

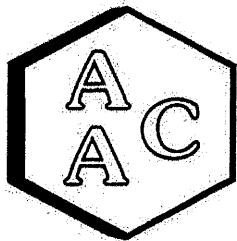
# **Volatile Organic Compound Analysis Results for Samples Collected in Nuiqsut, Alaska**

Sample Location: Nuiqsut Ambient Air Quality Monitoring Station

Date Sample Collected: 3/28/2022

Analysis Conducted by: Atmospheric Analysis & Consulting, Inc.

Analysis Method: EPA Method TO-12/PAMS Protocol by GC/MS/FID



# Atmospheric Analysis & Consulting, Inc

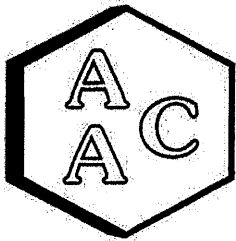
## Laboratory Analysis Report

**CLIENT** : SLR International Corporation  
**PROJECT NO** : 220687  
**MATRIX** : AIR  
**UNITS** : ppb (v/v)

**DATE RECEIVED** : 04/01/2022  
**DATE REPORTED** : 04/04/2022

### HYDROCARBONS (C2-C12) SPECIATED

Client ID	NUI			Sample Reporting Limit (SRL) (MRLxDFs)	NUI DUP			Sample Reporting Limit (SRL) (MRLxDFs)	Method Reporting Limit (MRL)
AAC ID	220687-29679				220687-29680				
Date Sampled	03/28/2022				03/28/2022				
Date Analyzed	04/01/2022				04/01/2022				
Can Dilution Factor	1.58				1.91				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Ethylene	<SRL	U	1	0.79	<SRL	U	1	0.95	0.50
Acetylene	<SRL	U	1	0.79	<SRL	U	1	0.95	0.50
Ethane	2.51		1	0.79	2.63		1	0.95	0.50
Propylene	1.18		1	1.05	1.46		1	1.27	0.67
Propane	0.90		1	0.53	0.94		1	0.64	0.33
Isobutane	0.83		1	0.39	1.00		1	0.48	0.25
1-Butene	<SRL	U	1	0.39	<SRL	U	1	0.48	0.25
n-Butane	<SRL	U	1	0.39	<SRL	U	1	0.48	0.25
trans-2-Butene	<SRL	U	1	0.39	<SRL	U	1	0.48	0.25
cis-2-Butene	<SRL	U	1	0.39	<SRL	U	1	0.48	0.25
Isopentane	0.50		1	0.32	0.61		1	0.38	0.20
1-Pentene	<SRL	U	1	0.32	<SRL	U	1	0.38	0.20
n-Pentane	2.48		1	0.32	3.04		1	0.38	0.20
Isoprene	<SRL	U	1	0.32	<SRL	U	1	0.38	0.20
trans-2-Pentene	<SRL	U	1	0.32	<SRL	U	1	0.38	0.20
cis-2-Pentene	<SRL	U	1	0.32	<SRL	U	1	0.38	0.20
2,2-Dimethylbutane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
Cyclopentane	<SRL	U	1	0.32	<SRL	U	1	0.38	0.20
2,3-Dimethylbutane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
2-Methylpentane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
3-Methylpentane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
1-Hexene	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
n-Hexane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
Methylcyclopentane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
2,4-Dimethylpentane	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
Benzene	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
Cyclohexane	<SRL	U	1	0.26	<SRL	U	1	0.32	0.17
2-Methylhexane	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
2,3-Dimethylpentane	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
3-Methylhexane	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
2,2,4-Trimethylpentane	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
n-Heptane	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
Methylcyclohexane	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
2,3,4-Trimethylpentane	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13



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## Laboratory Analysis Report

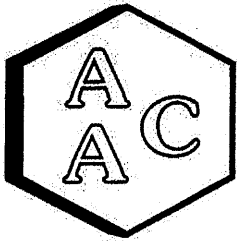
**CLIENT** : SLR International Corporation  
**PROJECT NO** : 220687  
**MATRIX** : AIR  
**UNITS** : ppb (v/v)

**DATE RECEIVED** : 04/01/2022  
**DATE REPORTED** : 04/04/2022

### HYDROCARBONS (C2-C12) SPECIATED

<i>Client ID</i>	NUI			Sample Reporting Limit (SRL) (MRL×DFs)	NUI DUP			Sample Reporting Limit (SRL) (MRL×DFs)	Method Reporting Limit (MRL)
<i>AAC ID</i>	220687-29679				220687-29680				
<i>Date Sampled</i>	03/28/2022				03/28/2022				
<i>Date Analyzed</i>	04/01/2022				04/01/2022				
<i>Can Dilution Factor</i>	1.58				1.91				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Toluene	<SRL	U	1	0.23	<SRL	U	1	0.27	0.14
2-Methylheptane	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
3-Methylheptane	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
n-Octane	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
Ethylbenzene	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
m/p-Xylenes	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
Styrene	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
o-Xylene	<SRL	U	1	0.20	<SRL	U	1	0.24	0.13
Nonane	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
Isopropylbenzene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
n-Propylbenzene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
m-Ethyltoluene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
p-Ethyltoluene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
1,3,5-Trimethylbenzene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
o-Ethyltoluene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
1,2,4-Trimethylbenzene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
n-Decane	<SRL	U	1	0.16	<SRL	U	1	0.19	0.10
1,2,3-Trimethylbenzene	<SRL	U	1	0.18	<SRL	U	1	0.21	0.11
m-Diethylbenzene	<SRL	U	1	0.16	<SRL	U	1	0.19	0.10
p-Diethylbenzene	<SRL	U	1	0.16	<SRL	U	1	0.19	0.10
n-Undecane	<SRL	U	1	0.14	<SRL	U	1	0.17	0.09
n-Dodecane	<SRL	U	1	0.13	<SRL	U	1	0.16	0.08

U - Compound was analyzed for, but was not detected at or above the SRL.



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## Quality Control/Quality Assurance Report PAMS Calibration Verification Analysis

Initial Calibration Date : 02/11/2022  
Standard ID : MS1-020922-01

Instrument ID : MS01  
Analysis Date : 03/28/2022  
Analyst : RB

### Continuing Calibration Verification

Propane	xRF	Daily RF	RPD*
	698	718	2.78

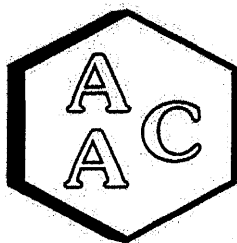
\* Must be <10%

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

Propane	Sample Conc. (ppbC)	Spike Added (ppbC)	Recovery (ppbC)		% Recovery**		RPD***
			LCS	LCSD	LCS	LCSD	
	0.00	4.24	4.36	4.48	102.8	105.7	2.71

\*\* Must be 80-120%

\*\*\* Must be <25%



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## Quality Control/Quality Assurance Report

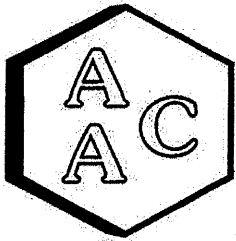
### PAMS Method Blank Analysis

Matrix : Air  
Units : ppbC

Instrument ID : MS01  
Analysis Date : 03/28/2022  
Analyst : RB

Analyte	Result	PQL
Ethylene	<PQL	1.0
Acetylene	<PQL	1.0
Ethane	<PQL	1.0
Propylene	<PQL	2.0
Propane	<PQL	1.0
Isobutane	<PQL	1.0
1-Butene	<PQL	1.0
n-Butane	<PQL	1.0
trans-2-Butene	<PQL	1.0
cis-2-Butene	<PQL	1.0
Isopentane	<PQL	1.0
1-Pentene	<PQL	1.0
n-Pentane	<PQL	1.0
Isoprene	<PQL	1.0
trans-2-Pentene	<PQL	1.0
cis-2-Pentene	<PQL	1.0
2,2-Dimethylbutane	<PQL	1.0
Cyclopentane	<PQL	1.0
2,3-Dimethylbutane	<PQL	1.0
2-Methylpentane	<PQL	1.0
3-Methylpentane	<PQL	1.0
1-Hexene	<PQL	1.0
n-Hexane	<PQL	1.0
Methylcyclopentane	<PQL	1.0
2,4-Dimethylpentane	<PQL	1.0
Benzene	<PQL	1.0
Cyclohexane	<PQL	1.0
2-Methylhexane	<PQL	1.0
2,3-Dimethylpentane	<PQL	1.0
3-Methylhexane	<PQL	1.0
2,2,4-Trimethylpentane	<PQL	1.0
n-Heptane	<PQL	1.0
Methylcyclohexane	<PQL	1.0
2,3,4-Trimethylpentane	<PQL	1.0

Analyte	Result	PQL
Toluene	<PQL	1.0
2-Methylheptane	<PQL	1.0
3-Methylheptane	<PQL	1.0
n-Octane	<PQL	1.0
Ethylbenzene	<PQL	1.0
m/p-Xylenes	<PQL	1.0
Styrene	<PQL	1.0
o-Xylene	<PQL	1.0
Nonane	<PQL	1.0
Isopropylbenzene	<PQL	1.0
n-Propylbenzene	<PQL	1.0
m-Ethyltoluene	<PQL	1.0
p-Ethyltoluene	<PQL	1.0
1,3,5-Trimethylbenzene	<PQL	1.0
o-Ethyltoluene	<PQL	1.0
1,2,4-Trimethylbenzene	<PQL	1.0
n-Decane	<PQL	1.0
1,2,3-Trimethylbenzene	<PQL	1.0
m-Diethylbenzene	<PQL	1.0
p-Diethylbenzene	<PQL	1.0
n-Undecane	<PQL	1.0
n-Dodecane	<PQL	1.0
TNMHC (ppbC)	<PQL	20



# Atmospheric Analysis & Consulting, Inc.

## Quality Control/Quality Assurance Report PAMS Duplicate Analysis

AAC ID : 220638-295180922-01  
 Matrix : Air  
 Units : ppbC

Instrument ID : MS01  
 Analysis Date : 03/28/2022  
 Analyst : RB

Analyte	Sample Analysis	Sample Duplicate	RPD
Ethylene	<PQL	<PQL	NA
Acetylene	<PQL	<PQL	NA
Ethane	6.71	6.70	0.1
Propylene	3.48	3.44	1.2
Propane	4.41	4.38	0.7
Isobutane	<PQL	<PQL	NA
1-Butene	<PQL	<PQL	NA
n-Butane	1.77	1.77	0.0
trans-2-Butene	<PQL	<PQL	NA
cis-2-Butene	<PQL	<PQL	NA
Isopentane	<PQL	<PQL	NA
1-Pentene	<PQL	<PQL	NA
n-Pentane	<PQL	<PQL	NA
Isoprene	<PQL	<PQL	NA
trans-2-Pentene	<PQL	<PQL	NA
cis-2-Pentene	<PQL	<PQL	NA
2,2-Dimethylbutane	<PQL	<PQL	NA
Cyclopentane	<PQL	<PQL	NA
2,3-Dimethylbutane	<PQL	<PQL	NA
2-Methylpentane	<PQL	<PQL	NA
3-Methylpentane	<PQL	<PQL	NA
1-Hexene	<PQL	<PQL	NA
n-Hexane	<PQL	<PQL	NA
Methylcyclopentane	<PQL	<PQL	NA
2,4-Dimethylpentane	<PQL	<PQL	NA
Benzene	<PQL	<PQL	NA
Cyclohexane	<PQL	<PQL	NA
2-Methylhexane	<PQL	<PQL	NA
2,3-Dimethylpentane	<PQL	<PQL	NA
3-Methylhexane	<PQL	<PQL	NA
2,2,4-Trimethylpentane	<PQL	<PQL	NA
n-Heptane	<PQL	<PQL	NA
Methylcyclohexane	<PQL	<PQL	NA
2,3,4-Trimethylpentane	<PQL	<PQL	NA
Toluene	<PQL	<PQL	NA
2-Methylheptane	<PQL	<PQL	NA
3-Methylheptane	<PQL	<PQL	NA
n-Octane	<PQL	<PQL	NA
Ethylbenzene	<PQL	<PQL	NA
m/p-Xylenes	<PQL	<PQL	NA
Styrene	<PQL	<PQL	NA
o-Xylene	<PQL	<PQL	NA
Nonane	<PQL	<PQL	NA
Isopropylbenzene	<PQL	<PQL	NA
n-Propylbenzene	<PQL	<PQL	NA
m-Ethyltoluene	<PQL	<PQL	NA
p-Ethyltoluene	<PQL	<PQL	NA

Analyte	Sample Analysis	Sample Duplicate	RPD
1,3,5-Trimethylbenzene	<PQL	<PQL	NA
o-Ethyltoluene	<PQL	<PQL	NA
1,2,4-Trimethylbenzene	<PQL	<PQL	NA
n-Decane	<PQL	<PQL	NA
1,2,3-Trimethylbenzene	<PQL	<PQL	NA
m-Diethylbenzene	<PQL	<PQL	NA
p-Diethylbenzene	<PQL	<PQL	NA
n-Undecane	<PQL	<PQL	NA
n-Dodecane	<PQL	<PQL	NA
Total PAMS (ppbC)	16.4	16.3	0.6
TNMHC (ppbC)	51.7	40.5	24