MS1)		**Source: 18G0638-01**		Prepared & Analyzed: 08/03/2018						
Chemical Oxygen Demand	490	20	mg/L	500.0	ND	97	70-130			
Matrix Spike Dup (1808079-MSD1)		**Source: 18G0638-01**		Prepared & Analyzed: 08/03/2018						
Chemical Oxygen Demand	510	20	mg/L	500.0	ND	102	70-130	4	20	
Batch 1808082 - SM4500-NH3 B,C										
Blank (1808082-BLK1)				Prepared & Analyzed: 08/06/2018						
Nitrogen, Ammonia (As N)	ND	0.50	mg/L							
LCS (1808082-BS1)				Prepared & Analyzed: 08/06/2018						
Nitrogen, Ammonia (As N)	4.9	0.50	mg/L	5.000		99	90-110			

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1808082 - SM4500-NH3 B,C										
LCS Dup (1808082-BSD1)				Prepared & Analyzed: 08/06/2018						
Nitrogen, Ammonia (As N)	4.9	0.50	mg/L	5.000		98	90-110	0.9	10	
Matrix Spike (1808082-MS1)	**Source: 18G0002-03**			Prepared & Analyzed: 08/06/2018						
Nitrogen, Ammonia (As N)	4.7	0.50	mg/L	5.000	ND	95	70-130			
Matrix Spike Dup (1808082-MSD1)	**Source: 18G0002-03**			Prepared & Analyzed: 08/06/2018						
Nitrogen, Ammonia (As N)	4.8	0.50	mg/L	5.000	ND	96	70-130	0.9	20	

Client: NV5
Project: Storm Water
Work Order: 18G0728
Date Received: 07/29/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1807299 - E300.0 (2.1)										
Blank (1807299-BLK1)				Prepared & Analyzed: 07/29/2018						
Chloride	ND	1.0	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1807299-BS1)				Prepared & Analyzed: 07/29/2018						
Chloride	13	1.0	mg/L	12.50		102	90-110			
Nitrogen, Nitrate (As N)	5.1	0.50	mg/L	5.000		103	90-110			
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500		103	90-110			
Sulfate	13	5.0	mg/L	12.50		102	90-110			
LCS Dup (1807299-BSD1)				Prepared & Analyzed: 07/29/2018						
Chloride	13	1.0	mg/L	12.50		103	90-110	1	10	
Nitrogen, Nitrate (As N)	5.2	0.50	mg/L	5.000		104	90-110	1	10	
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500		104	90-110	1	10	
Sulfate	13	5.0	mg/L	12.50		103	90-110	1	10	
Matrix Spike (1807299-MS1)		**Source: 18G0728-01**		Prepared & Analyzed: 07/29/2018						
Chloride	13	1.0	mg/L	12.50	1.1	97	80-120			
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.48	100	80-120			
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	ND	100	80-120			
Sulfate	14	5.0	mg/L	12.50	3.1	91	80-120			
Matrix Spike (1807299-MS2)		**Source: 18G0728-01RE1**		Prepared: 07/29/2018 Analyzed: 07/30/2018						
Chloride	13	1.0	mg/L	12.50	1.1	98	80-120			
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.48	100	80-120			
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500	ND	104	80-120			
Sulfate	14	5.0	mg/L	12.50	3.1	87	80-120			
Matrix Spike Dup (1807299-MSD1)		**Source: 18G0728-01**		Prepared & Analyzed: 07/29/2018						
Chloride	13	1.0	mg/L	12.50	1.1	97	80-120	0.2	10	
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.48	100	80-120	0.2	10	
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	ND	101	80-120	0.2	10	
Sulfate	14	5.0	mg/L	12.50	3.1	90	80-120	0.8	10	
Matrix Spike Dup (1807299-MSD2)		**Source: 18G0728-01RE1**		Prepared: 07/29/2018 Analyzed: 07/30/2018						
Chloride	13	1.0	mg/L	12.50	1.1	98	80-120	0.4	10	
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.48	101	80-120	0.4	10	
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500	ND	104	80-120	0.2	10	
Sulfate	14	5.0	mg/L	12.50	3.1	87	80-120	0.2	10	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18G0728 DATE 7/29/18 PAGE 1 OF 1

PROJECT NAME ADOT Stormwater # 444117-0250000.11

CONTACT NAME : Mark Murphy

NV5

7620 N.Hartmen LN

CITY Tucson STATE AZ ZIP CODE 85743

PHONE 520-638-7270 FAX

SAMPLER'S SIGNATURE

NUMBER OF CONTAINERS

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	Chloride, Sulfate, NO2/NO3	BOD	COD	TDS	TSS	Turbidity	Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Ca, Na, Hardness)	Mercury	PAH	dissolved Cu
SEDMS4180727	7/27/2018	1700 hrs		ST	X	X	X	X	X	X	X	X	X	X

NV5
7620 N. Hartman Lane, Suite 162
Tucson, AZ 85743
ADOT Stormwater Monitoring
SAMPLE NO: SEDMS4180727

1. RELINQUISHED BY:
Signature
Printed Name MARK MURPHY
Firm NV5
Date/Time 7/27/18 1124

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____Standard (approx.10 days)*
____Next day ____2 Day ____5 Day*
____ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 7
Temperature 11.5
☑ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature
Printed Name
Firm TURNER LABORATORIES, INC.
Date/Time 7/29/18 1124

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis: ☑ Yes ☐ No	Custody Seals ☐	Preservation Confirmation ☑
ADEQ Forms: ☐ Yes ☑ No	Container Intact ☑	Appropriate Head Space ☑
Mail ADEQ Forms: ☐ Yes ☑ No	COC/Labels Agree ☑	Received Within Hold Time ☑

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

4620 East Elwood Street, Suite 4 Phoenix, AZ 85040

(480) 736-0960

Laboratory Certification (ADHS) No.: AZ0558, AZ0646
Expiration Date: 2018

Laboratory Director's Name:
Mark Noorani

Client: Turner Laboratories, Inc.

Laboratory Reference: TLI AZ11437

Project Name: 18G0728

Project Number:

Date Received: 8/2/2018

Date Reported: 8/7/2018

Chain of Custody Received: ☑

Analytical Method: 8310,

Mark Noorani, Laboratory Director

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Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11437
Project Name: 18G0728
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 1ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11437
Project Name: 18G0728
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
18G0728-01	AZ11437-001	8/2/2018	7/27/2018	Water

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11437
Project Name: 18G0728
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
18G0728-01	AZ11437-001	8/2/2018	7/27/2018	8/2/2018	8/2/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	168

* Acceptable Recovery: D-176 %

Dilution Factor: 1
Data Qualifiers: None

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Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11437
Project Name: 18G0728
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV0802181			8/2/2018	8/2/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	79

* Acceptable Recovery: D-176 %

Dilution Factor: 1
Data Qualifiers: None

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QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 8/2/2018
Date of Analysis: 8/2/2018
Dup Date of Analysis: 8/2/2018
Laboratory Sample #: AV0802181
MS/MSD Qualifiers: None
Reference #: TLI AZ11437

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.238	0.226	95	90	5	47-130	23	☐
Anthracene	0.250	0.209	0.191	84	76	9	53-130	21	☐
Pyrene	0.250	0.221	0.200	88	80	10	56-130	20	☐
Chrysene	0.250	0.244	0.210	98	84	15	62-130	21	☐
Benzo(a)pyrene	0.250	0.217	0.191	87	76	13	54-130	29	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	82	82	☐

ACP % RC
D-176

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18G0728

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Max DiSante

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18G0728-01 Non-Potable Wa Sampled:07/27/2018 17:00			
PAHs by SW 8310	08/03/2018 17:00		
Containers Supplied:			

Released By	Date	Received By	Date
	8/1/18 16:00	VPS ~~8/1/18 Tre~~	8/1/18 16:00
		Haley Noorani 8/1/18 OCA, CA	8/2/18 0957 on ice 1.0°C

Released By | Date | Received By | Date

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-110752-1
Client Project/Site: ADOT-Sedona

For:
NV5, Inc
1 W. Deer Valley Rd
Bldg 2, Suite 305
Phoenix, Arizona 85027

Attn: Rebecca Davey

Authorized for release by:
10/8/2018 9:20:50 PM

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
M2	Matrix spike recovery was low, the associated blank spike recovery was acceptable.
N1	See case narrative.
D1	Sample required dilution due to matrix.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Job ID: 550-110752-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-110752-1

Comments
No additional comments.

Receipt
The sample was received on 10/2/2018 4:09 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.9º C.

GC/MS Semi VOA
Method(s) 8270C SIM: The final results for the matrix spike/matrix spike duplicate (MS/MSD) were calculated below the reporting limit (RL) for analytical batch 550-158490 for analytes: 1-Methylnaphthalene and 2-Methylnaphthalene. The MS/MSD were spiked within calibration range; all affected results were flagged with an N1 qualifier.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Biology
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-110752-1	SEDONA-181002	Water	10/02/18 12:57	10/02/18 16:09

Detection Summary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Client Sample ID: SEDONA-181002

Lab Sample ID: 550-110752-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene - DL	0.24	D1	0.080		ug/L	4		8270C SIM	Total/NA
Benzo[k]fluoranthene - DL	0.40	D1	0.40		ug/L	4		8270C SIM	Total/NA
Dibenz(a,h)anthracene - DL	0.41	D1	0.40		ug/L	4		8270C SIM	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Escherichia coli	730		1.0		MPN/100mL	1		9223B	Total/NA
Coliform, Total	>2419.6		1.0		MPN/100mL	1		9223B	Total/NA
Coliform, Fecal	1200		1.0		MPN/100mL	1		SM 9223B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Client Sample ID: SEDONA-181002
Date Collected: 10/02/18 12:57
Date Received: 10/02/18 16:09

Lab Sample ID: 550-110752-1
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Acenaphthylene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Anthracene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Benzo[a]anthracene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Benzo[a]pyrene	**0.24**	**D1**	0.080		ug/L		10/03/18 15:25	10/05/18 21:53	4
Benzo[b]fluoranthene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Benzo[g,h,i]perylene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Benzo[k]fluoranthene	**0.40**	**D1**	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Chrysene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Dibenz(a,h)anthracene	**0.41**	**D1**	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Fluoranthene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Fluorene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Indeno[1,2,3-cd]pyrene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Naphthalene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Phenanthrene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
Pyrene	ND	D1	0.40		ug/L		10/03/18 15:25	10/05/18 21:53	4
1-Methylnaphthalene	ND	D1	2.0		ug/L		10/03/18 15:25	10/05/18 21:53	4
2-Methylnaphthalene	ND	D1	2.0		ug/L		10/03/18 15:25	10/05/18 21:53	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*74*		*18 - 138*	*10/03/18 15:25*	*10/05/18 21:53*	*4*
2-Fluorobiphenyl (Surr)	*64*		*22 - 120*	*10/03/18 15:25*	*10/05/18 21:53*	*4*
p-Terphenyl-d14	*87*		*10 - 120*	*10/03/18 15:25*	*10/05/18 21:53*	*4*

Method: 9223B - Total Coliforms and E. coli by Colilert - QT

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	**730**		1.0		MPN/100mL			10/02/18 17:30	1
Coliform, Total	**>2419.6**		1.0		MPN/100mL			10/02/18 17:30	1

Method: SM 9223B - Coliforms, Fecal (Colilert - Quanti Tray)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	**1200**		1.0		MPN/100mL			10/02/18 17:30	1

Surrogate Summary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHd14
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)
550-110697-C-1-A MS	Matrix Spike	76	66	72
550-110697-C-1-B MSD	Matrix Spike Duplicate	80	65	80
550-110752-1 - DL	SEDONA-181002	74	64	87
LCS 550-158298/2-A	Lab Control Sample	80	77	82
LCSD 550-158298/3-A	Lab Control Sample Dup	87	73	82
MB 550-158298/1-A	Method Blank	90	77	92

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-158298/1-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158298

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Acenaphthylene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[a]anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[a]pyrene	ND		0.020		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[b]fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Benzo[k]fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Chrysene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Fluoranthene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Fluorene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Naphthalene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Phenanthrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
Pyrene	ND		0.10		ug/L		10/03/18 15:25	10/05/18 19:17	1
1-Methylnaphthalene	ND		0.50		ug/L		10/03/18 15:25	10/05/18 19:17	1
2-Methylnaphthalene	ND		0.50		ug/L		10/03/18 15:25	10/05/18 19:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*90*		*18 - 138*	*10/03/18 15:25*	*10/05/18 19:17*	*1*
2-Fluorobiphenyl (Surr)	*77*		*22 - 120*	*10/03/18 15:25*	*10/05/18 19:17*	*1*
p-Terphenyl-d14	*92*		*10 - 120*	*10/03/18 15:25*	*10/05/18 19:17*	*1*

Lab Sample ID: LCS 550-158298/2-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.509		ug/L		64	35 - 104
Acenaphthylene	0.800	0.513		ug/L		64	35 - 100
Anthracene	0.800	0.507		ug/L		63	37 - 100
Benzo[a]anthracene	0.800	0.591		ug/L		74	46 - 106
Benzo[a]pyrene	0.800	0.582		ug/L		73	36 - 117
Benzo[b]fluoranthene	0.800	0.537		ug/L		67	33 - 126
Benzo[g,h,i]perylene	0.800	0.622		ug/L		78	31 - 124
Benzo[k]fluoranthene	0.800	0.523		ug/L		65	26 - 131
Chrysene	0.800	0.527		ug/L		66	46 - 103
Dibenz(a,h)anthracene	0.800	0.628		ug/L		79	30 - 125
Fluoranthene	0.800	0.559		ug/L		70	47 - 107
Fluorene	0.800	0.534		ug/L		67	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.587		ug/L		73	32 - 125
Naphthalene	0.800	0.515		ug/L		64	38 - 103
Phenanthrene	0.800	0.524		ug/L		65	41 - 107
Pyrene	0.800	0.564		ug/L		71	44 - 108
1-Methylnaphthalene	0.800	0.510		ug/L		64	38 - 106
2-Methylnaphthalene	0.800	0.517		ug/L		65	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-158298/2-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158298

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*80*		*18 - 138*
2-Fluorobiphenyl (Surr)	*77*		*22 - 120*
p-Terphenyl-d14	*82*		*10 - 120*

Lab Sample ID: LCSD 550-158298/3-A
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 158298

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			0.800	0.527		ug/L		66	35 - 104	3	35
Acenaphthylene			0.800	0.533		ug/L		67	35 - 100	4	35
Anthracene			0.800	0.533		ug/L		67	37 - 100	5	35
Benzo[a]anthracene			0.800	0.616		ug/L		77	46 - 106	4	35
Benzo[a]pyrene			0.800	0.613		ug/L		77	36 - 117	5	35
Benzo[b]fluoranthene			0.800	0.588		ug/L		74	33 - 126	9	35
Benzo[g,h,i]perylene			0.800	0.615		ug/L		77	31 - 124	1	35
Benzo[k]fluoranthene			0.800	0.535		ug/L		67	26 - 131	2	35
Chrysene			0.800	0.561		ug/L		70	46 - 103	6	35
Dibenz(a,h)anthracene			0.800	0.667		ug/L		83	30 - 125	6	35
Fluoranthene			0.800	0.570		ug/L		71	47 - 107	2	35
Fluorene			0.800	0.560		ug/L		70	36 - 108	5	35
Indeno[1,2,3-cd]pyrene			0.800	0.610		ug/L		76	32 - 125	4	35
Naphthalene			0.800	0.532		ug/L		67	38 - 103	3	35
Phenanthrene			0.800	0.543		ug/L		68	41 - 107	4	35
Pyrene			0.800	0.594		ug/L		74	44 - 108	5	35
1-Methylnaphthalene			0.800	0.524		ug/L		65	38 - 106	3	35
2-Methylnaphthalene			0.800	0.539		ug/L		67	38 - 106	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*87*		*18 - 138*
2-Fluorobiphenyl (Surr)	*73*		*22 - 120*
p-Terphenyl-d14	*82*		*10 - 120*

Lab Sample ID: 550-110697-C-1-A MS
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		0.800	0.464		ug/L		58	45 - 104
Acenaphthylene	ND		0.800	0.478		ug/L		60	48 - 107
Anthracene	ND		0.800	0.502		ug/L		63	48 - 114
Benzo[a]anthracene	ND		0.800	0.576		ug/L		72	46 - 113
Benzo[a]pyrene	ND		0.800	0.567		ug/L		71	47 - 115
Benzo[b]fluoranthene	ND		0.800	0.506		ug/L		63	47 - 113
Benzo[g,h,i]perylene	ND		0.800	0.586		ug/L		73	43 - 116
Benzo[k]fluoranthene	ND		0.800	0.490		ug/L		52	44 - 115
Chrysene	ND		0.800	0.488		ug/L		61	44 - 114
Dibenz(a,h)anthracene	ND		0.800	0.586		ug/L		73	41 - 115

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 550-110697-C-1-A MS
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	ND		0.800	0.568		ug/L		71	49 - 116
Fluorene	ND		0.800	0.512		ug/L		64	45 - 106
Indeno[1,2,3-cd]pyrene	ND		0.800	0.559		ug/L		70	42 - 112
Naphthalene	ND		0.800	0.465		ug/L		58	46 - 103
Phenanthrene	ND		0.800	0.501		ug/L		63	49 - 113
Pyrene	ND		0.800	0.561		ug/L		70	47 - 113
1-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		59	70 - 130
2-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		61	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*76*		*18 - 138*
2-Fluorobiphenyl (Surr)	*66*		*22 - 120*
p-Terphenyl-d14	*72*		*10 - 120*

Lab Sample ID: 550-110697-C-1-B MSD
Matrix: Water
Analysis Batch: 158490

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 158298

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		0.800	0.490		ug/L		61	45 - 104	5	27
Acenaphthylene	ND		0.800	0.526		ug/L		66	48 - 107	10	27
Anthracene	ND		0.800	0.566		ug/L		71	48 - 114	12	24
Benzo[a]anthracene	ND		0.800	0.662		ug/L		83	46 - 113	14	21
Benzo[a]pyrene	ND		0.800	0.665		ug/L		83	47 - 115	16	24
Benzo[b]fluoranthene	ND		0.800	0.586		ug/L		73	47 - 113	15	22
Benzo[g,h,i]perylene	ND		0.800	0.683		ug/L		85	43 - 116	15	22
Benzo[k]fluoranthene	ND		0.800	0.506		ug/L		54	44 - 115	3	25
Chrysene	ND		0.800	0.576		ug/L		72	44 - 114	16	21
Dibenz(a,h)anthracene	ND		0.800	0.660		ug/L		82	41 - 115	12	27
Fluoranthene	ND		0.800	0.618		ug/L		77	49 - 116	8	20
Fluorene	ND		0.800	0.542		ug/L		68	45 - 106	6	27
Indeno[1,2,3-cd]pyrene	ND		0.800	0.672		ug/L		84	42 - 112	18	25
Naphthalene	ND		0.800	0.477		ug/L		60	46 - 103	3	34
Phenanthrene	ND		0.800	0.550		ug/L		69	49 - 113	9	22
Pyrene	ND		0.800	0.653		ug/L		82	47 - 113	15	19
1-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		60	70 - 130	2	20
2-Methylnaphthalene	ND	M2 N1	0.800	ND	M2 N1	ug/L		61	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*80*		*18 - 138*
2-Fluorobiphenyl (Surr)	*65*		*22 - 120*
p-Terphenyl-d14	*80*		*10 - 120*

Method: 9223B - Total Coliforms and E. coli by Colilert - QT

Lab Sample ID: MB 550-158175/1
Matrix: Water
Analysis Batch: 158175

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Escherichia coli	<1.0		1.0		MPN/100mL			10/02/18 14:26	1
Coliform, Total	<1.0		1.0		MPN/100mL			10/02/18 14:26	1

Method: SM 9223B - Coliforms, Fecal (Colilert - Quanti Tray)

Lab Sample ID: MB 550-158176/1
Matrix: Water
Analysis Batch: 158176

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	<1.0		1.0		MPN/100mL			10/02/18 14:20	1

QC Association Summary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

GC/MS Semi VOA

Prep Batch: 158298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110752-1 - DL	SEDONA-181002	Total/NA	Water	3510C	
MB 550-158298/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-158298/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-158298/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
550-110697-C-1-A MS	Matrix Spike	Total/NA	Water	3510C	
550-110697-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	3510C	

Analysis Batch: 158490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110752-1 - DL	SEDONA-181002	Total/NA	Water	8270C SIM	158298
MB 550-158298/1-A	Method Blank	Total/NA	Water	8270C SIM	158298
LCS 550-158298/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	158298
LCSD 550-158298/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	158298
550-110697-C-1-A MS	Matrix Spike	Total/NA	Water	8270C SIM	158298
550-110697-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	8270C SIM	158298

Biology

Analysis Batch: 158175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 550-158175/1	Method Blank	Total/NA	Water	9223B	

Analysis Batch: 158176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 550-158176/1	Method Blank	Total/NA	Water	SM 9223B	

Analysis Batch: 158208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110752-1	SEDONA-181002	Total/NA	Water	9223B	

Analysis Batch: 158209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-110752-1	SEDONA-181002	Total/NA	Water	SM 9223B	

Lab Chronicle

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Client Sample ID: SEDONA-181002
Date Collected: 10/02/18 12:57
Date Received: 10/02/18 16:09

Lab Sample ID: 550-110752-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C	DL		158298	10/03/18 15:25	HKT	TAL PHX
Total/NA	Analysis	8270C SIM	DL	4	158490	10/05/18 21:53	RTH	TAL PHX
Total/NA	Analysis	9223B		1	158208		MDS	TAL PHX
					(Start)	10/02/18 17:30		
					(End)	10/03/18 11:50		
Total/NA	Analysis	SM 9223B		1	158209		MDS	TAL PHX
					(Start)	10/02/18 17:30		
					(End)	10/03/18 11:50		

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: ADOT-Sedona

TestAmerica Job ID: 550-110752-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
9223B	Total Coliforms and E. coli by Colilert - QT	SM	TAL PHX
SM 9223B	Coliforms, Fecal (Colilert - Quanti Tray)	SM	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING
TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

110752

Page 1 of 1

Client Name / Address: NV5

Project / PO Number: ADOT Sedona

Project Manager: M. OAKLEY

Phone Number:

Sampler: M. OAKLEY

Email Address:

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	PAHs	Fecal Coliform	SCOD							Special Instructions
SEDONA-181002	W	—	3	10/2/18	1257	—	X	X	X		-01					

550-110752 Chain of Custody

Relinquished By:	Date / Time:	Received By:	Date / Time:
	10/2/18 1609		
Relinquished By:	Date / Time:	Received By:	Date / Time:
Relinquished By:	Date / Time:	Received in Lab By: TAAKO	Date / Time: 10-2-18 1609

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal ____

Sample Integrity: (Check)
intact ____ on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

CD 6.9°C

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-110752-1

Login Number: 110752
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-104566-1
Client Project/Site: ADEQ Stormwater

For:
NV5, Inc
1 W. Deer Valley Rd
Bldg 2, Suite 305
Phoenix, Arizona 85027

Attn: Rebecca Davey

Authorized for release by:
7/12/2018 11:17:09 AM

Mary Hamilton, Project Manager I
(602)437-3340
mary.hamilton@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
N1	See case narrative.

Metals

Qualifier	Qualifier Description
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike was acceptable.
B7	Target analyte detected in method blank at or above method reporting limit. Concentration found in the sample was 10 times above the concentration found in the blank.
H6	The filtration was not done within the required 15 minutes of sampling, the sample was filtered in the laboratory.
B1	Target analyte detected in method blank at or above the method reporting limit.

General Chemistry

Qualifier	Qualifier Description
H1	Sample analysis performed past holding time.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-104566-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-104566-1

Comments
No additional comments.

Receipt
The samples were received on 6/18/2018 2:01 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

GC/MS Semi VOA
Method(s) 8270C SIM: 1-Methylnaphthalene and 2-Methylnaphthalene in the laboratory control spike sample (LCS) and laboratory control spike duplicate sample (LCSD) were recovered below RL but met the required acceptable limits. The LCS/LCSD were spiked within calibration range. The analytes were flagged with an N1 qualifier.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) Filtration: The following samples requested dissolved metals and were not filtered in the field: SUPYARD 061618 (550-104566-2) and SUPFUEL 061618 (550-104566-4). These samples were filtered and preserved upon receipt to the laboratory.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) SM 2540C: Reanalysis of the following sample was performed outside of the analytical holding time for Total Dissolved Solids (TDS) by method SM 2450C due to the original result not adhering within the expected conductivity to TDS ratio; SUPFUEL 061618 (550-104566-3). The sample was initially analyzed with in the 7 day holding time although required further analysis for confirmation due to a questionably high result. The reanalyzed result conformed to the expected conductivity to TDS ratio. The original result could not be confirmed, therefore, data has been reported from the reanalysis and qualified with a H1 flag.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-104566-1	SUPYARD 061618	Water	06/16/18 16:50	06/18/18 14:01
550-104566-2	SUPYARD 061618	Water	06/16/18 16:50	06/18/18 14:01
550-104566-3	SUPFUEL 061618	Water	06/16/18 17:30	06/18/18 14:01
550-104566-4	SUPFUEL 061618	Water	06/16/18 17:30	06/18/18 14:01

Detection Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Client Sample ID: SUPYARD 061618 — Lab Sample ID: 550-104566-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	68		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Lead	0.0035		0.00050		mg/L	1		200.8 LL	Total/NA
Total Dissolved Solids	260		20		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	170		13		mg/L	1		SM 2340B	Total/NA
Total Suspended Solids	25		10		mg/L	1		SM 2540D	Total/NA

Client Sample ID: SUPYARD 061618 — Lab Sample ID: 550-104566-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper (Dissolved)	0.016	B7 H6	0.00050		mg/L	1		200.8 LL	Dissolved

Client Sample ID: SUPFUEL 061618 — Lab Sample ID: 550-104566-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	29		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Magnesium	8.7		2.0		mg/L	1		200.7 Rev 4.4	Total/NA
Lead	0.034		0.00050		mg/L	1		200.8 LL	Total/NA
Selenium	0.0012		0.00050		mg/L	1		200.8 LL	Total/NA
Total Dissolved Solids	130	H1	20		mg/L	1		SM 2540C	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	110		13		mg/L	1		SM 2340B	Total/NA
Total Suspended Solids	240		10		mg/L	1		SM 2540D	Total/NA

Client Sample ID: SUPFUEL 061618 — Lab Sample ID: 550-104566-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper (Dissolved)	0.11	B7 H6	0.00050		mg/L	1		200.8 LL	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: SUPYARD 061618

Date Collected: 06/16/18 16:50
Date Received: 06/18/18 14:01

Lab Sample ID: 550-104566-1

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Acenaphthylene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Benzo[a]anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Benzo[a]pyrene	ND		0.020		ug/L		06/19/18 11:09	06/20/18 22:14	1
Benzo[b]fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Benzo[k]fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Chrysene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Fluorene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Naphthalene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Phenanthrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
Pyrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:14	1
1-Methylnaphthalene	ND		0.50		ug/L		06/19/18 11:09	06/20/18 22:14	1
2-Methylnaphthalene	ND		0.50		ug/L		06/19/18 11:09	06/20/18 22:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*95*		*18 - 138*	*06/19/18 11:09*	*06/20/18 22:14*	*1*
2-Fluorobiphenyl (Surr)	*63*		*22 - 120*	*06/19/18 11:09*	*06/20/18 22:14*	*1*
p-Terphenyl-d14	*68*		*10 - 120*	*06/19/18 11:09*	*06/20/18 22:14*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**68**		2.0		mg/L		06/22/18 14:38	06/28/18 22:43	1
Magnesium	ND		2.0		mg/L		06/22/18 14:38	06/28/18 22:43	1

Method: 200.8 LL - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.0035**		0.00050		mg/L		06/20/18 06:24	06/23/18 22:40	1
Selenium	ND		0.00050		mg/L		06/20/18 06:24	06/23/18 22:40	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**170**		13		mg/L			06/29/18 11:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**260**		20		mg/L			06/22/18 08:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**25**		10		mg/L			06/22/18 11:27	1

Client Sample ID: SUPYARD 061618

Lab Sample ID: 550-104566-2
Date Collected: 06/16/18 16:50
Matrix: Water
Date Received: 06/18/18 14:01

Method: 200.8 LL - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper (Dissolved)	0.016	B7 H6	0.00050		mg/L		06/20/18 06:35	06/23/18 19:23	1

Client Sample ID: SUPFUEL 061618

Lab Sample ID: 550-104566-3
Date Collected: 06/16/18 17:30
Matrix: Water
Date Received: 06/18/18 14:01

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Acenaphthylene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Benzo[a]anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Benzo[a]pyrene	ND		0.020		ug/L		06/19/18 11:09	06/20/18 22:41	1
Benzo[b]fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Benzo[k]fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Chrysene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Fluorene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Naphthalene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Phenanthrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
Pyrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 22:41	1
1-Methylnaphthalene	ND		0.50		ug/L		06/19/18 11:09	06/20/18 22:41	1
2-Methylnaphthalene	ND		0.50		ug/L		06/19/18 11:09	06/20/18 22:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*64*		*18 - 138*	*06/19/18 11:09*	*06/20/18 22:41*	*1*
2-Fluorobiphenyl (Surr)	*61*		*22 - 120*	*06/19/18 11:09*	*06/20/18 22:41*	*1*
p-Terphenyl-d14	*77*		*10 - 120*	*06/19/18 11:09*	*06/20/18 22:41*	*1*

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	29		2.0		mg/L		06/22/18 14:38	06/28/18 22:46	1
Magnesium	8.7		2.0		mg/L		06/22/18 14:38	06/28/18 22:46	1

Method: 200.8 LL - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.034		0.00050		mg/L		06/20/18 06:24	06/23/18 22:42	1
Selenium	0.0012		0.00050		mg/L		06/20/18 06:24	06/23/18 22:42	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	110		13		mg/L			06/29/18 11:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	130	H1	20		mg/L			06/25/18 13:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	240		10		mg/L			06/22/18 11:27	1

Client Sample Results

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Client Sample ID: SUPFUEL 061618
Date Collected: 06/16/18 17:30
Date Received: 06/18/18 14:01

Lab Sample ID: 550-104566-4
Matrix: Water

Method: 200.8 LL - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper (Dissolved)	0.11	B7 H6	0.00050		mg/L		06/20/18 06:35	06/23/18 19:25	1

Surrogate Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHd14
Lab Sample ID	Client Sample ID	(18-138)	(22-120)	(10-120)
550-104438-J-1-A MS	Matrix Spike	79	85	88
550-104438-J-1-B MSD	Matrix Spike Duplicate	76	75	83
550-104566-1	SUPYARD 061618	95	63	68
550-104566-3	SUPFUEL 061618	64	61	77
LCS 550-149892/2-A	Lab Control Sample	59	62	68
LCSD 550-149892/3-A	Lab Control Sample Dup	64	66	74
MB 550-149892/1-A	Method Blank	81	89	83

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 550-149892/1-A
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 149892

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Acenaphthylene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Benzo[a]anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Benzo[a]pyrene	ND		0.020		ug/L		06/19/18 11:09	06/20/18 17:27	1
Benzo[b]fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Benzo[g,h,i]perylene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Benzo[k]fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Chrysene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Dibenz(a,h)anthracene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Fluoranthene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Fluorene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Indeno[1,2,3-cd]pyrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Naphthalene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Phenanthrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
Pyrene	ND		0.10		ug/L		06/19/18 11:09	06/20/18 17:27	1
1-Methylnaphthalene	ND		0.50		ug/L		06/19/18 11:09	06/20/18 17:27	1
2-Methylnaphthalene	ND		0.50		ug/L		06/19/18 11:09	06/20/18 17:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*81*		*18 - 138*	*06/19/18 11:09*	*06/20/18 17:27*	*1*
2-Fluorobiphenyl (Surr)	*89*		*22 - 120*	*06/19/18 11:09*	*06/20/18 17:27*	*1*
p-Terphenyl-d14	*83*		*10 - 120*	*06/19/18 11:09*	*06/20/18 17:27*	*1*

Lab Sample ID: LCS 550-149892/2-A
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 149892

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.800	0.469		ug/L		59	35 - 104
Acenaphthylene	0.800	0.444		ug/L		55	35 - 100
Anthracene	0.800	0.457		ug/L		57	37 - 100
Benzo[a]anthracene	0.800	0.530		ug/L		66	46 - 106
Benzo[a]pyrene	0.800	0.496		ug/L		62	36 - 117
Benzo[b]fluoranthene	0.800	0.538		ug/L		67	33 - 126
Benzo[g,h,i]perylene	0.800	0.616		ug/L		77	31 - 124
Benzo[k]fluoranthene	0.800	0.501		ug/L		63	26 - 131
Chrysene	0.800	0.529		ug/L		66	46 - 103
Dibenz(a,h)anthracene	0.800	0.540		ug/L		67	30 - 125
Fluoranthene	0.800	0.530		ug/L		66	47 - 107
Fluorene	0.800	0.506		ug/L		63	36 - 108
Indeno[1,2,3-cd]pyrene	0.800	0.578		ug/L		72	32 - 125
Naphthalene	0.800	0.447		ug/L		56	38 - 103
Phenanthrene	0.800	0.515		ug/L		64	41 - 107
Pyrene	0.800	0.514		ug/L		64	44 - 108
1-Methylnaphthalene	0.800	0.455	N1	ug/L		57	38 - 106
2-Methylnaphthalene	0.800	0.457	N1	ug/L		57	38 - 106

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 550-149892/2-A
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 149892

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*59*		*18 - 138*
2-Fluorobiphenyl (Surr)	*62*		*22 - 120*
p-Terphenyl-d14	*68*		*10 - 120*

Lab Sample ID: LCSD 550-149892/3-A
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 149892

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			0.800	0.512		ug/L		64	35 - 104	9	35
Acenaphthylene			0.800	0.492		ug/L		61	35 - 100	10	35
Anthracene			0.800	0.517		ug/L		65	37 - 100	12	35
Benzo[a]anthracene			0.800	0.592		ug/L		74	46 - 106	11	35
Benzo[a]pyrene			0.800	0.550		ug/L		69	36 - 117	10	35
Benzo[b]fluoranthene			0.800	0.602		ug/L		75	33 - 126	11	35
Benzo[g,h,i]perylene			0.800	0.669		ug/L		84	31 - 124	8	35
Benzo[k]fluoranthene			0.800	0.562		ug/L		70	26 - 131	11	35
Chrysene			0.800	0.579		ug/L		72	46 - 103	9	35
Dibenz(a,h)anthracene			0.800	0.596		ug/L		74	30 - 125	10	35
Fluoranthene			0.800	0.597		ug/L		75	47 - 107	12	35
Fluorene			0.800	0.535		ug/L		67	36 - 108	6	35
Indeno[1,2,3-cd]pyrene			0.800	0.643		ug/L		80	32 - 125	11	35
Naphthalene			0.800	0.503		ug/L		63	38 - 103	12	35
Phenanthrene			0.800	0.573		ug/L		72	41 - 107	11	35
Pyrene			0.800	0.569		ug/L		71	44 - 108	10	35
1-Methylnaphthalene			0.800	0.495	N1	ug/L		62	38 - 106	8	35
2-Methylnaphthalene			0.800	0.513		ug/L		64	38 - 106	12	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*64*		*18 - 138*
2-Fluorobiphenyl (Surr)	*66*		*22 - 120*
p-Terphenyl-d14	*74*		*10 - 120*

Lab Sample ID: 550-104438-J-1-A MS
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 149892

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		0.800	0.627		ug/L		78	45 - 104
Acenaphthylene	ND		0.800	0.599		ug/L		75	48 - 107
Anthracene	ND		0.800	0.624		ug/L		78	48 - 114
Benzo[a]anthracene	ND		0.800	0.701		ug/L		88	46 - 113
Benzo[a]pyrene	ND		0.800	0.653		ug/L		82	47 - 115
Benzo[b]fluoranthene	ND		0.800	0.683		ug/L		85	47 - 113
Benzo[g,h,i]perylene	ND		0.800	0.760		ug/L		95	43 - 116
Benzo[k]fluoranthene	ND		0.800	0.664		ug/L		83	44 - 115
Chrysene	ND		0.800	0.679		ug/L		85	44 - 114
Dibenz(a,h)anthracene	ND		0.800	0.683		ug/L		85	41 - 115

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 550-104438-J-1-A MS
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 149892

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	ND		0.800	0.707		ug/L		88	49 - 116
Fluorene	ND		0.800	0.659		ug/L		82	45 - 106
Indeno[1,2,3-cd]pyrene	ND		0.800	0.733		ug/L		92	42 - 112
Naphthalene	ND		0.800	0.619		ug/L		77	46 - 103
Phenanthrene	ND		0.800	0.681		ug/L		85	49 - 113
Pyrene	ND		0.800	0.670		ug/L		84	47 - 113
1-Methylnaphthalene	ND		0.800	0.620		ug/L		77	70 - 130
2-Methylnaphthalene	ND		0.800	0.653		ug/L		82	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*79*		*18 - 138*
2-Fluorobiphenyl (Surr)	*85*		*22 - 120*
p-Terphenyl-d14	*88*		*10 - 120*

Lab Sample ID: 550-104438-J-1-B MSD
Matrix: Water
Analysis Batch: 150004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 149892

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		0.800	0.598		ug/L		75	45 - 104	5	27
Acenaphthylene	ND		0.800	0.581		ug/L		73	48 - 107	3	27
Anthracene	ND		0.800	0.578		ug/L		72	48 - 114	8	24
Benzo[a]anthracene	ND		0.800	0.658		ug/L		82	46 - 113	6	21
Benzo[a]pyrene	ND		0.800	0.626		ug/L		78	47 - 115	4	24
Benzo[b]fluoranthene	ND		0.800	0.643		ug/L		80	47 - 113	6	22
Benzo[g,h,i]perylene	ND		0.800	0.736		ug/L		92	43 - 116	3	22
Benzo[k]fluoranthene	ND		0.800	0.632		ug/L		79	44 - 115	5	25
Chrysene	ND		0.800	0.645		ug/L		81	44 - 114	5	21
Dibenz(a,h)anthracene	ND		0.800	0.685		ug/L		86	41 - 115	0	27
Fluoranthene	ND		0.800	0.648		ug/L		81	49 - 116	9	20
Fluorene	ND		0.800	0.619		ug/L		77	45 - 106	6	27
Indeno[1,2,3-cd]pyrene	ND		0.800	0.728		ug/L		91	42 - 112	1	25
Naphthalene	ND		0.800	0.591		ug/L		74	46 - 103	5	34
Phenanthrene	ND		0.800	0.642		ug/L		80	49 - 113	6	22
Pyrene	ND		0.800	0.639		ug/L		80	47 - 113	5	19
1-Methylnaphthalene	ND		0.800	0.594		ug/L		74	70 - 130	4	20
2-Methylnaphthalene	ND		0.800	0.602		ug/L		75	70 - 130	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*76*		*18 - 138*
2-Fluorobiphenyl (Surr)	*75*		*22 - 120*
p-Terphenyl-d14	*83*		*10 - 120*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 550-150183/1-A
Matrix: Water
Analysis Batch: 150759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150183

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0		mg/L		06/22/18 14:38	06/28/18 21:36	1
Magnesium	ND		2.0		mg/L		06/22/18 14:38	06/28/18 21:36	1

Lab Sample ID: LCS 550-150183/2-A
Matrix: Water
Analysis Batch: 150759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150183

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	21.0	21.6		mg/L		103	85 - 115
Magnesium	21.0	21.1		mg/L		100	85 - 115

Lab Sample ID: LCSD 550-150183/3-A
Matrix: Water
Analysis Batch: 150759

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150183

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	21.0	21.5		mg/L		102	85 - 115	0	20
Magnesium	21.0	21.0		mg/L		100	85 - 115	0	20

Lab Sample ID: 550-104500-C-1-C MS
Matrix: Water
Analysis Batch: 150759

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 150183

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	510	M3	21.0	518	M3	mg/L		21	70 - 130
Magnesium	180	M3	21.0	193	M3	mg/L		73	70 - 130

Lab Sample ID: 550-104500-C-1-D MSD
Matrix: Water
Analysis Batch: 150759

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 150183

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	510	M3	21.0	520	M3	mg/L		30	70 - 130	0	20
Magnesium	180	M3	21.0	190	M3	mg/L		61	70 - 130	1	20

Method: 200.8 LL - Metals (ICP/MS)

Lab Sample ID: MB 550-149942/1-A
Matrix: Water
Analysis Batch: 150254

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 149942

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00050		mg/L		06/20/18 06:24	06/23/18 22:02	1
Selenium	ND		0.00050		mg/L		06/20/18 06:24	06/23/18 22:02	1

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 550-149942/2-A
Matrix: Water
Analysis Batch: 150254

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 149942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.100	0.0978		mg/L		98	85 - 115
Selenium	0.100	0.100		mg/L		100	85 - 115

Lab Sample ID: LCSD 550-149942/3-A
Matrix: Water
Analysis Batch: 150254

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 149942

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.100	0.0959		mg/L		96	85 - 115	2	20
Selenium	0.100	0.0990		mg/L		99	85 - 115	1	20

Lab Sample ID: 550-104618-C-1-B MS
Matrix: Water
Analysis Batch: 150254

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 149942

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		0.100	0.0887		mg/L		88	70 - 130
Selenium	ND		0.100	0.102		mg/L		101	70 - 130

Lab Sample ID: 550-104618-C-1-C MSD
Matrix: Water
Analysis Batch: 150254

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 149942

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		0.100	0.0879		mg/L		87	70 - 130	1	20
Selenium	ND		0.100	0.0995		mg/L		99	70 - 130	2	20

Lab Sample ID: MB 550-149944/1-A
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 149944

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper (Dissolved)	0.000512	B1	0.00050		mg/L		06/20/18 06:35	06/23/18 19:02	1

Lab Sample ID: LCS 550-149944/2-A
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 149944

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper (Dissolved)	0.100	0.102		mg/L		102	85 - 115

Lab Sample ID: LCSD 550-149944/3-A
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 149944

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper (Dissolved)	0.100	0.102		mg/L		102	85 - 115	0	20

Method: 200.8 LL - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 550-149799/1-B
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 149944

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper (Dissolved)	ND		0.00050		mg/L		06/20/18 06:35	06/23/18 19:09	1

Lab Sample ID: MB 550-149871/1-B
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 149944

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper (Dissolved)	ND		0.00050		mg/L		06/20/18 06:35	06/23/18 19:21	1

Lab Sample ID: 550-104502-D-2-C MS
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 149944

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper (Dissolved)	0.0015	B1	0.100	0.0921		mg/L		91	70 - 130

Lab Sample ID: 550-104502-D-2-D MSD
Matrix: Water
Analysis Batch: 150249

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 149944

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper (Dissolved)	0.0015	B1	0.100	0.0931		mg/L		92	70 - 130	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 550-150147/1
Matrix: Water
Analysis Batch: 150147

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		20		mg/L			06/22/18 08:49	1

Lab Sample ID: LCS 550-150147/2
Matrix: Water
Analysis Batch: 150147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	974		mg/L		97	90 - 110

Lab Sample ID: LCSD 550-150147/3
Matrix: Water
Analysis Batch: 150147

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids	1000	964		mg/L		96	90 - 110	1	10

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 550-104669-A-1 DU
Matrix: Water
Analysis Batch: 150147

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1400			1360		mg/L				0.7	10

Lab Sample ID: MB 550-150334/1
Matrix: Water
Analysis Batch: 150334

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		20		mg/L			06/25/18 13:14	1

Lab Sample ID: LCS 550-150334/2
Matrix: Water
Analysis Batch: 150334

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1000	984		mg/L		98	90 - 110		

Lab Sample ID: LCSD 550-150334/3
Matrix: Water
Analysis Batch: 150334

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			1000	966		mg/L		97	90 - 110	2	10

Lab Sample ID: 550-104774-A-2 DU
Matrix: Water
Analysis Batch: 150334

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1600			1600		mg/L				2	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 550-150166/1
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			06/22/18 11:27	1

Lab Sample ID: LCS 550-150166/2
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			200	190		mg/L		95	90 - 110		

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 550-150166/3
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			200	190		mg/L		95	90 - 110	0	10

Lab Sample ID: 550-104668-A-1 DU
Matrix: Water
Analysis Batch: 150166

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	ND			ND		mg/L				NC	10

GC/MS Semi VOA

Prep Batch: 149892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	3510C	
550-104566-3	SUPFUEL 061618	Total/NA	Water	3510C	
MB 550-149892/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-149892/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-149892/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
550-104438-J-1-A MS	Matrix Spike	Total/NA	Water	3510C	
550-104438-J-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	3510C	

Analysis Batch: 150004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	8270C SIM	149892
550-104566-3	SUPFUEL 061618	Total/NA	Water	8270C SIM	149892
MB 550-149892/1-A	Method Blank	Total/NA	Water	8270C SIM	149892
LCS 550-149892/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	149892
LCSD 550-149892/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	149892
550-104438-J-1-A MS	Matrix Spike	Total/NA	Water	8270C SIM	149892
550-104438-J-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	8270C SIM	149892

Metals

Filtration Batch: 149799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 550-149799/1-B	Method Blank	Dissolved	Water	Filtration	
550-104502-D-2-C MS	Matrix Spike	Dissolved	Water	Filtration	
550-104502-D-2-D MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Filtration Batch: 149871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-2	SUPYARD 061618	Dissolved	Water	Filtration	
550-104566-4	SUPFUEL 061618	Dissolved	Water	Filtration	
MB 550-149871/1-B	Method Blank	Dissolved	Water	Filtration	

Prep Batch: 149942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	200.8	
550-104566-3	SUPFUEL 061618	Total/NA	Water	200.8	
MB 550-149942/1-A	Method Blank	Total/NA	Water	200.8	
LCS 550-149942/2-A	Lab Control Sample	Total/NA	Water	200.8	
LCSD 550-149942/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
550-104618-C-1-B MS	Matrix Spike	Total/NA	Water	200.8	
550-104618-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.8	

Prep Batch: 149944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-2	SUPYARD 061618	Dissolved	Water	200.8	149871
550-104566-4	SUPFUEL 061618	Dissolved	Water	200.8	149871
MB 550-149799/1-B	Method Blank	Dissolved	Water	200.8	149799
MB 550-149871/1-B	Method Blank	Dissolved	Water	200.8	149871
MB 550-149944/1-A	Method Blank	Total/NA	Water	200.8	
LCS 550-149944/2-A	Lab Control Sample	Total/NA	Water	200.8	

Metals (Continued)

Prep Batch: 149944 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 550-149944/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
550-104502-D-2-C MS	Matrix Spike	Dissolved	Water	200.8	149799
550-104502-D-2-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	149799

Prep Batch: 150183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	200.7	
550-104566-3	SUPFUEL 061618	Total/NA	Water	200.7	
MB 550-150183/1-A	Method Blank	Total/NA	Water	200.7	
LCS 550-150183/2-A	Lab Control Sample	Total/NA	Water	200.7	
LCSD 550-150183/3-A	Lab Control Sample Dup	Total/NA	Water	200.7	
550-104500-C-1-C MS	Matrix Spike	Total/NA	Water	200.7	
550-104500-C-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	200.7	

Analysis Batch: 150249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-2	SUPYARD 061618	Dissolved	Water	200.8 LL	149944
550-104566-4	SUPFUEL 061618	Dissolved	Water	200.8 LL	149944
MB 550-149799/1-B	Method Blank	Dissolved	Water	200.8 LL	149944
MB 550-149871/1-B	Method Blank	Dissolved	Water	200.8 LL	149944
MB 550-149944/1-A	Method Blank	Total/NA	Water	200.8 LL	149944
LCS 550-149944/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	149944
LCSD 550-149944/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	149944
550-104502-D-2-C MS	Matrix Spike	Dissolved	Water	200.8 LL	149944
550-104502-D-2-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.8 LL	149944

Analysis Batch: 150254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	200.8 LL	149942
550-104566-3	SUPFUEL 061618	Total/NA	Water	200.8 LL	149942
MB 550-149942/1-A	Method Blank	Total/NA	Water	200.8 LL	149942
LCS 550-149942/2-A	Lab Control Sample	Total/NA	Water	200.8 LL	149942
LCSD 550-149942/3-A	Lab Control Sample Dup	Total/NA	Water	200.8 LL	149942
550-104618-C-1-B MS	Matrix Spike	Total/NA	Water	200.8 LL	149942
550-104618-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	200.8 LL	149942

Analysis Batch: 150759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	200.7 Rev 4.4	150183
550-104566-3	SUPFUEL 061618	Total/NA	Water	200.7 Rev 4.4	150183
MB 550-150183/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	150183
LCS 550-150183/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	150183
LCSD 550-150183/3-A	Lab Control Sample Dup	Total/NA	Water	200.7 Rev 4.4	150183
550-104500-C-1-C MS	Matrix Spike	Total/NA	Water	200.7 Rev 4.4	150183
550-104500-C-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	200.7 Rev 4.4	150183

Analysis Batch: 150815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	SM 2340B	
550-104566-3	SUPFUEL 061618	Total/NA	Water	SM 2340B	

QC Association Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

General Chemistry

Analysis Batch: 150147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	SM 2540C	
MB 550-150147/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 550-150147/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 550-150147/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
550-104669-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 150166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-1	SUPYARD 061618	Total/NA	Water	SM 2540D	
550-104566-3	SUPFUEL 061618	Total/NA	Water	SM 2540D	
MB 550-150166/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 550-150166/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 550-150166/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
550-104668-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 150334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-104566-3	SUPFUEL 061618	Total/NA	Water	SM 2540C	
MB 550-150334/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 550-150334/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 550-150334/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
550-104774-A-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Client Sample ID: SUPYARD 061618
Date Collected: 06/16/18 16:50
Date Received: 06/18/18 14:01

Lab Sample ID: 550-104566-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			149892	06/19/18 11:09	REM	TAL PHX
Total/NA	Analysis	8270C SIM		1	150004	06/20/18 22:14	R1K	TAL PHX
Total/NA	Prep	200.7			150183	06/22/18 14:38	SGO	TAL PHX
Total/NA	Analysis	200.7 Rev 4.4		1	150759	06/28/18 22:43	ARE	TAL PHX
Total/NA	Prep	200.8			149942	06/20/18 06:24	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		1	150254	06/23/18 22:40	TEK	TAL PHX
Total/NA	Analysis	SM 2340B		1	150815	06/29/18 11:47	ARE	TAL PHX
Total/NA	Analysis	SM 2540C		1	150147		YET	TAL PHX
					(Start)	06/22/18 08:49		
					(End)	06/25/18 11:30		
Total/NA	Analysis	SM 2540D		1	150166		YET	TAL PHX
					(Start)	06/22/18 11:27		
					(End)	06/25/18 11:30		

Client Sample ID: SUPYARD 061618
Date Collected: 06/16/18 16:50
Date Received: 06/18/18 14:01

Lab Sample ID: 550-104566-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			149871	06/19/18 09:34	SGO	TAL PHX
Dissolved	Prep	200.8			149944	06/20/18 06:35	SGO	TAL PHX
Dissolved	Analysis	200.8 LL		1	150249	06/23/18 19:23	TEK	TAL PHX

Client Sample ID: SUPFUEL 061618
Date Collected: 06/16/18 17:30
Date Received: 06/18/18 14:01

Lab Sample ID: 550-104566-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			149892	06/19/18 11:09	REM	TAL PHX
Total/NA	Analysis	8270C SIM		1	150004	06/20/18 22:41	R1K	TAL PHX
Total/NA	Prep	200.7			150183	06/22/18 14:38	SGO	TAL PHX
Total/NA	Analysis	200.7 Rev 4.4		1	150759	06/28/18 22:46	ARE	TAL PHX
Total/NA	Prep	200.8			149942	06/20/18 06:24	SGO	TAL PHX
Total/NA	Analysis	200.8 LL		1	150254	06/23/18 22:42	TEK	TAL PHX
Total/NA	Analysis	SM 2340B		1	150815	06/29/18 11:51	ARE	TAL PHX
Total/NA	Analysis	SM 2540C		1	150334		YET	TAL PHX
					(Start)	06/25/18 13:14		
					(End)	06/26/18 12:20		
Total/NA	Analysis	SM 2540D		1	150166		YET	TAL PHX
					(Start)	06/22/18 11:27		
					(End)	06/25/18 11:30		

Lab Chronicle

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Client Sample ID: SUPFUEL 061618

Date Collected: 06/16/18 17:30
Date Received: 06/18/18 14:01

Lab Sample ID: 550-104566-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			149871	06/19/18 09:34	SGO	TAL PHX
Dissolved	Prep	200.8			149944	06/20/18 06:35	SGO	TAL PHX
Dissolved	Analysis	200.8 LL		1	150249	06/23/18 19:25	TEK	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-19

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: NV5, Inc
Project/Site: ADEQ Stormwater

TestAmerica Job ID: 550-104566-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PHX
200.7 Rev 4.4	Metals (ICP)	40CFR136A	TAL PHX
200.8 LL	Metals (ICP/MS)	EPA	TAL PHX
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL PHX
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PHX
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL PHX
200.7	Preparation, Total Metals	EPA	TAL PHX
200.8	Preparation, Total Metals	EPA	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX
Filtration	Sample Filtration	None	TAL PHX

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

104576

7/12/2018

Page 1 of 1

Client Name/Address:	Project/PO Number:
NV5, INC 1W DEER VALLEY RD, BLDG 2, STE 305 PHOENIX, AZ 85050	444117-0250000.11
Project Manager: MARK MURPHY	**Phone Number:**
Sampler: ALEX IHLE	**Email Address:** MARK.MURPHY@NV5.COM

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	TSS/TDS	PAH	LEAD, SELENIUM, HARDNESS	DISSOLVED COPPER						Special Instructions
-1 SUPYARD061618	SW	GLASS PAIR	7	06/16/18	16:50		X	X	X	X						
-2 SUPFUEL061618	SW	↓	7	06/16/18	1730		X	X	X	X						
									TR-PHX							

550-104566 Chain of Custody

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Relinquished By:	Date/Time:	Received By:	Date/Time:
	6/18/18 12:55		6/18/18 12:55
Relinquished By:	Date/Time:	Received By:	Date/Time:
	6/18/18 14:01		
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:
			06-18-18 14:01

Turnaround Time: (Check)

same day _____ 72 hours _____

24 hours _____ 5 days _____

48 hours _____ normal X

Sample Integrity: (Check)

intact ✓ on ice 2.4c

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Login Sample Receipt Checklist

Client: NV5, Inc

Job Number: 550-104566-1

Login Number: 104566
List Number: 1
Creator: Maycock, Lisa

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

July 17, 2018

Mark Murphy
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18F0500
Order Name: Storm Water

RE: Storm Water

Dear Mark Murphy,

Turner Laboratories, Inc. received 1 sample(s) on 06/16/2018 for the analyses presented in the following report.

The attached report has been revised. Please refer to the Case Narrative page for an explanation of the changes. We apologize for any inconvenience this may have caused you.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Max DiSante
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 18F0500
Date Received: 06/16/2018

Order: Storm Water

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18F0500-01	TUCMS4180615	Storm Water	06/16/2018 0815

Client: NV5
Project: Storm Water
Work Order: 18F0500
Date Received: 06/16/2018

Case Narrative

Microbiological sample was received above recommended temperature.

The 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

This report was originally generated on 7/6/2018. It is being revised on 7/17/2018 to include Cr, Mg, and Chloride, which was not on the original report.

C4	Confirmatory analysis was past holding time
E3	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.
H1	Sample analysis was performed past holding time.
K6	Glucose/glutamic acid BOD/CBOD was below the method acceptance criteria.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5
Project: Storm Water
Work Order: 18F0500
Lab Sample ID: 18F0500-01

Client Sample ID: TUCMS4180615
Collection Date/Time: 06/16/2018 0815
Matrix: Storm Water
Order Name: Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Turbidity-E180.1								
Turbidity	63	1.0	H1	NTU	10	06/18/2018 1545	06/18/2018 1545	AP
ICP Total Metals-E200.7 (4.4)								
Calcium	24	4.0		mg/L	1	06/26/2018 0911	06/28/2018 1432	MH
Magnesium	ND	3.0		mg/L	1	06/26/2018 0911	06/28/2018 1432	MH
Sodium	7.5	5.0		mg/L	1	06/26/2018 0911	06/28/2018 1432	MH
Zinc	0.14	0.040		mg/L	1	06/26/2018 0911	06/28/2018 1432	MH
ICP/MS Total Metals-E200.8 (5.4)								
Arsenic	0.0025	0.00050		mg/L	1	06/19/2018 1005	06/20/2018 1725	MH
Barium	0.078	0.00050		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
Cadmium	ND	0.00025		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
Chromium	0.0031	0.0010		mg/L	2	06/19/2018 1005	07/13/2018 1152	MH
Copper	0.078	0.00050		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
Lead	0.0059	0.00050		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
Nickel	0.0049	0.00050		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
Selenium	ND	0.0025		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
Silver	ND	0.00050		mg/L	1	06/19/2018 1005	06/20/2018 1341	MH
CVAA Total Mercury-E245.1								
Mercury	ND	0.0010		mg/L	1	06/21/2018 1140	06/21/2018 1444	AR
Anions by Ion Chromatography-E300.0 (2.1)								
Chloride	4.8	1.0		mg/L	1	06/16/2018 1032	06/18/2018 1406	AP
Nitrogen, Nitrate (As N)	0.60	0.50		mg/L	1	06/16/2018 1032	06/16/2018 1250	AP
Nitrogen, Nitrite (As N)	0.13	0.10	C4	mg/L	1	06/18/2018 1156	06/18/2018 1406	AP
Sulfate	9.7	5.0		mg/L	1	06/16/2018 1032	06/16/2018 1250	AP
Chemical Oxygen Demand-Hach 8000								
Chemical Oxygen Demand	170	20		mg/L	1	06/18/2018 1000	06/18/2018 1600	AP
Total Coliform & E. Coli, MPN-SM 9223B								
E.Coli	1700	1.0		MPN/100mL	1	06/16/2018 1025	06/17/2018 1055	MH
Fecal coliforms	2400	1.0	E3	MPN/100mL	1	06/16/2018 1420	06/17/2018 1100	MH
Total Coliform	2400	1.0	E3	MPN/100mL	1	06/16/2018 1025	06/17/2018 1055	MH
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	160	20		mg/L	1	06/20/2018 0915	06/21/2018 1615	EJ

Client:	NV5	**Client Sample ID:**	TUCMS4180615
Project:	Storm Water	**Collection Date/Time:**	06/16/2018 0815
Work Order:	18F0500	**Matrix:**	Storm Water
Lab Sample ID:	18F0500-01	**Order Name:**	Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	33	10		mg/L	1	06/18/2018 0845	06/19/2018 0920	EJ
BOD, 5 day-SM5210 B								
Biochemical Oxygen Demand	11	2.0		mg/L	1	06/18/2018 0640	06/23/2018 1015	EJ

Client: NV5
Project: Storm Water
Work Order: 18F0500
Date Received: 06/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1806197 - E200.8 (5.4)										
Blank (1806197-BLK1)				Prepared: 06/19/2018 Analyzed: 06/20/2018						
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Silver	ND	0.00050	mg/L							
LCS (1806197-BS1)				Prepared: 06/19/2018 Analyzed: 06/20/2018						
Arsenic	0.049	0.00050	mg/L	0.05000		99	85-115			
Barium	0.050	0.00050	mg/L	0.05000		100	85-115			
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115			
Chromium	0.049	0.00050	mg/L	0.05000		98	85-115			
Copper	0.050	0.00050	mg/L	0.05000		99	85-115			
Lead	0.049	0.00050	mg/L	0.05000		98	85-115			
Nickel	0.049	0.00050	mg/L	0.05000		99	85-115			
Selenium	0.048	0.0025	mg/L	0.05000		97	85-115			
Silver	0.049	0.00050	mg/L	0.05000		97	85-115			
LCS Dup (1806197-BSD1)				Prepared: 06/19/2018 Analyzed: 06/20/2018						
Arsenic	0.050	0.00050	mg/L	0.05000		99	85-115	0.7	20	
Barium	0.050	0.00050	mg/L	0.05000		101	85-115	0.5	20	
Cadmium	0.051	0.00025	mg/L	0.05000		101	85-115	1	20	
Chromium	0.050	0.00050	mg/L	0.05000		101	85-115	2	20	
Copper	0.050	0.00050	mg/L	0.05000		100	85-115	1	20	
Lead	0.050	0.00050	mg/L	0.05000		99	85-115	0.8	20	
Nickel	0.050	0.00050	mg/L	0.05000		101	85-115	2	20	
Selenium	0.049	0.0025	mg/L	0.05000		98	85-115	0.7	20	
Silver	0.050	0.00050	mg/L	0.05000		100	85-115	3	20	
Matrix Spike (1806197-MS1)		**Source: 18F0412-01**		Prepared: 06/19/2018 Analyzed: 06/20/2018						
Arsenic	0.052	0.00050	mg/L	0.05000	0.0026	100	70-130			
Barium	0.14	0.00050	mg/L	0.05000	0.085	100	70-130			
Cadmium	0.050	0.00025	mg/L	0.05000	ND	101	70-130			
Chromium	0.052	0.00050	mg/L	0.05000	0.00030	104	70-130			
Copper	0.055	0.00050	mg/L	0.05000	0.0044	101	70-130			
Lead	0.050	0.00050	mg/L	0.05000	0.00075	99	70-130			
Nickel	0.052	0.00050	mg/L	0.05000	0.0021	101	70-130			
Selenium	0.049	0.0025	mg/L	0.05000	ND	99	70-130			
Silver	0.047	0.00050	mg/L	0.05000	ND	95	70-130			
Batch 1806209 - E245.1										
Blank (1806209-BLK1)				Prepared & Analyzed: 06/21/2018						
Mercury	ND	0.0010	mg/L							
LCS (1806209-BS1)				Prepared & Analyzed: 06/21/2018						
Mercury	0.0050	0.0010	mg/L	0.005000		100	85-115			

Client: NV5
Project: Storm Water
Work Order: 18F0500
Date Received: 06/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1806209 - E245.1										
LCS Dup (1806209-BSD1)				Prepared & Analyzed: 06/21/2018						
Mercury	0.0048	0.0010	mg/L	0.005000		97	85-115	3	20	
Matrix Spike (1806209-MS1)		**Source: 18F0500-01**		Prepared & Analyzed: 06/21/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	ND	100	85-115			
Matrix Spike Dup (1806209-MSD1)		**Source: 18F0500-01**		Prepared & Analyzed: 06/21/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	ND	100	85-115	0.5	20	
Batch 1806266 - E200.7 (4.4)										
Blank (1806266-BLK1)				Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
Sodium	ND	5.0	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1806266-BS1)				Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	9.5	4.0	mg/L	10.00		95	85-115			
Magnesium	9.9	3.0	mg/L	10.00		99	85-115			
Sodium	10	5.0	mg/L	10.00		100	85-115			
Zinc	0.50	0.040	mg/L	0.5000		100	85-115			
LCS Dup (1806266-BSD1)				Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	9.5	4.0	mg/L	10.00		95	85-115	0.2	20	
Magnesium	9.8	3.0	mg/L	10.00		98	85-115	0.8	20	
Sodium	10	5.0	mg/L	10.00		101	85-115	1	20	
Zinc	0.50	0.040	mg/L	0.5000		100	85-115	0.2	20	
Matrix Spike (1806266-MS1)		**Source: 18F0030-01**		Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	68	4.0	mg/L	10.00	60	87	70-130			
Magnesium	43	3.0	mg/L	10.00	33	91	70-130			
Sodium	13	5.0	mg/L	10.00	2.9	103	70-130			
Zinc	1.4	0.040	mg/L	0.5000	0.93	88	70-130			
Matrix Spike (1806266-MS2)		**Source: 18F0460-01**		Prepared: 06/26/2018 Analyzed: 06/28/2018						
Calcium	210	4.0	mg/L	10.00	200	53	70-130			M3
Magnesium	35	3.0	mg/L	10.00	26	97	70-130			
Sodium	1400	50	mg/L	10.00	1400	NR	70-130			M3
Zinc	0.89	0.040	mg/L	0.5000	0.40	99	70-130			

Client: NV5
Project: Storm Water
Work Order: 18F0500
Date Received: 06/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1806176 - SM2540 D										
Duplicate (1806176-DUP1)		**Source: 18F0421-01**		Prepared: 06/18/2018 Analyzed: 06/19/2018						
Total Suspended Solids	6.0	10	mg/L		6.0			0	5	Q9
Duplicate (1806176-DUP2)		**Source: 18F0500-01**		Prepared: 06/18/2018 Analyzed: 06/19/2018						
Total Suspended Solids	34	10	mg/L		33			3	5	
Batch 1806178 - Hach 8000										
Blank (1806178-BLK1)				Prepared & Analyzed: 06/18/2018						
Chemical Oxygen Demand	ND	20	mg/L							
LCS (1806178-BS1)				Prepared & Analyzed: 06/18/2018						
Chemical Oxygen Demand	540	20	mg/L	500.0		109	70-130			
LCS Dup (1806178-BSD1)				Prepared & Analyzed: 06/18/2018						
Chemical Oxygen Demand	530	20	mg/L	500.0		106	70-130	2	20	
Matrix Spike (1806178-MS1)		**Source: 18F0412-01**		Prepared & Analyzed: 06/18/2018						
Chemical Oxygen Demand	720	20	mg/L	500.0	140	115	70-130			
Matrix Spike Dup (1806178-MSD1)		**Source: 18F0412-01**		Prepared & Analyzed: 06/18/2018						
Chemical Oxygen Demand	730	20	mg/L	500.0	140	117	70-130	1	20	
Batch 1806183 - E180.1										
Duplicate (1806183-DUP1)		**Source: 18F0500-01**		Prepared & Analyzed: 06/18/2018						
Turbidity	63	1.0	NTU		63			0	10	
Batch 1806190 - SM5210 B										
Blank (1806190-BLK1)				Prepared: 06/18/2018 Analyzed: 06/23/2018						
Biochemical Oxygen Demand	ND	2.0	mg/L							
LCS (1806190-BS1)				Prepared: 06/18/2018 Analyzed: 06/23/2018						
Biochemical Oxygen Demand	150		mg/L	198.0		78	85-115			K6
Duplicate (1806190-DUP1)		**Source: 18F0500-01**		Prepared: 06/18/2018 Analyzed: 06/23/2018						
Biochemical Oxygen Demand	11	2.0	mg/L		11			7	20	
Batch 1806205 - SM2540 C										
Duplicate (1806205-DUP1)		**Source: 18F0036-01**		Prepared: 06/20/2018 Analyzed: 06/21/2018						
Total Dissolved Solids (Residue, Filterable)	210	20	mg/L		200			4	5	
Duplicate (1806205-DUP2)		**Source: 18F0527-01**		Prepared: 06/20/2018 Analyzed: 06/21/2018						
Total Dissolved Solids (Residue, Filterable)	190	20	mg/L		190			1	5	

Client: NV5
Project: Storm Water
Work Order: 18F0500
Date Received: 06/16/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1806171 - E300.0 (2.1)										
Blank (1806171-BLK1)				Prepared & Analyzed: 06/16/2018						
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1806171-BS1)				Prepared & Analyzed: 06/16/2018						
Nitrogen, Nitrate (As N)	4.6	0.50	mg/L	5.000		92	90-110			
Sulfate	13	5.0	mg/L	12.50		102	90-110			
LCS Dup (1806171-BSD1)				Prepared & Analyzed: 06/16/2018						
Nitrogen, Nitrate (As N)	4.6	0.50	mg/L	5.000		92	90-110	0.2	10	
Sulfate	12	5.0	mg/L	12.50		95	90-110	7	10	
Matrix Spike (1806171-MS1)	**Source: 18F0493-01**			Prepared & Analyzed: 06/16/2018						
Nitrogen, Nitrate (As N)	5.3	0.50	mg/L	5.000	0.91	88	80-120			
Sulfate	26	5.0	mg/L	12.50	15	86	80-120			
Matrix Spike Dup (1806171-MSD1)	**Source: 18F0493-01**			Prepared & Analyzed: 06/16/2018						
Nitrogen, Nitrate (As N)	5.4	0.50	mg/L	5.000	0.91	89	80-120	1	10	
Sulfate	26	5.0	mg/L	12.50	15	87	80-120	0.4	10	
Batch 1806177 - E300.0 (2.1)										
Blank (1806177-BLK1)				Prepared & Analyzed: 06/18/2018						
Chloride	ND	1.0	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
LCS (1806177-BS1)				Prepared & Analyzed: 06/18/2018						
Chloride	12	1.0	mg/L	12.50		97	90-110			
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500		99	90-110			
LCS Dup (1806177-BSD1)				Prepared & Analyzed: 06/18/2018						
Chloride	12	1.0	mg/L	12.50		97	90-110	0.07	10	
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500		99	90-110	0.08	10	
Matrix Spike (1806177-MS1)	**Source: 18F0499-01**			Prepared & Analyzed: 06/18/2018						
Chloride	14	1.0	mg/L	12.50	2.7	94	80-120			
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500	0.038	93	80-120			
Matrix Spike (1806177-MS2)	**Source: 18F0493-01RE1**			Prepared & Analyzed: 06/18/2018						
Nitrogen, Nitrite (As N)	2.3	0.10	mg/L	2.500	0.065	88	80-120			
Matrix Spike Dup (1806177-MSD1)	**Source: 18F0499-01**			Prepared & Analyzed: 06/18/2018						
Chloride	14	1.0	mg/L	12.50	2.7	93	80-120	1	10	
Nitrogen, Nitrite (As N)	2.3	0.10	mg/L	2.500	0.038	91	80-120	2	10	
Matrix Spike Dup (1806177-MSD2)	**Source: 18F0493-01RE1**			Prepared & Analyzed: 06/18/2018						
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	0.065	85	80-120	3	10	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18F0500.01 DATE 6/16/18 PAGE ____ OF ____

PROJECT NAME ADOT Stormwater # 444117-0250000.11

CONTACT NAME : Mark Murphy

COMPANY NAME : NV5

ADDRESS :

CITY Tucson STATE AZ ZIP CODE

PHONE 520302 FAX

SAMPLER'S SIGNATURE

NUMBER OF CONTAINERS

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	Total Coliform & E. Coli, MPN-SM 9223B	BOD, COD, TSS, SM2540 C and D, 180.1	Metals 200.7/200.8	Nitrate, Nitrite, TKN, Sulfate, Chloride, 300	Mercury, 245.1		PAH, 8310													
TUCMS4180615	6/16/18	0815																						

SAMPLE NO: TUCMS4180615
NV5
ADOT Stormwater Monitoring
7620 N. Hartman Lane, Suite 162
Tucson, AZ 85743

1. RELINQUISHED BY:
Signature MARK MURPHY
Printed Name NV5
Firm 6/16/18 0922 hrs
Date/Time

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____Standard (approx.10 days)*
____Next day ____2 Day ____5 Day*
____ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 10
Temperature 13.5 °C
☒ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature Mike McGovern
Printed Name
TURNER LABORATORIES, INC.
Firm 6/16/18 0925
Date/Time

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis:	☐ Yes	☐ No	Custody Seals	☐	Preservation Confirmation	☑
ADEQ Forms:	☐ Yes	☐ No	Container Intact	☑	Appropriate Head Space	☑
Mail ADEQ Forms:	☐ Yes	☐ No	COC/Labels Agree	☑	Received Within Hold Time	☑

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

4620 East Elwood Street, Suite 4 Phoenix, AZ 85040

(480) 736-0960

Laboratory Certification (ADHS) No.: AZ0558, AZ0646
Expiration Date: 2018

Laboratory Director's Name:
Mark Noorani

Client: Turner Laboratories, Inc.

Laboratory Reference: TLI AZ11383

Project Name: 18F0500

Project Number:

Date Received: 6/20/2018

Date Reported: 6/27/2018

Chain of Custody Received: ☑

Analytical Method: 8310,

Mark Noorani, Laboratory Director

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Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11383
Project Name: 18F0500
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 0ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11383
Project Name: 18F0500
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
18F0500-01	AZ11383-001	6/20/2018	6/16/2018	Water

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11383
Project Name: 18F0500
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
18F0500-01	AZ11383-001	6/20/2018	6/16/2018	6/22/2018	6/26/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	122

* Acceptable Recovery: D-190 %

Dilution Factor: 1
Data Qualifiers: C8,

Mr. Max DiSante
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11383
Project Name: 18F0500
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL0622181			6/22/2018	6/26/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.050
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	76

* Acceptable Recovery: D-190 %

Dilution Factor: 1
Data Qualifiers: None

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QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 6/22/2018
Date of Analysis: 6/26/2018
Dup Date of Analysis: 6/26/2018
Laboratory Sample #: BL0622181
MS/MSD Qualifiers: None
Reference #: TLI AZ11383

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.178	0.179	71	72	1	43-132	24	☐
Anthracene	0.250	0.201	0.201	80	80	0	52-130	23	☐
Pyrene	0.250	0.209	0.208	84	83	0	57-130	20	☐
Chrysene	0.250	0.238	0.233	95	93	2	62-130	20	☐
Benzo(a)pyrene	0.250	0.201	0.232	80	93	14	51-130	25	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	77	80	☐

ACP % RC
D-190

Data Qualifier Definitions

Qualifier

C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.

AZ11383-001	8310	Nitrobenzene-d5

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

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SUBCONTRACT ORDER

Turner Laboratories, Inc.

18F0500

SENDING LABORATORY:	RECEIVING LABORATORY:
Turner Laboratories, Inc.	Orange Coast Analytical
2445 N. Coyote Drive, Ste #104	3002 Dow Ave Suite 532
Tucson, AZ 85745	Tustin, CA 92780
Phone: 520.882.5880	Phone :(714) 832-0064
Fax: 520.882.9788	Fax:
Project Manager: Max DiSante	Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18F0500-01 Non-Potable Wa Sampled:06/16/2018 08:15			
PAHs by SW 8310	06/23/2018 08:15		
Containers Supplied:			

Released By	Date	Received By	Date
	6/19/18 1600	VBS	6/19/18 1600
Released By	Date	Received By	Date
		OCA, LA	6/20/18 0.4° 10:22

December 21, 2018

Michelle Oakley
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18L0271
Order Name: Nogales MS4

RE: Storm Water

Dear Michelle Oakley,

Turner Laboratories, Inc. received 1 sample(s) on 12/07/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Elizabeth Kasik
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

Order: Nogales MS4

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18L0271-01	Nogales MS4	Storm Water	12/07/2018 1130

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

Case Narrative

The Chlorine analysis was cancelled due to the sample being too turbid to achieve a result.

The PAH 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

E3	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.
K1	The sample dilutions set-up for the BOD/CBOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Reported result is an estimated value.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5 **Client Sample ID:** Nogales MS4
Project: Storm Water **Collection Date/Time:** 12/07/2018 1130
Work Order: 18L0271 **Matrix:** Storm Water
Lab Sample ID: 18L0271-01 **Order Name:** Nogales MS4

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation								
Hardness, Calcium/Magnesium (As CaCO3)	61			mg/L	1	12/11/2018 0910	12/12/2018 1745	MH
ICP Dissolved Metals-E 200.7 (4.4)								
Copper	ND	0.020		mg/L	1	12/12/2018 0925	12/13/2018 1611	MH
Turbidity-E180.1								
Turbidity	400	2.5		NTU	25	12/07/2018 1505	12/07/2018 1515	AR
ICP Total Metals-E200.7 (4.4)								
Calcium	16	4.0		mg/L	1	12/11/2018 0910	12/12/2018 1745	MH
Magnesium	4.8	3.0		mg/L	1	12/11/2018 0910	12/12/2018 1745	MH
Sodium	ND	5.0		mg/L	1	12/11/2018 0910	12/12/2018 1745	MH
ICP/MS Total Metals-E200.8 (5.4)								
Arsenic	0.0049	0.00050		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Barium	0.14	0.00050		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Cadmium	ND	0.00025		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Chromium	0.0076	0.0050		mg/L	10	12/10/2018 1255	12/19/2018 1633	MH
Copper	0.046	0.00050		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Lead	0.066	0.00050		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Nickel	0.016	0.0050		mg/L	10	12/10/2018 1255	12/19/2018 1633	MH
Selenium	ND	0.0025		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Silver	ND	0.00050		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
Zinc	0.19	0.040		mg/L	1	12/10/2018 1255	12/13/2018 1344	MH
CVAA Total Mercury-E245.1								
Mercury	ND	0.0010		mg/L	1	12/18/2018 1005	12/18/2018 1331	AR
Anions by Ion Chromatography-E300.0 (2.1)								
Chloride	2.4	1.0		mg/L	1	12/07/2018 1526	12/07/2018 1539	EJ
Nitrogen, Nitrate (As N)	0.98	0.50		mg/L	1	12/07/2018 1526	12/07/2018 1539	EJ
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/07/2018 1526	12/07/2018 1539	EJ
Sulfate	ND	5.0		mg/L	1	12/07/2018 1526	12/07/2018 1539	EJ
Chemical Oxygen Demand-Hach 8000								
Chemical Oxygen Demand	190	20		mg/L	1	12/14/2018 1000	12/14/2018 1620	EJ
Total Coliform & E. Coli, MPN-SM 9223B								

Client: NV5
Project: Storm Water
Work Order: 18L0271
Lab Sample ID: 18L0271-01

Client Sample ID: Nogales MS4
Collection Date/Time: 12/07/2018 1130
Matrix: Storm Water
Order Name: Nogales MS4

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
E.Coli	2400	1.0		MPN/100mL	1	12/07/2018 1500	12/08/2018 1800	AR
Fecal coliforms	2400	1.0	E3	MPN/100mL	1	12/07/2018 1700	12/08/2018 1135	AR
Total Coliform	2400	1.0	E3	MPN/100mL	1	12/07/2018 1500	12/08/2018 1800	AR
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	20	20	Q9	mg/L	1	12/13/2018 0940	12/20/2018 1130	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	510	10		mg/L	1	12/12/2018 0850	12/14/2018 1130	EJ
Ammonia as N-SM4500-NH3 B,C								
Nitrogen, Ammonia (As N)	ND	0.50		mg/L	1	12/14/2018 0830	12/14/2018 1215	EJ
BOD, 5 day-SM5210 B								
Biochemical Oxygen Demand	4.5	2.0	K1	mg/L	1	12/07/2018 1500	12/12/2018 1630	EJ

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812079 - E 200.7 (4.4)										
Blank (1812079-BLK1)				Prepared: 12/12/2018 Analyzed: 12/13/2018						
Copper	ND	0.020	mg/L							
LCS (1812079-BS1)				Prepared: 12/12/2018 Analyzed: 12/13/2018						
Copper	0.24	0.020	mg/L	0.2500		95	85-115			
LCS Dup (1812079-BSD1)				Prepared: 12/12/2018 Analyzed: 12/13/2018						
Copper	0.24	0.020	mg/L	0.2500		95	85-115	0.02	20	
Matrix Spike (1812079-MS1)		**Source: 18L0055-01**		Prepared: 12/12/2018 Analyzed: 12/13/2018						
Copper	0.26	0.020	mg/L	0.2500	0.0026	102	70-130			
Matrix Spike (1812079-MS2)		**Source: 18L0122-05**		Prepared: 12/12/2018 Analyzed: 12/13/2018						
Copper	0.24	0.020	mg/L	0.2500	ND	95	70-130			
Batch 1812136 - E200.7 (4.4)										
Blank (1812136-BLK1)				Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
Sodium	ND	5.0	mg/L							
LCS (1812136-BS1)				Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	9.4	4.0	mg/L	10.00		94	85-115			
Magnesium	9.7	3.0	mg/L	10.00		97	85-115			
Sodium	9.8	5.0	mg/L	10.00		98	85-115			
LCS Dup (1812136-BSD1)				Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	9.4	4.0	mg/L	10.00		94	85-115	0.2	20	
Magnesium	9.8	3.0	mg/L	10.00		98	85-115	1	20	
Sodium	9.9	5.0	mg/L	10.00		99	85-115	2	20	
Matrix Spike (1812136-MS1)		**Source: 18L0081-01**		Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	12	4.0	mg/L	10.00	3.3	85	70-130			
Magnesium	9.0	3.0	mg/L	10.00	0.14	89	70-130			
Sodium	9.9	5.0	mg/L	10.00	0.67	92	70-130			
Matrix Spike (1812136-MS2)		**Source: 18L0160-01**		Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	280	4.0	mg/L	10.00	280	34	70-130			M3
Magnesium	42	3.0	mg/L	10.00	33	86	70-130			
Sodium	100	5.0	mg/L	10.00	96	40	70-130			M3
Matrix Spike Dup (1812136-MSD2)		**Source: 18L0160-01**		Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	280	4.0	mg/L	10.00	280	47	70-130	0.5	200	M3
Magnesium	43	3.0	mg/L	10.00	33	94	70-130	2	200	
Sodium	100	5.0	mg/L	10.00	96	53	70-130	1	200	M3
Batch 1812138 - E200.8 (5.4)										

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812138 - E200.8 (5.4)										
Blank (1812138-BLK1)				Prepared: 12/10/2018 Analyzed: 12/13/2018						
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0015	mg/L							
Silver	ND	0.00050	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1812138-BS1)				Prepared: 12/10/2018 Analyzed: 12/13/2018						
Arsenic	0.050	0.00050	mg/L	0.05000		101	85-115			
Barium	0.050	0.00050	mg/L	0.05000		100	85-115			
Cadmium	0.051	0.00025	mg/L	0.05000		102	85-115			
Chromium	0.050	0.00050	mg/L	0.05000		101	85-115			
Copper	0.050	0.00050	mg/L	0.05000		101	85-115			
Lead	0.051	0.00050	mg/L	0.05000		101	85-115			
Nickel	0.051	0.00050	mg/L	0.05000		102	85-115			
Selenium	0.049	0.0015	mg/L	0.05000		97	85-115			
Silver	0.052	0.00050	mg/L	0.05000		104	85-115			
Zinc	0.10	0.040	mg/L	0.1000		102	85-115			
LCS Dup (1812138-BSD1)				Prepared: 12/10/2018 Analyzed: 12/13/2018						
Arsenic	0.050	0.00050	mg/L	0.05000		99	85-115	1	20	
Barium	0.050	0.00050	mg/L	0.05000		100	85-115	0.3	20	
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115	1	20	
Chromium	0.050	0.00050	mg/L	0.05000		100	85-115	0.6	20	
Copper	0.050	0.00050	mg/L	0.05000		100	85-115	0.8	20	
Lead	0.050	0.00050	mg/L	0.05000		100	85-115	1	20	
Nickel	0.051	0.00050	mg/L	0.05000		102	85-115	0.006	20	
Selenium	0.048	0.0015	mg/L	0.05000		96	85-115	1	20	
Silver	0.052	0.00050	mg/L	0.05000		104	85-115	0.1	20	
Zinc	0.10	0.040	mg/L	0.1000		101	85-115	1	20	
Matrix Spike (1812138-MS1)	**Source: 18L0117-02**			Prepared: 12/10/2018 Analyzed: 12/13/2018						
Arsenic	0.056	0.00050	mg/L	0.05000	0.0032	105	70-130			
Barium	0.10	0.00050	mg/L	0.05000	0.056	96	70-130			
Cadmium	0.050	0.00025	mg/L	0.05000	ND	101	70-130			
Chromium	0.063	0.00050	mg/L	0.05000	0.0011	125	70-130			
Copper	0.068	0.00050	mg/L	0.05000	0.019	99	70-130			
Lead	0.051	0.00050	mg/L	0.05000	0.00064	100	70-130			
Nickel	0.066	0.00050	mg/L	0.05000	0.0039	123	70-130			
Selenium	0.053	0.0015	mg/L	0.05000	0.0021	101	70-130			
Silver	0.036	0.00050	mg/L	0.05000	0.000027	72	70-130			
Zinc	0.17	0.040	mg/L	0.1000	0.069	97	70-130			

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812138 - E200.8 (5.4)										
Matrix Spike (1812138-MS2)		**Source: 18L0197-01**		Prepared: 12/10/2018 Analyzed: 12/13/2018						
Arsenic	0.12	0.0050	mg/L	0.05000	0.072	106	70-130			
Barium	0.062	0.0050	mg/L	0.05000	0.014	96	70-130			
Cadmium	0.060	0.0025	mg/L	0.05000	0.0074	104	70-130			
Copper	0.042	0.00050	mg/L	0.05000	0.0034	77	70-130			
Lead	0.098	0.0050	mg/L	0.05000	0.047	102	70-130			
Nickel	0.11	0.0050	mg/L	0.05000	0.055	116	70-130			
Selenium	0.059	0.0015	mg/L	0.05000	0.00069	117	70-130			
Silver	0.038	0.00050	mg/L	0.05000	0.00013	75	70-130			
Zinc	9.5	4.0	mg/L	0.1000	9.6	NR	70-130			M3
Batch 1812210 - E245.1										
Blank (1812210-BLK1)				Prepared & Analyzed: 12/18/2018						
Mercury	ND	0.0010	mg/L							
LCS (1812210-BS1)				Prepared & Analyzed: 12/18/2018						
Mercury	0.0050	0.0010	mg/L	0.005000		99	85-115			
LCS Dup (1812210-BSD1)				Prepared & Analyzed: 12/18/2018						
Mercury	0.0050	0.0010	mg/L	0.005000		99	85-115	0.1	20	
Matrix Spike (1812210-MS1)		**Source: 18L0285-01**		Prepared & Analyzed: 12/18/2018						
Mercury	0.0049	0.0010	mg/L	0.005000	0.000082	96	85-115			
Matrix Spike (1812210-MS2)		**Source: 18L0453-01**		Prepared & Analyzed: 12/18/2018						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	98	85-115			
Matrix Spike Dup (1812210-MSD1)		**Source: 18L0285-01**		Prepared & Analyzed: 12/18/2018						
Mercury	0.0049	0.0010	mg/L	0.005000	0.000082	97	85-115	0.6	20	
Matrix Spike Dup (1812210-MSD2)		**Source: 18L0453-01**		Prepared & Analyzed: 12/18/2018						
Mercury	0.0048	0.0010	mg/L	0.005000	ND	97	85-115	1	20	

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812089 - E180.1										
Duplicate (1812089-DUP1)		**Source: 18L0271-01**		Prepared & Analyzed: 12/07/2018						
Turbidity	380	2.5	NTU		400			6	10	
Batch 1812133 - SM2540 D										
Duplicate (1812133-DUP1)		**Source: 18L0250-01**		Prepared: 12/12/2018 Analyzed: 12/14/2018						
Total Suspended Solids	ND	10	mg/L		ND				5	Q9
Duplicate (1812133-DUP2)		**Source: 18L0281-01**		Prepared: 12/12/2018 Analyzed: 12/14/2018						
Total Suspended Solids	ND	10	mg/L		ND				5	Q9
Batch 1812151 - SM5210 B										
Blank (1812151-BLK1)				Prepared: 12/07/2018 Analyzed: 12/12/2018						
Biochemical Oxygen Demand	ND	2.0	mg/L							
LCS (1812151-BS1)				Prepared: 12/07/2018 Analyzed: 12/12/2018						
Biochemical Oxygen Demand	170		mg/L	198.0		85	85-115			
Duplicate (1812151-DUP1)		**Source: 18L0271-01**		Prepared: 12/07/2018 Analyzed: 12/12/2018						
Biochemical Oxygen Demand	4.6	2.0	mg/L		4.5			2	20	K1
Batch 1812155 - SM2540 C										
Duplicate (1812155-DUP1)		**Source: 18L0290-01**		Prepared: 12/13/2018 Analyzed: 12/20/2018						
Total Dissolved Solids (Residue, Filterable)	370	20	mg/L		390			3	5	
Duplicate (1812155-DUP2)		**Source: 18L0302-01**		Prepared: 12/13/2018 Analyzed: 12/20/2018						
Total Dissolved Solids (Residue, Filterable)	200	20	mg/L		210			2	5	
Batch 1812168 - SM4500-NH3 B,C										
Blank (1812168-BLK1)				Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	ND	0.50	mg/L							
LCS (1812168-BS1)				Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		102	90-110			
LCS Dup (1812168-BSD1)				Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		102	90-110	0.4	10	
Matrix Spike (1812168-MS1)		**Source: 18L0211-02**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	4.8	0.50	mg/L	5.000	ND	96	70-130			
Matrix Spike (1812168-MS2)		**Source: 18L0256-01**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	78	5.0	mg/L	50.00	28	99	70-130			
Matrix Spike Dup (1812168-MSD1)		**Source: 18L0211-02**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	5.0	0.50	mg/L	5.000	ND	99	70-130	3	20	
Matrix Spike Dup (1812168-MSD2)		**Source: 18L0256-01**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	80	5.0	mg/L	50.00	28	102	70-130	2	20	
Batch 1812175 - Hach 8000										

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812175 - Hach 8000										
Blank (1812175-BLK1)				Prepared & Analyzed: 12/14/2018						
Chemical Oxygen Demand	ND	20	mg/L							
LCS (1812175-BS1)				Prepared & Analyzed: 12/14/2018						
Chemical Oxygen Demand	530	20	mg/L	500.0		105	70-130			
LCS Dup (1812175-BSD1)				Prepared & Analyzed: 12/14/2018						
Chemical Oxygen Demand	500	20	mg/L	500.0		99	70-130	6	20	
Matrix Spike (1812175-MS1)		**Source: 18L0079-01**		Prepared & Analyzed: 12/14/2018						
Chemical Oxygen Demand	540	20	mg/L	500.0	35	101	70-130			
Matrix Spike Dup (1812175-MSD1)		**Source: 18L0079-01**		Prepared & Analyzed: 12/14/2018						
Chemical Oxygen Demand	540	20	mg/L	500.0	35	101	70-130	0.2	20	

Client: NV5
Project: Storm Water
Work Order: 18L0271
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812071 - E300.0 (2.1)										
Blank (1812071-BLK1)				Prepared & Analyzed: 12/07/2018						
Chloride	ND	1.0	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1812071-BS1)				Prepared & Analyzed: 12/07/2018						
Chloride	12	1.0	mg/L	12.50		95	90-110			
Nitrogen, Nitrate (As N)	4.9	0.50	mg/L	5.000		97	90-110			
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500		95	90-110			
Sulfate	12	5.0	mg/L	12.50		96	90-110			
LCS Dup (1812071-BSD1)				Prepared & Analyzed: 12/07/2018						
Chloride	12	1.0	mg/L	12.50		96	90-110	2	10	
Nitrogen, Nitrate (As N)	4.9	0.50	mg/L	5.000		99	90-110	2	10	
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500		97	90-110	2	10	
Sulfate	12	5.0	mg/L	12.50		97	90-110	1	10	
Matrix Spike (1812071-MS1)		**Source: 18L0249-01**		Prepared & Analyzed: 12/07/2018						
Sulfate	3300	500	mg/L	1250	2200	89	80-120			
Matrix Spike (1812071-MS2)		**Source: 18L0271-01**		Prepared & Analyzed: 12/07/2018						
Chloride	15	1.0	mg/L	12.50	2.4	97	80-120			
Nitrogen, Nitrate (As N)	5.9	0.50	mg/L	5.000	0.98	99	80-120			
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	0.061	97	80-120			
Sulfate	15	5.0	mg/L	12.50	3.9	90	80-120			
Matrix Spike Dup (1812071-MSD1)		**Source: 18L0249-01**		Prepared & Analyzed: 12/07/2018						
Sulfate	3300	500	mg/L	1250	2200	86	80-120	1	10	
Matrix Spike Dup (1812071-MSD2)		**Source: 18L0271-01**		Prepared & Analyzed: 12/07/2018						
Chloride	15	1.0	mg/L	12.50	2.4	98	80-120	0.7	10	
Nitrogen, Nitrate (As N)	6.0	0.50	mg/L	5.000	0.98	100	80-120	0.7	10	
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	0.061	98	80-120	1	10	
Sulfate	15	5.0	mg/L	12.50	3.9	91	80-120	0.7	10	

2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

602-759-0203

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18L0271 DATE 12/7/18 PAGE 1 OF 1

PROJECT NAME ADOT #
CONTACT NAME Michelle Oakley
COMPANY NAME NUS
ADDRESS 1. W. Deervalley rd
ZIP PHONE EMAIL michelle.oakley@nus.com
SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Base Neutrals ☐ 625/8270 Acids ☐	Volatile Organics ☐ 624 ☐ 524.2 ☐ 8260	TTHMS ☐ HAA5 ☐	☒ Chloride ☒ Sulfate ☐ Resistivity	NO3 ☒ NO2 ☒ TKN ☐	☐ TPH 1664 ☐ Oil & Grease	VOA ☐ TCLP Analysis Semi-VOA ☐ Pest. ☐	TCLP ☐ Metals Dissolved ☒ Total ☒	Total ☐ Cyanide Amen. ☐ WAD ☐	SDWA-INORGANICS PRIMARY ☐ SECONDARY ☐	MPN ☐ Coliform PIA ☐ Fecal ☐	pH ☐ Cr6 ☐ Cl2 ☐ Turb	COD ☒ TSS ☒ BOD ☒	PAH	E-coli/Fecal coli		
Nogales MS4	12-7-18	1130		Grab					1										1	1		
				comp					1				1	1								

1. RELINQUISHED BY:
Signature
John Cummings
Printed Name
NUS
Firm
7 Dec 2018 1350
Date/Time

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
___ Standard (approx. 10 days)*
___ Next Day ___ 2 Day ___ 5 Day*
___ Email Preliminary Results
* Working Days

REPORT REQUIREMENTS:
___ I. Routine Report
___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ___ Y ___ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers
Temperature 7.6
☒ Wet Ice
☐ Ambient
☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Leandra X. Marshall
Signature
Leandra X. Marshall
Printed Name
TURNER LABORATORIES, INC.
Firm
12/7/18 13:50
Date/Time

* LEGEND
SAMPLE MATRIX
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

Compliance Analysis:	☐ Yes	☐ No	Custody Seals	☐	Preservation Confirmation ☒
ADEQ Forms:	☐ Yes	☐ No	Container Intact	☒	Appropriate Head Space ☒
Mail ADEQ Forms:	☐ Yes	☐ No	COC / Labels Agree	☒	Received Within Hold Time ☒

SPECIAL INSTRUCTIONS/COMMENTS:
see attached

Flagstaff, Sedona, Phoenix, Tucson MS4

Bottle	Parameter	Method	Hold Time	Sample Type
1 L Poly No Preservative	Chloride Sulfate NO_2/NO_3 TDS TSS Turbidity	300 SM 2540C SM 2540D 180.1	48 Hours 7 Days 48 Hours	Composite
1 L Poly No Preservative	BOD	SM 5210B	48 Hours	Composite
500 mL Poly Sulfuric Acid	COD	SM 5220D	28 Days	Composite
500 mL Poly Nitric Acid	Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Ca, Na) Mercury	200.7/200.8 245.1	180 Days 28 Days (Hg)	Composite
2x 1 L Amber No Preservative	PAH	8310	7 Days	Grab
100 mL Thio	E coli	SM 9221F	8 Hours	Grab
100 mL Thio	Fecal Coliform	SM 9223B	8 Hours	Composite

Nogales MS4

1 L Poly No Preservative	Chloride Sulfate NO_2/NO_3 TDS TSS Turbidity	300 SM 2540C SM 2540D 180.1	48 Hours 7 Days 48 Hours	Composite
1 L Poly No Preservative	BOD	SM 5210B	48 Hours	Composite
500 mL Poly Sulfuric Acid	COD NH3	SM 5220D SM 4500 NH3 D	28 Days	Composite
500 mL Poly Nitric Acid	Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Ca, Na) Hardness Mercury / Ca, Mg	200.7/200.8 245.1	180 Days 28 Days (Hg)	Composite
2x 1 L Amber No Preservative	PAH	8310	7 Days	Grab
100 mL Thio	E coli	SM 9221F	8 Hours	Grab
100 mL Thio	Fecal Coliform	SM 9223B	8 Hours	Composite
500 mL Poly No Preservative	Copper Dissolved	200.7/200.8	180 Days	Composite
250 mL Amber No Preservative	Chlorine	SM 4500 Cl G	15 Minutes	Composite

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

3002 Dow Suite 532 Tustin, CA 92780

(714) 832-0064

Laboratory Certification (ELAP) No.: 2576
Expiration Date: 2018
Los Angeles County Sanitation District Lab ID# 10206

Laboratory Director's Name:

Mark Noorani

Client:	Turner Laboratories, Inc.
Laboratory Reference:	TLI AZ11630
Project Name:	18L0271
Project Number:	
Date Received:	12/11/2018
Date Reported:	12/17/2018
Chain of Custody Received:	☑
Analytical Method:	8310,

Mark Noorani, Laboratory Director

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11630
Project Name: 18L0271
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 1.4ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11630
Project Name: 18L0271
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
18L0271-01	AZ11630-001	12/11/2018	12/7/2018	Water

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11630
Project Name: 18L0271
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
18L0271-01	AZ11630-001	12/11/2018	12/7/2018	12/13/2018	12/13/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	Matrix

* Acceptable Recovery: D-176 %

Dilution Factor: 1
Data Qualifiers: S8,

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11630
Project Name: 18L0271
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL1213181			12/13/2018	12/13/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	98

* Acceptable Recovery: D-176 %

Dilution Factor: 1
Data Qualifiers: None

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QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 12/13/2018
Date of Analysis: 12/13/2018
Dup Date of Analysis: 12/13/2018
Laboratory Sample #: BL1213181
MS/MSD Qualifiers: None
Reference #: TLI AZ11630

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.253	0.254	101	102	0	47-130	23	☐
Anthracene	0.250	0.208	0.214	83	86	3	53-130	21	☐
Pyrene	0.250	0.225	0.231	90	92	3	56-130	20	☐
Chrysene	0.250	0.238	0.242	95	97	2	62-130	21	☐
Benzo(a)pyrene	0.250	0.228	0.227	91	91	0	54-130	29	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	90	94	☐

ACP % RC
D-176

Data Qualifier Definitions

Qualifier

S8 = The analysis of the sample required a dilution such that the surrogate recovery calculation does not provide any useful information. The associated blank spike recovery was acceptable.

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18L0271

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Elizabeth Kasik

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18L0271-01 Non-Potable Wat Sampled:12/07/2018 11:30			
PAHs by SW 8310	12/14/2018 11:30		
Containers Supplied:			

Leandra X. Marshall 12/10/18 16:00 UPS 12/10/18 16:00
Released By Date Received By Date

OCAC(A) 12/11/18 1040 on ice @1.4°C
Released By Date Received By Date

Sample Receipt Report

Laboratory Reference: TLI AZ11630 Logged in by MM

Received:	12/11/18 10:40	Company Name:	Turner Laboratories, Inc.
Method of Shipment:	UPS	Project Manager:	Ms. Elizabeth Kasik
Shipping Container:	Cooler	Project Name:	18L0271
# Shipping Containers:	1	Project #:	

Sample Quantity
1 Water

Chain of Custody	Complete ☑	Incomplete ☐	None ☐
Samples On Ice	Yes, Wet ☑	Yes, Blue ☐	No ☐
Temperature	1.4°C		
Shipping Intact	Yes ☑	N/A ☐	No ☐
Shipping Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Samples Intact	Yes ☑		No ☐
Sample Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Custody Seals Signed & Dated	Yes ☐	N/A ☑	No ☐
Proper Test Containers	Yes ☑		No ☐
Proper Test Preservations	Yes ☑		No ☐
Samples Within Hold Times	Yes ☑		No ☐
VOAs Have Zero Headspace	Yes ☐	N/A ☑	No ☐
Sample Labels	Complete ☑	Incomplete ☐	None ☐
Sample Information Matches COC	Yes ☑	N/A ☐	No ☐

Notes

Client Notified _____ By _____ On _____

December 21, 2018

Michelle Oakley
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 18L0263
Order Name: Nogales Yard

RE: Storm Water

Dear Michelle Oakley,

Turner Laboratories, Inc. received 1 sample(s) on 12/07/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Elizabeth Kasik
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 18L0263
Date Received: 12/07/2018

Order: Nogales Yard

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18L0263-01	Nogales Yard	Storm Water	12/07/2018 1151

Client: NV5
Project: Storm Water
Work Order: 18L0263
Date Received: 12/07/2018

Case Narrative

The Chlorine analysis was cancelled due to the sample being too turbid to achieve a result.

The PAH 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

E3	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5
Project: Storm Water
Work Order: 18L0263
Lab Sample ID: 18L0263-01

Client Sample ID: Nogales Yard
Collection Date/Time: 12/07/2018 1151
Matrix: Storm Water
Order Name: Nogales Yard

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation								
Hardness, Calcium/Magnesium (As CaCO3)	200			mg/L	1	12/11/2018 0910	12/12/2018 1741	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)								
Copper	0.017	0.00050		mg/L	1	12/10/2018 0845	12/20/2018 1228	MH
ICP Total Metals-E200.7 (4.4)								
Calcium	57	4.0		mg/L	1	12/11/2018 0910	12/12/2018 1741	MH
Magnesium	14	3.0		mg/L	1	12/11/2018 0910	12/12/2018 1741	MH
Total Coliform & E. Coli, MPN-SM 9223B								
E.Coli	68	1.0		MPN/100mL	1	12/07/2018 1500	12/08/2018 1800	AR
Total Coliform	2400	1.0	E3	MPN/100mL	1	12/07/2018 1500	12/08/2018 1800	AR
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	110	20		mg/L	1	12/13/2018 0940	12/20/2018 1130	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	1600	10		mg/L	1	12/12/2018 0850	12/14/2018 1130	EJ
Ammonia as N-SM4500-NH3 B,C								
Nitrogen, Ammonia (As N)	ND	0.50		mg/L	1	12/14/2018 0830	12/14/2018 1215	EJ

Client: NV5
Project: Storm Water
Work Order: 18L0263
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812136 - E200.7 (4.4)										
Blank (1812136-BLK1)				Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
LCS (1812136-BS1)				Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	9.4	4.0	mg/L	10.00		94	85-115			
Magnesium	9.7	3.0	mg/L	10.00		97	85-115			
LCS Dup (1812136-BSD1)				Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	9.4	4.0	mg/L	10.00		94	85-115	0.2	20	
Magnesium	9.8	3.0	mg/L	10.00		98	85-115	1	20	
Matrix Spike (1812136-MS1)		**Source: 18L0081-01**		Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	12	4.0	mg/L	10.00	3.3	85	70-130			
Magnesium	9.0	3.0	mg/L	10.00	0.14	89	70-130			
Matrix Spike (1812136-MS2)		**Source: 18L0160-01**		Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	280	4.0	mg/L	10.00	280	34	70-130			M3
Magnesium	42	3.0	mg/L	10.00	33	86	70-130			
Matrix Spike Dup (1812136-MSD2)		**Source: 18L0160-01**		Prepared: 12/11/2018 Analyzed: 12/12/2018						
Calcium	280	4.0	mg/L	10.00	280	47	70-130	0.5	200	M3
Magnesium	43	3.0	mg/L	10.00	33	94	70-130	2	200	
Batch 1812183 - E 200.8 (5.4)										
Blank (1812183-BLK1)				Prepared & Analyzed: 12/20/2018						
Copper	ND	0.00050	mg/L							
LCS (1812183-BS1)				Prepared & Analyzed: 12/20/2018						
Copper	0.049	0.00050	mg/L	0.05000		98	85-115			
LCS Dup (1812183-BSD1)				Prepared & Analyzed: 12/20/2018						
Copper	0.050	0.00050	mg/L	0.05000		99	85-115	2	20	
Matrix Spike (1812183-MS1)		**Source: 18L0122-05**		Prepared & Analyzed: 12/20/2018						
Copper	0.050	0.00050	mg/L	0.05000	ND	99	70-130			
Matrix Spike (1812183-MS2)		**Source: 18L0541-01**		Prepared & Analyzed: 12/20/2018						
Copper	0.049	0.00050	mg/L	0.05000	0.0012	95	70-130			

Client: NV5
Project: Storm Water
Work Order: 18L0263
Date Received: 12/07/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1812133 - SM2540 D										
Duplicate (1812133-DUP1)		**Source: 18L0250-01**		Prepared: 12/12/2018 Analyzed: 12/14/2018						
Total Suspended Solids	ND	10	mg/L		ND				5	Q9
Duplicate (1812133-DUP2)		**Source: 18L0281-01**		Prepared: 12/12/2018 Analyzed: 12/14/2018						
Total Suspended Solids	ND	10	mg/L		ND				5	Q9
Batch 1812155 - SM2540 C										
Duplicate (1812155-DUP1)		**Source: 18L0290-01**		Prepared: 12/13/2018 Analyzed: 12/20/2018						
Total Dissolved Solids (Residue, Filterable)	370	20	mg/L		390			3	5	
Duplicate (1812155-DUP2)		**Source: 18L0302-01**		Prepared: 12/13/2018 Analyzed: 12/20/2018						
Total Dissolved Solids (Residue, Filterable)	200	20	mg/L		210			2	5	
Batch 1812168 - SM4500-NH3 B,C										
Blank (1812168-BLK1)				Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	ND	0.50	mg/L							
LCS (1812168-BS1)				Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		102	90-110			
LCS Dup (1812168-BSD1)				Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	5.1	0.50	mg/L	5.000		102	90-110	0.4	10	
Matrix Spike (1812168-MS1)		**Source: 18L0211-02**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	4.8	0.50	mg/L	5.000	ND	96	70-130			
Matrix Spike (1812168-MS2)		**Source: 18L0256-01**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	78	5.0	mg/L	50.00	28	99	70-130			
Matrix Spike Dup (1812168-MSD1)		**Source: 18L0211-02**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	5.0	0.50	mg/L	5.000	ND	99	70-130	3	20	
Matrix Spike Dup (1812168-MSD2)		**Source: 18L0256-01**		Prepared & Analyzed: 12/14/2018						
Nitrogen, Ammonia (As N)	80	5.0	mg/L	50.00	28	102	70-130	2	20	

2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

602-739-0263

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18L0263 DATE 12/7/18 PAGE 1 OF 1

PROJECT NAME ADOT #
CONTACT NAME Michelle Oakley
COMPANY NAME NV5
ADDRESS 1. W. Deer Valley Rd
ZIP PHONE EMAIL michelle.Oakley@NV5.com
SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Base Neutrals ☐ 625/8270 Acids ☐	Volatile Organics ☐ 624 ☐ 524.2 ☐ 8260	TTHMS ☐ HAA5 ☐	☒ Chloride ☒ Sulfate ☐ Resistivity	NO3 ☒ NO2 ☒ TKN ☐	☐ TPH 1664 ☐ Oil & Grease	VOA ☐ TCLP Analysis Semi-VOA ☐ Pest. ☐	TCLP ☐ Metals Dissolved ☒ Copper Total ☒	Total ☐ Cyanide Amen. ☐ WAD ☐	SDWA-INORGANICS PRIMARY ☐ SECONDARY ☐	MPN ☐ Coliform PIA ☐ Fecal ☐	pH ☐ Cr6 ☐ Cl ☐ Turb ☐	COD ☒ TSS ☐ BOD ☒	PAH	TDS TSS Turb	Fecal coliform
Nogales Yard	12-7-18	1157		Grab					1	2			1	1					2	2	1	1

1. RELINQUISHED BY:
Signature
John Cummings
Printed Name
NV5
Firm
7 Dec 2018 1350
Date/Time

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
___ Standard (approx. 10 days)*
___ Next Day ___ 2 Day ___ 5 Day*
___ Email Preliminary Results
* Working Days

REPORT REQUIREMENTS:
___ I. Routine Report
___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ___ Y ___ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers
Temperature 7.6
☒ Wet Ice
☐ Ambient
☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Leandra Y. Marshall
Signature
Leandra Y. Marshall
Printed Name
TURNER LABORATORIES, INC.
Firm
12/7/18 13:50
Date/Time

* LEGEND
SAMPLE MATRIX
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

Compliance Analysis: ☐ Yes ☐ No	Custody Seals ☐	Preservation Confirmation ☒
ADEQ Forms: ☐ Yes ☐ No	Container Intact ☒	Appropriate Head Space ☒
Mail ADEQ Forms: ☐ Yes ☐ No	COC / Labels Agree ☒	Received Within Hold Time ☒

SPECIAL INSTRUCTIONS/COMMENTS:
see attached

Nogales Yard

1 L Poly No Preservative	TDS TSS	SM 2540C SM 2540D	7 Days	Composite
500 mL Poly Sulfuric Acid	NH3	SM 4500 NH3 D	28 Days	Composite
2x 1 L Amber No Preservative	PAH	8310	7 Days	Composite
500 mL Poly Nitric Acid	Hardness	200.7/200.8	180 Days	Composite
100 mL Thio	E coli	SM 9221F	8 Hours	Composite
500 mL Poly No Preservative	Copper Dissolved	200.7/200.8	180 Days	Composite
250 mL Amber No Preservative	Chlorine	SM 4500 Cl G	15 Minutes	Composite

Spring Creek

1 L Poly No Preservative	TDS TSS	SM 2540C SM 2540D	7 Days	Composite
2x 1 L Amber No Preservative	PAH	8310	7 Days	Composite
100 mL Thio	E coli	SM 9221F	8 Hours	Composite

Roosevelt

1 L Poly No Preservative	TDS TSS	SM 2540C SM 2540D	7 Days	Composite
2x 1 L Amber No Preservative	PAH	8310	7 Days	Composite
500 mL Poly Nitric Acid	Mercury	245.1	28 Days	Composite

Superior

1 L Poly No Preservative	TDS TSS	SM 2540C SM 2540D	7 Days	Composite
2x 1 L Amber No Preservative	PAH	8310	7 Days	Composite
500 mL Poly Nitric Acid	Lead, Selenium Hardness	200.7/200.8	180 Days	Composite
500 mL Poly No Preservative	Copper Dissolved	200.7/200.8	180 Days	Composite

Queen Creek

500 mL Poly Nitric Acid	Lead, Selenium Hardness	200.7/200.8	180 Days	Composite
500 mL Poly No Preservative	Copper Dissolved	200.7/200.8	180 Days	Composite

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

4620 East Elwood Street, Suite 4 Phoenix, AZ 85040

(480) 736-0960

Laboratory Certification (ADHS) No.: AZ0558, AZ0646
Expiration Date: 2018

Laboratory Director's Name:
Mark Noorani

Client: Turner Laboratories, Inc.

Laboratory Reference: TLI AZ11629

Project Name: 18L0263

Project Number:

Date Received: 12/11/2018

Date Reported: 12/14/2018

Chain of Custody Received: ☑

Analytical Method: 8310,

Mark Noorani, Laboratory Director

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11629
Project Name: 18L0263
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 1.4ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11629
Project Name: 18L0263
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
18L0263-01	AZ11629-001	12/11/2018	12/7/2018	Water

Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11629
Project Name: 18L0263
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
18L0263-01	AZ11629-001	12/11/2018	12/7/2018	12/13/2018	12/13/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	0.15
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	63

* Acceptable Recovery: D-176 %

Dilution Factor: 1
Data Qualifiers: None

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11629
Project Name: 18L0263
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL1213181			12/13/2018	12/13/2018	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	98

* Acceptable Recovery: D-176 %

Dilution Factor: 1
Data Qualifiers: None

© Orange Coast Analytical, Inc (AZ0646)

QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 12/13/2018
Date of Analysis: 12/13/2018
Dup Date of Analysis: 12/13/2018
Laboratory Sample #: BL1213181
MS/MSD Qualifiers: None
Reference #: TLI AZ11629

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.253	0.254	101	102	0	47-130	23	☐
Anthracene	0.250	0.208	0.214	83	86	3	53-130	21	☐
Pyrene	0.250	0.225	0.231	90	92	3	56-130	20	☐
Chrysene	0.250	0.238	0.242	95	97	2	62-130	21	☐
Benzo(a)pyrene	0.250	0.228	0.227	91	91	0	54-130	29	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	90	94	☐

ACP % RC
D-176

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

AZ11629

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18L0263

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Elizabeth Kasik

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18L0263-01 Non-Potable Wat Sampled:12/07/2018 11:30			
PAHs by SW 8310	12/14/2018 11:30		
Containers Supplied:			

Leandra Marshall 12/10/18 16:00 UPS 12/10/18 16:00
Released By Date Received By Date

OCACA 12/11/18 1040 on ice @1.4C
Released By Date Received By Date

Sample Receipt Report

Laboratory Reference: TLI AZ11629 Logged in by MM

Received:	12/11/18 10:40	Company Name:	Turner Laboratories, Inc.
Method of Shipment:	UPS	Project Manager:	Ms. Elizabeth Kasik
Shipping Container:	Cooler	Project Name:	18L0263
# Shipping Containers:	1	Project #:	

Sample Quantity
1 Water

Chain of Custody	Complete ☑	Incomplete ☐	None ☐
Samples On Ice	Yes, Wet ☑	Yes, Blue ☐	No ☐
Temperature	1.4°C		
Shipping Intact	Yes ☑	N/A ☐	No ☐
Shipping Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Samples Intact	Yes ☑		No ☐
Sample Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Custody Seals Signed & Dated	Yes ☐	N/A ☑	No ☐
Proper Test Containers	Yes ☑		No ☐
Proper Test Preservations	Yes ☑		No ☐
Samples Within Hold Times	Yes ☑		No ☐
VOAs Have Zero Headspace	Yes ☐	N/A ☑	No ☐
Sample Labels	Complete ☑	Incomplete ☐	None ☐
Sample Information Matches COC	Yes ☑	N/A ☐	No ☐

Notes

Client Notified _____ By _____ On _____

Analytical Report 615339

for

NV5

Project Manager: Michelle Oakley

ADOT "Phoenix"

04-MAR-19

Collected By: Client

2525 West Huntington Drive, Suite 102
Tempe, AZ 85282
Ph: (480) 355-0900

Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Houston (EPA Lab code: TX00122): Arizona (AZ0765)
Xenco-Dallas (EPA Lab code: TX01468): Arizona (AZ0809)

04-MAR-19

Project Manager: **Michelle Oakley**
NV5
1 West Deer Valley Building 2 #305

Phoenix, AZ 85027

Reference: TWA Report No(s): **615339**
ADOT "Phoenix"
Project Address:

Michelle Oakley:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the TWA Report Number(s) 615339. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the ADHS certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with ADHS standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and ADHS Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by TransWest Analytical. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 615339 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting TransWest Analytical to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Skip Harden
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

CASE NARRATIVE

Client Name: NV5

Project Name: ADOT "Phoenix"

Project ID:
Work Order Number(s): *615339*

Report Date: *04-MAR-19*
Date Received: *02/21/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Flagging Criteria

Arizona Flags

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADHS Data Qualifiers, Revision 4.0 9/05/2012.
Data qualifiers (flags) contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable.

S6 Surrogate recovery was below laboratory and method acceptance limits. Re-extraction and/or reanalysis confirms low recovery caused by matrix effect.

Sample Cross Reference 615339

NV5, Phoenix, AZ

ADOT "Phoenix"

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PHX Sampler	W	02-21-19 13:20		615339-001

Certificate of Analytical Results 615339

NV5, Phoenix, AZ

ADOT "Phoenix"

Sample Id: **PHX Sampler** Matrix: Water Date Received:02.21.19 15.12

Lab Sample Id: 615339-001 Date Collected: 02.21.19 13.20

Analytical Method: PAHs by 8270D SIM Prep Method: SW3510C

Tech: RUO % Solids:

Analyst: EKL Date Prep: 02.25.19 09.09

Seq Number: 3080392 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Acenaphthene	83-32-9	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Acenaphthylene	208-96-8	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Anthracene	120-12-7	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Benzo(a)anthracene	56-55-3	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Benzo(a)pyrene	50-32-8	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Benzo(b)fluoranthene	205-99-2	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Benzo(g,h,i)perylene	191-24-2	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Benzo(k)fluoranthene	207-08-9	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Chrysene	218-01-9	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Dibenz(a,h)Anthracene	53-70-3	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Fluoranthene	206-44-0	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Fluorene	86-73-7	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Indeno(1,2,3-c,d)Pyrene	193-39-5	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Naphthalene	91-20-3	<0.500	0.500	ug/L	02.27.19 11.23		1
Phenanthrene	85-01-8	<0.0500	0.0500	ug/L	02.27.19 11.23		1
Pyrene	129-00-0	<0.0500	0.0500	ug/L	02.27.19 11.23		1

Surrogate	% Recovery	Units	Limits	Analysis Date	Flag
Nitrobenzene-d5	58	%	41-128	02.27.19 11.23	
2-Fluorobiphenyl	51	%	55-135	02.27.19 11.23	S6
Terphenyl-D14	63	%	54-131	02.27.19 11.23	

Analytical Method: Recoverable Metals, Total, by EPA 200.7 Prep Method: E200.7P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.26.19 03.00

Seq Number: 3080504 SUB: AZ0765

Dilution Analysis:

Seq#: 3080504 Date Analyzed: 02/27/19 00:20 Date Prep: 02/26/19 03:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**11.0**	0.200	mg/L	02.26.19 23.59		1
Magnesium	7439-95-4	**2.59**	0.400	mg/L	02.26.19 23.59		1
Sodium	7440-23-5	**5.16**	0.500	mg/L	02.26.19 23.59		1
Hardness as CaCO3	471-34-1	**38.1**	2.14	mg/L	02.26.19 23.59		1

Certificate of Analytical Results 615339

NV5, Phoenix, AZ

ADOT "Phoenix"

Sample Id: **PHX Sampler** Matrix: Water Date Received:02.21.19 15.12

Lab Sample Id: 615339-001 Date Collected: 02.21.19 13.20

Analytical Method: Recoverable Metals,Total, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.25.19 10.30

Seq Number: 3080314 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Arsenic	7440-38-2	<0.00400	0.00400	mg/L	02.26.19 04.19		1
Barium	7440-39-3	**0.0937**	0.00400	mg/L	02.26.19 04.19		1
Cadmium	7440-43-9	<0.00200	0.00200	mg/L	02.26.19 04.19		1
Chromium	7440-47-3	**0.00698**	0.00400	mg/L	02.26.19 04.19		1
Copper	7440-50-8	**0.0414**	0.00400	mg/L	02.26.19 04.19		1
Lead	7439-92-1	**0.00583**	0.00200	mg/L	02.26.19 04.19		1
Nickel	7440-02-0	**0.00642**	0.00200	mg/L	02.26.19 04.19		1
Selenium	7782-49-2	<0.00200	0.00200	mg/L	02.26.19 04.19		1
Silver	7440-22-4	<0.00200	0.00200	mg/L	02.26.19 04.19		1
Zinc	7440-66-6	**0.201**	0.0300	mg/L	02.26.19 04.19		1

Analytical Method: Mercury by EPA 245.1 Prep Method: E245.1P

Tech: MLI % Solids:

Analyst: ANJ Date Prep: 02.27.19 10.15

Seq Number: 3080563 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Mercury	7439-97-6	<0.000200	0.000200	mg/L	02.27.19 15.46		1

Analytical Method: Biochemical Oxygen Demand by SM 5210B Prep Method: SM5210P

Tech: TNL % Solids:

Analyst: TNL Date Prep: 02.22.19 13.30

Seq Number: 3080681

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Biochemical Oxygen Demand,		**35.1**	2.00	mg/L	02.27.19 12.30		1

Certificate of Analytical Results 615339

NV5, Phoenix, AZ

ADOT "Phoenix"

Sample Id: **PHX Sampler** Matrix: Water Date Received:02.21.19 15.12

Lab Sample Id: 615339-001 Date Collected: 02.21.19 13.20

Analytical Method: Total Dissolved Solids by SM 2540C

Tech: MON % Solids:

Analyst: TNL

Seq Number: 3080412

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**58.0**	10.0	mg/L	02.25.19 15.00		1

Analytical Method: Total Suspended Solids by SM 2540D

Tech: HIB % Solids:

Analyst: HIB

Seq Number: 3080430 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Suspended Solids	TSS	**153**	4.00	mg/L	02.27.19 07.56		1

Analytical Method: Turbidity by EPA 180.1

Tech: MON % Solids:

Analyst: TNL

Seq Number: 3080134

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Turbidity	TURBIDITY	**28.2**	0.100	NTU	02.22.19 10.00		1

Analytical Method: Anions by EPA 300.0 Prep Method: E300P

Tech: TNL % Solids:

Analyst: TNL Date Prep: 02.22.19 11.02

Seq Number: 3080206

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4.72**	1.00	mg/L	02.22.19 13.41		1
Sulfate	14808-79-8	**4.62**	1.00	mg/L	02.22.19 13.41		1

Certificate of Analytical Results 615339

NV5, Phoenix, AZ

ADOT "Phoenix"

Sample Id: **PHX Sampler** Matrix: Water Date Received:02.21.19 15.12

Lab Sample Id: 615339-001 Date Collected: 02.21.19 13.20

Analytical Method: Nitrogen, Nitrate-Nitrite by EPA 353.2 Prep Method: E353.2P

Tech: KCS % Solids:

Analyst: KCS Date Prep: 02.25.19 13.00

Seq Number: 3080301 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrogen, Nitrate-Nitrite	7727-37-9	**0.746**	0.100	mg/L	02.25.19 17.36		1

Analytical Method: Chemical Oxygen Demand by HACH 8000

Tech: TAH % Solids:

Analyst: TAH

Seq Number: 3080655 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
COD - Chemical Oxygen Dema		**24.0**	20.0	mg/L	02.28.19 11.52		1

Analytical Method: Fecal Coliform Bacteria by SM 9222D Prep Method: SM9222P

Tech: TNL % Solids:

Analyst: TNL Date Prep: 02.21.19 15.26

Seq Number: 3080200

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Fecal Coliform		>200	2	cfu/100m	02.22.19 14.20		2

Analytical Method: Quantitray Coliform Test by SM 9223 B

Tech: MON % Solids:

Analyst: TNL Date Prep: 02.21.19 15.30

Seq Number: 3080176

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
E. coli		**34.2**	2	MPN/100	02.22.19 15.34		2

QC Summary 615339

NV5

ADOT "Phoenix"

Analytical Method: **PAHs by 8270D SIM** Prep Method: SW3510C
Seq Number: 3080392 Matrix: Water Date Prep: 02.25.19
MB Sample Id: 7672407-1-BLK LCS Sample Id: 7672407-1-BKS LCSD Sample Id: 7672407-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	<0.0500	1.00	0.621	62	0.688	69	37-117	10	25	ug/L	02.25.19 16:48	
Acenaphthylene	<0.0500	1.00	0.629	63	0.694	69	37-119	10	25	ug/L	02.25.19 16:48	
Anthracene	<0.0500	1.00	0.615	62	0.707	71	45-121	14	25	ug/L	02.25.19 16:48	
Benzo(a)anthracene	<0.0500	1.00	0.741	74	0.822	82	51-113	10	25	ug/L	02.25.19 16:48	
Benzo(a)pyrene	<0.0500	1.00	0.726	73	0.806	81	45-127	10	25	ug/L	02.25.19 16:48	
Benzo(b)fluoranthene	<0.0500	1.00	0.795	80	0.826	83	56-110	4	25	ug/L	02.25.19 16:48	
Benzo(g,h,i)perylene	<0.0500	1.00	0.658	66	0.770	77	47-122	16	25	ug/L	02.25.19 16:48	
Benzo(k)fluoranthene	<0.0500	1.00	0.717	72	0.812	81	58-123	12	25	ug/L	02.25.19 16:48	
Chrysene	<0.0500	1.00	0.711	71	0.767	77	52-113	8	25	ug/L	02.25.19 16:48	
Dibenz(a,h)Anthracene	<0.0500	1.00	0.632	63	0.754	75	48-126	18	25	ug/L	02.25.19 16:48	
Fluoranthene	<0.0500	1.00	0.720	72	0.797	80	51-124	10	25	ug/L	02.25.19 16:48	
Fluorene	<0.0500	1.00	0.613	61	0.684	68	42-116	11	25	ug/L	02.25.19 16:48	
Indeno(1,2,3-c,d)Pyrene	<0.0500	1.00	0.613	61	0.719	72	48-123	16	25	ug/L	02.25.19 16:48	
Naphthalene	<0.500	1.00	0.670	67	0.719	72	35-116	7	25	ug/L	02.25.19 16:48	
Phenanthrene	<0.0500	1.00	0.631	63	0.722	72	46-113	13	25	ug/L	02.25.19 16:48	
Pyrene	<0.0500	1.00	0.735	74	0.781	78	47-124	6	25	ug/L	02.25.19 16:48	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
Nitrobenzene-d5	81		70		75		41-128	%	02.25.19 16:48
2-Fluorobiphenyl	76		64		70		55-135	%	02.25.19 16:48
Terphenyl-D14	83		73		76		54-131	%	02.25.19 16:48

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080504 Matrix: Water Date Prep: 02.26.19
MB Sample Id: 7672466-1-BLK LCS Sample Id: 7672466-1-BKS LCSD Sample Id: 7672466-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.0293	25.0	23.9	96	23.9	96	85-115	0	20	mg/L	02.26.19 23:18	
Magnesium	<0.0500	25.0	23.8	95	23.8	95	85-115	0	20	mg/L	02.26.19 23:18	
Sodium	0.142	25.0	24.3	97	24.3	97	85-115	0	20	mg/L	02.26.19 23:18	

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080504 Matrix: Waste Water Date Prep: 02.26.19
Parent Sample Id: 615432-001 MS Sample Id: 615432-001 S MSD Sample Id: 615432-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	50.3	25.0	74.4	96	74.8	98	70-130	1	20	mg/L	02.26.19 23:30	
Magnesium	9.40	25.0	33.3	96	33.4	96	70-130	0	20	mg/L	02.26.19 23:30	
Sodium	25.9	25.0	50.5	98	50.8	100	70-130	1	20	mg/L	02.26.19 23:30	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 615339

NV5

ADOT "Phoenix"

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080504 Matrix: Ground Water Date Prep: 02.26.19
Parent Sample Id: 615581-001 MS Sample Id: 615581-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Calcium	10.0	25.0	32.6	90	70-130	mg/L	02.27.19 00:12	
Magnesium	1.46	25.0	24.2	91	70-130	mg/L	02.27.19 00:12	
Sodium	348	25.0	353	20	70-130	mg/L	02.27.19 00:12	M3

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080314 Matrix: Water Date Prep: 02.25.19
MB Sample Id: 7672430-1-BLK LCS Sample Id: 7672430-1-BKS LCSD Sample Id: 7672430-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Arsenic	<0.000396	0.100	0.0911	91	0.0917	92	85-115	1	20	mg/L	02.26.19 02:59	
Barium	<0.00400	0.100	0.0912	91	0.0931	93	85-115	2	20	mg/L	02.26.19 02:59	
Cadmium	<0.000115	0.100	0.0923	92	0.0931	93	85-115	1	20	mg/L	02.26.19 02:59	
Chromium	<0.000283	0.100	0.0944	94	0.0944	94	85-115	0	20	mg/L	02.26.19 02:59	
Copper	<0.000747	0.100	0.0916	92	0.0917	92	85-115	0	20	mg/L	02.26.19 02:59	
Lead	<0.000152	0.100	0.0923	92	0.0936	94	85-115	1	20	mg/L	02.26.19 02:59	
Nickel	<0.000139	0.100	0.0926	93	0.0924	92	85-115	0	20	mg/L	02.26.19 02:59	
Selenium	<0.000368	0.100	0.0909	91	0.0909	91	85-115	0	20	mg/L	02.26.19 02:59	
Silver	<0.000159	0.0500	0.0454	91	0.0458	92	85-115	1	20	mg/L	02.26.19 02:59	
Zinc	<0.000388	0.100	0.0924	92	0.0925	93	85-115	0	20	mg/L	02.26.19 02:59	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080314 Matrix: Drinking Water Date Prep: 02.25.19
Parent Sample Id: 615184-001 MS Sample Id: 615184-001 S MSD Sample Id: 615184-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Arsenic	0.00128	0.100	0.0943	93	0.0935	92	70-130	1	20	mg/L	02.26.19 03:07	
Barium	0.0190	0.100	0.111	92	0.113	94	70-130	2	20	mg/L	02.26.19 03:07	
Cadmium	<0.000115	0.100	0.0880	88	0.0878	88	70-130	0	20	mg/L	02.26.19 03:07	
Chromium	<0.000283	0.100	0.0914	91	0.0914	91	70-130	0	20	mg/L	02.26.19 03:07	
Copper	0.0105	0.100	0.0997	89	0.0997	89	70-130	0	20	mg/L	02.26.19 03:07	
Lead	0.00239	0.100	0.0947	92	0.0949	93	70-130	0	20	mg/L	02.26.19 03:07	
Nickel	0.00183	0.100	0.0904	89	0.0899	88	70-130	1	20	mg/L	02.26.19 03:07	
Selenium	0.00653	0.100	0.0978	91	0.0962	90	70-130	2	20	mg/L	02.26.19 03:07	
Silver	<0.000159	0.0500	0.0427	85	0.0420	84	70-130	2	20	mg/L	02.26.19 03:07	
Zinc	0.0101	0.100	0.0982	88	0.0968	87	70-130	1	20	mg/L	02.26.19 03:07	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 615339

NV5

ADOT "Phoenix"

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080314 Matrix: Waste Water Date Prep: 02.25.19
Parent Sample Id: 615222-001 MS Sample Id: 615222-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Arsenic	<0.000396	0.100	0.0939	94	70-130	mg/L	02.26.19 03:59	
Barium	0.000568	0.100	0.0932	93	70-130	mg/L	02.26.19 03:59	
Cadmium	<0.000115	0.100	0.0912	91	70-130	mg/L	02.26.19 03:59	
Chromium	0.00217	0.100	0.0937	92	70-130	mg/L	02.26.19 03:59	
Copper	<0.000747	0.100	0.0934	93	70-130	mg/L	02.26.19 03:59	
Lead	<0.000152	0.100	0.0929	93	70-130	mg/L	02.26.19 03:59	
Nickel	0.00192	0.100	0.0931	91	70-130	mg/L	02.26.19 03:59	
Selenium	<0.000368	0.100	0.0934	93	70-130	mg/L	02.26.19 03:59	
Silver	<0.000159	0.0500	0.0445	89	70-130	mg/L	02.26.19 03:59	
Zinc	0.00516	0.100	0.0960	91	70-130	mg/L	02.26.19 03:59	

Analytical Method: **Mercury by EPA 245.1** Prep Method: E245.1P
Seq Number: 3080563 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672589-1-BLK LCS Sample Id: 7672589-1-BKS LCSD Sample Id: 7672589-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	<0.000200	0.00200	0.00200	100	0.00198	99	85-115	1	20	mg/L	02.27.19 15:17	

Analytical Method: **Mercury by EPA 245.1** Prep Method: E245.1P
Seq Number: 3080563 Matrix: Water Date Prep: 02.27.19
Parent Sample Id: 615650-001 MS Sample Id: 615650-001 S MSD Sample Id: 615650-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	0.0000300	0.00200	0.00183	90	0.00182	90	70-130	1	20	mg/L	02.27.19 15:22	

Analytical Method: **Biochemical Oxygen Demand by SM 5210B** Prep Method: SM5210P
Seq Number: 3080681 Matrix: Water Date Prep: 02.22.19
DO Depletion Sample 7672709-1-BLK LCS Sample Id: 7672709-1-BKS

Parameter	DO Depletion	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Biochemical Oxygen Demand, 5 day	<2.00	198	176	89	85-115	mg/L	02.27.19 12:30	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

1.000

QC Summary 615339

NV5

ADOT "Phoenix"

Analytical Method: **Biochemical Oxygen Demand by SM 5210B** Prep Method: SM5210P

Seq Number: 3080681 Matrix: Waste Water Date Prep: 02.22.19

Parent Sample Id: 615271-001 MD Sample Id: 615271-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Biochemical Oxygen Demand, 5 day	108	118	9	25	mg/L	02.27.19 12:30	

Analytical Method: **Total Dissolved Solids by SM 2540C**

Seq Number: 3080412 Matrix: Water

MB Sample Id: 3080412-1-BLK LCS Sample Id: 3080412-1-BKS LCSD Sample Id: 3080412-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<10.0	1000	936	94	914	91	80-120	2	10	mg/L	02.25.19 15:00	

Analytical Method: **Total Dissolved Solids by SM 2540C**

Seq Number: 3080412 Matrix: Water

Parent Sample Id: 615339-001 MD Sample Id: 615339-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	58.0	53.0	9	10	mg/L	02.25.19 15:00	

Analytical Method: **Total Suspended Solids by SM 2540D**

Seq Number: 3080430 Matrix: Water

MB Sample Id: 3080430-1-BLK LCS Sample Id: 3080430-1-BKS LCSD Sample Id: 3080430-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	<4.00	100	93.0	93	99.0	99	80-120	6	10	mg/L	02.27.19 07:56	

Analytical Method: **Total Suspended Solids by SM 2540D**

Seq Number: 3080430 Matrix: Water

Parent Sample Id: 615494-001 MD Sample Id: 615494-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	1450	1410	3	10	mg/L	02.27.19 07:56	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

1.000

QC Summary 615339

NV5

ADOT "Phoenix"

Analytical Method: Total Suspended Solids by SM 2540D

Seq Number: 3080430 Matrix: Water

Parent Sample Id: 615557-001 MD Sample Id: 615557-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	250	230	8	10	mg/L	02.27.19 07:56	

Analytical Method: Turbidity by EPA 180.1

Seq Number: 3080134 Matrix: Water

MB Sample Id: 3080134-1-BLK LCS Sample Id: 3080134-1-BKS LCSD Sample Id: 3080134-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Turbidity	<0.100	20.0	20.0	100	19.9	100	80-120	1	20	NTU	02.22.19 10:00	

Analytical Method: Turbidity by EPA 180.1

Seq Number: 3080134 Matrix: Water

Parent Sample Id: 615339-001 MD Sample Id: 615339-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Turbidity	28.2	28.1	0	20	NTU	02.22.19 10:00	

Analytical Method: Anions by EPA 300.0 Prep Method: E300P

Seq Number: 3080206 Matrix: Water Date Prep: 02.22.19

MB Sample Id: 7672410-1-BLK LCS Sample Id: 7672410-1-BKS LCSD Sample Id: 7672410-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<1.00	5.00	4.70	94	4.79	96	90-110	2	20	mg/L	02.22.19 11:14	
Sulfate	<1.00	5.00	4.72	94	4.81	96	90-110	2	20	mg/L	02.22.19 11:14	

Analytical Method: Anions by EPA 300.0 Prep Method: E300P

Seq Number: 3080206 Matrix: Water Date Prep: 02.22.19

Parent Sample Id: 615339-001 MS Sample Id: 615339-001 S MSD Sample Id: 615339-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.72	10.0	14.0	93	13.9	92	80-120	1	20	mg/L	02.22.19 13:53	
Sulfate	4.62	10.0	13.8	92	13.9	93	80-120	1	20	mg/L	02.22.19 13:53	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

1.000

QC Summary 615339

NV5

ADOT "Phoenix"

Analytical Method: **Nitrogen, Nitrate-Nitrite by EPA 353.2** Prep Method: E353.2P
Seq Number: 3080301 Matrix: Water Date Prep: 02.25.19
MB Sample Id: 7672445-1-BLK LCS Sample Id: 7672445-1-BKS LCSD Sample Id: 7672445-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrogen, Nitrate-Nitrite	<0.0283	1.00	1.00	100	0.992	99	90-110	1	20	mg/L	02.25.19 17:33	

Analytical Method: **Nitrogen, Nitrate-Nitrite by EPA 353.2** Prep Method: E353.2P
Seq Number: 3080301 Matrix: Water Date Prep: 02.25.19
Parent Sample Id: 615339-001 MS Sample Id: 615339-001 S MSD Sample Id: 615339-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrogen, Nitrate-Nitrite	0.746	1.00	1.72	97	1.72	97	90-110	0	20	mg/L	02.25.19 17:38	

Analytical Method: **Chemical Oxygen Demand by HACH 8000**
Seq Number: 3080655 Matrix: Water
MB Sample Id: 3080655-1-BLK LCS Sample Id: 3080655-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
COD - Chemical Oxygen Demand	<20.0	100	101	101	90-110	mg/L	02.28.19 11:52	

Analytical Method: **Chemical Oxygen Demand by HACH 8000**
Seq Number: 3080655 Matrix: Water
Parent Sample Id: 615863-001 MS Sample Id: 615863-001 S MSD Sample Id: 615863-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
COD - Chemical Oxygen Demand	26.0	100	119	93	123	97	90-110	3	20	mg/L	02.28.19 11:52	

Analytical Method: **Fecal Coliform Bacteria by SM 9222D** Prep Method: SM9222P
Seq Number: 3080200 Matrix: Water Date Prep: 02.21.19
MB Sample Id: 7672409-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Fecal Coliform	<1	cfu/100ml	02.22.19 14:20	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

1.000

Chain of Custody

Work Order No: 615339

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com Page _____ of _____

Project Manager:	Michelle Oskay	Bill to: (if different)	
Company Name:	NV5	Company Name:	
Address:	1W Deer Valley Rd	Address:	
City, State ZIP:	PHX AZ 85027	City, State ZIP:	
Phone:		Email:	

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	ADOT "Phoenix"	Turn Around	
Project Number:		Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	John Cummings	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Temperature (°C):	4.5	Thermometer ID	
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	
Sample Custody Seals:	Yes No (N/A)	Total Containers:	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chloride, TDS, TSS, Turbidity	Sulfate, NO2/NO3	BOD	COD	Metals (As, Ba, Cd, Cr, Pb, Se, Ag) TCLP	Ca, Na, Mg, Mercury	PAH	E coli	Fecal Coliform
1 L Poly No Preservative		2/21/19	13:20											
1 L Poly No Preservative			13:20											
500 mL poly Sulfuric Acid			13:20											
500 mL poly Nitric Acid			13:20											
2x 1 L Amber No Preserv			13:20											
100 mL THIO			13:20											
100 mL Thio			13:20											

1 pitt sampler

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Michelle Anderson		2/21/19 15:12	2		
3			4		
5			6		

Revised Date 051418 Rev 2018 1

Sample Receipt Checklist

Client Name: NV5 | Date and Time Received: 2/21/19 @ 15:12

Work Order Number: 615339 | Checked by: EL

Checklist completed by: EL | Logged In by: EL Date: 2/21/19

Matrix: W | Courier Name: Client TWA ____

Shipping container/cooler in good condition?	Yes X	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present X
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present X
Chain of custody signed when relinquished and received?	Yes X	No ☐	Not Present ☐
Chain of custody agrees with sample labels?	Yes X	No ☐	
Samples in proper container/bottle?	Yes X	No ☐	
Sample containers intact?	Yes X	No ☐	
Sufficient sample volume for indicated test?	Yes X	No ☐	
All samples received within holding time?	Yes X	No ☐	
All samples received same day of collection?	Yes X	No ☐	Temp: 4.5 Wet Ice Present X
Where was the temperature reading taken at?	Sample ☐	Temp Blank X	Other:
VOA Water – VOA vials have zero headspace?	Yes ☐	No ☐	N/A X
Water – Microbiological bottles have ≤ 2.5 cm headspace?	Yes X	No ☐	N/A ☐
Water – All sample pH's acceptable upon receipt?	Yes X	No ☐	N/A ☐ Checked by: EL

If **No**, list all samples and bottle types that are not acceptable in Additional Comments section. Also state any correction actions.

Dissolved Metals – Field Filtered?	Yes ☐	No ☐	N/A X

Additional Comments: ____

SRChecklist 2016.1

Inter-Office Shipment

IOS Number **123081**

Date/Time: 02/21/19 17:08
Lab# From: **Phoenix**
Lab# To: **Houston**

Created by: Emily Petrunia
Delivery Priority:
Air Bill No.: 7745331810761

Please send report to: Skip Harden
Address: 2525 West Huntington Drive, Suite 102
E-Mail: skip.harden@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
615339-001	W	PHX Sampler	02/21/19 13:20	E200.8	Recoverable Metals,Total, by EPA 200.8	03/01/19	**02/21/19 19:20**	WWH	AG AS BA CD CR CU NI P	
615339-001	W	PHX Sampler	02/21/19 13:20	E200.8	Recoverable Metals,Total, by EPA 200.8	03/01/19	08/20/19	WWH	AG AS BA CD CR CU NI P	
615339-001	W	PHX Sampler	02/21/19 13:20	E200.7	Recoverable Metals, Total, by EPA 200.7	03/01/19	08/20/19	WWH	CA HARD MG NA	
615339-001	W	PHX Sampler	02/21/19 13:20	E353.2	Nitrogen, Nitrate-Nitrite by EPA 353.2	03/01/19	03/21/19	WWH	NO3N	
615339-001	W	PHX Sampler	02/21/19 13:20	H8000	Chemical Oxygen Demand by HACH 800	03/01/19	03/21/19	WWH	COD	
615339-001	W	PHX Sampler	02/21/19 13:20	H8000	Chemical Oxygen Demand by HACH 800	**02/22/19**	08/20/19	WWH	COD	
615339-001	W	PHX Sampler	02/21/19 13:20	SIM_PAH_D	PAHs by 8270D SIM	03/01/19	02/28/19	WWH	ACNP ACNPY ANTH BZA	
615339-001	W	PHX Sampler	02/21/19 13:20	E245.1	Mercury by EPA 245.1	03/01/19	03/21/19	WWH	HG	

Inter Office Shipment or Sample Comments:

Relinquished By: Emily Petrunia

Date Relinquished: 02/21/2019

Received By: Taha Hedib

Date Received: 02/22/2019 09:30

Cooler Temperature: 0.2

1.000

Inter-Office Shipment

IOS Number **123161**

Date/Time: 02/22/19 15:42
Lab# From: **Phoenix**
Lab# To: **Houston**

Created by: Emily Petrunia
Delivery Priority:
Air Bill No.: 774542563948

Please send report to: Skip Harden
Address: 2525 West Huntington Drive, Suite 102
E-Mail: skip.harden@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
615339-001	W	PHX Sampler	02/21/19 13:20	SM2540D	Total Suspended Solids by SM 2540D	03/01/19	**02/28/19 13:20**	WWH	TSS	

Inter Office Shipment or Sample Comments:

Relinquished By: Emily Petrunia

Date Relinquished: 02/22/2019

Received By: Taha Hedib

Date Received: 02/23/2019 10:10

Cooler Temperature: 2.3

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 123081

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : hou-068

Sent By: Emily Petrunia **Date Sent:** 02/21/2019 05:08 PM

Received By: Taha Hedib **Date Received:** 02/22/2019 09:30 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	.2	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 02/22/2019

Taha Hedib

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 123161

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used :

Sent By: Emily Petrunia **Date Sent:** 02/22/2019 03:42 PM

Received By: Taha Hedib **Date Received:** 02/23/2019 10:10 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	2.3	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 02/23/2019

Taha Hedib

Analytical Report 615632

for

NV5

Project Manager: Michelle Oakley

ADOT Queen Creek

04-MAR-19

Collected By: Client

2525 West Huntington Drive, Suite 102
Tempe, AZ 85282
Ph: (480) 355-0900

Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Houston (EPA Lab code: TX00122): Arizona (AZ0765)
Xenco-Dallas (EPA Lab code: TX01468): Arizona (AZ0809)

04-MAR-19

Project Manager: **Michelle Oakley**
NV5
1 West Deer Valley Building 2 #305

Phoenix, AZ 85027

Reference: TWA Report No(s): **615632**
ADOT Queen Creek
Project Address:

Michelle Oakley:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the TWA Report Number(s) 615632. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the ADHS certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with ADHS standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and ADHS Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by TransWest Analytical. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 615632 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting TransWest Analytical to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Skip Harden
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

CASE NARRATIVE

Client Name: NV5

Project Name: ADOT Queen Creek

Project ID:
Work Order Number(s): *615632*

Report Date: *04-MAR-19*
Date Received: *02/25/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Flagging Criteria

Arizona Flags

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADHS Data Qualifiers, Revision 4.0 9/05/2012.
Data qualifiers (flags) contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable.

Sample Cross Reference 615632

NV5, Phoenix, AZ

ADOT Queen Creek

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Queen Creek	W	02-22-19 13:43		615632-001

Certificate of Analytical Results 615632

NV5, Phoenix, AZ

ADOT Queen Creek

Sample Id: **Queen Creek** Matrix: Storm Water Date Received:02.25.19 15.20

Lab Sample Id: 615632-001 Date Collected: 02.22.19 13.43

Analytical Method: Recoverable Metals, Total, by EPA 200.7 Prep Method: E200.7P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.27.19 03.00

Seq Number: 3080554 SUB: AZ0765

Dilution Analysis:
Seq#: 3080554 Date Analyzed: 02/27/19 23:24 Date Prep: 02/27/19 03:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**9.28**	0.200	mg/L	02.27.19 23.04		1
Magnesium	7439-95-4	**1.86**	0.400	mg/L	02.27.19 23.04		1
Hardness as CaCO3	471-34-1	**30.8**	2.14	mg/L	02.27.19 23.04		1

Analytical Method: Recoverable Metals,Total, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.27.19 03.00

Seq Number: 3080631 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Lead	7439-92-1	**0.0213**	0.00200	mg/L	02.27.19 21.23		1
Selenium	7782-49-2	<0.00200	0.00200	mg/L	02.27.19 21.23		1

Analytical Method: Metals, Recoverable Dissolved, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.28.19 10.22

Seq Number: 3080763 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Copper, Dissolved	7440-50-8	**0.0260**	0.00400	mg/L	03.01.19 01.06		1

QC Summary 615632

NV5

ADOT Queen Creek

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672559-1-BLK LCS Sample Id: 7672559-1-BKS LCSD Sample Id: 7672559-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.0293	25.0	23.7	95	23.5	94	85-115	1	20	mg/L	02.27.19 12:15	
Magnesium	<0.0500	25.0	24.0	96	23.9	96	85-115	0	20	mg/L	02.27.19 12:15	

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Water Date Prep: 02.27.19
Parent Sample Id: 615647-001 MS Sample Id: 615647-001 S MSD Sample Id: 615647-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1140	25.0	1090	0	1110	0	70-130	2	20	mg/L	02.27.19 12:27	M3
Magnesium	53.6	25.0	72.5	76	73.6	80	70-130	2	20	mg/L	02.27.19 12:27	

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Waste Water Date Prep: 02.27.19
Parent Sample Id: 615478-001 MS Sample Id: 615478-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Calcium	38.7	25.0	61.5	91	70-130	mg/L	02.27.19 22:22	
Magnesium	7.16	25.0	30.9	95	70-130	mg/L	02.27.19 22:22	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080631 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672560-1-BLK LCS Sample Id: 7672560-1-BKS LCSD Sample Id: 7672560-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	<0.000152	0.100	0.0961	96	0.0965	97	85-115	0	20	mg/L	02.27.19 20:48	
Selenium	<0.000368	0.100	0.0959	96	0.0979	98	85-115	2	20	mg/L	02.27.19 20:48	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080631 Matrix: Drinking Water Date Prep: 02.27.19
Parent Sample Id: 615590-003 MS Sample Id: 615590-003 S MSD Sample Id: 615590-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	0.000232	0.100	0.0940	94	0.0948	95	70-130	1	20	mg/L	02.27.19 20:57	
Selenium	0.00712	0.100	0.100	93	0.101	94	70-130	1	20	mg/L	02.27.19 20:57	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

1.000

QC Summary 615632

NV5

ADOT Queen Creek

Analytical Method: Metals, Recoverable Dissolved, by EPA 200.8 Prep Method: E200.8P

Seq Number: 3080763 Matrix: Water Date Prep: 02.28.19

MB Sample Id: 7672663-1-BLK LCS Sample Id: 7672663-1-BKS LCSD Sample Id: 7672663-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper, Dissolved	<0.000747	0.100	0.0934	93	0.0966	97	85-115	3	20	mg/L	03.01.19 00:28	

Analytical Method: Metals, Recoverable Dissolved, by EPA 200.8 Prep Method: E200.8P

Seq Number: 3080763 Matrix: Waste Water Date Prep: 02.28.19

Parent Sample Id: 615478-001 MS Sample Id: 615478-001 S MSD Sample Id: 615478-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper, Dissolved	0.0112	0.100	0.107	96	0.106	95	70-130	1	20	mg/L	03.01.19 00:37	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

1.000

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com Page _____ of _____

Work Order No: 615632

Project Manager:	Michelle Oakley	Bill to: (if different)	
Company Name:	NV5	Company Name:	
Address:	1 W. Deer Valley Road	Address:	
City, State ZIP:	Phoenix, AZ 85027	City, State ZIP:	
Phone:	623.738.3690	Email:	michelle.oakley@nv5.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	ADOT Queen Creek	Turn Around	
Project Number:		Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	John Cummings	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Temperature (°C):	2.3	Thermometer ID		
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:		
Sample Custody Seals:	Yes No (N/A)	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TDS, TSS	COPPER DISSOLVED	PAH	LEAD, SELENIUM, HARDNESS
Queen Creek	Grab	2/22/2019	13:43		2		1		1

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			2.25.19 15:20			
2				4		
5				6		

Revised Date 051418 Rev 2018.1

Sample Receipt Checklist

Client Name: NV5

Date and Time Received: 2/25/19 @ 15:20

Work Order Number: 615632

Checked by: RK

Checklist completed by: EL

Logged In by: EL Date: 2/25/19

Matrix: W Courier Name: (Client) TWA

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	Not Present ☐
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
All samples received same day of collection?	Yes ☐	No ☒	Temp: 2.3 Wet Ice Present ☒
Where was the temperature reading taken at?	Sample ☐	Temp Blank ☒	Other:
VOA Water – VOA vials have zero headspace?	Yes ☐	No ☐	N/A ☒
Water – Microbiological bottles have ≤ 2.5 cm headspace?	Yes ☐	No ☐	N/A ☒
Water – All sample pH's acceptable upon receipt?	Yes ☒	No ☐	N/A ☐ Checked by: EL

If **No**, list all samples and bottle types that are not acceptable in Additional Comments section. Also state any correction actions.

Dissolved Metals – Field Filtered?	Yes ☐	No ☒	N/A ☐

Additional Comments:

Inter-Office Shipment

IOS Number **123261**

Date/Time: 02/25/19 17:47
Lab# From: **Phoenix**
Lab# To: **Houston**

Created by: Emily Petrunia
Delivery Priority:
Air Bill No.: 774556009910

Please send report to: Skip Harden
Address: 2525 West Huntington Drive, Suite 102
E-Mail: skip.harden@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
615632-001	W	Queen Creek	02/22/19 13:43	E200.7	Recoverable Metals, Total, by EPA 200.7	03/05/19	08/21/19	WWH	CA HARD MG	
615632-001	W	Queen Creek	02/22/19 13:43	E200.8	Recoverable Metals,Total, by EPA 200.8	03/05/19	08/21/19	WWH	PB SE	
615632-001	W	Queen Creek	02/22/19 13:43	E200.8DIS	Metals, Recoverable Dissolved, by EPA 2	03/05/19	08/21/19	WWH	CU	

Inter Office Shipment or Sample Comments:

Relinquished By: Emily Petrunia

Date Relinquished: 02/25/2019

Received By: Taha Hedib

Date Received: 02/26/2019 09:30

Cooler Temperature: 4.4

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 123261

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : hou-068

Sent By: Emily Petrunia **Date Sent:** 02/25/2019 05:47 PM

Received By: Taha Hedib **Date Received:** 02/26/2019 09:30 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 02/26/2019

Taha Hedib

Analytical Report 615630

for

NV5

Project Manager: Michelle Oakley

ADOT Roosevelt

13-MAR-19

Collected By: Client

2525 West Huntington Drive, Suite 102
Tempe, AZ 85282
Ph: (480) 355-0900

Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Houston (EPA Lab code: TX00122): Arizona (AZ0765)
Xenco-Dallas (EPA Lab code: TX01468): Arizona (AZ0809)

13-MAR-19

Project Manager: **Michelle Oakley**
NV5
1 West Deer Valley Building 2 #305

Phoenix, AZ 85027

Reference: TWA Report No(s): **615630**
ADOT Roosevelt
Project Address:

Michelle Oakley:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the TWA Report Number(s) 615630. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the ADHS certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with ADHS standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and ADHS Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by TransWest Analytical. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 615630 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting TransWest Analytical to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Skip Harden
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

CASE NARRATIVE

Client Name: NV5

Project Name: ADOT Roosevelt

Project ID:
Work Order Number(s): *615630*

Report Date: *13-MAR-19*
Date Received: *02/25/2019*

Sample receipt non conformances and comments:

The report was revised due to Mercury was requrested to be analyzed per client's request.

Sample receipt non conformances and comments per sample:

None

Flagging Criteria

Arizona Flags

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADHS Data Qualifiers, Revision 4.0 9/05/2012.
Data qualifiers (flags) contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable.

S6 Surrogate recovery was below laboratory and method acceptance limits. Re-extraction and/or reanalysis confirms low recovery caused by matrix effect.

Sample Cross Reference 615630

NV5, Phoenix, AZ

ADOT Roosevelt

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Roosevelt	W	02-23-19 10:37		615630-001

Certificate of Analytical Results 615630

NV5, Phoenix, AZ

ADOT Roosevelt

Sample Id: **Roosevelt** Matrix: Storm Water Date Received:02.25.19 15.20

Lab Sample Id: 615630-001 Date Collected: 02.23.19 10.37

Analytical Method: PAHs by 8270D SIM Prep Method: SW3510C

Tech: RUO % Solids:

Analyst: EKL Date Prep: 02.27.19 12.12

Seq Number: 3080734 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Acenaphthene	83-32-9	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Acenaphthylene	208-96-8	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Anthracene	120-12-7	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Benzo(a)anthracene	56-55-3	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Benzo(a)pyrene	50-32-8	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Benzo(b)fluoranthene	205-99-2	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Benzo(g,h,i)perylene	191-24-2	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Benzo(k)fluoranthene	207-08-9	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Chrysene	218-01-9	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Dibenz(a,h)Anthracene	53-70-3	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Fluoranthene	206-44-0	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Fluorene	86-73-7	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Indeno(1,2,3-c,d)Pyrene	193-39-5	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Naphthalene	91-20-3	<0.500	0.500	ug/L	03.01.19 14.08		1
Phenanthrene	85-01-8	<0.0500	0.0500	ug/L	03.01.19 14.08		1
Pyrene	129-00-0	<0.0500	0.0500	ug/L	03.01.19 14.08		1

Surrogate	% Recovery	Units	Limits	Analysis Date	Flag
Nitrobenzene-d5	60	%	41-128	03.01.19 14.08	
2-Fluorobiphenyl	54	%	55-135	03.01.19 14.08	S6
Terphenyl-D14	46	%	54-131	03.01.19 14.08	S6

Analytical Method: Recoverable Metals, Total, by EPA 200.7 Prep Method: E200.7P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.27.19 03.00

Seq Number: 3080554 SUB: AZ0765

Dilution Analysis:

Seq#: 3080554 Date Analyzed: 02/27/19 23:16 Date Prep: 02/27/19 03:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**7.24**	0.200	mg/L	02.27.19 23.12		1
Magnesium	7439-95-4	**1.01**	0.400	mg/L	02.27.19 23.12		1
Hardness as CaCO3	471-34-1	**22.2**	2.14	mg/L	02.27.19 23.12		1

Certificate of Analytical Results 615630

NV5, Phoenix, AZ

ADOT Roosevelt

Sample Id: **Roosevelt** Matrix: Storm Water Date Received:02.25.19 15.20

Lab Sample Id: 615630-001 Date Collected: 02.23.19 10.37

Analytical Method: Recoverable Metals,Total, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.27.19 03.00

Seq Number: 3080631 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Lead	7439-92-1	**0.00254**	0.00200	mg/L	02.27.19 21.17		1
Selenium	7782-49-2	<0.00200	0.00200	mg/L	02.27.19 21.17		1

Analytical Method: Metals, Recoverable Dissolved, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.28.19 10.22

Seq Number: 3080763 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Copper, Dissolved	7440-50-8	<0.00400	0.00400	mg/L	03.01.19 01.00		1

Analytical Method: Mercury by EPA 245.1 Prep Method: E245.1P

Tech: MLI % Solids:

Analyst: ANJ Date Prep: 03.13.19 09.05

Seq Number: 3082002 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Mercury	7439-97-6	<0.000200	0.000200	mg/L	03.13.19 13.00		1

Analytical Method: Total Dissolved Solids by SM 2540C

Tech: YAV % Solids:

Analyst: YAV

Seq Number: 3080740 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**8.00**	5.00	mg/L	02.28.19 16.14		1

Certificate of Analytical Results 615630

NV5, Phoenix, AZ

ADOT Roosevelt

Sample Id: **Roosevelt** Matrix: Storm Water Date Received:02.25.19 15.20

Lab Sample Id: 615630-001 Date Collected: 02.23.19 10.37

Analytical Method: Total Suspended Solids by SM 2540D

Tech: HIB % Solids:

Analyst: HIB

Seq Number: 3080430 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Suspended Solids	TSS	**157**	4.00	mg/L	02.27.19 07.56		1

QC Summary 615630

NV5

ADOT Roosevelt

Analytical Method: **PAHs by 8270D SIM** Prep Method: SW3510C
Seq Number: 3080734 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672609-1-BLK LCS Sample Id: 7672609-1-BKS LCSD Sample Id: 7672609-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	<0.0500	1.00	0.795	80	0.849	85	37-117	7	25	ug/L	02.28.19 11:46	
Acenaphthylene	<0.0500	1.00	0.818	82	0.872	87	37-119	6	25	ug/L	02.28.19 11:46	
Anthracene	<0.0500	1.00	0.855	86	0.988	99	45-121	14	25	ug/L	02.28.19 11:46	
Benzo(a)anthracene	<0.0500	1.00	0.853	85	0.911	91	51-113	7	25	ug/L	02.28.19 11:46	
Benzo(a)pyrene	<0.0500	1.00	0.919	92	0.978	98	45-127	6	25	ug/L	02.28.19 11:46	
Benzo(b)fluoranthene	<0.0500	1.00	0.940	94	0.965	97	56-110	3	25	ug/L	02.28.19 11:46	
Benzo(g,h,i)perylene	<0.0500	1.00	0.859	86	1.05	105	47-122	20	25	ug/L	02.28.19 11:46	
Benzo(k)fluoranthene	<0.0500	1.00	0.874	87	0.908	91	58-123	4	25	ug/L	02.28.19 11:46	
Chrysene	<0.0500	1.00	0.895	90	0.942	94	52-113	5	25	ug/L	02.28.19 11:46	
Dibenz(a,h)Anthracene	<0.0500	1.00	0.851	85	0.913	91	48-126	7	25	ug/L	02.28.19 11:46	
Fluoranthene	<0.0500	1.00	0.921	92	0.966	97	51-124	5	25	ug/L	02.28.19 11:46	
Fluorene	<0.0500	1.00	0.810	81	0.879	88	42-116	8	25	ug/L	02.28.19 11:46	
Indeno(1,2,3-c,d)Pyrene	<0.0500	1.00	0.855	86	0.925	93	48-123	8	25	ug/L	02.28.19 11:46	
Naphthalene	0.0290	1.00	0.816	82	0.875	88	35-116	7	25	ug/L	02.28.19 11:46	
Phenanthrene	<0.0500	1.00	0.841	84	0.925	93	46-113	10	25	ug/L	02.28.19 11:46	
Pyrene	<0.0500	1.00	0.897	90	0.933	93	47-124	4	25	ug/L	02.28.19 11:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
Nitrobenzene-d5	82		83		86		41-128	%	02.28.19 11:46
2-Fluorobiphenyl	79		79		86		55-135	%	02.28.19 11:46
Terphenyl-D14	74		79		80		54-131	%	02.28.19 11:46

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672559-1-BLK LCS Sample Id: 7672559-1-BKS LCSD Sample Id: 7672559-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.0293	25.0	23.7	95	23.5	94	85-115	1	20	mg/L	02.27.19 12:15	
Magnesium	<0.0500	25.0	24.0	96	23.9	96	85-115	0	20	mg/L	02.27.19 12:15	

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Water Date Prep: 02.27.19
Parent Sample Id: 615647-001 MS Sample Id: 615647-001 S MSD Sample Id: 615647-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1140	25.0	1090	0	1110	0	70-130	2	20	mg/L	02.27.19 12:27	M3
Magnesium	53.6	25.0	72.5	76	73.6	80	70-130	2	20	mg/L	02.27.19 12:27	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Waste Water Date Prep: 02.27.19
Parent Sample Id: 615478-001 MS Sample Id: 615478-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Calcium	38.7	25.0	61.5	91	70-130	mg/L	02.27.19 22:22	
Magnesium	7.16	25.0	30.9	95	70-130	mg/L	02.27.19 22:22	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080631 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672560-1-BLK LCS Sample Id: 7672560-1-BKS LCSD Sample Id: 7672560-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	<0.000152	0.100	0.0961	96	0.0965	97	85-115	0	20	mg/L	02.27.19 20:48	
Selenium	<0.000368	0.100	0.0959	96	0.0979	98	85-115	2	20	mg/L	02.27.19 20:48	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080631 Matrix: Drinking Water Date Prep: 02.27.19
Parent Sample Id: 615590-003 MS Sample Id: 615590-003 S MSD Sample Id: 615590-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	0.000232	0.100	0.0940	94	0.0948	95	70-130	1	20	mg/L	02.27.19 20:57	
Selenium	0.00712	0.100	0.100	93	0.101	94	70-130	1	20	mg/L	02.27.19 20:57	

Analytical Method: **Metals, Recoverable Dissolved, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080763 Matrix: Water Date Prep: 02.28.19
MB Sample Id: 7672663-1-BLK LCS Sample Id: 7672663-1-BKS LCSD Sample Id: 7672663-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper, Dissolved	<0.000747	0.100	0.0934	93	0.0966	97	85-115	3	20	mg/L	03.01.19 00:28	

Analytical Method: **Metals, Recoverable Dissolved, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080763 Matrix: Waste Water Date Prep: 02.28.19
Parent Sample Id: 615478-001 MS Sample Id: 615478-001 S MSD Sample Id: 615478-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper, Dissolved	0.0112	0.100	0.107	96	0.106	95	70-130	1	20	mg/L	03.01.19 00:37	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 615630

NV5

ADOT Roosevelt

Analytical Method: **Mercury by EPA 245.1** Prep Method: E245.1P
Seq Number: 3082002 Matrix: Water Date Prep: 03.13.19
MB Sample Id: 7673475-1-BLK LCS Sample Id: 7673475-1-BKS LCSD Sample Id: 7673475-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	<0.0000263	0.00200	0.00208	104	0.00186	93	85-115	11	20	mg/L	03.13.19 12:50	

Analytical Method: **Mercury by EPA 245.1** Prep Method: E245.1P
Seq Number: 3082002 Matrix: Storm Water Date Prep: 03.13.19
Parent Sample Id: 615630-001 MS Sample Id: 615630-001 S MSD Sample Id: 615630-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	0.0000680	0.00200	0.00196	95	0.00201	97	70-130	3	20	mg/L	03.13.19 13:02	

Analytical Method: **Total Dissolved Solids by SM 2540C**
Seq Number: 3080740 Matrix: Water
MB Sample Id: 3080740-1-BLK LCS Sample Id: 3080740-1-BKS LCSD Sample Id: 3080740-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	967	97	950	95	80-120	2	10	mg/L	02.28.19 16:14	

Analytical Method: **Total Dissolved Solids by SM 2540C**
Seq Number: 3080740 Matrix: Water
Parent Sample Id: 615644-001 MD Sample Id: 615644-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	2020	2030	0	10	mg/L	02.28.19 16:14	

Analytical Method: **Total Suspended Solids by SM 2540D**
Seq Number: 3080430 Matrix: Water
MB Sample Id: 3080430-1-BLK LCS Sample Id: 3080430-1-BKS LCSD Sample Id: 3080430-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	<4.00	100	93.0	93	99.0	99	80-120	6	10	mg/L	02.27.19 07:56	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

NV5

ADOT Roosevelt

Analytical Method: **Total Suspended Solids by SM 2540D**

Seq Number: 3080430 Matrix: Water

Parent Sample Id: 615494-001 MD Sample Id: 615494-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	1450	1410	3	10	mg/L	02.27.19 07:56	

Analytical Method: **Total Suspended Solids by SM 2540D**

Seq Number: 3080430 Matrix: Water

Parent Sample Id: 615557-001 MD Sample Id: 615557-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	250	230	8	10	mg/L	02.27.19 07:56	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com Page _____ of _____

Work Order No: 615630

Project Manager:	Michelle Oakley	Bill to: (if different)	
Company Name:	NV5	Company Name:	
Address:	1 W. Deer Valley Road	Address:	
City, State ZIP:	Phoenix, AZ 85027	City, State ZIP:	
Phone:	623.738.3690	Email:	michelle.oakley@nv5.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	ADOT Roosevelt	Turn Around	
Project Number:		Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	John Cummings	Due Date:	

SAMPLE RECEIPT			
Temperature (°C):	2.3	Thermometer ID	
Received Intact:	Yes / No		
Cooler Custody Seals:	Yes / No / N/A	Correction Factor:	
Sample Custody Seals:	Yes / No / N/A	Total Containers:	
Temp Blank:	Yes / No	Wet Ice:	Yes / No

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TDS, TSS		PAH	LEAD, SELENIUM, HARDNESS	COPPER DISSOLVED
Roosevelt	Grab	2/23/2019	10:37		5	1		2	1	1

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		2-25-19 @ 15:20	3		
2			4		
5			6		

Revised Date 051418 Rev. 2018 1

Sample Receipt Checklist

Client Name: NV5 | Date and Time Received: 2/25/19 @ 15:20

Work Order Number: 615630 | Checked by: RK

Checklist completed by: EL | Logged In by: EL Date: 2/25/19

Matrix: W | Courier Name: Client / TWA

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	Not Present ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐		
Samples in proper container/bottle?	Yes ☒	No ☐		
Sample containers intact?	Yes ☒	No ☐		
Sufficient sample volume for indicated test?	Yes ☒	No ☐		
All samples received within holding time?	Yes ☒	No ☐		
All samples received same day of collection?	Yes ☐	No ☒	Temp: 2.3	Wet Ice Present ☒
Where was the temperature reading taken at?	Sample ☐	Temp Blank ☒	Other:	
VOA Water – VOA vials have zero headspace?	Yes ☐	No ☐	N/A ☒	
Water – Microbiological bottles have ≤ 2.5 cm headspace?	Yes ☐	No ☐	N/A ☒	
Water – All sample pH's acceptable upon receipt?	Yes ☒	No ☐	N/A ☐	Checked by: EL

If **No**, list all samples and bottle types that are not acceptable in Additional Comments section. Also state any correction actions.

Dissolved Metals – Field Filtered?	Yes ☐	No ☒	N/A ☐

Additional Comments:

SRChecklist 2016.1

Inter-Office Shipment

IOS Number **123259**

Date/Time: 02/25/19 17:46
Lab# From: **Phoenix**
Lab# To: **Houston**

Created by: Emily Petrunia
Delivery Priority:
Air Bill No.: 774556009910

Please send report to: Skip Harden
Address: 2525 West Huntington Drive, Suite 102
E-Mail: skip.harden@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
615630-001	W	Roosevelt	02/23/19 10:37	E200.7	Recoverable Metals, Total, by EPA 200.7	03/05/19	08/22/19	WWH	CA HARD MG	
615630-001	W	Roosevelt	02/23/19 10:37	E200.8DIS	Metals, Recoverable Dissolved, by EPA 2	03/05/19	08/22/19	WWH	CU	
615630-001	W	Roosevelt	02/23/19 10:37	E200.8	Recoverable Metals,Total, by EPA 200.8	03/05/19	08/22/19	WWH	PB SE	
615630-001	W	Roosevelt	02/23/19 10:37	SIM_PAH_D	PAHs by 8270D SIM	03/05/19	**03/02/19 10:37**	WWH	ACNP ACNPY ANTH BZA	
615630-001	W	Roosevelt	02/23/19 10:37	SM2540C	Total Dissolved Solids by SM 2540C	03/05/19	**03/02/19 10:37**	WWH	TDS	
615630-001	W	Roosevelt	02/23/19 10:37	SM2540D	Total Suspended Solids by SM 2540D	03/05/19	**03/02/19 10:37**	WWH	TSS	

Inter Office Shipment or Sample Comments:

Relinquished By: Emily Petrunia

Date Relinquished: 02/25/2019

Received By: Taha Hedib

Date Received: 02/26/2019 09:30

Cooler Temperature: 4.4

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 123259

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : hou-068

Sent By: Emily Petrunia **Date Sent:** 02/25/2019 05:46 PM

Received By: Taha Hedib **Date Received:** 02/26/2019 09:30 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 02/26/2019

Taha Hedib

Analytical Report 614667

for

NV5

Project Manager: Michelle Oakley

Sedona MS4

ADOT

28-FEB-19

Collected By: Client

2525 West Huntington Drive, Suite 102
Tempe, AZ 85282
Ph: (480) 355-0900

Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Houston (EPA Lab code: TX00122): Arizona (AZ0765)
Xenco-Dallas (EPA Lab code: TX01468): Arizona (AZ0809)

28-FEB-19

Project Manager: **Michelle Oakley**
NV5
1 West Deer Valley Building 2 #305

Phoenix, AZ 85027

Reference: TWA Report No(s): **614667**
Sedona MS4
Project Address:

Michelle Oakley:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the TWA Report Number(s) 614667. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the ADHS certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with ADHS standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and ADHS Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by TransWest Analytical. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 614667 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting TransWest Analytical to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Skip Harden
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

CASE NARRATIVE

Client Name: NV5

Project Name: Sedona MS4

Project ID: *ADOT*
Work Order Number(s): *614667*

Report Date: *28-FEB-19*
Date Received: *02/14/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Flagging Criteria

Arizona Flags

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADHS Data Qualifiers, Revision 4.0 9/05/2012.
Data qualifiers (flags) contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

D2 Sample required dilution due to high concentration of target analyte.

K9 Test Replicates show more than 30% difference between high and lows.

M2 Matrix spike recovery was low; the associated blank spike recovery was acceptable.

Sample Cross Reference 614667

NV5, Phoenix, AZ

Sedona MS4

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SEDONA- 021419	W	02-14-19 13:40		614667-001

Certificate of Analytical Results 614667

NV5, Phoenix, AZ

Sedona MS4

Sample Id: **SEDONA- 021419** Matrix: Water Date Received:02.14.19 17.40

Lab Sample Id: 614667-001 Date Collected: 02.14.19 13.40

Analytical Method: PAHs by 8270D SIM Prep Method: SW3510C

Tech: RUO % Solids:

Analyst: EKL Date Prep: 02.20.19 14.09

Seq Number: 3079820 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Acenaphthene	83-32-9	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Acenaphthylene	208-96-8	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Anthracene	120-12-7	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Benzo(a)anthracene	56-55-3	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Benzo(a)pyrene	50-32-8	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Benzo(b)fluoranthene	205-99-2	**0.109**	0.0505	ug/L	02.20.19 20.22		1.01
Benzo(g,h,i)perylene	191-24-2	**0.0949**	0.0505	ug/L	02.20.19 20.22		1.01
Benzo(k)fluoranthene	207-08-9	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Chrysene	218-01-9	**0.0760**	0.0505	ug/L	02.20.19 20.22		1.01
Dibenz(a,h)Anthracene	53-70-3	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Fluoranthene	206-44-0	**0.0925**	0.0505	ug/L	02.20.19 20.22		1.01
Fluorene	86-73-7	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Indeno(1,2,3-c,d)Pyrene	193-39-5	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Naphthalene	91-20-3	<0.505	0.505	ug/L	02.20.19 20.22		1.01
Phenanthrene	85-01-8	<0.0505	0.0505	ug/L	02.20.19 20.22		1.01
Pyrene	129-00-0	**0.113**	0.0505	ug/L	02.20.19 20.22		1.01

Surrogate	% Recovery	Units	Limits	Analysis Date	Flag
Nitrobenzene-d5	77	%	41-128	02.20.19 20.22	
2-Fluorobiphenyl	58	%	55-135	02.20.19 20.22	
Terphenyl-D14	79	%	54-131	02.20.19 20.22	

Analytical Method: Metals, Total, by EPA 200.7 Prep Method: E200.7P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.20.19 03.00

Seq Number: 3079898 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**24.1**	0.200	mg/L	02.20.19 20.44		1
Magnesium	7439-95-4	**4.57**	0.400	mg/L	02.20.19 20.44		1
Sodium	7440-23-5	**22.3**	0.500	mg/L	02.20.19 20.44		1
Hardness as CaCO3	471-34-1	**60.2**		mg/L	02.20.19 20.44		1

Certificate of Analytical Results 614667

NV5, Phoenix, AZ

Sedona MS4

Sample Id: **SEDONA- 021419** Matrix: Water Date Received:02.14.19 17.40

Lab Sample Id: 614667-001 Date Collected: 02.14.19 13.40

Analytical Method: Metals,Total, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.20.19 11.20

Seq Number: 3079862 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Arsenic	7440-38-2	<0.00400	0.00400	mg/L	02.21.19 03.09		1
Barium	7440-39-3	**0.109**	0.00400	mg/L	02.21.19 03.09		1
Cadmium	7440-43-9	<0.00200	0.00200	mg/L	02.21.19 03.09		1
Chromium	7440-47-3	**0.00641**	0.00400	mg/L	02.21.19 03.09		1
Copper	7440-50-8	**0.0358**	0.00400	mg/L	02.21.19 03.09		1
Lead	7439-92-1	**0.00462**	0.00200	mg/L	02.21.19 03.09		1
Nickel	7440-02-0	**0.0113**	0.00200	mg/L	02.21.19 03.09		1
Selenium	7782-49-2	<0.00200	0.00200	mg/L	02.21.19 03.09		1
Silver	7440-22-4	<0.00200	0.00200	mg/L	02.21.19 03.09		1
Zinc	7440-66-6	**0.347**	0.0300	mg/L	02.21.19 03.09		1

Analytical Method: Mercury by EPA 245.1 Prep Method: E245.1P

Tech: MLI % Solids:

Analyst: ANJ Date Prep: 02.20.19 09.25

Seq Number: 3079782 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Mercury	7439-97-6	<0.000200	0.000200	mg/L	02.20.19 13.02		1

Analytical Method: Biochemical Oxygen Demand by SM 5210B Prep Method: SM5210P

Tech: TNL % Solids:

Analyst: TNL Date Prep: 02.15.19 12.30

Seq Number: 3080025

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Biochemical Oxygen Demand,		**27.9**	2.00	mg/L	02.20.19 14.10		1

Certificate of Analytical Results 614667

NV5, Phoenix, AZ

Sedona MS4

Sample Id: **SEDONA- 021419** Matrix: Water Date Received:02.14.19 17.40

Lab Sample Id: 614667-001 Date Collected: 02.14.19 13.40

Analytical Method: Total Dissolved Solids by SM 2540C

Tech: MON % Solids:

Analyst: TNL

Seq Number: 3079847

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**146**	10.0	mg/L	02.18.19 15.10		1

Analytical Method: Total Suspended Solids by SM 2540D

Tech: MON % Solids:

Analyst: TNL

Seq Number: 3079653

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Suspended Solids	TSS	**237**	10.0	mg/L	02.15.19 15.15		1

Analytical Method: Turbidity by EPA 180.1

Tech: MON % Solids:

Analyst: TNL

Seq Number: 3079411

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Turbidity	TURBIDITY	**179**	1.00	NTU	02.15.19 11.45	D2	10

Analytical Method: Anions by EPA 300.0 Prep Method: E300P

Tech: TNL % Solids:

Analyst: TNL Date Prep: 02.15.19 13.33

Seq Number: 3079431

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**29.7**	1.00	mg/L	02.15.19 14.52		1
Sulfate	14808-79-8	**3.77**	1.00	mg/L	02.15.19 14.52		1

Certificate of Analytical Results 614667

NV5, Phoenix, AZ

Sedona MS4

Sample Id: **SEDONA- 021419** Matrix: Water Date Received:02.14.19 17.40

Lab Sample Id: 614667-001 Date Collected: 02.14.19 13.40

Analytical Method: Nitrite by SM 4500-NO2B

Tech: MON % Solids:

Analyst: TNL

Seq Number: 3079557

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrite as N	14797-65-0	**0.0229**	0.0200	mg/L	02.15.19 15.51		1

Analytical Method: Nitrogen, Nitrate-Nitrite by EPA 353.2 Prep Method: E353.2P

Tech: KCS % Solids:

Analyst: KCS Date Prep: 02.25.19 13.00

Seq Number: 3080299 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	**0.319**	0.100	mg/L	02.25.19 17.04		1
Nitrogen, Nitrate-Nitrite	7727-37-9	**0.342**	0.100	mg/L	02.25.19 17.04		1

Analytical Method: Chemical Oxygen Demand by HACH 8000

Tech: TAH % Solids:

Analyst: TAH

Seq Number: 3079930 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
COD - Chemical Oxygen Dema		**59.0**	20.0	mg/L	02.21.19 14.11		1

Analytical Method: Fecal Coliform Bacteria by SM 9222D Prep Method: SM9222P

Tech: TNL % Solids:

Analyst: TNL Date Prep: 02.14.19 18.23

Seq Number: 3079408

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Fecal Coliform		**40.0**	1	cfu/100m	02.15.19 19.15		1

Certificate of Analytical Results 614667

NV5, Phoenix, AZ

Sedona MS4

Sample Id:	**SEDONA- 021419**	Matrix:	Water	Date Received:	02.14.19 17.40
Lab Sample Id:	614667-001	Date Collected:	02.14.19 13.40		

Analytical Method: Quantitray Coliform Test by SM 9223 B

Tech:	MON			% Solids:	
Analyst:	TNL	Date Prep:	02.14.19 18.35		
Seq Number:	3079402				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
E. coli		**67.0**	5	MPN/100	02.15.19 19.30		5

QC Summary 614667

NV5

Sedona MS4

Analytical Method: **PAHs by 8270D SIM** Prep Method: SW3510C
Seq Number: 3079820 Matrix: Water Date Prep: 02.20.19
MB Sample Id: 7672150-1-BLK LCS Sample Id: 7672150-1-BKS LCSD Sample Id: 7672150-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	<0.0500	1.00	0.635	64	0.660	66	37-117	4	25	ug/L	02.20.19 17:22	
Acenaphthylene	<0.0500	1.00	0.640	64	0.657	66	37-119	3	25	ug/L	02.20.19 17:22	
Anthracene	<0.0500	1.00	0.621	62	0.662	66	45-121	6	25	ug/L	02.20.19 17:22	
Benzo(a)anthracene	<0.0500	1.00	0.612	61	0.654	65	51-113	7	25	ug/L	02.20.19 17:22	
Benzo(a)pyrene	<0.0500	1.00	0.635	64	0.693	69	45-127	9	25	ug/L	02.20.19 17:22	
Benzo(b)fluoranthene	<0.0500	1.00	0.631	63	0.674	67	56-110	7	25	ug/L	02.20.19 17:22	
Benzo(g,h,i)perylene	<0.0500	1.00	0.559	56	0.643	64	47-122	14	25	ug/L	02.20.19 17:22	
Benzo(k)fluoranthene	<0.0500	1.00	0.673	67	0.764	76	58-123	13	25	ug/L	02.20.19 17:22	
Chrysene	<0.0500	1.00	0.653	65	0.720	72	52-113	10	25	ug/L	02.20.19 17:22	
Dibenz(a,h)Anthracene	<0.0500	1.00	0.585	59	0.644	64	48-126	10	25	ug/L	02.20.19 17:22	
Fluoranthene	<0.0500	1.00	0.630	63	0.697	70	51-124	10	25	ug/L	02.20.19 17:22	
Fluorene	<0.0500	1.00	0.615	62	0.641	64	42-116	4	25	ug/L	02.20.19 17:22	
Indeno(1,2,3-c,d)Pyrene	<0.0500	1.00	0.567	57	0.624	62	48-123	10	25	ug/L	02.20.19 17:22	
Naphthalene	0.0255	1.00	0.651	65	0.684	68	35-116	5	25	ug/L	02.20.19 17:22	
Phenanthrene	<0.0500	1.00	0.629	63	0.654	65	46-113	4	25	ug/L	02.20.19 17:22	
Pyrene	<0.0500	1.00	0.654	65	0.715	72	47-124	9	25	ug/L	02.20.19 17:22	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
Nitrobenzene-d5	68		66		66		41-128	%	02.20.19 17:22
2-Fluorobiphenyl	71		66		64		55-135	%	02.20.19 17:22
Terphenyl-D14	60		57		62		54-131	%	02.20.19 17:22

Analytical Method: **Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3079898 Matrix: Water Date Prep: 02.20.19
MB Sample Id: 7672103-1-BLK LCS Sample Id: 7672103-1-BKS LCSD Sample Id: 7672103-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.0293	25.0	24.6	98	24.7	99	85-115	0	20	mg/L	02.20.19 19:50	
Magnesium	<0.0500	25.0	24.4	98	24.6	98	85-115	1	20	mg/L	02.20.19 19:50	
Sodium	<0.0667	25.0	24.5	98	24.6	98	85-115	0	20	mg/L	02.20.19 19:50	

Analytical Method: **Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3079898 Matrix: Drinking Water Date Prep: 02.20.19
Parent Sample Id: 614794-001 MS Sample Id: 614794-001 S MSD Sample Id: 614794-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	33.0	25.0	58.0	100	57.9	100	70-130	0	20	mg/L	02.20.19 20:02	
Magnesium	21.0	25.0	46.0	100	46.0	100	70-130	0	20	mg/L	02.20.19 20:02	
Sodium	106	25.0	131	100	131	100	70-130	0	20	mg/L	02.20.19 20:02	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 614667

NV5

Sedona MS4

Analytical Method: **Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3079898 Matrix: Drinking Water Date Prep: 02.20.19
Parent Sample Id: 614915-001 MS Sample Id: 614915-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Calcium	1.36	25.0	26.3	100	70-130	mg/L	02.20.19 21:43	
Magnesium	0.371	25.0	25.3	100	70-130	mg/L	02.20.19 21:43	
Sodium	16.8	25.0	41.6	99	70-130	mg/L	02.20.19 21:43	

Analytical Method: **Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3079862 Matrix: Water Date Prep: 02.20.19
MB Sample Id: 7672126-1-BLK LCS Sample Id: 7672126-1-BKS LCSD Sample Id: 7672126-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Arsenic	<0.000396	0.100	0.0993	99	0.100	100	85-115	1	20	mg/L	02.21.19 02:40	
Barium	<0.000472	0.100	0.100	100	0.101	101	85-115	1	20	mg/L	02.21.19 02:40	
Cadmium	<0.000115	0.100	0.101	101	0.101	101	85-115	0	20	mg/L	02.21.19 02:40	
Chromium	<0.000283	0.100	0.101	101	0.102	102	85-115	1	20	mg/L	02.21.19 02:40	
Copper	<0.000747	0.100	0.0990	99	0.0995	100	85-115	1	20	mg/L	02.21.19 02:40	
Lead	<0.000152	0.100	0.101	101	0.101	101	85-115	0	20	mg/L	02.21.19 02:40	
Nickel	<0.000139	0.100	0.100	100	0.100	100	85-115	0	20	mg/L	02.21.19 02:40	
Selenium	<0.000368	0.100	0.0993	99	0.100	100	85-115	1	20	mg/L	02.21.19 02:40	
Silver	<0.000159	0.0500	0.0496	99	0.0497	99	85-115	0	20	mg/L	02.21.19 02:40	
Zinc	<0.000388	0.100	0.101	101	0.101	101	85-115	0	20	mg/L	02.21.19 02:40	

Analytical Method: **Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3079862 Matrix: Water Date Prep: 02.20.19
Parent Sample Id: 614670-001 MS Sample Id: 614670-001 S MSD Sample Id: 614670-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Arsenic	0.00111	0.100	0.0994	98	0.0986	97	70-130	1	20	mg/L	02.21.19 02:49	
Barium	0.0144	0.100	0.115	101	0.115	101	70-130	0	20	mg/L	02.21.19 02:49	
Cadmium	<0.000115	0.100	0.0989	99	0.0973	97	70-130	2	20	mg/L	02.21.19 02:49	
Chromium	0.00149	0.100	0.103	102	0.101	100	70-130	2	20	mg/L	02.21.19 02:49	
Copper	0.00697	0.100	0.107	100	0.106	99	70-130	1	20	mg/L	02.21.19 02:49	
Lead	0.000855	0.100	0.101	100	0.101	100	70-130	0	20	mg/L	02.21.19 02:49	
Nickel	0.00204	0.100	0.102	100	0.100	98	70-130	2	20	mg/L	02.21.19 02:49	
Selenium	<0.000368	0.100	0.0982	98	0.0969	97	70-130	1	20	mg/L	02.21.19 02:49	
Silver	<0.000159	0.0500	0.0487	97	0.0480	96	70-130	1	20	mg/L	02.21.19 02:49	
Zinc	0.0618	0.100	0.162	100	0.160	98	70-130	1	20	mg/L	02.21.19 02:49	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 614667

NV5

Sedona MS4

Analytical Method: **Mercury by EPA 245.1** Prep Method: E245.1P
Seq Number: 3079782 Matrix: Water Date Prep: 02.20.19
MB Sample Id: 7672104-1-BLK LCS Sample Id: 7672104-1-BKS LCSD Sample Id: 7672104-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	<0.0000263	0.00200	0.00183	92	0.00191	96	85-115	4	20	mg/L	02.20.19 12:39	

Analytical Method: **Mercury by EPA 245.1** Prep Method: E245.1P
Seq Number: 3079782 Matrix: Water Date Prep: 02.20.19
Parent Sample Id: 614599-001 MS Sample Id: 614599-001 S MSD Sample Id: 614599-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Mercury	<0.0000263	0.00200	0.00187	94	0.00183	92	70-130	2	20	mg/L	02.20.19 12:49	

Analytical Method: **Biochemical Oxygen Demand by SM 5210B** Prep Method: SM5210P
Seq Number: 3080025 Matrix: Water Date Prep: 02.15.19
DO Depletion Sample 7672303-1-BLK LCS Sample Id: 7672303-1-BKS

Parameter	DO Depletion	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Biochemical Oxygen Demand, 5 day	<2.00	198	181	91	85-115	mg/L	02.20.19 14:10	

Analytical Method: **Biochemical Oxygen Demand by SM 5210B** Prep Method: SM5210P
Seq Number: 3080025 Matrix: Waste Water Date Prep: 02.15.19
Parent Sample Id: 614590-001 MD Sample Id: 614590-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Biochemical Oxygen Demand, 5 day	114	118	3	25	mg/L	02.20.19 14:10	K9

Analytical Method: **Total Dissolved Solids by SM 2540C**
Seq Number: 3079847 Matrix: Water
MB Sample Id: 3079847-1-BLK LCS Sample Id: 3079847-1-BKS LCSD Sample Id: 3079847-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<10.0	1000	956	96	1030	103	80-120	7	10	mg/L	02.18.19 15:10	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

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NV5

Sedona MS4

Analytical Method: **Total Dissolved Solids by SM 2540C**

Seq Number: 3079847 Matrix: Water

Parent Sample Id: 614599-001 MD Sample Id: 614599-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	472	452	4	10	mg/L	02.18.19 15:10	

Analytical Method: **Total Suspended Solids by SM 2540D**

Seq Number: 3079653 Matrix: Water

MB Sample Id: 3079653-1-BLK LCS Sample Id: 3079653-1-BKS LCSD Sample Id: 3079653-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	<10.0	1000	947	95	1000	100	80-120	5	10	mg/L	02.15.19 15:15	

Analytical Method: **Total Suspended Solids by SM 2540D**

Seq Number: 3079653 Matrix: Water

Parent Sample Id: 614670-001 MD Sample Id: 614670-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	10.8	11.6	7	10	mg/L	02.15.19 15:15	

Analytical Method: **Turbidity by EPA 180.1**

Seq Number: 3079411 Matrix: Water

MB Sample Id: 3079411-1-BLK LCS Sample Id: 3079411-1-BKS LCSD Sample Id: 3079411-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Turbidity	<0.100	20.0	20.0	100	19.7	99	80-120	2	20	NTU	02.15.19 11:45	

Analytical Method: **Turbidity by EPA 180.1**

Seq Number: 3079411 Matrix: Water

Parent Sample Id: 614667-001 MD Sample Id: 614667-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Turbidity	179	176	2	20	NTU	02.15.19 11:45	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analytical Method: **Anions by EPA 300.0** Prep Method: E300P
Seq Number: 3079431 Matrix: Water Date Prep: 02.15.19
MB Sample Id: 7671929-1-BLK LCS Sample Id: 7671929-1-BKS LCSD Sample Id: 7671929-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	0.861	5.00	4.62	92	4.58	92	90-110	1	20	mg/L	02.15.19 13:44	
Sulfate	<1.00	5.00	4.67	93	4.83	97	90-110	3	20	mg/L	02.15.19 13:44	

Analytical Method: **Anions by EPA 300.0** Prep Method: E300P
Seq Number: 3079431 Matrix: Water Date Prep: 02.15.19
Parent Sample Id: 614667-001 MS Sample Id: 614667-001 S MSD Sample Id: 614667-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.7	10.0	40.5	108	40.6	109	80-120	0	20	mg/L	02.15.19 15:49	
Sulfate	3.77	10.0	13.3	95	13.3	95	80-120	0	20	mg/L	02.15.19 15:49	

Analytical Method: **Nitrite by SM 4500-NO2B**
Seq Number: 3079557 Matrix: Water
MB Sample Id: 3079557-1-BLK LCS Sample Id: 3079557-1-BKS LCSD Sample Id: 3079557-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrite as N	<0.0100	0.100	0.103	103	0.101	101	85-115	2	20	mg/L	02.15.19 15:51	

Analytical Method: **Nitrite by SM 4500-NO2B**
Seq Number: 3079557 Matrix: Water
Parent Sample Id: 614667-001 MS Sample Id: 614667-001 S MSD Sample Id: 614667-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrite as N	0.0229	0.100	0.125	102	0.128	105	79-117	2	20	mg/L	02.15.19 15:51	

Analytical Method: **Nitrogen, Nitrate-Nitrite by EPA 353.2** Prep Method: E353.2P
Seq Number: 3080299 Matrix: Water Date Prep: 02.25.19
MB Sample Id: 7672444-1-BLK LCS Sample Id: 7672444-1-BKS LCSD Sample Id: 7672444-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrogen, Nitrate-Nitrite	<0.0283	1.00	0.911	91	1.02	102	90-110	11	20	mg/L	02.25.19 16:32	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analytical Method: **Nitrogen, Nitrate-Nitrite by EPA 353.2** Prep Method: E353.2P
Seq Number: 3080299 Matrix: Water Date Prep: 02.25.19
Parent Sample Id: 614667-001 MS Sample Id: 614667-001 S MSD Sample Id: 614667-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrogen, Nitrate-Nitrite	0.342	1.00	1.29	95	1.29	95	90-110	0	20	mg/L	02.25.19 17:06	

Analytical Method: **Nitrogen, Nitrate-Nitrite by EPA 353.2** Prep Method: E353.2P
Seq Number: 3080299 Matrix: Water Date Prep: 02.25.19
Parent Sample Id: 614670-001 MS Sample Id: 614670-001 S MSD Sample Id: 614670-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrogen, Nitrate-Nitrite	0.706	1.00	1.65	94	1.67	96	90-110	1	20	mg/L	02.25.19 16:43	

Analytical Method: **Chemical Oxygen Demand by HACH 8000**
Seq Number: 3079930 Matrix: Water
MB Sample Id: 3079930-1-BLK LCS Sample Id: 3079930-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
COD - Chemical Oxygen Demand	<20.0	100	100	100	90-110	mg/L	02.21.19 14:11	

Analytical Method: **Chemical Oxygen Demand by HACH 8000**
Seq Number: 3079930 Matrix: Water
Parent Sample Id: 614670-001 MS Sample Id: 614670-001 S MSD Sample Id: 614670-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
COD - Chemical Oxygen Demand	23.0	100	113	90	113	90	90-110	0	20	mg/L	02.21.19 14:11	

Analytical Method: **Chemical Oxygen Demand by HACH 8000**
Seq Number: 3079930 Matrix: Water
Parent Sample Id: 615208-001 MS Sample Id: 615208-001 S MSD Sample Id: 615208-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
COD - Chemical Oxygen Demand	10.0	100	103	93	98.0	88	90-110	5	20	mg/L	02.21.19 14:11	M2

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 614667

NV5

Sedona MS4

Analytical Method: **Fecal Coliform Bacteria by SM 9222D** Prep Method: SM9222P

Seq Number: 3079408 Matrix: Water Date Prep: 02.14.19

MB Sample Id: 7671914-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Fecal Coliform	<1	cfu/100ml	02.15.19 19:15	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

1.000

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

614667

Page: 1 of 1

2280640

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: NV5	Report To: Same	Attention:
Address: 1 West Deer Valley Building 2 #305 PHOENIX, AZ 85024	Copy To:	Company Name:
		Address:
Email To: michelle.oakley@nv5.com	Purchase Order No.:	Pace Quote Reference:
Phone: 602.284.5705 Fax:	Project Name: ADOT	Pace Project Manager:
Requested Due Date/TAT: Regular	Project Number: Sedona MS4	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chloride	Sulfate	NO_2/NO_3	TDS	TSS	Turbidity	BOD	COD	Metals + Mercury	PAH	E Coli	Fecal Coliform	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SEDONA-021419	W				02/14/19	1340		9										X	X	X	X	X	X	X	X	X	X	X	X		
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn, Ca, Na, Hg

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	[signature]	2/14/19	1610	[signature]	2/14/19	16:10
	[signature]	2/14/19	17:40	[signature]	2/14/19	174-

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1.7°	✓	U	U

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev.00, 09Nov2017

1.000

Sample Receipt Checklist

Client Name: NV5 | Date and Time Received: 2/14/19 @ 17:40

Work Order Number: 614667 | Checked by: SH

Checklist completed by: ER | Logged In by: ER | Date: 2/15/19

Matrix: W | Courier Name: (Client) TWA ____

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	Not Present ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐		
Samples in proper container/bottle?	Yes ☒	No ☐		
Sample containers intact?	Yes ☒	No ☐		
Sufficient sample volume for indicated test?	Yes ☒	No ☐		
All samples received within holding time?	Yes ☒	No ☐		
All samples received same day of collection?	Yes ☒	No ☐	Temp: 1.7	Wet Ice Present ☒
Where was the temperature reading taken at?	Sample ☐	Temp Blank ☒	Other:	
VOA Water – VOA vials have zero headspace?	Yes ☐	No ☐	N/A ☒	
Water – Microbiological bottles have ≤ 2.5 cm headspace?	Yes ☒	No ☐	N/A ☐	
Water – All sample pH's acceptable upon receipt?	Yes ☒	No ☐	N/A ☐	Checked by: SH

If No, list all samples and bottle types that are not acceptable in Additional Comments section. Also state any correction actions.

Dissolved Metals – Field Filtered?	Yes ☐	No ☐	N/A ☒

Additional Comments: ____

SRChecklist 2016.1

Inter-Office Shipment

IOS Number **122714**

Date/Time: 02/15/19 18:13
Lab# From: **Phoenix**
Lab# To: **Houston**

Created by: Emily Petrunia
Delivery Priority:
Air Bill No.: 774487912399

Please send report to: Skip Harden
Address: 2525 West Huntington Drive, Suite 102
E-Mail: skip.harden@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
614667-001	W	SEDONA- 021419	02/14/19 13:40	E200.8	Recoverable Metals,Total, by EPA 200.8	02/22/19	08/13/19	WWH	AG AS BA CA CD CR CU	
614667-001	W	SEDONA- 021419	02/14/19 13:40	E245.1	Mercury by EPA 245.1	02/22/19	03/14/19	WWH	HG	
614667-001	W	SEDONA- 021419	02/14/19 13:40	E353.2	Nitrogen, Nitrate-Nitrite by EPA 353.2	02/22/19	03/14/19	WWH	NO3N	
614667-001	W	SEDONA- 021419	02/14/19 13:40	H8000	Chemical Oxygen Demand by HACH 800	02/22/19	03/14/19	WWH	COD	
614667-001	W	SEDONA- 021419	02/14/19 13:40	SIM_PAH_D	PAHs by 8270D SIM	02/22/19	**02/21/19 13:40**	WWH	ACNP ACNPY ANTH BZA	

Inter Office Shipment or Sample Comments:

Relinquished By: Emily Petrunia

Date Relinquished: 02/15/2019

Received By: Monica Shakhshir

Date Received: 02/19/2019 09:40

Cooler Temperature: 0.5

1.000

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 122714

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : HOU-068

Sent By: Emily Petrunia **Date Sent:** 02/15/2019 06:13 PM

Received By: Monica Shakhshir **Date Received:** 02/19/2019 09:40 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	.5	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 *Custody Seals Signed and dated for Containers/coolers	**Yes**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 02/19/2019

Monica Shakhshir

March 04, 2019

Michelle Oakley
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 19B0467
Order Name: ADOT Stormwater
444218-020000.15

RE: Storm Water

Dear Michelle Oakley,

Turner Laboratories, Inc. received 1 sample(s) on 02/15/2019 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Elizabeth Kasik
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 19B0467
Date Received: 02/15/2019

Order: ADOT Stormwater 444218-020000.15

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
19B0467-01	SuperiorFuel-021419	Storm Water	02/14/2019 1500

Client: NV5
Project: Storm Water
Work Order: 19B0467
Date Received: 02/15/2019

Case Narrative

The PAH by 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

D5	Minimum Reporting Limit (MRL) is adjusted due to sample dilution; analyte was non-detect in the sample.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5 **Client Sample ID:** SuperiorFuel-021419
Project: Storm Water **Collection Date/Time:** 02/14/2019 1500
Work Order: 19B0467 **Matrix:** Storm Water
Lab Sample ID: 19B0467-01 **Order Name:** ADOT Stormwater 444218-020000.15

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation								
Hardness, Calcium/Magnesium (As CaCO3)	100			mg/L	1	02/22/2019 1100	02/25/2019 1725	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)								
Copper	0.042	0.0050		mg/L	10	02/20/2019 1005	02/21/2019 1258	MH
ICP Total Metals-E200.7 (4.4)								
Calcium	25	4.0		mg/L	1	02/22/2019 1100	02/25/2019 1725	MH
Magnesium	9.7	3.0		mg/L	1	02/22/2019 1100	02/25/2019 1725	MH
ICP/MS Total Metals-E200.8 (5.4)								
Lead	0.048	0.010		mg/L	20	02/19/2019 1030	02/20/2019 1528	MH
Selenium	ND	0.050	D5	mg/L	20	02/19/2019 1030	02/20/2019 1528	MH
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	280	20		mg/L	1	02/15/2019 0840	02/20/2019 1713	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								
Total Suspended Solids	130	10		mg/L	1	02/19/2019 0831	02/21/2019 1645	EJ

Client: NV5
Project: Storm Water
Work Order: 19B0467
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902189 - E 200.8 (5.4)										
Blank (1902189-BLK1)				Prepared & Analyzed: 02/21/2019						
Copper	ND	0.00050	mg/L							
LCS (1902189-BS1)				Prepared & Analyzed: 02/21/2019						
Copper	0.047	0.00050	mg/L	0.05000		95	85-115			
LCS Dup (1902189-BSD1)				Prepared & Analyzed: 02/21/2019						
Copper	0.048	0.00050	mg/L	0.05000		95	85-115	0.07	20	
Matrix Spike (1902189-MS1)		**Source: 19B0400-01**		Prepared & Analyzed: 02/21/2019						
Copper	0.045	0.00050	mg/L	0.05000	0.00078	89	70-130			
Batch 1902213 - E200.8 (5.4)										
Blank (1902213-BLK1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Lead	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
LCS (1902213-BS1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Lead	0.049	0.00050	mg/L	0.05000		98	85-115			
Selenium	0.048	0.0025	mg/L	0.05000		96	85-115			
LCS Dup (1902213-BSD1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Lead	0.049	0.00050	mg/L	0.05000		99	85-115	0.9	20	
Selenium	0.050	0.0025	mg/L	0.05000		100	85-115	4	20	
Matrix Spike (1902213-MS1)		**Source: 19B0321-01**		Prepared: 02/19/2019 Analyzed: 02/20/2019						
Lead	0.065	0.0010	mg/L	0.05000	0.029	72	70-130			
Selenium	0.055	0.0025	mg/L	0.05000	0.00051	108	70-130			
Batch 1902269 - E200.7 (4.4)										
Blank (1902269-BLK1)				Prepared: 02/22/2019 Analyzed: 02/25/2019						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
LCS (1902269-BS1)				Prepared: 02/22/2019 Analyzed: 02/25/2019						
Calcium	10	4.0	mg/L	10.00		102	85-115			
Magnesium	10	3.0	mg/L	10.00		103	85-115			
LCS Dup (1902269-BSD1)				Prepared: 02/22/2019 Analyzed: 02/25/2019						
Calcium	10	4.0	mg/L	10.00		100	85-115	2	20	
Magnesium	10	3.0	mg/L	10.00		101	85-115	1	20	
Matrix Spike (1902269-MS1)		**Source: 19B0380-01**		Prepared: 02/22/2019 Analyzed: 02/25/2019						
Calcium	41	4.0	mg/L	10.00	32	94	70-130			
Magnesium	15	3.0	mg/L	10.00	5.5	99	70-130			
Matrix Spike (1902269-MS2)		**Source: 19B0432-02**		Prepared: 02/22/2019 Analyzed: 02/25/2019						
Calcium	160	4.0	mg/L	10.00	150	82	70-130			
Magnesium	41	3.0	mg/L	10.00	31	101	70-130			

Client: NV5
Project: Storm Water
Work Order: 19B0467
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902176 - SM2540 C										
Duplicate (1902176-DUP1)		**Source: 19B0307-01**		Prepared: 02/15/2019 Analyzed: 02/20/2019						
Total Dissolved Solids (Residue, Filterable)	520	20	mg/L		510			2	5	
Batch 1902205 - SM2540 D										
Duplicate (1902205-DUP1)		**Source: 19B0473-05**		Prepared: 02/19/2019 Analyzed: 02/21/2019						
Total Suspended Solids	730	10	mg/L		720			2	5	
Duplicate (1902205-DUP2)		**Source: 19B0495-01**		Prepared: 02/19/2019 Analyzed: 02/21/2019						
Total Suspended Solids	12	10	mg/L		12			0	5	Q9

2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 19B0467 DATE 2/15/19 PAGE 1 OF 1

PROJECT NAME ADOT STORMWATER # 494218-020000.15
CONTACT NAME M. OAKLEY
COMPANY NAME NV5
ADDRESS 7620 N. HARTMEN LN TUCSON
ZIP 85743 PHONE 520.638.7270 EMAIL MICHELLE.OAKLEY@NV5.com
SAMPLER'S SIGNATURE [signature]

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Base Neutrals ☐ 625/8270 Acids ☐	Volatile Organics ☐ 624 ☐ 524.2 ☐ 8260	TTHMS ☐ HAA5 ☐	☐ Chloride ☐ Sulfate ☐ Resistivity	NO_3 ☐ NO_2 ☐ TKN ☐	1664 ☐ TPH ☐ Oil & Grease	TCLP Analysis ☐ Semi-VOA ☐ Pest. ☐	VOA ☐	Metals ☐ TCLP ☐ Dissolved ☐ Total ☐ HARNESS ☒ Total ☐ Ca + Mg	Cyanide ☐ Total ☐ Amen. ☐ WAD ☐	SDWA-INORGANICS PRIMARY ☐ SECONDARY ☐	Coliform ☐ MPN ☐ PIA ☐ Fecal ☐	pH ☐ Cr_6 ☐ Cl_2 ☐ Turb ☐	COD ☐ TSS ☐ BOD ☐	TDS	TSS	TAH SW8310
SUPERIOR FUEL-021419																						
	2/14/19	1500		STORMWATER																		

1. RELINQUISHED BY:
Signature [signature]
Printed Name DAVID MACK
Firm ADOT
Date/Time 2/15/19 - 0822

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
___ Standard (approx. 10 days)*
___ Next Day ___ 2 Day ___ 5 Day*
___ Email Preliminary Results
* Working Days

REPORT REQUIREMENTS:
___ I. Routine Report
___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ___ Y ___ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 3
Temperature 2.0
☒ Wet Ice
☐ Ambient
☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature [signature]
Printed Name Leandra X. Marshall
Firm TURNER LABORATORIES, INC.
Date/Time 2/15/19 8:22

* LEGEND
SAMPLE MATRIX
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

Compliance Analysis: ☐ Yes ☐ No	Custody Seals ☐	Preservation Confirmation ☒
ADEQ Forms: ☐ Yes ☐ No	Container Intact ☒	Appropriate Head Space ☒
Mail ADEQ Forms: ☐ Yes ☐ No	COC / Labels Agree ☒	Received Within Hold Time ☒

SPECIAL INSTRUCTIONS/COMMENTS:
LEAD 200.7/200.8
SELENIUM 200.7/200.8
DISOLVED COPPER 200.7/200.8

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

3002 Dow Suite 532 Tustin, CA 92780

(714) 832-0064

Laboratory Certification (ELAP) No.: 2576
Expiration Date: 2020
Los Angeles County Sanitation District Lab ID# 10206

Laboratory Director's Name:

Mark Noorani

Client:	Turner Laboratories, Inc.
Laboratory Reference:	TLI AZ11729
Project Name:	19B0467
Project Number:	
Date Received:	2/19/2019
Date Reported:	2/28/2019
Chain of Custody Received:	☑
Analytical Method:	8310,

Mark Noorani, Laboratory Director

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11729
Project Name: 19B0467
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 3.4ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11729
Project Name: 19B0467
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
19B0467-01	AZ11729-001	2/19/2019	2/14/2019	Water

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11729
Project Name: 19B0467
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
19B0467-01	AZ11729-001	2/19/2019	2/14/2019	2/19/2019	2/22/2019	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	134

* Acceptable Recovery: 2-178 %

Dilution Factor: 1
Data Qualifiers: None

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11729
Project Name: 19B0467
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV0219193			2/19/2019	2/20/2019	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	73

* Acceptable Recovery: 2-178 %

Dilution Factor: 1
Data Qualifiers: None

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QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 2/19/2019
Date of Analysis: 2/20/2019
Dup Date of Analysis: 2/20/2019
Laboratory Sample #: AV0219193
MS/MSD Qualifiers: L2,
Reference #: TLI AZ11729

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.162	0.161	65	64	1	51-130	26	☐
Anthracene	0.250	0.123	0.125	49	50	2	55-130	21	☑
Pyrene	0.250	0.174	0.171	70	68	2	55-130	20	☐
Chrysene	0.250	0.178	0.169	71	68	5	60-130	20	☐
Benzo(a)pyrene	0.250	0.167	0.152	67	61	9	55-130	26	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	71	68	☐

ACP % RC
2-178

Data Qualifier Definitions

Qualifier

L2 = The associated blank spike recovery was below laboratory acceptance limits.

AV0219193	8310		Anthracene	LCS/LCSD

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

© Orange Coast Analytical, Inc

SUBCONTRACT ORDER

Turner Laboratories, Inc.

19B0467

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Elizabeth Kasik

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 19B0467-01 Non-Potable Wa Sampled:02/14/2019 15:00			
PAHs by SW 8310	02/21/2019 15:00		
Containers Supplied:			

Leandra X. Marshall 2/18/19 16:00 UPS 2/18/19 16:00
Released By Date Received By Date

OCACA 2/19/19 1020 @3.4C onice
Released By Date Received By Date

Sample Receipt Report

Laboratory Reference: LI AZ11729 — Logged In by: MM

Received:	02/19/19 10:20	Company Name:	Turner Laboratories, Inc.
Method of Shipment:	UPS	Project Manager:	Ms. Elizabeth Kasik
Shipping Container:	Cooler	Project Name:	19B0467
# Shipping Containers:	1	Project #:	

Sample Quantity
1 Water

Chain of Custody	Complete ☑	Incomplete ☐	None ☐
Samples On Ice	Yes, Wet ☑	Yes, Blue ☐	No ☐
Temperature	3.4°C		
Shipping Intact	Yes ☑	N/A ☐	No ☐
Shipping Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Samples Intact	Yes ☑		No ☐
Sample Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Custody Seals Signed & Dated	Yes ☐	N/A ☑	No ☐
Proper Test Containers	Yes ☑		No ☐
Proper Test Preservations	Yes ☑		No ☐
Samples Within Hold Times	Yes ☑		No ☐
VOAs Have Zero Headspace	Yes ☐	N/A ☑	No ☐
Sample Labels	Complete ☑	Incomplete ☐	None ☐
Sample Information Matches COC	Yes ☑	N/A ☐	No ☐

Notes

Client Notified _____ By _____ On _____

Analytical Report 615631

for

NV5

Project Manager: Michelle Oakley

ADOT Superior Maintenance Yard

07-MAR-19

Collected By: Client

2525 West Huntington Drive, Suite 102
Tempe, AZ 85282
Ph: (480) 355-0900

Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Houston (EPA Lab code: TX00122): Arizona (AZ0765)
Xenco-Dallas (EPA Lab code: TX01468): Arizona (AZ0809)

07-MAR-19

Project Manager: **Michelle Oakley**
NV5
1 West Deer Valley Building 2 #305

Phoenix, AZ 85027

Reference: TWA Report No(s): **615631**
ADOT Superior Maintenance Yard
Project Address:

Michelle Oakley:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the TWA Report Number(s) 615631. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the ADHS certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with ADHS standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and ADHS Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by TransWest Analytical. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 615631 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting TransWest Analytical to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Skip Harden
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

CASE NARRATIVE

Client Name: NV5

Project Name: ADOT Superior Maintenance Yard

Project ID:
Work Order Number(s): *615631*

Report Date: *07-MAR-19*
Date Received: *02/25/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Flagging Criteria

Arizona Flags

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADHS Data Qualifiers, Revision 4.0 9/05/2012.
Data qualifiers (flags) contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable.

S6 Surrogate recovery was below laboratory and method acceptance limits. Re-extraction and/or reanalysis confirms low recovery caused by matrix effect.

Sample Cross Reference 615631

NV5, Phoenix, AZ

ADOT Superior Maintenance Yard

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Maintenance Yard	W	02-22-19 13:23		615631-001

Certificate of Analytical Results 615631

NV5, Phoenix, AZ

ADOT Superior Maintenance Yard

Sample Id: **Maintenance Yard** Matrix: Storm Water Date Received:02.25.19 15.20

Lab Sample Id: 615631-001 Date Collected: 02.22.19 13.23

Analytical Method: PAHs by 8270D SIM Prep Method: SW3510C

Tech: RUO % Solids:

Analyst: EKL Date Prep: 02.27.19 12.15

Seq Number: 3080734 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Acenaphthene	83-32-9	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Acenaphthylene	208-96-8	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Anthracene	120-12-7	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Benzo(a)anthracene	56-55-3	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Benzo(a)pyrene	50-32-8	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Benzo(b)fluoranthene	205-99-2	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Benzo(g,h,i)perylene	191-24-2	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Benzo(k)fluoranthene	207-08-9	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Chrysene	218-01-9	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Dibenz(a,h)Anthracene	53-70-3	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Fluoranthene	206-44-0	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Fluorene	86-73-7	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Indeno(1,2,3-c,d)Pyrene	193-39-5	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Naphthalene	91-20-3	<0.500	0.500	ug/L	03.01.19 14.26		1
Phenanthrene	85-01-8	<0.0500	0.0500	ug/L	03.01.19 14.26		1
Pyrene	129-00-0	<0.0500	0.0500	ug/L	03.01.19 14.26		1

Surrogate	% Recovery	Units	Limits	Analysis Date	Flag
Nitrobenzene-d5	76	%	41-128	03.01.19 14.26	
2-Fluorobiphenyl	69	%	55-135	03.01.19 14.26	
Terphenyl-D14	52	%	54-131	03.01.19 14.26	S6

Analytical Method: Recoverable Metals, Total, by EPA 200.7 Prep Method: E200.7P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.27.19 03.00

Seq Number: 3080554 SUB: AZ0765

Dilution Analysis:

Seq#: 3080554 Date Analyzed: 02/27/19 23:20 Date Prep: 02/27/19 03:00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	**48.4**	0.200	mg/L	02.27.19 22.59		1
Magnesium	7439-95-4	**19.6**	0.400	mg/L	02.27.19 22.59		1
Hardness as CaCO3	471-34-1	**201**	2.14	mg/L	02.27.19 22.59		1

Certificate of Analytical Results 615631

NV5, Phoenix, AZ

ADOT Superior Maintenance Yard

Sample Id: **Maintenance Yard** Matrix: Storm Water Date Received:02.25.19 15.20

Lab Sample Id: 615631-001 Date Collected: 02.22.19 13.23

Analytical Method: Recoverable Metals,Total, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.27.19 03.00

Seq Number: 3080631 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Lead	7439-92-1	**0.0808**	0.00200	mg/L	02.27.19 21.20		1
Selenium	7782-49-2	<0.00200	0.00200	mg/L	02.27.19 21.20		1

Analytical Method: Metals, Recoverable Dissolved, by EPA 200.8 Prep Method: E200.8P

Tech: AHI % Solids:

Analyst: DEP Date Prep: 02.28.19 10.22

Seq Number: 3080763 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Copper, Dissolved	7440-50-8	**0.0161**	0.00400	mg/L	03.01.19 01.03		1

Analytical Method: Total Dissolved Solids by SM 2540C

Tech: YAV % Solids:

Analyst: YAV

Seq Number: 3080740 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**146**	5.00	mg/L	02.28.19 16.14		1

Analytical Method: Total Suspended Solids by SM 2540D

Tech: HIB % Solids:

Analyst: HIB

Seq Number: 3080430 SUB: AZ0765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Suspended Solids	TSS	**723**	4.00	mg/L	02.27.19 07.56		1

QC Summary 615631

NV5

ADOT Superior Maintenance Yard

Analytical Method: **PAHs by 8270D SIM** Prep Method: SW3510C
Seq Number: 3080734 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672609-1-BLK LCS Sample Id: 7672609-1-BKS LCSD Sample Id: 7672609-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	<0.0500	1.00	0.795	80	0.849	85	37-117	7	25	ug/L	02.28.19 11:46	
Acenaphthylene	<0.0500	1.00	0.818	82	0.872	87	37-119	6	25	ug/L	02.28.19 11:46	
Anthracene	<0.0500	1.00	0.855	86	0.988	99	45-121	14	25	ug/L	02.28.19 11:46	
Benzo(a)anthracene	<0.0500	1.00	0.853	85	0.911	91	51-113	7	25	ug/L	02.28.19 11:46	
Benzo(a)pyrene	<0.0500	1.00	0.919	92	0.978	98	45-127	6	25	ug/L	02.28.19 11:46	
Benzo(b)fluoranthene	<0.0500	1.00	0.940	94	0.965	97	56-110	3	25	ug/L	02.28.19 11:46	
Benzo(g,h,i)perylene	<0.0500	1.00	0.859	86	1.05	105	47-122	20	25	ug/L	02.28.19 11:46	
Benzo(k)fluoranthene	<0.0500	1.00	0.874	87	0.908	91	58-123	4	25	ug/L	02.28.19 11:46	
Chrysene	<0.0500	1.00	0.895	90	0.942	94	52-113	5	25	ug/L	02.28.19 11:46	
Dibenz(a,h)Anthracene	<0.0500	1.00	0.851	85	0.913	91	48-126	7	25	ug/L	02.28.19 11:46	
Fluoranthene	<0.0500	1.00	0.921	92	0.966	97	51-124	5	25	ug/L	02.28.19 11:46	
Fluorene	<0.0500	1.00	0.810	81	0.879	88	42-116	8	25	ug/L	02.28.19 11:46	
Indeno(1,2,3-c,d)Pyrene	<0.0500	1.00	0.855	86	0.925	93	48-123	8	25	ug/L	02.28.19 11:46	
Naphthalene	0.0290	1.00	0.816	82	0.875	88	35-116	7	25	ug/L	02.28.19 11:46	
Phenanthrene	<0.0500	1.00	0.841	84	0.925	93	46-113	10	25	ug/L	02.28.19 11:46	
Pyrene	<0.0500	1.00	0.897	90	0.933	93	47-124	4	25	ug/L	02.28.19 11:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
Nitrobenzene-d5	82		83		86		41-128	%	02.28.19 11:46
2-Fluorobiphenyl	79		79		86		55-135	%	02.28.19 11:46
Terphenyl-D14	74		79		80		54-131	%	02.28.19 11:46

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672559-1-BLK LCS Sample Id: 7672559-1-BKS LCSD Sample Id: 7672559-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.0293	25.0	23.7	95	23.5	94	85-115	1	20	mg/L	02.27.19 12:15	
Magnesium	<0.0500	25.0	24.0	96	23.9	96	85-115	0	20	mg/L	02.27.19 12:15	

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Water Date Prep: 02.27.19
Parent Sample Id: 615647-001 MS Sample Id: 615647-001 S MSD Sample Id: 615647-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1140	25.0	1090	0	1110	0	70-130	2	20	mg/L	02.27.19 12:27	M3
Magnesium	53.6	25.0	72.5	76	73.6	80	70-130	2	20	mg/L	02.27.19 12:27	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

1.000

QC Summary 615631

NV5

ADOT Superior Maintenance Yard

Analytical Method: **Recoverable Metals, Total, by EPA 200.7** Prep Method: E200.7P
Seq Number: 3080554 Matrix: Waste Water Date Prep: 02.27.19
Parent Sample Id: 615478-001 MS Sample Id: 615478-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Calcium	38.7	25.0	61.5	91	70-130	mg/L	02.27.19 22:22	
Magnesium	7.16	25.0	30.9	95	70-130	mg/L	02.27.19 22:22	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080631 Matrix: Water Date Prep: 02.27.19
MB Sample Id: 7672560-1-BLK LCS Sample Id: 7672560-1-BKS LCSD Sample Id: 7672560-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	<0.000152	0.100	0.0961	96	0.0965	97	85-115	0	20	mg/L	02.27.19 20:48	
Selenium	<0.000368	0.100	0.0959	96	0.0979	98	85-115	2	20	mg/L	02.27.19 20:48	

Analytical Method: **Recoverable Metals,Total, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080631 Matrix: Drinking Water Date Prep: 02.27.19
Parent Sample Id: 615590-003 MS Sample Id: 615590-003 S MSD Sample Id: 615590-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Lead	0.000232	0.100	0.0940	94	0.0948	95	70-130	1	20	mg/L	02.27.19 20:57	
Selenium	0.00712	0.100	0.100	93	0.101	94	70-130	1	20	mg/L	02.27.19 20:57	

Analytical Method: **Metals, Recoverable Dissolved, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080763 Matrix: Water Date Prep: 02.28.19
MB Sample Id: 7672663-1-BLK LCS Sample Id: 7672663-1-BKS LCSD Sample Id: 7672663-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper, Dissolved	<0.000747	0.100	0.0934	93	0.0966	97	85-115	3	20	mg/L	03.01.19 00:28	

Analytical Method: **Metals, Recoverable Dissolved, by EPA 200.8** Prep Method: E200.8P
Seq Number: 3080763 Matrix: Waste Water Date Prep: 02.28.19
Parent Sample Id: 615478-001 MS Sample Id: 615478-001 S MSD Sample Id: 615478-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Copper, Dissolved	0.0112	0.100	0.107	96	0.106	95	70-130	1	20	mg/L	03.01.19 00:37	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

1.000

QC Summary 615631

NV5

ADOT Superior Maintenance Yard

Analytical Method: **Total Dissolved Solids by SM 2540C**
Seq Number: 3080740 Matrix: Water
MB Sample Id: 3080740-1-BLK LCS Sample Id: 3080740-1-BKS LCSD Sample Id: 3080740-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	967	97	950	95	80-120	2	10	mg/L	02.28.19 16:14	

Analytical Method: **Total Dissolved Solids by SM 2540C**
Seq Number: 3080740 Matrix: Water
Parent Sample Id: 615644-001 MD Sample Id: 615644-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	2020	2030	0	10	mg/L	02.28.19 16:14	

Analytical Method: **Total Suspended Solids by SM 2540D**
Seq Number: 3080430 Matrix: Water
MB Sample Id: 3080430-1-BLK LCS Sample Id: 3080430-1-BKS LCSD Sample Id: 3080430-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	<4.00	100	93.0	93	99.0	99	80-120	6	10	mg/L	02.27.19 07:56	

Analytical Method: **Total Suspended Solids by SM 2540D**
Seq Number: 3080430 Matrix: Water
Parent Sample Id: 615494-001 MD Sample Id: 615494-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	1450	1410	3	10	mg/L	02.27.19 07:56	

Analytical Method: **Total Suspended Solids by SM 2540D**
Seq Number: 3080430 Matrix: Water
Parent Sample Id: 615557-001 MD Sample Id: 615557-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Suspended Solids	250	230	8	10	mg/L	02.27.19 07:56	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

1.000

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com Page _____ of _____

Work Order No: 615631

Project Manager:	Michelle Oakley	Bill to: (if different)	
Company Name:	NV5	Company Name:	
Address:	1 W. Deer Valley Road	Address:	
City, State ZIP:	Phoenix, AZ 85027	City, State ZIP:	
Phone:	623.738.3690	Email:	michelle.oakley@nv5.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	ADOT Superior Maintenance Yard	Turn Around	
Project Number:		Routine ☐	
P.O. Number:		Rush:	
Sampler's Name:	John Cummings	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	2.3	Thermometer ID	
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	
Sample Custody Seals:	Yes No (N/A)	Total Containers:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TDS, TSS	COPPER DISSOLVED	PAH	LEAD, SELENIUM, HARDNESS
Maintenance yard	Grab	2/22/2019	13:23		5	1	1	2	1

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	2	2.25.19 15:20	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Sample Receipt Checklist

Client Name: NV5

Work Order Number: 615631

Checklist completed by: ER

Matrix: W Courier Name: (Client) TWA

Date and Time Received: 2/25/19 @ 15:20

Checked by: RK

Logged In by: ER Date: 2/25/19

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	Not Present ☐
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
All samples received same day of collection?	Yes ☐	No ☒	Temp: 2.3 Wet Ice Present ☒
Where was the temperature reading taken at?	Sample ☐	Temp Blank ☒	Other:
VOA Water – VOA vials have zero headspace?	Yes ☐	No ☐	N/A ☒
Water – Microbiological bottles have ≤ 2.5 cm headspace?	Yes ☐	No ☐	N/A ☒
Water – All sample pH's acceptable upon receipt?	Yes ☒	No ☐	N/A ☐ Checked by: ER

If **No**, list all samples and bottle types that are not acceptable in Additional Comments section. Also state any correction actions.

Dissolved Metals – Field Filtered?	Yes ☐	No ☒	N/A ☐

Additional Comments:

Inter-Office Shipment

IOS Number **123260**

Date/Time: 02/25/19 17:46
Lab# From: **Phoenix**
Lab# To: **Houston**

Created by: Emily Petrunia
Delivery Priority:
Air Bill No.: 774556009910

Please send report to: Skip Harden
Address: 2525 West Huntington Drive, Suite 102
E-Mail: skip.harden@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
615631-001	W	Maintenance Yard	02/22/19 13:23	E200.7	Recoverable Metals, Total, by EPA 200.7	03/05/19	08/21/19	WWH	CA HARD MG	
615631-001	W	Maintenance Yard	02/22/19 13:23	E200.8DIS	Metals, Recoverable Dissolved, by EPA 2	03/05/19	08/21/19	WWH	CU	
615631-001	W	Maintenance Yard	02/22/19 13:23	E200.8	Recoverable Metals,Total, by EPA 200.8	03/05/19	08/21/19	WWH	PB SE	
615631-001	W	Maintenance Yard	02/22/19 13:23	SIM_PAH_D	PAHs by 8270D SIM	03/05/19	**03/01/19 13:23**	WWH	ACNP ACNPY ANTH BZA	
615631-001	W	Maintenance Yard	02/22/19 13:23	SM2540C	Total Dissolved Solids by SM 2540C	03/05/19	**03/01/19 13:23**	WWH	TDS	
615631-001	W	Maintenance Yard	02/22/19 13:23	SM2540D	Total Suspended Solids by SM 2540D	03/05/19	**03/01/19 13:23**	WWH	TSS	

Inter Office Shipment or Sample Comments:

Relinquished By: Emily Petrunia

Date Relinquished: 02/25/2019

Received By: Taha Hedib

Date Received: 02/26/2019 09:30

Cooler Temperature: 4.4

1.000

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 123260

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : hou-068

Sent By: Emily Petrunia **Date Sent:** 02/25/2019 05:46 PM

Received By: Taha Hedib **Date Received:** 02/26/2019 09:30 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 02/26/2019

Taha Hedib

February 25, 2019

Michelle Oakley
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 19B0585
Order Name: ADOT Storm Water

RE: Storm Water

Dear Michelle Oakley,

Turner Laboratories, Inc. received 1 sample(s) on 02/22/2019 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Kevin Brim
Project Manager

Client: NV5
Project: Storm Water
Work Order: 19B0585
Date Received: 02/22/2019

Order: ADOT Storm Water

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
19B0585-01	TUCMS4190222	Storm Water	02/22/2019 0900

Client: NV5
Project: Storm Water
Work Order: 19B0585
Date Received: 02/22/2019

Case Narrative

E3 Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND Not Detected at or above the PQL

PQL Practical Quantitation Limit

DF Dilution Factor

Client: NV5
Project: Storm Water
Work Order: 19B0585
Lab Sample ID: 19B0585-01

Client Sample ID: TUCMS4190222
Collection Date/Time: 02/22/2019 0900
Matrix: Storm Water
Order Name: ADOT Storm Water

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Coliform & E. Coli, MPN-SM 9223B								
E.Coli	490	1.0		MPN/100mL	1	02/22/2019 0936	02/23/2019 0950	CR
Fecal coliforms	2400	1.0	E3	MPN/100mL	1	02/22/2019 1403	02/23/2019 0955	CR
Total Coliform	2400	1.0	E3	MPN/100mL	1	02/22/2019 0936	02/23/2019 0950	CR

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 19B0585 DATE 2/22/19 PAGE 1 OF 1

PROJECT NAME ADOT STORMWATER
CONTACT NAME MICHELLE OAKLEY
COMPANY NAME NV5
ADDRESS
ZIP PHONE EMAIL
SAMPLER'S SIGNATURE

NUMBER OF CONTAINERS

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	Base Neutrals 625/8270 ☐	Acids ☐	Volatile Organics 624 ☐	524.2 ☐	8260 ☐	HAAS ☐	Chloride ☐	Sulfate ☐	Resistivity ☐	NO_3 ☐	NO_2 ☐	TKN ☐	1664 ☐	TPH ☐	Oil & Grease ☐	TCLP Analysis	VOA ☐	Semi-VOA ☐	Pest. ☐	Metals	TCLP ☐	Dissolved ☐	Total ☐	RCRA8 ☐	Total ☐	Cyanide	Amen. ☐	WAD ☐	SDWA-INORGANICS PRIMARY ☐	SECONDARY ☐	Coliform	MPN ☐	PIA ☐	pH ☐	Fecal ☐	Cl_2 ☐	Cl ☐	Turb ☐	COD ☐	TSS ☐	BOD ☐	E. coli ☐			
TUCMS4190222	2/22/19	0900		ST																													4									4					

1. RELINQUISHED BY:
Signature
Printed Name MARL MURPHY
Firm NV5
Date/Time 2/22/19 0917

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____ Standard (approx. 10 days)*
____ Next Day ____ 2 Day ____ 5 Day*
____ Email Preliminary Results
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 2
Temperature 7.3
☒ Wet Ice
☐ Ambient
☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature Leandra X Marshall
Printed Name Leandra Marshall
Firm TURNER LABORATORIES, INC.
Date/Time 2/22/19 09:17

* LEGEND
SAMPLE MATRIX
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

Compliance Analysis: ☐ Yes ☐ No
ADEQ Forms: ☐ Yes ☐ No
Mail ADEQ Forms: ☐ Yes ☐ No

Custody Seals ☐
Container Intact ☑
COC / Labels Agree ☒

Preservation Confirmation ☑
Appropriate Head Space ☒
Received Within Hold Time ☒

SPECIAL INSTRUCTIONS/COMMENTS:

March 04, 2019

Michelle Oakley
NV5
7620 North Hartman Lane, Suite 162
Tucson, AZ 85743

TEL (520) 638-7270
FAX (623) 738-3690

Work Order No.: 19B0468
Order Name: ADOT Stormwater
444117-0250000.11

RE: Storm Water

Dear Michelle Oakley,

Turner Laboratories, Inc. received 1 sample(s) on 02/15/2019 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

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Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Elizabeth Kasik
Laboratory Director

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

Order: ADOT Stormwater 444117-0250000.11

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
19B0468-01	TUCMS4190214	Storm Water	02/14/2019 2000

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

Case Narrative

The PAH 8310 analysis was performed by Orange Coast Analytical, Inc. in Tustin, CA.

K6	Glucose/glutamic acid BOD/CBOD was below the method acceptance criteria.
Q9	Insufficient sample received to meet method QC requirements.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: NV5 **Client Sample ID:** TUCMS4190214
Project: Storm Water **Collection Date/Time:** 02/14/2019 2000
Work Order: 19B0468 **Matrix:** Storm Water
Lab Sample ID: 19B0468-01 **Order Name:** ADOT Stormwater 444117-0250000.11

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Turbidity-E180.1								
Turbidity	140	2.5		NTU	25	02/15/2019 1150	02/15/2019 1150	AR
ICP Total Metals-E200.7 (4.4)								
Calcium	19	4.0		mg/L	1	02/20/2019 0910	02/21/2019 1705	MH
Magnesium	ND	3.0		mg/L	1	02/20/2019 0910	02/21/2019 1705	MH
Sodium	9.6	5.0		mg/L	1	02/20/2019 0910	02/22/2019 1055	MH
Zinc	0.91	0.040		mg/L	1	02/20/2019 0910	02/21/2019 1706	MH
ICP/MS Total Metals-E200.8 (5.4)								
Arsenic	0.0025	0.00050		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
Barium	0.13	0.00050		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
Cadmium	0.00031	0.00025		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
Chromium	0.0079	0.0025		mg/L	5	02/19/2019 1030	02/20/2019 1512	MH
Copper	0.10	0.00050		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
Lead	0.015	0.0025		mg/L	5	02/19/2019 1030	02/20/2019 1512	MH
Nickel	0.0070	0.00050		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
Selenium	ND	0.0025		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
Silver	ND	0.00050		mg/L	1	02/19/2019 1030	02/20/2019 1252	MH
CVAA Total Mercury-E245.1								
Mercury	ND	0.0010		mg/L	1	02/20/2019 1245	02/20/2019 1619	AR
Anions by Ion Chromatography-E300.0 (2.1)								
Chloride	6.5	1.0		mg/L	1	02/15/2019 0953	02/15/2019 1201	EJ
Nitrogen, Nitrate (As N)	0.76	0.50		mg/L	1	02/15/2019 0953	02/15/2019 1201	EJ
Nitrogen, Nitrite (As N)	0.11	0.10		mg/L	1	02/15/2019 0953	02/15/2019 1201	EJ
Sulfate	6.6	5.0		mg/L	1	02/15/2019 0953	02/15/2019 1201	EJ
Chemical Oxygen Demand-Hach 8000								
Chemical Oxygen Demand	100	20		mg/L	1	02/19/2019 1030	02/20/2019 1650	EJ
Total Kjeldahl Nitrogen-PAI-DK01								
Nitrogen, Total Kjeldahl	2.7	0.50		mg/L	1	02/25/2019 1600	02/26/2019 1405	EJ
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	82	20		mg/L	1	02/21/2019 0912	03/01/2019 0807	EJ
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D								

Client: NV5
Project: Storm Water
Work Order: 19B0468
Lab Sample ID: 19B0468-01

Client Sample ID: TUCMS4190214
Collection Date/Time: 02/14/2019 2000
Matrix: Storm Water
Order Name: ADOT Stormwater 444117-0250000.11

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Suspended Solids	170	10		mg/L	1	02/19/2019 0831	02/21/2019 1645	EJ
BOD, 5 day-SM5210 B								
Biochemical Oxygen Demand	20	2.0		mg/L	1	02/15/2019 0808	02/20/2019 1523	EJ

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902213 - E200.8 (5.4)										
Blank (1902213-BLK1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Silver	ND	0.00050	mg/L							
LCS (1902213-BS1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Arsenic	0.049	0.00050	mg/L	0.05000		97	85-115			
Barium	0.048	0.00050	mg/L	0.05000		96	85-115			
Cadmium	0.048	0.00025	mg/L	0.05000		97	85-115			
Chromium	0.048	0.00050	mg/L	0.05000		96	85-115			
Copper	0.049	0.00050	mg/L	0.05000		97	85-115			
Lead	0.049	0.00050	mg/L	0.05000		98	85-115			
Nickel	0.049	0.00050	mg/L	0.05000		97	85-115			
Selenium	0.048	0.0025	mg/L	0.05000		96	85-115			
Silver	0.050	0.00050	mg/L	0.05000		99	85-115			
LCS Dup (1902213-BSD1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Arsenic	0.050	0.00050	mg/L	0.05000		100	85-115	2	20	
Barium	0.049	0.00050	mg/L	0.05000		98	85-115	2	20	
Cadmium	0.049	0.00025	mg/L	0.05000		99	85-115	2	20	
Chromium	0.049	0.00050	mg/L	0.05000		98	85-115	2	20	
Copper	0.050	0.00050	mg/L	0.05000		99	85-115	2	20	
Lead	0.049	0.00050	mg/L	0.05000		99	85-115	0.9	20	
Nickel	0.049	0.00050	mg/L	0.05000		99	85-115	2	20	
Selenium	0.050	0.0025	mg/L	0.05000		100	85-115	4	20	
Silver	0.050	0.00050	mg/L	0.05000		100	85-115	1	20	
Matrix Spike (1902213-MS1)		**Source: 19B0321-01**		Prepared: 02/19/2019 Analyzed: 02/20/2019						
Arsenic	0.063	0.00050	mg/L	0.05000	0.0056	115	70-130			
Barium	0.15	0.00050	mg/L	0.05000	0.087	127	70-130			
Cadmium	0.054	0.00025	mg/L	0.05000	ND	108	70-130			
Chromium	0.064	0.00050	mg/L	0.05000	ND	128	70-130			
Copper	0.056	0.00050	mg/L	0.05000	0.0054	102	70-130			
Lead	0.065	0.0010	mg/L	0.05000	0.029	72	70-130			
Nickel	0.063	0.00050	mg/L	0.05000	0.00094	125	70-130			
Selenium	0.055	0.0025	mg/L	0.05000	0.00051	108	70-130			
Silver	0.051	0.00050	mg/L	0.05000	0.000037	103	70-130			
Batch 1902224 - E245.1										
Blank (1902224-BLK1)				Prepared & Analyzed: 02/20/2019						
Mercury	ND	0.0010	mg/L							
LCS (1902224-BS1)				Prepared & Analyzed: 02/20/2019						
Mercury	0.0052	0.0010	mg/L	0.005000		103	85-115			

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902224 - E245.1										
LCS Dup (1902224-BSD1)				Prepared & Analyzed: 02/20/2019						
Mercury	0.0052	0.0010	mg/L	0.005000		105	85-115	1	20	
Matrix Spike (1902224-MS1)		**Source: 19B0306-01**		Prepared & Analyzed: 02/20/2019						
Mercury	0.0049	0.0010	mg/L	0.005000	0.00012	96	85-115			
Matrix Spike (1902224-MS2)		**Source: 19B0404-01**		Prepared & Analyzed: 02/20/2019						
Mercury	0.0050	0.0010	mg/L	0.005000	ND	99	85-115			
Matrix Spike Dup (1902224-MSD1)		**Source: 19B0306-01**		Prepared & Analyzed: 02/20/2019						
Mercury	0.0047	0.0010	mg/L	0.005000	0.00012	92	85-115	4	20	
Matrix Spike Dup (1902224-MSD2)		**Source: 19B0404-01**		Prepared & Analyzed: 02/20/2019						
Mercury	0.0051	0.0010	mg/L	0.005000	ND	102	85-115	3	20	
Batch 1902232 - E200.7 (4.4)										
Blank (1902232-BLK1)				Prepared: 02/20/2019 Analyzed: 02/21/2019						
Calcium	ND	4.0	mg/L							
Magnesium	ND	3.0	mg/L							
Sodium	ND	5.0	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1902232-BS1)				Prepared: 02/20/2019 Analyzed: 02/21/2019						
Calcium	9.8	4.0	mg/L	10.00		98	85-115			
Magnesium	9.8	3.0	mg/L	10.00		98	85-115			
Sodium	10	5.0	mg/L	10.00		104	85-115			
Zinc	0.46	0.040	mg/L	0.5000		91	85-115			
LCS Dup (1902232-BSD1)				Prepared: 02/20/2019 Analyzed: 02/21/2019						
Calcium	9.7	4.0	mg/L	10.00		97	85-115	0.8	20	
Magnesium	9.7	3.0	mg/L	10.00		97	85-115	1	20	
Sodium	9.9	5.0	mg/L	10.00		99	85-115	5	20	
Zinc	0.45	0.040	mg/L	0.5000		90	85-115	1	20	
Matrix Spike (1902232-MS1)		**Source: 19B0450-10**		Prepared: 02/20/2019 Analyzed: 02/21/2019						
Calcium	10	4.0	mg/L	10.00	0.17	102	70-130			
Magnesium	9.8	3.0	mg/L	10.00	ND	98	70-130			
Sodium	10	5.0	mg/L	10.00	ND	104	70-130			
Zinc	0.46	0.040	mg/L	0.5000	ND	93	70-130			
Matrix Spike (1902232-MS2)		**Source: 19B0474-02**		Prepared: 02/20/2019 Analyzed: 02/21/2019						
Calcium	54	4.0	mg/L	10.00	43	102	70-130			
Magnesium	12	3.0	mg/L	10.00	2.3	98	70-130			
Sodium	70	5.0	mg/L	10.00	61	94	70-130			
Zinc	0.50	0.040	mg/L	0.5000	0.026	95	70-130			

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902182 - E180.1										
Duplicate (1902182-DUP1)		**Source: 19B0468-01**		Prepared & Analyzed: 02/15/2019						
Turbidity	160	2.5	NTU		140			8	10	
Batch 1902190 - SM5210 B										
Blank (1902190-BLK1)				Prepared: 02/15/2019 Analyzed: 02/20/2019						
Biochemical Oxygen Demand	ND	2.0	mg/L							
LCS (1902190-BS1)				Prepared: 02/15/2019 Analyzed: 02/20/2019						
Biochemical Oxygen Demand	150		mg/L	198.0		75	85-115			K6
Duplicate (1902190-DUP1)		**Source: 19B0468-01**		Prepared: 02/15/2019 Analyzed: 02/20/2019						
Biochemical Oxygen Demand	19	2.0	mg/L		20			7	20	
Batch 1902205 - SM2540 D										
Duplicate (1902205-DUP1)		**Source: 19B0473-05**		Prepared: 02/19/2019 Analyzed: 02/21/2019						
Total Suspended Solids	730	10	mg/L		720			2	5	
Duplicate (1902205-DUP2)		**Source: 19B0495-01**		Prepared: 02/19/2019 Analyzed: 02/21/2019						
Total Suspended Solids	12	10	mg/L		12			0	5	Q9
Batch 1902223 - Hach 8000										
Blank (1902223-BLK1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Chemical Oxygen Demand	ND	20	mg/L							
LCS (1902223-BS1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Chemical Oxygen Demand	430	20	mg/L	500.0		86	70-130			
LCS Dup (1902223-BSD1)				Prepared: 02/19/2019 Analyzed: 02/20/2019						
Chemical Oxygen Demand	440	20	mg/L	500.0		88	70-130	3	20	
Matrix Spike (1902223-MS1)		**Source: 19B0454-01**		Prepared: 02/19/2019 Analyzed: 02/20/2019						
Chemical Oxygen Demand	560	20	mg/L	500.0	35	105	70-130			
Matrix Spike Dup (1902223-MSD1)		**Source: 19B0454-01**		Prepared: 02/19/2019 Analyzed: 02/20/2019						
Chemical Oxygen Demand	580	20	mg/L	500.0	35	108	70-130	3	20	
Batch 1902247 - SM2540 C										
Duplicate (1902247-DUP1)		**Source: 19B0534-01**		Prepared: 02/21/2019 Analyzed: 03/01/2019						
Total Dissolved Solids (Residue, Filterable)	480	20	mg/L		480			0.8	5	
Batch 1902285 - PAI-DK01										
Blank (1902285-BLK1)				Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	ND	0.50	mg/L							
LCS (1902285-BS1)				Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	5.1	0.50	mg/L	5.000		102	80-120			
LCS Dup (1902285-BSD1)				Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	5.1	0.50	mg/L	5.000		103	80-120	0.4	20	

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902285 - PAI-DK01										
Matrix Spike (1902285-MS1)		**Source: 19B0370-01**		Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	5.0	0.50	mg/L	5.000	0.24	95	80-120			
Matrix Spike (1902285-MS2)		**Source: 19B0403-01**		Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	8.8	0.50	mg/L	5.000	3.5	107	80-120			
Matrix Spike Dup (1902285-MSD1)		**Source: 19B0370-01**		Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	5.1	0.50	mg/L	5.000	0.24	98	80-120	2	20	
Matrix Spike Dup (1902285-MSD2)		**Source: 19B0403-01**		Prepared: 02/25/2019 Analyzed: 02/26/2019						
Nitrogen, Total Kjeldahl	8.9	0.50	mg/L	5.000	3.5	108	80-120	0.8	20	

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902178 - E300.0 (2.1)										
Blank (1902178-BLK1)				Prepared & Analyzed: 02/15/2019						
Chloride	ND	1.0	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1902178-BS1)				Prepared & Analyzed: 02/15/2019						
Chloride	12	1.0	mg/L	12.50		92	90-110			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000		94	90-110			
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500		97	90-110			
Sulfate	13	5.0	mg/L	12.50		102	90-110			
LCS Dup (1902178-BSD1)				Prepared & Analyzed: 02/15/2019						
Chloride	12	1.0	mg/L	12.50		94	90-110	1	10	
Nitrogen, Nitrate (As N)	4.8	0.50	mg/L	5.000		95	90-110	1	10	
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500		98	90-110	2	10	
Sulfate	13	5.0	mg/L	12.50		103	90-110	0.6	10	
Matrix Spike (1902178-MS1)		**Source: 19B0468-01**		Prepared & Analyzed: 02/15/2019						
Chloride	19	1.0	mg/L	12.50	6.5	101	80-120			
Nitrogen, Nitrate (As N)	5.5	0.50	mg/L	5.000	0.76	95	80-120			
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500	0.11	99	80-120			
Sulfate	18	5.0	mg/L	12.50	6.6	91	80-120			
Matrix Spike (1902178-MS2)		**Source: 19A0683-01**		Prepared: 02/15/2019 Analyzed: 02/16/2019						
Chloride	24	1.0	mg/L	12.50	11	103	80-120			
Nitrogen, Nitrate (As N)	5.2	0.50	mg/L	5.000	0.62	92	80-120			
Sulfate	15	5.0	mg/L	12.50	3.1	96	80-120			
Matrix Spike (1902178-MS3)		**Source: 19B0469-01**		Prepared: 02/15/2019 Analyzed: 02/16/2019						
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	ND	100	80-120			
Sulfate	24	5.0	mg/L	12.50	11	99	80-120			
Matrix Spike (1902178-MS4)		**Source: 19B0471-01**		Prepared: 02/15/2019 Analyzed: 02/16/2019						
Chloride	23	1.0	mg/L	12.50	10	104	80-120			
Nitrogen, Nitrate (As N)	5.3	0.50	mg/L	5.000	0.59	95	80-120			
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	ND	100	80-120			
Sulfate	27	5.0	mg/L	12.50	15	91	80-120			
Matrix Spike Dup (1902178-MSD1)		**Source: 19B0468-01**		Prepared & Analyzed: 02/15/2019						
Chloride	19	1.0	mg/L	12.50	6.5	99	80-120	1	10	
Nitrogen, Nitrate (As N)	5.4	0.50	mg/L	5.000	0.76	93	80-120	1	10	
Nitrogen, Nitrite (As N)	2.6	0.10	mg/L	2.500	0.11	98	80-120	1	10	
Sulfate	18	5.0	mg/L	12.50	6.6	88	80-120	2	10	
Matrix Spike Dup (1902178-MSD2)		**Source: 19A0683-01**		Prepared: 02/15/2019 Analyzed: 02/16/2019						
Chloride	24	1.0	mg/L	12.50	11	104	80-120	0.5	10	
Nitrogen, Nitrate (As N)	5.3	0.50	mg/L	5.000	0.62	93	80-120	0.8	10	
Sulfate	15	5.0	mg/L	12.50	3.1	96	80-120	0.3	10	

Client: NV5
Project: Storm Water
Work Order: 19B0468
Date Received: 02/15/2019

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1902178 - E300.0 (2.1)										
Matrix Spike Dup (1902178-MSD3)	**Source: 19B0469-01**			Prepared: 02/15/2019 Analyzed: 02/16/2019						
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	ND	98	80-120	2	10	
Sulfate	23	5.0	mg/L	12.50	11	92	80-120	4	10	
Matrix Spike Dup (1902178-MSD4)	**Source: 19B0471-01**			Prepared: 02/15/2019 Analyzed: 02/16/2019						
Chloride	23	1.0	mg/L	12.50	10	102	80-120	1	10	
Nitrogen, Nitrate (As N)	5.2	0.50	mg/L	5.000	0.59	93	80-120	1	10	
Nitrogen, Nitrite (As N)	2.5	0.10	mg/L	2.500	ND	99	80-120	1	10	
Sulfate	27	5.0	mg/L	12.50	15	92	80-120	0.07	10	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 19B0468 DATE 2/15/19 PAGE 1 OF 1

PROJECT NAME ADOT Stormwater # 444117-0250000.11

CONTACT NAME : Michelle Oakley

COMPANY NAME : NV5

ADDRESS :

CITY Tucson STATE AZ ZIP CODE

PHONE 520302 FAX

SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Total Coliform & E. Coli, MPN-SM 9223B	BOD, COD, TSS, SM2540 C and D, 180.1	Metals 200,7/200.8	Nitrate, Nitrie, TKN, Sulfate, Chloride, 300	Mercury, 245.1	PAH, 8310
TUCMS4190214	2/14	2000		STORMWATER			X	X	X	X	X

SAMPLE NO: TUCMS4190214

NV5
ADOT Stormwater Monitoring
7620 N. Hartman Lane, Suite 162
Tucson, AZ 85743

1. RELINQUISHED BY:
Signature
Printed Name MARK MURPHY
Firm NV5
Date/Time 2/15/ 0850

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature Leandra X. Marshall
Printed Name Leandra X. Marshall
Firm TURNER LABORATORIES, INC.
Date/Time 2/15/19 08:50

TURNAROUND REQUIREMENTS:
Standard (approx.10 days)*
Next day 2 Day 5 Day*
Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
I. Routine Report
II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account Y N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 6
Temperature 8.2
☒ Wet Ice ☐ Blue Ice

***LEGEND**
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis:	☐ Yes	☐ No	Custody Seals	☐	Preservation Confirmation	☒
ADEQ Forms:	☐ Yes	☐ No	Container Intact	☒	Appropriate Head Space	☒
Mail ADEQ Forms:	☐ Yes	☐ No	COC/Labels Agree	☒	Received Within Hold Time	☒

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

3002 Dow Suite 532 Tustin, CA 92780

(714) 832-0064

Laboratory Certification (ELAP) No.: 2576
Expiration Date: 2020
Los Angeles County Sanitation District Lab ID# 10206

Laboratory Director's Name:

Mark Noorani

Client:	Turner Laboratories, Inc.
Laboratory Reference:	TLI AZ11730
Project Name:	19B0468
Project Number:	
Date Received:	2/19/2019
Date Reported:	2/28/2019
Chain of Custody Received:	☑
Analytical Method:	8310,

Mark Noorani, Laboratory Director

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11730
Project Name: 19B0468
Project #:

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 3.4ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11730
Project Name: 19B0468
Project #:

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
19B0468-01	AZ11730-001	2/19/2019	2/14/2019	Water

Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11730
Project Name: 19B0468
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
19B0468-01	AZ11730-001	2/19/2019	2/14/2019	2/19/2019	2/22/2019	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	
Pyrene:	129-00-0	
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	Matrix

* Acceptable Recovery: 2-178 %

Dilution Factor: 1
Data Qualifiers: S1,

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Ms. Elizabeth Kasik
Turner Laboratories, Inc.
2445 N. Coyote Dr Ste #104
Tucson, AZ, 85745

Lab Reference #: TLI AZ11730
Project Name: 19B0468
Project #:

Polynuclear Aromatic Hydrocarbons (EPA 8310)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV0219193			2/19/2019	2/20/2019	Water

ANALYTE	CAS #	µg/L
Acenaphthene:	83-32-9	<0.050
Acenaphthylene:	208-96-8	<0.050
Anthracene:	120-12-7	<0.050
Benz(a)anthracene:	56-55-3	<0.050
Benzo(a)pyrene:	50-32-8	<0.050
Benzo(b)fluoranthene:	205-99-2	<0.050
Benzo(k)fluoranthene:	207-08-9	<0.050
Benzo(g,h,i)perylene:	191-24-2	<0.050
Chrysene:	218-01-9	<0.050
Dibenz(a,h)anthracene:	53-70-3	<0.050
Fluoranthene:	206-44-0	<0.050
Pyrene:	129-00-0	<0.050
Fluorene:	86-73-7	<0.10
Phenanthrene:	85-01-8	<0.050
Indeno(1,2,3-cd)pyrene:	193-39-5	<0.050
Naphthalene:	91-20-3	<0.050

Surrogate:	% RC*
Nitrobenzene-d5	73

* Acceptable Recovery: 2-178 %

Dilution Factor: 1
Data Qualifiers: None

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QA/QC Report
for
Polynuclear Aromatic Hydrocarbons (EPA 8310)
Reporting units: ppb

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Date of Extraction: 2/19/2019
Date of Analysis: 2/20/2019
Dup Date of Analysis: 2/20/2019
Laboratory Sample #: AV0219193
MS/MSD Qualifiers: L2,
Reference #: TLI AZ11730

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Acenaphthene	0.250	0.162	0.161	65	64	1	51-130	26	☐
Anthracene	0.250	0.123	0.125	49	50	2	55-130	21	☑
Pyrene	0.250	0.174	0.171	70	68	2	55-130	20	☐
Chrysene	0.250	0.178	0.169	71	68	5	60-130	20	☐
Benzo(a)pyrene	0.250	0.167	0.152	67	61	9	55-130	26	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	LCS	LCSD	Qual
Nitrobenzene-d5	71	68	☐

ACP % RC
2-178

Data Qualifier Definitions

Qualifier

L2 = The associated blank spike recovery was below laboratory acceptance limits.

AV0219193	8310	Anthracene	LCS/LCSD

S1 = Surrogate recovery was above laboratory acceptance limits, but within method acceptance limits.

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

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SUBCONTRACT ORDER

Turner Laboratories, Inc.

19B0468

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Elizabeth Kasik

RECEIVING LABORATORY:

Orange Coast Analytical
3002 Dow Ave Suite 532
Tustin, CA 92780
Phone :(714) 832-0064
Fax:
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 19B0468-01 Non-Potable Wa Sampled:02/14/2019 20:00			
PAHs by SW 8310	02/21/2019 20:00		
Containers Supplied:			

Leandra X. Marshall 2/18/19 16:00 UPS 2/18/19 16:00
Released By Date Received By Date on ice

OCACA 2/19/19 1020 @3.4°C
Released By Date Received By Date

Sample Receipt Report

Laboratory Reference: TLI AZ11730 Logged in by: MM

Received:	02/19/19 10:20	Company Name:	Turner Laboratories, Inc.
Method of Shipment:	UPS	Project Manager:	Ms. Elizabeth Kasik
Shipping Container:	Cooler	Project Name:	19B0468
# Shipping Containers:	1	Project #:	

Sample Quantity
1 Water

Chain of Custody	Complete ☑	Incomplete ☐	None ☐
Samples On Ice	Yes, Wet ☑	Yes, Blue ☐	No ☐
Temperature	3.4°C		
Shipping Intact	Yes ☑	N/A ☐	No ☐
Shipping Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Samples Intact	Yes ☑		No ☐
Sample Custody Seals Intact	Yes ☐	N/A ☑	No ☐
Custody Seals Signed & Dated	Yes ☐	N/A ☑	No ☐
Proper Test Containers	Yes ☑		No ☐
Proper Test Preservations	Yes ☑		No ☐
Samples Within Hold Times	Yes ☑		No ☐
VOAs Have Zero Headspace	Yes ☐	N/A ☑	No ☐
Sample Labels	Complete ☑	Incomplete ☐	None ☐
Sample Information Matches COC	Yes ☑	N/A ☐	No ☐

Notes

Client Notified _____ By _____ On _____