APPENDIX I – TRS COMPOUND TESTING QUALITY ASSURANCE/QUALITY CONTROL

Table I-1

Comparison of Original and Duplicate Data - Total Reduced Sulfur - Method RSK-175[a]

New-Indy Catawba - Catawba, SC

Sample Location	Date	Time	Hydrogen Sulfide			Dimethyl Disulfide			Dimethyl Sulfide			Methyl Mercaptan			Notes
			Original Result (ppb)	Duplicate Result (ppb)	Percent Difference	Original Result (ppb)	Duplicate Result (ppb)	Percent Difference	Original Result (ppb)	Duplicate Result (ppb)	Percent Difference	Original Result (ppb)	Duplicate Result (ppb)	Percent Difference	
5A-ASB Zone 1	7/9/2021	8:45 AM	N/A	13,038	--	*0.50*	*503*	99874%	1.9	*170*	9069%	104	*56.7*	-46%	Duplicate for DMDS and DMS are not included in the average because half the detection limit is greater than the measured value
	7/10/2021	9:39 AM	26,832	5,100	-81%	1.8	4.6	150%	25.9	20.4	-21%	157	98.1	-38%	
5B-ASB Zone 2	7/9/2021	9:25 AM	N/A	863	--	1.6	*503*	30563%	8.2	*170*	1969%	29.0	*56.7*	95%	Duplicate for DMDS, DMS, and MMC are not included in the average because half the detection limit is greater than the measured value
	7/10/2021	8:31 AM	4,201	3,509	-16%	1.2	1.6	30%	2.4	3.2	34%	37.6	50.1	33%	
5C-ASB Zone 3	7/9/2021	9:53 AM	10.6	**37.4**	253%	*0.50*	*0.50*	0%	*0.17*	*0.17*	0%	0.13	0.40	198%	
	7/10/2021	8:14 AM	3.9	0.64	-84%	*0.50*	*0.50*	0%	*0.17*	*0.17*	1%	*0.06*	*0.06*	1%	
4A-Post-Aeration Tank Inlet	7/10/2021	10:11 AM	0.26	1.4	445%	*0.50*	*0.50*	0%	*0.17*	2.3	1245%	*0.06*	*0.06*	0%	
4B-Post-Aeration Tank Surface	7/10/2021	10:21 AM	0.84	0.41	-51%	*0.50*	*0.50*	0%	*0.17*	*0.17*	0%	*0.06*	*0.06*	0%	
4C-Post-Aeration Tank Outelt	7/10/2021	10:23 AM	0.74	1.5	97%	*0.50*	*0.50*	0%	*0.17*	2.1	1128%	*0.06*	*0.06*	1%	
1A ASB Influent	7/9/2021	8:00 AM	0.10	19.9	19603%	*0.50*	*0.50*	0%	24.7	8.8	-64%	*0.06*	0.43	663%	
	7/9/2021	5:40 PM	1,479	2.3	-100%	8,637	28.8	-100%	**1,669**	39.3	-98%	936	0.20	-100%	The original results were above the calibration range and are not included in the average
1B ASB Effluent	7/9/2021	8:00 AM	6.1	0.36	-94%	2.3	1.1	-51%	27.0	8.0	-70%	*0.06*	0.32	470%	
	7/9/2021	5:45 PM	7.6	4.4	-42%	*0.50*	*0.50*	0%	2.8	3.0	9%	0.80	0.97	21%	
2A Foul Condensate	7/9/2021	8:00 AM	N/A	**130,032**	--	N/A	6,427	--	N/A	5,687	--	N/A	5,232	--	
	7/9/2021	5:00 PM	156,776	14.2	-100%	9,527	*0.50*	-100%	5,737	*0.17*	-100%	12,242	0.26	-100%	Duplicate not averaged because so low in comparison with other samples.
2B Stripped Condensate	7/9/2021	8:05 AM	N/A	12,100	--	**1,968**	*5,029*	156%	**1,268**	*1,696*	34%	**204**	*567*	178%	Duplicate is not averaged because half the detection limit is greater than the measured value
	7/9/2021	5:05 PM	99,291	9,138	-91%	4,252	2,551	-40%	**796**	**1,571**	97%	1,144	**135**	-88%	

[a] Results in **bold** font were outside of the calibration range, and the laboratory report indicated that results should be considered estimated. Results in*italic* font were below the detection limit; half of the detection limit is reported. "N/A" is reported where results "peaked out." Results in grey shading were not averaged

APPENDIX J – TRS COMPOUND FBIO CALCULATIONS USING H2SSIMS AND FORM XIII OF APPENDIX C TO 40 CFR PART 63

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	ASB

Data Type 2. Model Zone Information

Number of Zones	3
Zone Location of Hardpipe	1
Type of Basin	ASB

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	24.06	0.33	MGD
Total Sulfide	0.025	114.2	mg/L
Sulfate	390	390	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0.69	0.29	2		mg/L
Temperature	95.8	89.2	87.2		F
pH	8.75	8.57	8.74		s.u.
Redox Condition	Aerobic	Aerobic	Aerobic	Aerobic	
Length	730	1196	1248		feet
Width	730	598	624		feet
Depth	4.5	3.2	3		feet
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	16	15	6		
Total Horsepower	1200	1125	450		HP
Impellor Size	1.625	1.625	1.625		feet
Impellor RPM	1200	1200	1200		RPM
Diffused Air Flow	0	0	0		cms
Weir Height	0	0	0		feet

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.071	gms/s
Total Emissions (H_2S)	4922.0	lbs/yr
Total Emissions (H_2S)	2.5	tons/yr
Total Emissions (H_2S)	2.2	tonnes/yr
Emission Flux (H_2S)	11.9	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.02	0.03	0.02		gms/s
Zone Emissions (H_2S)	1608.3	1736.0	1577.7		lbs/yr
Emission Flux (H_2S)	14.7	11.9	9.9		gms/m^2 yr
Liquid Conc. (Total Sulfide)	0.010	0.008	0.001		mg/L
Liquid Sulfide Load (lbs/yr)	119.300	96.500	11.100		lbs/yr

Percent Inlet Sulfide Removed	95.8%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	196.11
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	ASB

Data Type 2. Model Zone Information

Number of Zones	3
Zone Location of Hardpipe	1
Type of Basin	ASB

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	23.98	0.36	MGD
Total Sulfide	0.012	96.9	mg/L
Sulfate	390	390	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0.06	0.05	1.5		mg/L
Temperature	97.16	89.6	87.8		F
pH	8.08	8.39	8.38		s.u.
Redox Condition	Aerobic	Aerobic	Aerobic	Aerobic	
Length	730	1196	1248		feet
Width	730	598	624		feet
Depth	4.5	3.2	3		feet
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	16	15	6		
Total Horsepower	1200	1125	450		HP
Impellor Size	1.625	1.625	1.625		feet
Impellor RPM	1200	1200	1200		RPM
Diffused Air Flow	0	0	0		cms
Weir Height	0	0	0		feet

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.144	gms/s
Total Emissions (H_2S)	10005.0	lbs/yr
Total Emissions (H_2S)	5.0	tons/yr
Total Emissions (H_2S)	4.5	tonnes/yr
Emission Flux (H_2S)	24.1	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.08	0.04	0.02		gms/s
Zone Emissions (H_2S)	5365.2	3014.6	1625.2		lbs/yr
Emission Flux (H_2S)	49.2	20.6	10.2		gms/m^2 yr
Liquid Conc. (Total Sulfide)	0.047	0.041	0.002		mg/L
Liquid Sulfide Load (lbs/yr)	553.500	476.400	18.500		lbs/yr

Percent Inlet Sulfide Removed	90.6%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	232.67
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	ASB

Data Type 2. Model Zone Information

Number of Zones	3
Zone Location of Hardpipe	1
Type of Basin	ASB

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	23.14	0.33	MGD
Total Sulfide	0.014	46.9	mg/L
Sulfate	390	390	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0.11	0.11	1		mg/L
Temperature	93.32	92	89.54		F
pH	8.02	8.01	7.99		s.u.
Redox Condition	Aerobic	Aerobic	Aerobic	Aerobic	
Length	730	1196	1248		feet
Width	730	598	624		feet
Depth	4.5	3.2	3		feet
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	21	15	6		
Total Horsepower	1575	1125	450		HP
Impellor Size	1.625	1.625	1.625		feet
Impellor RPM	1200	1200	1200		RPM
Diffused Air Flow	0	0	0		cms
Weir Height	0	0	0		feet

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.144	gms/s
Total Emissions (H_2S)	10028.4	lbs/yr
Total Emissions (H_2S)	5.0	tons/yr
Total Emissions (H_2S)	4.5	tonnes/yr
Emission Flux (H_2S)	24.2	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.07	0.05	0.03		gms/s
Zone Emissions (H_2S)	4602.6	3647.4	1778.4		lbs/yr
Emission Flux (H_2S)	42.2	24.9	11.1		gms/m^2 yr
Liquid Conc. (Total Sulfide)	0.028	0.024	0.002		mg/L
Liquid Sulfide Load (lbs/yr)	319.800	265.300	27.600		lbs/yr

Percent Inlet Sulfide Removed	79.1%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	272.2
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	Primary Clarifier

Data Type 2. Model Zone Information

Number of Zones	1
Zone Location of Hardpipe	None
Type of Basin	PC

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	24.06	0	MGD
Total Sulfide	114.2	0	mg/L
Sulfate	390	0	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0				mg/L
Temperature	135.8				F
pH	9.01				s.u.
Redox Condition	Anoxic	Aerobic	Aerobic	Aerobic	
Length	275				feet
Width	275				feet
Depth	5.41				meters
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	0				
Total Horsepower	0				HP
Impellor Size	1.625				feet
Impellor RPM	1200				RPM
Diffused Air Flow	0				cms
Weir Height	0.38				meters

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.002	gms/s
Total Emissions (H_2S)	167.6	lbs/yr
Total Emissions (H_2S)	0.1	tons/yr
Total Emissions (H_2S)	0.1	tonnes/yr
Emission Flux (H_2S)	10.8	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.00				gms/s
Zone Emissions (H_2S)	167.6				lbs/yr
Emission Flux (H_2S)	10.8				gms/m^2 yr
Liquid Conc. (Total Sulfide)	5.076				mg/L
Liquid Sulfide Load (lbs/yr)	58634.300				lbs/yr

Percent Inlet Sulfide Removed	99.3%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	2500
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	Primary Clarifier

Data Type 2. Model Zone Information

Number of Zones	1
Zone Location of Hardpipe	None
Type of Basin	PC

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	23.98	0	MGD
Total Sulfide	96.9	0	mg/L
Sulfate	390	0	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0				mg/L
Temperature	133.4				F
pH	9.1				s.u.
Redox Condition	Anoxic	Aerobic	Aerobic	Aerobic	
Length	275				feet
Width	275				feet
Depth	5.41				meters
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	0				
Total Horsepower	0				HP
Impellor Size	1.625				feet
Impellor RPM	1200				RPM
Diffused Air Flow	0				cms
Weir Height	0.38				meters

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.002	gms/s
Total Emissions (H_2S)	123.3	lbs/yr
Total Emissions (H_2S)	0.1	tons/yr
Total Emissions (H_2S)	0.1	tonnes/yr
Emission Flux (H_2S)	8.0	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.00				gms/s
Zone Emissions (H_2S)	123.3				lbs/yr
Emission Flux (H_2S)	8.0				gms/m^2 yr
Liquid Conc. (Total Sulfide)	4.610				mg/L
Liquid Sulfide Load (lbs/yr)	53070.200				lbs/yr

Percent Inlet Sulfide Removed	99.2%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	2500
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	Primary Clarifier

Data Type 2. Model Zone Information

Number of Zones	1
Zone Location of Hardpipe	None
Type of Basin	PC

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	23.14	0	MGD
Total Sulfide	46.9	0	mg/L
Sulfate	390	0	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0				mg/L
Temperature	130.6				F
pH	9.04				s.u.
Redox Condition	Anoxic	Aerobic	Aerobic	Aerobic	
Length	275				feet
Width	275				feet
Depth	5.41				meters
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	0				
Total Horsepower	0				HP
Impellor Size	1.625				feet
Impellor RPM	1200				RPM
Diffused Air Flow	0				cms
Weir Height	0.38				meters

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.001	gms/s
Total Emissions (H_2S)	72.3	lbs/yr
Total Emissions (H_2S)	0.0	tons/yr
Total Emissions (H_2S)	0.0	tonnes/yr
Emission Flux (H_2S)	4.7	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.00				gms/s
Zone Emissions (H_2S)	72.3				lbs/yr
Emission Flux (H_2S)	4.7				gms/m^2 yr
Liquid Conc. (Total Sulfide)	2.470				mg/L
Liquid Sulfide Load (lbs/yr)	27436.200				lbs/yr

Percent Inlet Sulfide Removed	99.2%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	2500
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	Post ASB Tank

Data Type 2. Model Zone Information

Number of Zones	1
Zone Location of Hardpipe	None
Type of Basin	ASB

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	24.39	0	MGD
Total Sulfide	0.0025	0	mg/L
Sulfate	390	0	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0.25				mg/L
Temperature	85.2				F
pH	7.67				s.u.
Redox Condition	Aerobic	Aerobic	Aerobic	Aerobic	
Length	60				feet
Width	40				feet
Depth	15				feet
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	2				
Total Horsepower	150				HP
Impellor Size	1.625				feet
Impellor RPM	1200				RPM
Diffused Air Flow	0				cms
Weir Height	0				meters

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.002	gms/s
Total Emissions (H_2S)	149.6	lbs/yr
Total Emissions (H_2S)	0.1	tons/yr
Total Emissions (H_2S)	0.1	tonnes/yr
Emission Flux (H_2S)	304.3	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.00				gms/s
Zone Emissions (H_2S)	149.6				lbs/yr
Emission Flux (H_2S)	304.3				gms/m^2 yr
Liquid Conc. (Total Sulfide)	0.007				mg/L
Liquid Sulfide Load (lbs/yr)	85.400				lbs/yr

Percent Inlet Sulfide Removed	-26.6%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	2500
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	Post ASB Tank

Data Type 2. Model Zone Information

Number of Zones	1
Zone Location of Hardpipe	None
Type of Basin	ASB

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	24.34	0	MGD
Total Sulfide	0.00083	0	mg/L
Sulfate	390	0	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	0.53				mg/L
Temperature	84.5				F
pH	7.69				s.u.
Redox Condition	Aerobic	Aerobic	Aerobic	Aerobic	
Length	60				feet
Width	40				feet
Depth	15				feet
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	2				
Total Horsepower	150				HP
Impellor Size	1.625				feet
Impellor RPM	1200				RPM
Diffused Air Flow	0				cms
Weir Height	0				meters

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.001	gms/s
Total Emissions (H_2S)	66.7	lbs/yr
Total Emissions (H_2S)	0.0	tons/yr
Total Emissions (H_2S)	0.0	tonnes/yr
Emission Flux (H_2S)	135.7	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.00				gms/s
Zone Emissions (H_2S)	66.7				lbs/yr
Emission Flux (H_2S)	135.7				gms/m^2 yr
Liquid Conc. (Total Sulfide)	0.003				mg/L
Liquid Sulfide Load (lbs/yr)	38.300				lbs/yr

Percent Inlet Sulfide Removed	-70.8%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	2500
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

NCASI WASTEWATER HYDROGEN SULFIDE EMISSIONS SIMULATOR (H2SSIM)
Version 1.3

Data Type 1. Site Identification

Company Name	New-Indy
Facility Name	Catawba SC
Basin Name	Post ASB Tank

Data Type 2. Model Zone Information

Number of Zones	1
Zone Location of Hardpipe	None
Type of Basin	ASB

Data Type 3. Load Characteristics

Loading Characteristics	Main Influent	Hardpipe	Units
Flow	23.47	0	MGD
Total Sulfide	0.0018	0	mg/L
Sulfate	390	0	mg/L

Data Type 4. Atmospheric Conditions

Windspeed	3.79	mph
Ambient Temperature	79	F

Data Type 5. Zone Physical and Chemical Conditions

Zone Condition	Zone 1	Zone 2	Zone 3	Zone 4	Units
Dissolved Oxygen	3.68				mg/L
Temperature	84.5				F
pH	7.6				s.u.
Redox Condition	Aerobic	Aerobic	Aerobic	Aerobic	
Length	60				feet
Width	40				feet
Depth	15				feet
Mixing	Moderat	Moderat	Moderat		
Number of Aerators	2				
Total Horsepower	150				HP
Impellor Size	1.625				feet
Impellor RPM	1200				RPM
Diffused Air Flow	0				cms
Weir Height	0				meters

Model Controls

Run H2SSIM

View Parameters

Clear Input Sheet

H2SSIM Results

Basin Emissions		Units
Total Emissions (H_2S)	0.000	gms/s
Total Emissions (H_2S)	22.5	lbs/yr
Total Emissions (H_2S)	0.0	tons/yr
Total Emissions (H_2S)	0.0	tonnes/yr
Emission Flux (H_2S)	45.9	gms/m^2 yr

Zone Emissions	Zone 1	Zone 2	Zone 3	Zone 4	Units
Zone Emissions (H_2S)	0.00				gms/s
Zone Emissions (H_2S)	22.5				lbs/yr
Emission Flux (H_2S)	45.9				gms/m^2 yr
Liquid Conc. (Total Sulfide)	0.001				mg/L
Liquid Sulfide Load (lbs/yr)	9.100				lbs/yr

Percent Inlet Sulfide Removed	75.4%

Current Parameters	
kgen	0.25
ThetaGen	1.06
KDO	0.05
KSO4	10
kanox	0.006
ThetaOx	1.05
m	1
n	0.2
MLVSS	2500
O_2 Transfer Coeff.	2
alpha 1	0.83
alpha 2	0.6

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/9/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	16	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1200	1125	450
Temperature	C	35.4	31.76	30.67
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	MMC mg/L
Inlet Stream **	24.06	0.00023
Condensate Stream	0.327	6.7313
Outlet	24.392	0.00072

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	MMC mg/L
Influent Concentration		24.39	0.09
Effluent Concentration			0.00
Wind Speed	mph		3.8

III. ZONE DATA

MMC

	Units	Inlet	Average Zone Concentration Zone 1	Zone 2	Zone 3	Detect Limit
Conc.	mg/L	0.09	0.1798	0.0328	0.0030	0.5
Temp.	F		95.8	89.2	87.2	

IV. RESULTS

fbio - MMC	%
Fraction biodegraded	-5982.8
Fraction air emissions	6082.0
Fraction remaining in unit effluent	0.8

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/9

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
Methyl Mercaptan	1.48E-05	0.225	3.16E-03	1.29E-01	48.1	0.671	942.8	239.07

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	23232	21780	8712
Total TurbArea (m2)	2158.3	2023.4	809.3
Frac. Agitated (by surface aerators)	0.044	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332
ScL - MMC	NA	NA	NA

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/9**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
MMC	4.32E-03	1.90E-01	2.16E-02	1.30E-02	5.17E-03	4.02E-06	NA	2.51E-06	1.08E-06	4.02E-06	4.01E-06	5.69E-04
Zone 2												
MMC	3.88E-03	1.90E-01	1.98E-02	1.18E-02	5.09E-03	4.02E-06	NA	3.76E-06	1.08E-06	4.02E-06	4.00E-06	3.64E-04
Zone 3												
MMC	3.76E-03	1.90E-01	1.92E-02	1.15E-02	5.07E-03	4.02E-06	NA	4.12E-06	1.08E-06	4.02E-06	4.00E-06	1.33E-04

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/9**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**MMC**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.054
FLOW RATE of condensate to the unit (m3/s)	5	0.014
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.069
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0002256
Concentration in the condensates (mg/L)	8	6.7313333
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0905515
Concentration in the effluent (mg/L)	9	0.0007217

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.069	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	186130	2.15 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.179778583	49506.41	5.69E-04	5.0623	2.82E+01
2	0.0328	66442.8232	0.000364324	0.7940	24.20675
3	0.002987167	72346.0608	0.000132832	0.029	9.609904
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	5.88	

Removal by air stripping (g/s). Line 16.	17	5.88
Loading in effluent (g/s). Line 9 times line 10.	18	0.0008
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0968
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-5.79
Fraction biodegraded: Divide line 20 by line 19.	21	-59.828
Fraction air emissions: Divide line 17 by line 19.	22	60.820
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.008

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/10/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	16	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1200	1125	450
Temperature	C	36.2	32.00	31.00
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	MMC mg/L
Inlet Stream **	23.98	0.0004
Condensate Stream	0.355	4.827
Outlet	24.338	0.0009

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	MMC mg/L
Influent Concentration	1.314	24.34	0.07
Effluent Concentration			0.00095
Wind Speed	mph		3.8

III. ZONE DATA

MMC			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.1	0.1549	0.0404	0.0002	0.5
Temp.	F		97.2	89.6	87.8	

IV. RESULTS

fbio - MMC	%
Fraction biodegraded	-7094.3
Fraction air emissions	7192.9
Fraction remaining in unit effluent	1.3

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/10

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
Methyl Mercaptan	0.0000148	0.2249	0.003164	1.29E-01	48.1	0.671	942.828	239.07

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	23232	21780	8712
Total TurbArea (m2)	2158.3	2023.4	809.3
Frac. Agitated (by surface aerators)	0.044	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/10**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
MMC	4.42E-03	1.90E-01	2.19E-02	1.32E-02	5.17E-03	4.02E-06	NA	2.51E-06	1.08E-06	4.02E-06	4.01E-06	5.79E-04
Zone 2												
MMC	3.91E-03	1.90E-01	1.99E-02	1.19E-02	5.09E-03	4.02E-06	NA	3.76E-06	1.08E-06	4.02E-06	4.00E-06	3.66E-04
Zone 3												
MMC	3.80E-03	1.90E-01	1.94E-02	1.16E-02	5.07E-03	4.02E-06	NA	4.12E-06	1.08E-06	4.02E-06	4.00E-06	1.34E-04

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/10**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**MMC**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.051
FLOW RATE of condensate to the unit (m3/s)	5	0.016
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.066
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.00036
Concentration in the condensates (mg/L)	8	4.8273333
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0707613
Concentration in the effluent (mg/L)	9	0.000947

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.066	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	186543	2.16 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.15485	49506.41	0.000579297	4.4409	28.67894
2	0.040416667	66442.8232	0.000366477	0.9841	24.34979
3	0.00016975	72346.0608	0.000133903	0.002	9.687387
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	5.43	

Removal by air stripping (g/s). Line 16.	17	5.43	
Loading in effluent (g/s). Line 9 times line 10.	18	0.00	
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.1	
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-5.4	
Fraction biodegraded: Divide line 20 by line 19.	21	-70.943	
Fraction air emissions: Divide line 17 by line 19.	22	71.929	
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.013	

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/11/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	21	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1575	1125	450
Temperature	C	34.1	33.33	31.97
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	MMC mg/L
Inlet Stream **	23.14	0.0005
Condensate Stream	0.334	1.0520
Outlet	23.472	0.0013

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	MMC mg/L
Influent Concentration	1.314	23.47	0.02
Effluent Concentration			0.0013
Wind Speed	mph		3.8

III. ZONE DATA

MMC			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.0	0.05	0.03	0.00	0.5
Temp.	F		93.3	92.0	89.5	

IV. RESULTS

fbio - MMC	%
Fraction biodegraded	-15474.0
Fraction air emissions	15565.6
Fraction remaining in unit effluent	8.3

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/11

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
Methyl Mercaptan	0.0000148	0.2249	0.003164	1.29E-01	48.1	0.671	942.828	239.07

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	30492	21780	8712
Total TurbArea (m2)	2832.7	2023.4	809.3
Frac. Agitated (by surface aerators)	0.057	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/11**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
MMC	4.16E-03	1.90E-01	2.09E-02	1.25E-02	5.17E-03	4.02E-06	NA	2.51E-06	1.08E-06	4.02E-06	4.01E-06	7.21E-04
Zone 2												
MMC	4.07E-03	1.90E-01	2.05E-02	1.23E-02	5.09E-03	4.02E-06	NA	3.76E-06	1.08E-06	4.02E-06	4.00E-06	3.79E-04
Zone 3												
MMC	3.91E-03	1.90E-01	1.98E-02	1.19E-02	5.07E-03	4.02E-06	NA	4.12E-06	1.08E-06	4.02E-06	4.00E-06	1.37E-04

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/11**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**MMC**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.014
FLOW RATE of condensate to the unit (m3/s)	5	0.015
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.028
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.000541
Concentration in the condensates (mg/L)	8	1.052
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0155094
Concentration in the effluent (mg/L)	9	0.001295

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.028	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	193426	2.24 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.049752	49506.41	0.000720663	1.7750	35.67745
2	0.0277	66442.8232	0.000378603	0.6968	25.15543
3	0.0010595	72346.0608	0.000137053	0.011	9.915227
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	2.48	

Removal by air stripping (g/s). Line 16.	17	2.48	
Loading in effluent (g/s). Line 9 times line 10.	18	0.00133	
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.01595	
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-2.5	
Fraction biodegraded: Divide line 20 by line 19.	21	-154.740	
Fraction air emissions: Divide line 17 by line 19.	22	155.656	
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.083	

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/9/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	16	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1200	1125	450
Temperature	C	35.4	31.76	30.67
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	DMS mg/L
Inlet Stream **	24.06	0.02771
Condensate Stream	0.327	5.62
Outlet	24.392	0.00786

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMS mg/L
Influent Concentration		24.39	0.10
Effluent Concentration			0.01
Wind Speed	mph		3.8

III. ZONE DATA

DMS

	Units	Inlet	Average Zone Concentration Zone 1	Zone 2	Zone 3	Detect Limit
Conc.	mg/L	0.103	0.0526	0.0065	0.0014	0.5
Temp.	F		95.8	89.2	87.2	

IV. RESULTS

fbio - DMS	%
Fraction biodegraded	-1051.1
Fraction air emissions	1143.4
Fraction remaining in unit effluent	7.7

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/9

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
DMS	1.46E-05	0.140	2.08E-03	8.51E-02	62.1	1.077	1195.6	242

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	23232	21780	8712
Total TurbArea (m2)	2158.3	2023.4	809.3
Frac. Agitated (by surface aerators)	0.044	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/9**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMS	3.07E-03	1.50E-01	2.14E-02	9.84E-03	3.77E-03	3.99E-06	NA	2.49E-06	1.07E-06	3.99E-06	3.95E-06	4.33E-04
Zone 2												
DMS	2.69E-03	1.50E-01	1.96E-02	8.85E-03	3.71E-03	3.99E-06	NA	3.72E-06	1.07E-06	3.99E-06	3.95E-06	2.73E-04
Zone 3												
DMS	2.58E-03	1.50E-01	1.91E-02	8.57E-03	3.69E-03	3.99E-06	NA	4.08E-06	1.07E-06	3.99E-06	3.95E-06	9.98E-05

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/9**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.054
FLOW RATE of condensate to the unit (m3/s)	5	0.014
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.069
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0277117
Concentration in the condensates (mg/L)	8	5.619
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.1027422
Concentration in the effluent (mg/L)	9	0.0078617

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.069	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	186130	2.15 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.052583333	49506.41	4.33E-04	1.1264	21.42148
2	0.006546667	66442.8232	0.00027333	0.1189	18.1608
3	0.001386333	72346.0608	9.98058E-05	0.010	7.220554
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	1.26	

Removal by air stripping (g/s). Line 16.	17	1.26
Loading in effluent (g/s). Line 9 times line 10.	18	0.0084
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.1098
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-1.15
Fraction biodegraded: Divide line 20 by line 19.	21	-10.511
Fraction air emissions: Divide line 17 by line 19.	22	11.434
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.077

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/10/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	16	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1200	1125	450
Temperature	C	36.2	32.00	31.00
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	TRS mg/L
Inlet Stream **	23.98	0.0645
Condensate Stream	0.355	6.343
Outlet	24.338	0.0039

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMS mg/L
Influent Concentration	1.314	24.34	0.16
Effluent Concentration			0.00388
Wind Speed	mph		3.8

III. ZONE DATA

DMS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.2	0.1371	0.0140	0.0003	0.5
Temp.	F		97.2	89.6	87.8	

IV. RESULTS

fbio - TRS	%
Fraction biodegraded	-1860.4
Fraction air emissions	1957.9
Fraction remaining in unit effluent	2.5

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/10

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMS	0.0000146	0.1401	0.002083	8.51E-02	62.12	1.077	1195.58	242

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	23232	21780	8712
Total TurbArea (m2)	2158.3	2023.4	809.3
Frac. Agitated (by surface aerators)	0.044	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/10**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMS	3.15E-03	1.50E-01	2.18E-02	1.01E-02	3.77E-03	3.99E-06	NA	2.49E-06	1.07E-06	3.99E-06	3.95E-06	4.42E-04
Zone 2												
DMS	2.71E-03	1.50E-01	1.97E-02	8.91E-03	3.71E-03	3.99E-06	NA	3.72E-06	1.07E-06	3.99E-06	3.95E-06	2.75E-04
Zone 3												
DMS	2.61E-03	1.50E-01	1.93E-02	8.66E-03	3.69E-03	3.99E-06	NA	4.08E-06	1.07E-06	3.99E-06	3.95E-06	1.01E-04

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/10**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.051
FLOW RATE of condensate to the unit (m3/s)	5	0.016
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.066
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0645
Concentration in the condensates (mg/L)	8	6.3426667
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.1560669
Concentration in the effluent (mg/L)	9	0.0038767

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.066	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	186543	2.16 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.13705	49506.41	0.000442004	2.9989	21.88202
2	0.014035	66442.8232	0.000275219	0.2566	18.28634
3	0.000323667	72346.0608	0.000100744	0.002	7.288427
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	3.26	

Removal by air stripping (g/s). Line 16.	17	3.26
Loading in effluent (g/s). Line 9 times line 10.	18	0.00
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.2
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-3.1
Fraction biodegraded: Divide line 20 by line 19.	21	-18.604
Fraction air emissions: Divide line 17 by line 19.	22	19.579
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.025

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/11/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	21	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1575	1125	450
Temperature	C	34.1	33.33	31.97
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	DMS mg/L
Inlet Stream **	23.14	0.0602
Condensate Stream	0.334	2.7293
Outlet	23.472	0.0030

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMS mg/L
Influent Concentration	1.314	23.47	0.10
Effluent Concentration			0.00302
Wind Speed	mph		3.8

III. ZONE DATA

DMS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.1	0.35	0.00	0.01	0.5
Temp.	F		93.3	92.0	89.5	

IV. RESULTS

fbio - DMS	%
Fraction biodegraded	-9247.7
Fraction air emissions	9344.6
Fraction remaining in unit effluent	3.1

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/11

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMS	0.0000146	0.1401	0.002083	8.51E-02	62.12	1.077	1195.58	242

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	30492	21780	8712
Total TurbArea (m2)	2832.7	2023.4	809.3
Frac. Agitated (by surface aerators)	0.057	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/11**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMS	2.92E-03	1.50E-01	2.07E-02	9.46E-03	3.77E-03	3.99E-06	NA	2.49E-06	1.07E-06	3.99E-06	3.95E-06	5.45E-04
Zone 2												
DMS	2.84E-03	1.50E-01	2.04E-02	9.26E-03	3.71E-03	3.99E-06	NA	3.72E-06	1.07E-06	3.99E-06	3.95E-06	2.86E-04
Zone 3												
DMS	2.71E-03	1.50E-01	1.97E-02	8.90E-03	3.69E-03	3.99E-06	NA	4.08E-06	1.07E-06	3.99E-06	3.95E-06	1.04E-04

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/11**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.014
FLOW RATE of condensate to the unit (m3/s)	5	0.015
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.028
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0602333
Concentration in the condensates (mg/L)	8	2.7293333
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0982301
Concentration in the effluent (mg/L)	9	0.00302

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.028	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	193426	2.24 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.346353333	49506.41	0.000544962	9.3443	26.9791
2	0.0019265	66442.8232	0.000285879	0.0366	18.99458
3	0.007706167	72346.0608	0.000103506	0.058	7.488278
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	9.44	

Removal by air stripping (g/s). Line 16.	17	9.44
Loading in effluent (g/s). Line 9 times line 10.	18	0.00311
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.10101
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-9.3
Fraction biodegraded: Divide line 20 by line 19.	21	-92.477
Fraction air emissions: Divide line 17 by line 19.	22	93.446
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.031

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/9/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	16	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1200	1125	450
Temperature	C	35.4	31.76	30.67
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	DMDS mg/L
Inlet Stream **	24.06	0.01380
Condensate Stream	0.327	7.95
Outlet	24.392	0.00090

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMDS mg/L
Influent Concentration		24.39	0.12
Effluent Concentration			0.00
Wind Speed	mph		3.8

III. ZONE DATA

DMDS

	Units	Inlet	Average Zone Concentration Zone 1	Zone 2	Zone 3	Detect Limit
Conc.	mg/L	0.120	0.0042	0.0015	0.0005	0.5
Temp.	F		95.8	89.2	87.2	

IV. RESULTS

fbio - DMDS	%
Fraction biodegraded	45.1
Fraction air emissions	54.1
Fraction remaining in unit effluent	0.7

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/9

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
DMDS	1.01E-05	0.084	1.10E-03	4.50E-02	94.2	1.806	1303.5	218.4

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	23232	21780	8712
Total TurbArea (m2)	2158.3	2023.4	809.3
Frac. Agitated (by surface aerators)	0.044	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/9**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMDS	1.83E-03	1.16E-01	1.78E-02	5.69E-03	2.66E-03	3.12E-06	NA	1.95E-06	8.41E-07	3.12E-06	3.07E-06	2.51E-04
Zone 2												
DMDS	1.53E-03	1.16E-01	1.63E-02	4.95E-03	2.62E-03	3.12E-06	NA	2.91E-06	8.41E-07	3.12E-06	3.06E-06	1.54E-04
Zone 3												
DMDS	1.46E-03	1.16E-01	1.59E-02	4.75E-03	2.61E-03	3.12E-06	NA	3.19E-06	8.41E-07	3.12E-06	3.06E-06	5.61E-05

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/9**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMDS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.054
FLOW RATE of condensate to the unit (m3/s)	5	0.014
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.069
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.013801
Concentration in the condensates (mg/L)	8	7.9536667
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.1203475
Concentration in the effluent (mg/L)	9	0.0009003

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.069	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	186130	2.15 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.004221	49506.41	2.51E-04	0.0524	12.42533
2	0.001477667	66442.8232	0.00015379	0.0151	10.21823
3	0.000503	72346.0608	5.61481E-05	0.002	4.062093
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	0.07	

Removal by air stripping (g/s). Line 16.	17	0.07
Loading in effluent (g/s). Line 9 times line 10.	18	0.0010
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.1286
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	0.06
Fraction biodegraded: Divide line 20 by line 19.	21	0.451
Fraction air emissions: Divide line 17 by line 19.	22	0.541
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.007

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/10/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	16	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1200	1125	450
Temperature	C	36.2	32.00	31.00
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	TRS mg/L
Inlet Stream **	23.98	0.0293
Condensate Stream	0.355	9.978
Outlet	24.338	0.0011

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMDS mg/L
Influent Concentration	1.314	24.34	0.17
Effluent Concentration			0.00114
Wind Speed	mph		3.8

III. ZONE DATA

DMDS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.2	0.1314	0.0198	0.0007	0.5
Temp.	F		97.2	89.6	87.8	

IV. RESULTS

fbio - TRS	%
Fraction biodegraded	-914.5
Fraction air emissions	1013.8
Fraction remaining in unit effluent	0.7

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/10

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
DMDS	0.0000101	0.08352	0.0011	4.50E-02	94.2	1.806	1303.5	218.4

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	23232	21780	8712
Total TurbArea (m2)	2158.3	2023.4	809.3
Frac. Agitated (by surface aerators)	0.044	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/10**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMDS	1.89E-03	1.16E-01	1.81E-02	5.85E-03	2.66E-03	3.12E-06	NA	1.95E-06	8.41E-07	3.12E-06	3.07E-06	2.58E-04
Zone 2												
DMDS	1.55E-03	1.16E-01	1.64E-02	5.00E-03	2.62E-03	3.12E-06	NA	2.91E-06	8.41E-07	3.12E-06	3.06E-06	1.55E-04
Zone 3												
DMDS	1.48E-03	1.16E-01	1.60E-02	4.81E-03	2.61E-03	3.12E-06	NA	3.19E-06	8.41E-07	3.12E-06	3.06E-06	5.68E-05

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/10**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMDS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	198890.56
Average DEPTH of the full-scale system (meters)	3	1.0878333
FLOW RATE of wastewater to the unit (m3/s)	4	1.051
FLOW RATE of condensate to the unit (m3/s)	5	0.016
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.066
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0293333
Concentration in the condensates (mg/L)	8	9.9776667
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.1744295
Concentration in the effluent (mg/L)	9	0.0011377

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.066	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	186543	2.16 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.1314	49506.41	0.000258001	1.6783	12.77268
2	0.019816667	66442.8232	0.000155185	0.2043	10.31094
3	0.000671667	72346.0608	5.68371E-05	0.003	4.11194
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	1.89	

Removal by air stripping (g/s). Line 16.	17	1.89
Loading in effluent (g/s). Line 9 times line 10.	18	0.00
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.2
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-1.7
Fraction biodegraded: Divide line 20 by line 19.	21	-9.145
Fraction air emissions: Divide line 17 by line 19.	22	10.138
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.007

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/11/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	21	15	6
Number of 100 HP Aerators	#	0	0	0
Total Horsepower	HP	1575	1125	450
Temperature	C	34.1	33.33	31.97
Length	ft	730.0	1196.0	1248
Width	ft	730.0	598.0	624
Average Depth	ft	4.5	3.2	3
Aerator Rotation	rpm	1200	1200	1200
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	DMDS mg/L
Inlet Stream **	23.14	0.0147
Condensate Stream	0.334	4.8273
Outlet	23.472	0.0030

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMDS mg/L
Influent Concentration	1.314	23.47	0.08
Effluent Concentration			0.00297
Wind Speed	mph		3.8

III. ZONE DATA

DMDS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.1	0.858	0.004	0.034	0.5
Temp.	F		93.3	92.0	89.5	

IV. RESULTS

fbio - DMDS	%
Fraction biodegraded	-15626.7
Fraction air emissions	15723.2
Fraction remaining in unit effluent	3.6

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/11

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
DMDS	0.0000101	0.08352	0.0011	4.50E-02	94.2	1.806	1303.5	218.4

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3	126.3	126.3
Re	2.07E+06	2.07E+06	2.07E+06
PI	35063	35063	35063
Power Number, p	7.92E-04	7.92E-04	7.92E-04
Fr	8.06E+02	8.06E+02	8.06E+02
Total TurbArea (ft2)	30492	21780	8712
Total TurbArea (m2)	2832.7	2023.4	809.3
Frac. Agitated (by surface aerators)	0.057	0.030	0.011
QUIESCENT			
Depth	1.37	0.98	0.92
SurfArea (ft2)	532900	715208	778752
SurfArea (m2)	49573.02	66532.22	72443.40
F/D Ratio	183	298	332

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0	0	0
Air flow, m3/s	0.000	0.000	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/11**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMDS	1.71E-03	1.16E-01	1.72E-02	5.41E-03	2.66E-03	3.12E-06	NA	1.95E-06	8.41E-07	3.12E-06	3.07E-06	3.12E-04
Zone 2												
DMDS	1.65E-03	1.16E-01	1.69E-02	5.26E-03	2.62E-03	3.12E-06	NA	2.91E-06	8.41E-07	3.12E-06	3.06E-06	1.63E-04
Zone 3												
DMDS	1.55E-03	1.16E-01	1.64E-02	4.99E-03	2.61E-03	3.12E-06	NA	3.19E-06	8.41E-07	3.12E-06	3.06E-06	5.89E-05

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/11**

NAME OF THE FACILITY			
COMPOUND for site specific biorate determination		**DMDS**	
Number of zones in the biological treatment unit	1		
VOLUME of full-scale system (cubic meters)	2	198890.56	
Average DEPTH of the full-scale system (meters)	3	1.0878333	
FLOW RATE of wastewater to the unit (m3/s)	4	1.014	
FLOW RATE of condensate to the unit (m3/s)	5	0.015	
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.028	
ESTIMATE OF KL (m/s)	6	*see table*	
Concentration in the wastewater treated in the unit (mg/L)	7	0.0146567	
Concentration in the condensates (mg/L)	8	4.8273333	
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.083169	
Concentration in the effluent (mg/L)	9	0.002972	
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.028	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	193426	2.24 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	182832	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.857766667	49506.41	0.000312164	13.2560	15.45413
2	0.00419	66442.8232	0.000163092	0.0454	10.83628
3	0.034002	72346.0608	5.88735E-05	0.145	4.259266
4					
5					
6					
TOTALS - sum for each zone.	15	188295.294	16	13.45	

Removal by air stripping (g/s). Line 16.	17	13.45	
Loading in effluent (g/s). Line 9 times line 10.	18	0.00306	
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.08552	
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-13.4	
Fraction biodegraded: Divide line 20 by line 19.	21	-156.267	
Fraction air emissions: Divide line 17 by line 19.	22	157.232	
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.036	

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/9/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.6		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452		
Agitation Area per 100 HP aerator	ft2	2206		
Impellor Diameter	in	19.5		

II. OVERALL PARAMS - individual flows

	Flow MGD	MMC mg/L
Inlet Stream **	24.39	0.00128
Condensate Stream		
Outlet	24.392	0.00384

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	MMC mg/L
Influent Concentration		24.39	0.00
Effluent Concentration			0.00
Wind Speed	mph		3.8

III. ZONE DATA

MMC			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.00	0.0090			0.5
Temp.	F		85.2			

IV. RESULTS

fbio - MMC	%
Fraction biodegraded	-2195.7
Fraction air emissions	1995.7
Fraction remaining in unit effluent	300.0

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/9

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
Methyl Mercaptan	1.48E-05	0.225	3.16E-03	1.29E-01	48.1	0.671	942.8	239.07

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/9**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1 MMC	3.64E-03	1.90E-01	1.87E-02	1.12E-02	6.97E-03	4.02E-06	NA	5.70E-07	1.08E-06	4.02E-06	4.01E-06	1.36E-02

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/9**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**MMC**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.069
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.069
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.00128
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.00128
Concentration in the effluent (mg/L)	9	0.00384
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.069
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	954 0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.00903	222.96	1.36E-02	0.0273	3.02E+00
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.03	

Removal by air stripping (g/s). Line 16.	17	0.03
Loading in effluent (g/s). Line 9 times line 10.	18	0.0041
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0014
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-0.03
Fraction biodegraded: Divide line 20 by line 19.	21	-21.957
Fraction air emissions: Divide line 17 by line 19.	22	19.957
Fraction remaining in unit effluent. Divide line 18 by 19.	23	3.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/10/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.2		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452		
Agitation Area per 100 HP aerator	ft2	2206		
Impellor Diameter	in	19.5		

II. OVERALL PARAMS - individual flows

	Flow MGD	MMC mg/L
Inlet Stream **	24.34	5.65E-05
Condensate Stream		
Outlet	24.338	5.63E-05

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	MMC mg/L
Influent Concentration	1.314	24.34	0.00
Effluent Concentration			0.0001
Wind Speed	mph		3.8

III. ZONE DATA

MMC			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.0	5.65E-05			0.5
Temp.	F		84.5			

IV. RESULTS

fbio - MMC	%
Fraction biodegraded	-280.3
Fraction air emissions	280.8
Fraction remaining in unit effluent	99.6

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/10

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
Methyl Mercaptan	0.0000148	0.2249	0.003164	1.29E-01	48.1	0.671	942.828	239.07

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/10**

Surface Aeration													
		Turbulent Area			Quiescient Area								
						kL, m/s							
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1 MMC	3.59E-03	1.90E-01	1.86E-02	1.11E-02	6.97E-03	4.02E-06	NA	5.70E-07	1.08E-06	4.02E-06	4.01E-06	1.34E-02

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/10**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**MMC**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.066
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.066
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0000565
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0000565
Concentration in the effluent (mg/L)	9	5.625E-05

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.066	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	956	0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.0000565	222.96	0.013427082	0.0002	2.993702
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.00	

Removal by air stripping (g/s). Line 16.	17	0.00
Loading in effluent (g/s). Line 9 times line 10.	18	0.00
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	0.0
Fraction biodegraded: Divide line 20 by line 19.	21	-2.803
Fraction air emissions: Divide line 17 by line 19.	22	2.808
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.996

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/11/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.2		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	MMC mg/L
Inlet Stream **	23.47	5.65E-05
Condensate Stream		
Outlet	23.472	5.65E-05

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	MMC mg/L
Influent Concentration	1.314	23.47	0.00
Effluent Concentration			5.7E-05
Wind Speed	mph		3.8

III. ZONE DATA

MMC			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.0	5.60E-05			0.5
Temp.	F		84.5			

IV. RESULTS

fbio - MMC	%
Fraction biodegraded	-288.6
Fraction air emissions	288.6
Fraction remaining in unit effluent	100.0

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/11

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
Methyl Mercaptan	0.0000148	0.2249	0.003164	1.29E-01	48.1	0.671	942.828	239.07

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/11**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1 MMC	3.59E-03	1.90E-01	1.86E-02	1.11E-02	6.97E-03	4.02E-06	NA	5.70E-07	1.08E-06	4.02E-06	4.01E-06	1.34E-02

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/11**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**MMC**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.028
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.028
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0000565
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0000565
Concentration in the effluent (mg/L)	9	0.0000565
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.028
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	992 0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.000056	222.96	0.013427082	0.0002	2.993702
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.00	

Removal by air stripping (g/s). Line 16.	17	0.00
Loading in effluent (g/s). Line 9 times line 10.	18	0.00006
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.00006
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	0.0
Fraction biodegraded: Divide line 20 by line 19.	21	-2.886
Fraction air emissions: Divide line 17 by line 19.	22	2.886
Fraction remaining in unit effluent. Divide line 18 by 19.	23	1.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/9/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.6		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452		
Agitation Area per 100 HP aerator	ft2	2206		
Impellor Diameter	in	19.5		

II. OVERALL PARAMS - individual flows

	Flow MGD	DMS mg/L
Inlet Stream **	24.39	0.00283
Condensate Stream		
Outlet	24.392	0.00940

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMS mg/L
Influent Concentration		24.39	0.00
Effluent Concentration			0.01
Wind Speed	mph		3.8

III. ZONE DATA

DMS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.00	0.0214			0.5
Temp.	F		85.2			

IV. RESULTS

fbio - DMS	%
Fraction biodegraded	-1816.2
Fraction air emissions	1584.1
Fraction remaining in unit effluent	332.2

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/9

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMS	1.46E-05	0.140	2.08E-03	8.51E-02	62.1	1.077	1195.6	242

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/9**

Surface Aeration													
		Turbulent Area			Quiescient Area								
						kL, m/s							
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMS	2.48E-03	1.50E-01	1.86E-02	8.30E-03	5.07E-03	3.99E-06	NA	5.65E-07	1.07E-06	3.99E-06	3.96E-06	1.00E-02

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/9**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.069
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.069
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.00283
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.00283
Concentration in the effluent (mg/L)	9	0.0094

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.069	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	954	0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.0214	222.96	1.00E-02	0.0479	2.24E+00
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.05	

Removal by air stripping (g/s). Line 16.	17	0.05
Loading in effluent (g/s). Line 9 times line 10.	18	0.0100
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0030
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-0.05
Fraction biodegraded: Divide line 20 by line 19.	21	-18.162
Fraction air emissions: Divide line 17 by line 19.	22	15.841
Fraction remaining in unit effluent. Divide line 18 by 19.	23	3.322

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/10/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.2		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452		
Agitation Area per 100 HP aerator	ft2	2206		
Impellor Diameter	in	19.5		

II. OVERALL PARAMS - individual flows

	Flow MGD	DMS mg/L
Inlet Stream **	24.34	1.22E-03
Condensate Stream		
Outlet	24.338	1.12E-03

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMS mg/L
Influent Concentration	1.314	24.34	0.00
Effluent Concentration			0.0011
Wind Speed	mph		3.8

III. ZONE DATA

DMS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.0	1.70E-04			0.5
Temp.	F		84.5			

IV. RESULTS

fbio - DMS	%
Fraction biodegraded	-20.1
Fraction air emissions	28.7
Fraction remaining in unit effluent	91.4

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/10

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMS	0.0000146	0.1401	0.002083	8.51E-02	62.12	1.077	1195.58	242

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/10**

Surface Aeration												
		Turbulent Area			Quiescient Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMS	2.44E-03	1.50E-01	1.84E-02	8.20E-03	5.07E-03	3.99E-06	NA	5.65E-07	1.07E-06	3.99E-06	3.96E-06	9.93E-03

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/10**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.066
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.066
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.0012248
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.0012248
Concentration in the effluent (mg/L)	9	0.0011193
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.066
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	956 0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.0001695	222.96	0.009925352	0.0004	2.212956
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.00	

Removal by air stripping (g/s). Line 16.	17	0.0004
Loading in effluent (g/s). Line 9 times line 10.	18	0.0012
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0013
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-0.0003
Fraction biodegraded: Divide line 20 by line 19.	21	-0.201
Fraction air emissions: Divide line 17 by line 19.	22	0.287
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.914

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/11/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.2		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	DMS mg/L
Inlet Stream **	23.47	6.79E-04
Condensate Stream		
Outlet	23.472	4.33E-04

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMS mg/L
Influent Concentration	1.314	23.47	0.00
Effluent Concentration			0.00043
Wind Speed	mph		3.8

III. ZONE DATA

DMS

	Units	Inlet	Average Zone Concentration Zone 1	Zone 2	Zone 3	Detect Limit
Conc.	mg/L	0.0	1.69E-04			0.5
Temp.	F		84.5			

IV. RESULTS

fbio - DMS	%
Fraction biodegraded	-17.2
Fraction air emissions	53.4
Fraction remaining in unit effluent	63.8

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/11

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMS	0.0000146	0.1401	0.002083	8.51E-02	62.12	1.077	1195.58	242

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/11**

Surface Aeration												
		Turbulent Area			Quiescient Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1												
DMS	2.44E-03	1.50E-01	1.84E-02	8.20E-03	5.07E-03	3.99E-06	NA	5.65E-07	1.07E-06	3.99E-06	3.96E-06	9.93E-03

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/11**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.028
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.028
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.000679
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.000679
Concentration in the effluent (mg/L)	9	0.000433

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.028	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	992	0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.0001685	222.96	0.009925352	0.0004	2.212956
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.00	

Removal by air stripping (g/s). Line 16.	17	0.00
Loading in effluent (g/s). Line 9 times line 10.	18	0.00045
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.00070
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	0.0
Fraction biodegraded: Divide line 20 by line 19.	21	-0.172
Fraction air emissions: Divide line 17 by line 19.	22	0.534
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.638

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/9/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.6		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452		
Agitation Area per 100 HP aerator	ft2	2206		
Impellor Diameter	in	19.5		

II. OVERALL PARAMS - individual flows

	Flow MGD	DMDS mg/L
Inlet Stream **	24.39	0.00741
Condensate Stream		
Outlet	24.392	0.02110

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMDS mg/L
Influent Concentration		24.39	0.01
Effluent Concentration			0.02
Wind Speed	mph		3.8

III. ZONE DATA

DMDS

	Units	Inlet	Average Zone Concentration Zone 1	Zone 2	Zone 3	Detect Limit
Conc.	mg/L	0.01	0.0593			0.5
Temp.	F		85.2			

IV. RESULTS

fbio - DMDS	%
Fraction biodegraded	-1103.6
Fraction air emissions	918.8
Fraction remaining in unit effluent	284.8

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/9

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	Antoine Eqtn c
DMDS	1.01E-05	0.084	1.10E-03	4.50E-02	94.2	1.806	1303.5	218.4

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/9**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1 DMDS	1.38E-03	1.16E-01	1.55E-02	4.55E-03	3.59E-03	3.12E-06	NA	4.42E-07	8.41E-07	3.12E-06	3.07E-06	5.50E-03

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/9**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMDS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.069
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.069
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.00741
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.00741
Concentration in the effluent (mg/L)	9	0.0211
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.069
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	954 0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.0593	222.96	5.50E-03	0.0728	1.23E+00
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.07	

Removal by air stripping (g/s). Line 16.	17	0.07
Loading in effluent (g/s). Line 9 times line 10.	18	0.0225
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0079
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-0.09
Fraction biodegraded: Divide line 20 by line 19.	21	-11.036
Fraction air emissions: Divide line 17 by line 19.	22	9.188
Fraction remaining in unit effluent. Divide line 18 by 19.	23	2.848

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/10/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.2		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452		
Agitation Area per 100 HP aerator	ft2	2206		
Impellor Diameter	in	19.5		

II. OVERALL PARAMS - individual flows

	Flow MGD	DMDS mg/L
Inlet Stream **	24.34	5.03E-04
Condensate Stream		
Outlet	24.338	5.02E-04

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMDS mg/L
Influent Concentration	1.314	24.34	0.00
Effluent Concentration			0.0005
Wind Speed	mph		3.8

III. ZONE DATA

DMDS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.0	5.03E-04			0.5
Temp.	F		84.5			

IV. RESULTS

fbio - DMDS	%
Fraction biodegraded	-113.1
Fraction air emissions	113.3
Fraction remaining in unit effluent	99.8

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/10

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMDS	0.0000101	0.08352	0.0011	4.50E-02	94.2	1.806	1303.5	218.4

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/10**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1 DMDS	1.35E-03	1.16E-01	1.53E-02	4.48E-03	3.59E-03	3.12E-06	NA	4.42E-07	8.41E-07	3.12E-06	3.07E-06	5.42E-03

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/10**

NAME OF THE FACILITY		
COMPOUND for site specific biorate determination		**DMDS**
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	1019.52
Average DEPTH of the full-scale system (meters)	3	4.575
FLOW RATE of wastewater to the unit (m3/s)	4	1.066
FLOW RATE of condensate to the unit (m3/s)	5	NA
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.066
ESTIMATE OF KL (m/s)	6	*see table*
Concentration in the wastewater treated in the unit (mg/L)	7	0.000503
Concentration in the condensates (mg/L)	8	0
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.000503
Concentration in the effluent (mg/L)	9	0.000502
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.066
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	956 0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.000503	222.96	0.005419433	0.0006	1.208317
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.00	

Removal by air stripping (g/s). Line 16.	17	0.0006
Loading in effluent (g/s). Line 9 times line 10.	18	0.0005
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.0005
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	-0.0006
Fraction biodegraded: Divide line 20 by line 19.	21	-1.131
Fraction air emissions: Divide line 17 by line 19.	22	1.133
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.998

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED

Data Date: 7/11/21

Instructions: Enter data in green shaded sections of this page of this spreadsheet only.

I. BIOTREATMENT UNIT DESCRIPTION

	Units	Zone 1	Zone 2	Zone 3
Number of 75 HP Aerators	#	2		
Number of 100 HP Aerators	#	0		
Total Horsepower	HP	150		
Temperature	C	29.2		
Length	ft	60.0		
Width	ft	40.0		
Average Depth	ft	15		
Aerator Rotation	rpm	1200		
Agitation Area per 75 HP aerator	ft2	1452	1452	1452
Agitation Area per 100 HP aerator	ft2	2206	2206	2206
Impellor Diameter	in	19.5	19.5	19.5

II. OVERALL PARAMS - individual flows

	Flow MGD	DMDS mg/L
Inlet Stream **	23.47	3.57E-03
Condensate Stream		
Outlet	23.472	5.03E-04

** *except condensate flow*

NA - individual flow/conc data not available

II. OVERALL PARAMS - total flows

	Flow m3/sec	Flow MGD	DMDS mg/L
Influent Concentration	1.314	23.47	3.57E-03
Effluent Concentration			0.0005
Wind Speed	mph		3.8

III. ZONE DATA

DMDS			**Average Zone Concentration**			Detect
	Units	Inlet	Zone 1	Zone 2	Zone 3	Limit
Conc.	mg/L	0.0	5.01E-04			0.5
Temp.	F		84.5			

IV. RESULTS

fbio - DMDS	%
Fraction biodegraded	69.4
Fraction air emissions	16.5
Fraction remaining in unit effluent	14.1

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
PARAMETERS FOR CALCULATING MASS TRANSFER COEFIICIENTS

Data Date: 7/11

	Diff in Water cm2/s	Diff in Air cm2/s	Henry's Law atm-m3/mol	Equil. Ratio (Hc) or (Keq) m3 liq to m3 gas	MW g/mol	ScG	Antoine Eqtn b	c
DMDS	0.0000101	0.08352	0.0011	4.50E-02	94.2	1.806	1303.5	218.4

General

	Units	Value	Name
viscosity of air	g/cm-s	0.000181	va
viscosity of water	g/cm-s	0.002	vw
density of air	g/cm3	0.0012	da
density of water	g/cm3	1	dw
MW of air	g/mol	29	Mwa
MW of water	g/mol	18	MWw
Diff of O2 in H2O	cm2/s	2.40E-05	DO2w
grav const.	lb-ft/s2/lb	32.17	g
R	atm-m3/mol K	8.21E-05	R_
Aerator Motor Eff	fraction	0.85	AerEff
O2 Trans Correct		0.83	Beta
Wind Speed	m/s	1.69	U
Diff of Ether	m/s	8.50E-06	Dether
O2 Trans	lb O2/HP-h	3	J

TURBULENT
KL Params

	Zone 1	Zone 2	Zone 3
w	126.3		
Re	2.07E+06		
PI	35063		
Power Number, p	7.92E-04		
Fr	8.06E+02		
Total TurbArea (ft2)	2904		
Total TurbArea (m2)	269.8		
Frac. Agitated	1.210		
(by surface aerators)			

QUIESCENT

Depth	4.58
SurfArea (ft2)	2400
SurfArea (m2)	223.26
F/D Ratio	4

These Parameters are used when F/D < 14 **AND** U > 3.25 m/s

DIFFUSED

Air flow, cfm	0
Air flow, m3/s	0.000

APPENDIX C FORMS - CALCULATING FRACTION BIODEGRADED
Calculating Mass Transfer Coefficient KL for Various Zones

Data Date: **7/11**

Surface Aeration												
		Turbulent Area			Quiescent Area							
						kL, m/s						
	Temp Adj H	kG m/s	kL m/s	KL turb m/s	kG m/s	U10 < 3.25	F/D<14	U10 > 3.25 14<F/D<51.2	F/D>51.2	kL m/s	KL quisc m/s	KL overall m/s
Zone1 DMDS	1.35E-03	1.16E-01	1.53E-02	4.48E-03	3.59E-03	3.12E-06	NA	4.42E-07	8.41E-07	3.12E-06	3.07E-06	5.42E-03

FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

Data Date: **7/11**

NAME OF THE FACILITY			
COMPOUND for site specific biorate determination		**DMDS**	
Number of zones in the biological treatment unit	1		
VOLUME of full-scale system (cubic meters)	2	1019.52	
Average DEPTH of the full-scale system (meters)	3	4.575	
FLOW RATE of wastewater to the unit (m3/s)	4	1.028	
FLOW RATE of condensate to the unit (m3/s)	5	NA	
Total wastewater flowrate - (including condensates) (m3/s)	5-A	1.028	
ESTIMATE OF KL (m/s)	6	*see table*	
Concentration in the wastewater treated in the unit (mg/L)	7	0.00357	
Concentration in the condensates (mg/L)	8	0	
Concentration in wastewater (total - inc. cond) in (mg/L)	8-A	0.00357	
Concentration in the effluent (mg/L)	9	0.000503	
TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5 (or 5-A)	10	1.028	
TOTAL RESIDENCE TIME (s) line 2 divided by line 10.	11	992	0.01 days
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	12	223	

Lines 13 through 15 Not Used

Zone Number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s)	AIR STRIPPING KL A Ci (g/s)	
1	0.000501	222.96	0.005419433	0.0006	1.208317
2					
3					
4					
5					
6					
TOTALS - sum for each zone.	15	222.96	16	0.0006	

Removal by air stripping (g/s). Line 16.	17	0.0006
Loading in effluent (g/s). Line 9 times line 10.	18	0.00052
Total loading (g/s). {(line 5*line 8)+(line 4*line 7)} or {line 5-A*line 8-A}.	19	0.00367
Removal by biodegradation (g/s) Line 19 minus (line 17 + line 18).	20	0.0
Fraction biodegraded: Divide line 20 by line 19.	21	0.694
Fraction air emissions: Divide line 17 by line 19.	22	0.165
Fraction remaining in unit effluent. Divide line 18 by 19.	23	0.141

APPENDIX K – LABORATORY REPORTS AND CHAINS OF CUSTODY FOR TRS COMPOUND TESTING

Atmospheric Analysis & Consulting, Inc.

CLIENT : Keika Ventures, LLC
PROJECT NAME : New Indy Container Board
AAC PROJECT NO. : 211211A
REPORT DATE : 07/20/2021

On July 13, 2021, Atmospheric Analysis & Consulting, Inc. received thirty-five (35) liquid samples for dissolved Sulfurs analysis by EPA RSK-175. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Client ID	Lab No.	Client ID	Lab No.	Client ID	Lab No.
1-A ASB Inf (0800)	211211-21194	5-A ASB Zone 1 (0845)	211211-21203	2B-Foul Cond. Outlet (1315)	211211-21212	1A-ASB Eff (1745)	211211-21221
1-A ASB Inf (0800)	211211-21195	5-B ASB Zone 2 (0925)	211211-21204	1A-ASB Inf (1340)	211211-21213	5A-ASB Zone 1 (1636)	211211-21222
1-B ASB EFF (0800)	211211-21196	5-B ASB Zone 2 (0925)	211211-21205	1B-ASB Eff (1345)	211211-21214	5B-ASB Zone 2 (1703)	211211-21223
1-B ASB EFF (0800)	211211-21197	5-C ASB Zone 3 (0953)	211211-21206	5A-ASB Zone 1 (1248)	211211-21215	5C-ASB Zone 3 (1719)	211211-21224
2-A Foul Cond. Inlet (0800)	211211-21198	5-C ASB Zone 3 (0953)	211211-21207	5A-ASB Zone 2 (1326)	211211-21216	2A-Foul Cond Inlet (1700)	211211-21225
2-A Foul Cond. Inlet (0800)	211211-21199	4A-Post-Area In (1111)	211211-21208	5A-ASB Zone 3 (1344)	211211-21217	2B-Foul Cond. Outlet (1705)	211211-21226
2-B Foul Cond. Oulet (0805)	211211-21200	4A-Post-Area Surface (1125)	211211-21219	2A-Foul Cond. Inlet (1700)	211211-21218	1A-ASB Inf (1740)	211211-21227
2-B Foul Cond. Oulet (0805)	211211-21201	4A-Post-Area Out (1123)	211211-21210	2A-Foul Cond. Outlet (1705)	211211-21219	1B-ASB- Eff (1745)	211211-21228
5-A ASB Zone 1 (0845)	211211-21202	2A-Foul Cond. Inlet (1310)	211211-21211	1A-ASB Inf (1740)	211211-21220		

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. Samples 21194-21207 did not come with duplicate vials. Since the sample times were identical for each pair of samples, however, dilutions were made from the second sample in each set but reported separately, as logged on the Chain of Custody. Due to a limited number of sample vials, it was not possible to dilute to a concentration within the calibration curve for all compounds in all samples. High concentrations well above the calibration curve or concentrations from highly diluted samples with low peak area should be considered estimated. The compounds to which this notice applies have been noted on each report page. No other problems were encountered during receiving, preparation, and/or analysis of these samples. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

This report consists of 14 pages.

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com • (805) 650-1642

Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211A**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/09/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/13-14/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	1-A ASB Inf (0800)	1-A ASB Inf (0800)	1-B ASB EFF (0800)	1-B ASB EFF (0800)	2-A Foul Cond. Inlet (0800)	2-A Foul Cond. Inlet (0800)
AAC ID	**211211-21194**	**211211-21195**	**211211-21196**	**211211-21197**	**211211-21198**	**211211-21199**
Analyte	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrogen Sulfide	**0.101**	**19.9**	**6.12**	**0.361**	**NA**	**130032****
COS / SO2*	**0.152**	**0.077**	**0.094**	**0.107**	< 0.043	< 42.822
Methyl Mercaptan	< 0.113	**0.431**	< 0.112	**0.319**	**NA**	**5232**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	**8.95**	< 187.562
Dimethyl Sulfide	**24.7**	**8.77**	**27.0**	**8.00**	**NA**	**5687**
Carbon Disulfide	**0.488**	**0.254**	**0.394**	**0.274**	< 0.058	< 57.815
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 222.001
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.042	< 0.043	**3.01**	< 42.822
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 569.905
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 123.212
Dimethyl Disulfide	< 1.006	< 1.006	**2.28**	**1.11**	**NA**	**6427**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 468.956
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 42.822
Thiophenol	< 3.754	< 3.754	< 3.749	< 3.754	< 3.754	< 3,753.737**
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 772.451
Total Unidentified Sulfur*	< 0.043	< 0.043	< 0.042	< 0.043	< 42.815	**104**
Total Reduced Sulfurs*	**3.58**	**21.3**	**9.8**	**1.74**	**24.9**	**133104**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO_2
**Area counts are well outisde calibration range, results should be considered estimated. Alternatively, area counts are very low at the reported dilution.
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211A**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/09/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/13-14/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2-B Foul Cond. Oulet (0805)	2-B Foul Cond. Oulet (0805)	5-A ASB Zone 1 (0845)	5-A ASB Zone 1 (0845)	5-B ASB Zone 2 (0925)	5-B ASB Zone 2 (0925)
AAC ID	211211-21200	211211-21201	211211-21202	211211-21203	211211-21204	211211-21205
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**NA**	**12100**	**NA**	**13038**	**NA**	**863**
COS / SO2*	< 0.043	< 427.904	**13.8**	< 42.804	< 0.043	< 42.806
Methyl Mercaptan	**204****	< 1,133.234	**104**	< 113.343	**29.0**	< 113.346
Ethyl Mercaptan	< 0.188	< 1,875.037	< 0.188	< 187.529	< 0.188	< 187.533
Dimethyl Sulfide	**1268****	< 3,392.441	**1.85**	< 339.270	**8.20**	< 339.273
Carbon Disulfide	**0.357**	< 577.441	**0.273**	< 57.775	**0.556**	< 57.779
Isopropyl Mercaptan*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
tert-Butyl Mercaptan*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
n-Propyl Mercaptan	< 0.222	< 2,219.303	< 0.222	< 221.962	< 0.222	< 221.966
Methylethylsulfide*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
iso-Butyl Mercaptan*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
Diethyl Sulfide	< 0.570	< 5,698.209	< 0.570	< 569.858	< 0.570	< 569.863
n-Butyl Mercaptan	< 0.123	< 1,231.283	< 0.123	< 123.165	< 0.123	< 123.170
Dimethyl Disulfide	**1968****	< 10,057.040	< 1.006	< 1,005.743	**1.64**	< 1,005.748
2-Methylthiophene	< 0.469	< 4,688.646	< 0.469	< 468.905	< 0.469	< 468.910
3-Methylthiophene*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
Tetrahydrothiophene*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
Bromothiophene*	< 0.043	< 427.904	< 0.043	< 42.804	< 0.043	< 42.806
Thiophenol	< 3.754	< 37,536.344	< 3.754	< 3,753.680	< 3.754	< 3,753.686
Diethyl Disulfide	< 0.772	< 7,723.369	< 0.772	< 772.387	< 0.772	< 772.394
Total Unidentified Sulfur*	**17.1**	< 427.904	< 0.043	< 42.804	< 0.428	< 42.806
Total Reduced Sulfurs*	**338**	**12100**	**39.8**	**13038**	**12.5**	**863**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO2
**Area counts are well above calibration range, results should be considered estimated
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211A**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/09/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/13-14/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	5-C ASB Zone 3 (0953)	5-C ASB Zone 3 (0953)	4A-Post-Area In (1111)	4A-Post-Area Surface (1125)	4A-Post-Area Out (1123)	2A-Foul Cond. Inlet (1310)
AAC ID	**211211-21206**	**211211-21207**	**211211-21208**	**211211-21209**	**211211-21210**	**211211-21211**
Analyte	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrogen Sulfide	**10.6**	**37.4****	**2.46**	**62.9**	**212**	**55806**
COS / SO2*	< 0.043	**0.055**	**0.049**	< 0.043	< 0.043	< 0.043
Methyl Mercaptan	**0.134**	**0.399**	**1.28**	**9.03**	**3.84**	**2720**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.188	< 0.187	< 0.187	**10.891**
Dimethyl Sulfide	< 0.339	< 0.339	**2.83**	**21.4**	**9.40**	< 0.339
Carbon Disulfide	< 0.058	**0.095**	**0.647**	**0.757**	**0.886**	**924**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.222	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	**3.09**
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	< 1.006	< 1.006	**7.41**	**59.3**	**21.1**	**7907**
2-Methylthiophene	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	< 0.043	< 0.428	**0.205**	**1.20**	**0.380**	**4269**
Total Reduced Sulfurs*	**10.7**	**37.6**	**4.30**	**73.3**	**217**	**62129**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO2
**Area counts are well above calibration range, results should be considered estimated
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211A**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/09/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/14-15/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2B-Foul Cond. Outlet (1315)	1A-ASB Inf (1340)	1B-ASB Eff (1345)	5A-ASB Zone 1 (1248)	5A-ASB Zone 2 (1326)	5A-ASB Zone 3 (1344)
AAC ID	211211-21212	211211-21213	211211-21214	211211-21215	211211-21216	211211-21217
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	30364	64.0	0.654	37493	5600	38.2
COS / SO2*	< 0.043	< 0.043	0.047	8.50	< 0.043	< 0.043
Methyl Mercaptan	871	0.237	1.09	247**	26.8	0.505
Ethyl Mercaptan	< 0.187	< 0.187	< 0.188	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	1134	27.1	3.18	61.8	2.56	< 0.339
Carbon Disulfide	0.399	1.47	0.341	0.515	0.415	0.158
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.043	0.272	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	2.06	< 0.222	< 0.222	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	2240	12.1	< 1.006	2.19	< 1.006	< 1.006
2-Methylthiophene	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	25.7	< 1.070	< 0.043	0.198	< 0.043	< 0.043
Total Reduced Sulfurs*	30956	69.9	1.77	37615	5611	38.5

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO2
**Area counts are well above calibration range, results should be considered estimated
Compounds for which peaks are "peaked out" for a given run are labled "NA"

Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211A**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/09/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/15-16/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2A-Foul Cond. Inlet (1700)	2A-Foul Cond. Outlet (1705)	1A-ASB Inf (1740)	1A-ASB Eff (1745)	5A-ASB Zone 1 (1636)	5B-ASB Zone 2 (1703)
AAC ID	211211-21218	211211-21219	211211-21220	211211-21221	211211-21222	211211-21223
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	156776	99291	1479	7.59	16843	1038
COS / SO2*	< 0.043	< 0.043	< 0.043	0.068	< 0.043	< 0.043
Methyl Mercaptan	12242	1144	936	0.804	212	42.6
Ethyl Mercaptan	12.0	< 0.188	0.976	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	5737	796**	1669**	2.78	94.1	8.79
Carbon Disulfide	< 0.058	0.509	2.48	0.383	0.179	0.257
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	2.34	< 0.222	< 0.222	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	4.36	1.01	< 0.043	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	0.497	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	9527	4252	8637	< 1.006	9.97	2.29
2-Methylthiophene	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	0.143	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	330	26.9	34.8**	< 0.043	1.00	< 0.428
Total Reduced Sulfurs*	162887	100040	2448	8.55	16936	1056

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO2
**Area counts are well above calibration range, results should be considered estimated

Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211A**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/09/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/15-16/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	5C-ASB Zone 3 (1719)	2A-Foul Cond inlet (1700)	2B-Foul Cond. Outlet (1705)	1A-ASB Inf (1740)	1B-ASB- Eff (1745)
AAC ID	211211-21224	211211-21225	211211-21226	211211-21227	211211-21228
Analyte	Result	Result	Result	Result	Result
Hydrogen Sulfide	**160**	**14.2**	**9138**	**2.27**	**4.37**
COS / SO2*	< 0.043	< 0.043	< 0.043	**0.062**	**0.099**
Methyl Mercaptan	**8.19**	**0.258**	**135****	**0.196**	**0.971**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**3.82**	< 0.339	**1571****	**39.3**	**3.03**
Carbon Disulfide	**0.100**	< 0.058	**0.331**	**0.851**	**0.401**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	**0.257**	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	< 1.006	< 1.006	**2551**	**28.8**	< 1.006
2-Methylthiophene	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**4.79**	**0.043**	**16.6**	**1.28**	< 0.043
Total Reduced Sulfurs*	**169**	**14.3**	**9513**	**10.4**	**5.43**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO2
**Area counts are well above calibration range, results should be considered estimated

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/13/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3508	518	99.7	1.5
Duplicate	3590	530	102.0	0.8
Triplicate	3588	530	102.0	0.7

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4243	506	96.0	3.6
Duplicate	4469	533	101.1	1.5
Triplicate	4494	536	101.7	2.1

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4879	524	100.3	0.1
Duplicate	4927	529	101.3	0.9
Triplicate	4842	520	99.5	0.8

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	239.5	244.5	92.1	94.1	2.1
MeSH	<PQL	263.5	274.2	256.3	104.1	97.3	6.7
DMS	<PQL	261.0	248.1	266.4	95.1	102.1	7.1

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	531.7	102.3
MeSH	527.0	530.0	100.6
DMS	522.0	523.8	100.4

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/13/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	493	0.521	100.2	0.5
Duplicate	484	0.511	98.4	2.4
Triplicate	511	0.539	103.7	2.9

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	530	0.510	96.7	1.5
Duplicate	550	0.529	100.4	2.2
Triplicate	535	0.514	97.6	0.6

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	566	0.542	103.7	1.3
Duplicate	559	0.535	102.5	0.1
Triplicate	550	0.527	100.9	1.4

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.275	0.271	105.8	104.3	1.5
MeSH	<PQL	0.264	0.261	0.261	99.1	99.1	0.0
DMS	<PQL	0.261	0.269	0.286	103.1	109.6	6.1

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.499	96.0
MeSH	0.527	0.522	99.1
DMS	0.522	0.518	99.2

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/14/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3565	527	101.3	0.2
Duplicate	3584	529	101.8	0.7
Triplicate	3524	520	100.1	0.9

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4338	517	98.2	0.1
Duplicate	4393	524	99.4	1.3
Triplicate	4273	510	96.7	1.4

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4720	507	97.0	0.3
Duplicate	4672	501	96.0	1.3
Triplicate	4805	516	98.8	1.5

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	247.1	242.3	95.1	93.2	2.0
MeSH	<PQL	263.5	255.9	251.1	97.1	95.3	1.9
DMS	<PQL	261.0	268.7	259.9	102.9	99.6	3.3

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	557.8	107.3
MeSH	527.0	534.4	101.4
DMS	522.0	531.1	101.7

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/14/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	497	0.525	101.0	0.0
Duplicate	490	0.518	99.6	1.4
Triplicate	504	0.532	102.4	1.4

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	526	0.506	96.1	0.4
Duplicate	525	0.505	95.8	0.2
Triplicate	521	0.501	95.1	0.6

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	542	0.519	99.3	0.4
Duplicate	553	0.529	101.3	1.6
Triplicate	538	0.515	98.6	1.2

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.254	0.257	97.7	98.9	1.2
MeSH	<PQL	0.264	0.254	0.247	96.4	93.7	2.8
DMS	<PQL	0.261	0.278	0.259	106.5	99.2	7.1

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.552	106.2
MeSH	0.527	0.530	100.6
DMS	0.522	0.542	103.8

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/15/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3561	526	101.2	0.2
Duplicate	3494	516	99.3	2.1
Triplicate	3653	540	103.8	2.3

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4418	527	100.0	0.9
Duplicate	4308	514	97.5	1.6
Triplicate	4410	526	99.8	0.7

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4941	530	101.6	0.2
Duplicate	4815	517	99.0	2.3
Triplicate	5031	540	103.4	2.1

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	263.7	258.3	101.5	99.4	2.0
MeSH	<PQL	263.5	259.5	259.0	98.5	98.3	0.2
DMS	<PQL	261.0	263.9	258.3	101.1	99.0	2.2

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	557.3	107.2
MeSH	527.0	532.7	101.1
DMS	522.0	525.3	100.6

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Quality Control/Quality Assurance Report
SCAQMD 307.91

Date Analyzed: 7/15/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	503	0.531	102.2	0.2
Duplicate	504	0.532	102.4	0.4
Triplicate	499	0.527	101.4	0.6

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	555	0.534	101.3	1.2
Duplicate	545	0.525	99.6	0.5
Triplicate	545	0.524	99.4	0.7

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	549	0.526	100.7	0.1
Duplicate	562	0.538	103.1	2.2
Triplicate	538	0.515	98.7	2.1

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.246	0.248	94.7	95.4	0.8
MeSH	<PQL	0.264	0.242	0.250	91.8	94.9	3.3
DMS	<PQL	0.261	0.266	0.266	101.9	101.9	0.0

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.522	100.4
MeSH	0.527	0.513	97.3
DMS	0.522	0.527	101.0

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/16/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	479	0.506	97.4	2.7
Duplicate	497	0.525	101.1	0.9
Triplicate	502	0.530	102.0	1.8

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	548	0.527	100.1	0.7
Duplicate	540	0.519	98.5	0.8
Triplicate	544	0.524	99.4	0.1

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	561	0.537	102.8	2.5
Duplicate	540	0.517	99.0	1.3
Triplicate	541	0.518	99.2	1.2

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.250	0.254	96.2	97.7	1.6
MeSH	<PQL	0.264	0.251	0.253	95.3	96.0	0.8
DMS	<PQL	0.261	0.248	0.265	95.0	101.5	6.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.542	104.3
MeSH	0.527	0.519	98.5
DMS	0.522	0.518	99.2

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

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Atmospheric Analysis & Consulting, Inc.

CLIENT : Keika Ventures, LLC
PROJECT NAME : New Indy Container Board
AAC PROJECT NO. : 211211B
REPORT DATE : 07/21/2021

On July 13, 2021, Atmospheric Analysis & Consulting, Inc. received thirty (30) liquid samples for dissolved Sulfurs analysis by EPA RSK-175. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Client ID	Lab No.	Client ID	Lab No.	Client ID	Lab No.
2A-Foul Cond. Inlet	211211-21229	5C-ASB Zone 3	211211-21235	2B-Foul Cond. Inlet	211211-21239	2B-Foul Cond. Outlet	211211-21247
2B-Foul Cond. Outlet	211211-21230	5C-ASB Zone 3	211211-21235 QA	2B-Foul Cond. Outlet	211211-21240	1A-ASB- Inf.	211211-21248
1A-ASB Inf.	211211-21231	4A-Post Area. Inlet	211211-21236	1A-ASB Inf.	211211-21241	1B-ASB Eff.	211211-21249
1B-ASB Eff	211211-21232	4A-Post Area. Inlet	211211-21236 QA	1B-ASB Eff.	211211-21242	5A-ASB Zone 1	211211-21250
5A-ASB Zone 1	211211-21233	4B-Post Area. Surface	211211-21237	5A-ASB Zone 1	211211-21243	5B-ASB Zone 2	211211-21251
5A-ASB Zone 1 QA	211211-21233 QA	4B-Post Area. Surface	211211-21237 QA	5B-ASB Zone 2	211211-21244	5C-ASB Zone 3	211211-21252
5B-ASB Zone 2	211211-21234	4C-Post Area. Outlet	211211-21238	5C-ASB Zone 3	211211-21245		
5B-ASB Zone 2	211211-21234 QA	4C-Post Area. Outlet	211211-21238 QA	2A-Foul Cond. Inlet	211211-21246		

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. Due to a limited number of sample vials, it was not possible to dillute to a concentration within the calibration curve for all compounds in all samples. High concentrations well above the calibration curve or concentrations from highly diluted samples with low peak area should be considered estimated. The compounds to which this notice applies have been noted on each report page. No other problems were encountered during receiving, preparation, and/or analysis of these samples. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

This report consists of 11 pages.

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com • (805) 650-1642

Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211B**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/10/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/16-17/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2A-Foul Cond. Inlet	2B-Foul Cond. Outlet	1A-ASB Inf.	1B-ASB Eff	5A-ASB Zone 1	5A-ASB Zone 1 QA
AAC ID	211211-21229	211211-21230	211211-21231	211211-21232	211211-21233	211211-21233 QA
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**144335****	**6271**	**0.845**	**0.367**	**26832**	**5100**
COS / SO2*	< 0.043	< 0.043	**0.517**	**0.169**	< 0.043	< 0.043
Methyl Mercaptan	**4552**	**161****	< 0.112	**0.226**	**157**	**98.1****
Ethyl Mercaptan	< 0.187	< 0.188	< 0.185	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**8111**	**1064**	**82.1**	**6.02**	**25.9**	**20.4**
Carbon Disulfide	< 0.058	< 0.058	**0.838**	**0.484**	**0.299**	**0.515**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	**1.29**	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	**1.24**	**0.156**	< 0.042	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**12689**	**3271**	**45.6**	**1.80**	**1.83**	**4.57**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.750	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**20.5**	**31.4**	**0.121**	**0.159**	**0.101**	**0.128**
Total Reduced Sulfurs*	**147566**	**6637**	**13.6**	**1.81**	**26895**	**5140**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO_2
**Area counts are well outisde calibration range, results should be considered estimated. Alternatively, area counts are very low at the reported dilution.
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211B**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/10/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/17/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	5B-ASB Zone 2	5B-ASB Zone 2	5C-ASB Zone 3	5C-ASB Zone 3	4A-Post Area. Inlet	4A-Post Area. Inlet
AAC ID	211211-21234	211211-21234 QA	211211-21235	211211-21235 QA	211211-21236	211211-21236 QA
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**4201**	**3509**	**3.93**	**0.638**	**0.257**	**1.40**
COS / SO2*	< 0.043	< 0.043	**0.083**	**0.109**	< 0.043	< 0.043
Methyl Mercaptan	**37.6**	**50.1**	< 0.112	< 0.113	< 0.113	< 0.113
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**2.41**	**3.24**	< 0.337	< 0.339	< 0.339	**2.28**
Carbon Disulfide	**0.163**	**0.552**	< 0.055	**0.121**	**0.378**	**0.468**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**1.19**	**1.55**	< 1.002	< 1.006	< 1.006	< 1.006
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.750	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	< 0.043	< 0.043	**0.170**	< 0.043	< 0.043	< 0.043
Total Reduced Sulfurs*	**4216**	**3529**	**4.09**	**0.755**	**0.537**	**2.04**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211B**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/10/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/17-19/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	4B-Post Area. Surface	4B-Post Area. Surface	4C-Post Area. Outlet	4C-Post Area. Outlet	2B-Foul Cond. Inlet	2B-Foul Cond. Outlet
AAC ID	211211-21237	211211-21237 QA	211211-21238	211211-21238 QA	211211-21239	211211-21240
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**0.841**	**0.413**	**0.740**	**1.46**	**51780**	**448**
COS / SO2*	**0.054**	**0.128**	< 0.042	**0.093**	< 0.043	< 0.043
Methyl Mercaptan	< 0.113	< 0.113	< 0.112	< 0.113	**3744**	**4.95**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	**4.71**	< 0.188
Dimethyl Sulfide	< 0.339	< 0.339	< 0.337	**2.07**	**4377**	**857**
Carbon Disulfide	**0.352**	**0.699**	**0.249**	**0.378**	< 0.058	**0.415**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	**0.214**
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	< 1.006	< 1.006	< 1.002	< 1.006	**7789**	**3182**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.750	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	< 0.043	< 0.043	< 0.042	< 0.043	**206**	**15.6**
Total Reduced Sulfurs*	**1.10**	**0.930**	**0.951**	**2.00**	**54285**	**709**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
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LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
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SAMPLING DATE : **07/10/2021**
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Dissolved Sulfur Analysis by EPA RSK-175

Client ID	1A-ASB Inf.	1B-ASB Eff.	5A-ASB Zone 1	5B-ASB Zone 2	5C-ASB Zone 3	2A-Foul Cond. Inlet
AAC ID	211211-21241	211211-21242	211211-21243	211211-21244	211211-21245	211211-21246
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**24.7**	**6.31**	**13559****	**1209**	**1.73**	**94704****
COS / SO2*	**0.915**	**0.063**	< 0.042	< 0.043	**0.051**	< 0.043
Methyl Mercaptan	**0.391**	**0.628**	**142**	**34.0**	**0.216**	**6186**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	< 0.188	**7.656**
Dimethyl Sulfide	**58.2**	**3.63**	**52.0**	**1.88**	**0.432**	**6540**
Carbon Disulfide	**1.70**	**0.709**	**0.466**	**0.320**	**0.058**	< 0.058
Isopropyl Mercaptan*	< 0.043	< 0.043	**0.273**	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	**3.866**
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**14.3**	< 1.006	**27.0**	**1.28**	**1.01**	**9455**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.749	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**0.086**	< 0.043	**0.270**	**0.125**	< 0.043	**273**
Total Reduced Sulfurs*	**34.2**	**7.56**	**13621**	**1222**	**1.95**	**98547**

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Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211B**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/10/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/17-/19/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2B-Foul Cond. Outlet	1A-ASB- Inf.	1B-ASB Eff.	5A-ASB Zone 1	5B-ASB Zone 2	5C-ASB Zone 3
AAC ID	211211-21247	211211-21248	211211-21249	211211-21250	211211-21251	211211-21252
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**156**	**11.9**	**1.91**	**4888**	**208**	**2.14**
COS / SO2*	< 0.043	**0.662**	**0.788**	< 0.043	< 0.043	< 0.043
Methyl Mercaptan	**13.6**	**0.633**	**1.987**	**195****	**43.4**	**0.237**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**894.8**	**53.2**	**1.98**	**335917****	**37.4**	**0.370**
Carbon Disulfide	< 0.058	**2.24**	**1.20**	**0.331**	**0.578**	< 0.058
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	**0.226**	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**2418**	**28.1**	**1.11**	**364****	**56.8**	< 1.006
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.750	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**18.390**	**1.82**	**0.144**	**5.95**	**0.416**	< 0.043
Total Reduced Sulfurs*	**396**	**23.5**	**3.99**	**47368**	**232**	**2.35**

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/16/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	479	0.506	97.4	2.7
Duplicate	497	0.525	101.1	0.9
Triplicate	502	0.530	102.0	1.8

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	548	0.527	100.1	0.7
Duplicate	540	0.519	98.5	0.8
Triplicate	544	0.524	99.4	0.1

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	561	0.537	102.8	2.5
Duplicate	540	0.517	99.0	1.3
Triplicate	541	0.518	99.2	1.2

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.250	0.254	96.2	97.7	1.6
MeSH	<PQL	0.264	0.251	0.253	95.3	96.0	0.8
DMS	<PQL	0.261	0.248	0.265	95.0	101.5	6.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.542	104.3
MeSH	0.527	0.519	98.5
DMS	0.522	0.518	99.2

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/17/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	512	0.541	104.1	2.0
Duplicate	500	0.528	101.6	0.5
Triplicate	495	0.523	100.6	1.4

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	552	0.531	100.8	0.4
Duplicate	545	0.524	99.4	1.0
Triplicate	553	0.532	101.0	0.6

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	553	0.530	101.4	1.2
Duplicate	544	0.520	99.6	0.6
Triplicate	544	0.521	99.7	0.5

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20479

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20479 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.273	0.261	105.1	100.4	4.5
MeSH	<PQL	0.264	0.265	0.257	100.6	97.5	3.1
DMS	<PQL	0.261	0.255	0.260	97.7	99.6	1.9

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.532	102.4
MeSH	0.527	0.528	100.2
DMS	0.522	0.536	102.7

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/19/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	512	0.541	104.1	1.9
Duplicate	496	0.524	100.9	1.3
Triplicate	500	0.527	101.5	0.6

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	529	0.509	96.6	1.8
Duplicate	542	0.522	99.0	0.7
Triplicate	544	0.523	99.3	1.0

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	541	0.517	99.1	1.3
Duplicate	524	0.501	96.0	1.8
Triplicate	536	0.513	98.2	0.5

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20479

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20479 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.254	0.265	97.7	102.0	4.2
MeSH	<PQL	0.264	0.252	0.253	95.6	96.0	0.4
DMS	<PQL	0.261	0.253	0.250	96.9	95.8	1.2

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.534	102.7
MeSH	0.527	0.519	98.5
DMS	0.522	0.523	100.2

**** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.***

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/17/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3512	519	99.8	0.6
Duplicate	3583	529	101.8	1.4
Triplicate	3508	518	99.7	0.7

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4366	521	98.8	0.5
Duplicate	4406	525	99.7	1.4
Triplicate	4267	509	96.6	1.8

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4878	523	100.3	0.6
Duplicate	4917	528	101.1	1.4
Triplicate	4749	510	97.6	2.0

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	253.5	255.3	97.5	98.3	0.7
MeSH	<PQL	263.5	249.2	256.8	94.6	97.5	3.0
DMS	<PQL	261.0	256.9	267.6	98.4	102.5	4.1

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	549.3	105.7
MeSH	527.0	513.9	97.5
DMS	522.0	536.8	102.8

Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, * Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/19/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3647	539	103.6	2.6
Duplicate	3488	515	99.1	1.8
Triplicate	3525	521	100.2	0.8

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4457	531	100.9	0.1
Duplicate	4406	525	99.7	1.1
Triplicate	4500	537	101.8	1.0

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	5000	537	102.8	2.3
Duplicate	4833	519	99.4	1.1
Triplicate	4833	519	99.4	1.1

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	253.4	260.6	97.5	100.3	2.8
MeSH	<PQL	263.5	261.9	265.0	99.4	100.6	1.2
DMS	<PQL	261.0	272.0	259.6	104.2	99.5	4.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	544.4	104.7
MeSH	527.0	512.6	97.3
DMS	522.0	508.2	97.4

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Atmospheric Analysis & Consulting, Inc.

CLIENT : Keika Ventures, LLC
PROJECT NAME : New Indy Container Board
AAC PROJECT NO. : 211211C
REPORT DATE : 07/21/2021

On July 13, 2021, Atmospheric Analysis & Consulting, Inc. received twenty-four (24) liquid samples for dissolved Sulfurs analysis by EPA RSK-175. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Client ID	Lab No.	Client ID	Lab No.
2A-Foul Cond. Inlet	211211-21253	4B-Post Area. Surface	211211-21261	5C-ASB Zone 3	211211-21269
2B-Foul Cond. Outlet	211211-21254	4C-Post Area. Out	211211-21262	2A-Foul Cond. Inlet	211211-21270
1A-ASB Inf.	211211-21255	2A-Foul Cond. Inlet	211211-21263	2B-Foul Cond. Outlet	211211-21271
1B- ASB Eff.	211211-21256	2B-Foul Cond. Outlet	211211-21264	1A-ASB Inf.	211211-21272
5A-ASB Zone 1	211211-21257	1A-ASB Inf.	211211-21265	1B-ASB Eff.	211211-21273
5A-ASB Zone 2	211211-21258	1B-ASB Eff.	211211-21266	5A-ASB Zone 1	211211-21274
5C-ASB Zone 3	211211-21259	5A-ASB Zone 1	211211-21267	5B-ASB Zone 2	211211-21275
4A-Post Area. In	211211-21260	5B-ASB Zone 2	211211-21268	5C-ASB Zone 3	211211-21276

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. Due to a limited number of sample vials, it was not possible to dillute to a concentration within the calibration curve for all compounds in all samples. High concentrations well above the calibration curve or concentrations from highly diluted samples with low peak area should be considered estimated. The compounds to which this notice applies have been noted on each report page. No other problems were encountered during receiving, preparation, and/or analysis of these samples. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

This report consists of 11 pages.

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211C**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/11/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/17-20/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2A-Foul Cond. Inlet	2B-Foul Cond. Outlet	1A-ASB Inf.	1B- ASB Eff.	5A-ASB Zone 1	5A-ASB Zone 2
AAC ID	211211-21253	211211-21254	211211-21255	211211-21256	211211-21257	211211-21258
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**51457**	**226**	**7.07**	**0.645**	**14237**	**920**
COS / SO2*	< 0.043	< 0.043	**0.147**	**0.107**	< 0.043	< 0.043
Methyl Mercaptan	**1067**	**13.9**	**0.443**	**0.438**	**66.5**	**31.7**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**3051**	**555**	**45.4**	**2.46**	**9.56**	**2.28**
Carbon Disulfide	< 0.058	**0.257**	**0.613**	**0.629**	**0.389**	**0.557**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	**0.95**	**0.206**	< 0.042	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**3954**	**823**	**3.61**	< 1.006	**2.56**	**2.56**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.750	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**119**	**9.68**	< 0.042	< 0.043	**0.090**	**0.097**
Total Reduced Sulfurs*	**52533**	**346**	**13.4**	**1.61**	**14264**	**933**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO_2
**Area counts are well outisde calibration range, results should be considered estimated. Alternatively, area counts are very low at the reported dilution.
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211C**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/11/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/20/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	5C-ASB Zone 3	4A-Post Area. In	4B-Post Area. Surface	4C-Post Area. Out	2A-Foul Cond. Inlet	2B-Foul Cond. Outlet
AAC ID	211211-21259	211211-21260	211211-21261	211211-21262	211211-21263	211211-21264
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	< 0.043	**1.84**	**0.253**	< 0.043	**42911**	**17635**
COS / SO2*	< 0.043	**0.062**	< 0.042	< 0.043	< 0.043	< 0.043
Methyl Mercaptan	**0.162**	< 0.113	< 0.112	< 0.113	**944**	**88.3****
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	**4.38**	< 0.188
Dimethyl Sulfide	< 0.339	**0.679**	< 0.337	**0.433**	**2135**	**8.48**
Carbon Disulfide	< 0.058	**0.194**	**0.135**	**0.173**	< 0.058	**0.231**
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	< 1.006	**3.57**	< 1.002	< 1.006	**4911**	**4.75**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.749	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	< 0.043	**0.090**	< 0.042	< 0.043	**122****	**0.537**
Total Reduced Sulfurs*	**0.171**	**2.31**	**0.355**	**0.261**	**43871**	**17673**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO_2
**Area counts are well outisde calibration range, results should be considered estimated. Alternatively, area counts are very low at the reported dilution.
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211C**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/11/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/17-20/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	1A-ASB Inf.	1B-ASB Eff.	5A-ASB Zone 1	5B-ASB Zone 2	5C-ASB Zone 3	2A-Foul Cond. inlet
AAC ID	211211-21265	211211-21266	211211-21267	211211-21268	211211-21269	211211-21270
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**34.3****	**53.9****	**4.04**	**458**	< 0.043	**46204**
COS / SO2*	**0.594**	**0.537**	**3.91**	< 0.043	< 0.043	< 0.043
Methyl Mercaptan	**0.549**	**2.62**	< 0.112	**39.6**	< 0.113	**1145**
Ethyl Mercaptan	< 0.188	< 0.188	< 0.185	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**67.3**	**1.69**	**1019**	< 0.339	**0.349**	**3002**
Carbon Disulfide	**1.60**	< 0.058	**0.324**	**0.373**	< 0.058	< 0.058
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	< 0.043	< 0.043	**0.155**	< 0.043	< 0.043	**4.39**
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**8.76**	< 1.006	**2569**	**3.02**	< 1.006	**5617**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.749	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**0.144**	**0.289**	**5.58**	**0.117**	< 0.043	**139**
Total Reduced Sulfurs*	**44.7**	**55.5**	**242**	**473**	**0**	**47398**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO_2
**Area counts are well outisde calibration range, results should be considered estimated. Alternatively, area counts are very low at the reported dilution.
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Keika Ventures, LLC**
PROJECT NO. : **211211C**
MATRIX : **AIR**
UNITS : **ug/L**

SAMPLING DATE : **07/11/2021**
RECEIVING DATE : **07/13/2021**
ANALYSIS DATE : **07/19-21/2021**
REPORT DATE : **07/21/2021**

Dissolved Sulfur Analysis by EPA RSK-175

Client ID	2B-Foul Cond. Outlet	1A-ASB Inf.	1B-ASB Eff.	5A-ASB Zone 1	5B-ASB Zone 2	5C-ASB Zone 3
AAC ID	211211-21271	211211-21272	211211-21273	211211-21274	211211-21275	211211-21276
Analyte	Result	Result	Result	Result	Result	Result
Hydrogen Sulfide	**232**	**0.602**	**0.165**	**18271**	**20.0**	**20.1**
COS / SO2*	< 0.043	**0.145**	**0.058**	< 0.043	**0.855**	< 0.043
Methyl Mercaptan	**2.10**	**0.631**	**0.827**	**82.7****	**11.8**	**2.96**
Ethyl Mercaptan	< 0.187	< 0.188	< 0.185	< 0.188	< 0.188	< 0.188
Dimethyl Sulfide	**580**	**68.0**	**4.91**	**10.5**	**3.33**	**22.6**
Carbon Disulfide	**0.241**	**0.687**	**0.345**	**0.236**	**0.543**	< 0.058
Isopropyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
tert-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
n-Propyl Mercaptan	< 0.222	< 0.222	< 0.219	< 0.222	< 0.222	< 0.222
Methylethylsulfide*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
sec-Butyl Mercaptan / Thiophene*	**0.105**	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
iso-Butyl Mercaptan*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Diethyl Sulfide	< 0.570	< 0.570	< 0.566	< 0.570	< 0.570	< 0.570
n-Butyl Mercaptan	< 0.123	< 0.123	< 0.120	< 0.123	< 0.123	< 0.123
Dimethyl Disulfide	**1765**	**31.6**	**7.91**	**1.74**	**6.99**	**101**
2-Methylthiophene	< 0.469	< 0.469	< 0.465	< 0.469	< 0.469	< 0.469
3-Methylthiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Tetrahydrothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Bromothiophene*	< 0.043	< 0.043	< 0.042	< 0.043	< 0.043	< 0.043
Thiophenol	< 3.754	< 3.754	< 3.750	< 3.754	< 3.754	< 3.754
Diethyl Disulfide	< 0.772	< 0.772	< 0.768	< 0.772	< 0.772	< 0.772
Total Unidentified Sulfur*	**1.58**	**0.110**	**0.049**	**0.070**	**0.196**	**4.36**
Total Reduced Sulfurs*	**383**	**11.4**	**1.72**	**18304**	**25.7**	**32.8**

*Concentrations calculated using Henry's Law Constant and Molecular Weight for H2S
All samples were Method Blank corrected
TRS does not include COS and SO_2
**Area counts are well outisde calibration range, results should be considered estimated. Alternatively, area counts are very low at the reported dilution.
Compounds for which peaks are "peaked out" for a given run are labled "NA"

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/21/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	496	0.524	100.8	1.0
Duplicate	507	0.535	103.0	1.1
Triplicate	501	0.529	101.8	0.1

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	546	0.526	99.7	0.1
Duplicate	543	0.523	99.2	0.6
Triplicate	550	0.529	100.5	0.7

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	541	0.518	99.2	0.2
Duplicate	528	0.505	96.8	2.3
Triplicate	552	0.528	101.1	2.1

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20479

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20479 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.248	0.257	95.4	98.9	3.6
MeSH	<PQL	0.264	0.254	0.265	96.4	100.6	4.2
DMS	<PQL	0.261	0.253	0.257	96.9	98.5	1.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.551	106.0
MeSH	0.527	0.532	100.9
DMS	0.522	0.550	105.4

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/20/2021
Analyst: DL
Units: ppmV

Instrument ID: SCD-BTU
Calb. Date: 7/5/2021

Opening Calibration Verification Standard

0.520 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	489	0.517	99.4	1.7
Duplicate	498	0.526	101.1	0.0
Triplicate	507	0.535	102.9	1.8

0.527 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	541	0.520	98.7	0.2
Duplicate	546	0.526	99.7	0.8
Triplicate	539	0.518	98.4	0.6

0.522 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	538	0.515	98.6	1.3
Duplicate	552	0.528	101.2	1.2
Triplicate	545	0.522	99.9	0.0

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20479

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.000	0.0
MeSH	<PQL	<PQL	0.000	0.0
DMS	<PQL	<PQL	0.000	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20479 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	0.260	0.257	0.257	98.9	98.9	0.0
MeSH	<PQL	0.264	0.254	0.255	96.4	96.8	0.4
DMS	<PQL	0.261	0.259	0.250	99.2	95.8	3.5

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	0.520	0.548	105.4
MeSH	0.527	0.520	98.7
DMS	0.522	0.542	103.8

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

PQL = 50.0 ppbV
MDL = 1.1 ppbV

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/17/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3512	519	99.8	0.6
Duplicate	3583	529	101.8	1.4
Triplicate	3508	518	99.7	0.7

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4366	521	98.8	0.5
Duplicate	4406	525	99.7	1.4
Triplicate	4267	509	96.6	1.8

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4878	523	100.3	0.6
Duplicate	4917	528	101.1	1.4
Triplicate	4749	510	97.6	2.0

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	253.5	255.3	97.5	98.3	0.7
MeSH	<PQL	263.5	249.2	256.8	94.6	97.5	3.0
DMS	<PQL	261.0	256.9	267.6	98.4	102.5	4.1

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	549.3	105.7
MeSH	527.0	513.9	97.5
DMS	522.0	536.8	102.8

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/19/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3647	539	103.6	2.6
Duplicate	3488	515	99.1	1.8
Triplicate	3525	521	100.2	0.8

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4457	531	100.9	0.1
Duplicate	4406	525	99.7	1.1
Triplicate	4500	537	101.8	1.0

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	5000	537	102.8	2.3
Duplicate	4833	519	99.4	1.1
Triplicate	4833	519	99.4	1.1

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	253.4	260.6	97.5	100.3	2.8
MeSH	<PQL	263.5	261.9	265.0	99.4	100.6	1.2
DMS	<PQL	261.0	272.0	259.6	104.2	99.5	4.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	544.4	104.7
MeSH	527.0	512.6	97.3
DMS	522.0	508.2	97.4

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/20/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3610	533	102.6	0.2
Duplicate	3601	532	102.3	0.0
Triplicate	3594	531	102.1	0.2

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4322	515	97.8	0.7
Duplicate	4384	523	99.2	0.7
Triplicate	4352	519	98.5	0.0

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4754	510	97.7	1.1
Duplicate	4816	517	99.0	0.2
Triplicate	4850	520	99.7	0.9

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	254.0	258.2	97.8	99.4	1.6
MeSH	<PQL	263.5	254.2	254.7	96.5	96.7	0.2
DMS	<PQL	261.0	255.2	263.2	97.8	100.8	3.1

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	546.0	105.1
MeSH	527.0	519.3	98.5
DMS	522.0	529.5	101.4

** Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, **** Must be < 5% RPD from Mean result.*

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

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Quality Control/Quality Assurance Report
RSK-175

Date Analyzed: 7/21/2021
Analyst: DL
Units: ppbV

Instrument ID: SCD#10
Calb. Date: 6/1/2021

Opening Calibration Verification Standard

519.8 ppbV H2S (SS1289)

H_2S	Resp. (area)	Result	% Rec *	% RPD ****
Initial	3594	531	102.1	0.0
Duplicate	3562	526	101.2	0.8
Triplicate	3621	535	102.9	0.8

527.0 ppbV H2S (SS1289)

MeSH	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4283	511	96.9	0.2
Duplicate	4278	510	96.8	0.4
Triplicate	4319	515	97.7	0.6

522.0 ppbV H2S (SS1289)

DMS	Resp. (area)	Result	% Rec *	% RPD ****
Initial	4782	513	98.3	0.7
Duplicate	4809	516	98.9	0.2
Triplicate	4862	522	100.0	0.9

Method Blank

Analyte	Result
H_2S	<PQL
MeSH	<PQL
DMS	<PQL

Duplicate Analysis **Sample ID** 211084-20480

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H_2S	<PQL	<PQL	0.0	0.0
MeSH	<PQL	<PQL	0.0	0.0
DMS	<PQL	<PQL	0.0	0.0

Matrix Spike & Duplicate **Sample ID** 211084-20480 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H_2S	<PQL	259.9	254.8	261.5	98.0	100.6	2.6
MeSH	<PQL	263.5	254.9	251.5	96.7	95.5	1.3
DMS	<PQL	261.0	249.8	258.3	95.7	99.0	3.4

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	% Rec **
H_2S	519.8	559.6	107.7
MeSH	527.0	564.9	107.2
DMS	522.0	545.2	104.4

Must be 95-105%, ** Must be 90-110%, *** Must be < 10%, * Must be < 5% RPD from Mean result.***

H2S: PQL = 10.5 ppbV, MDL = 1.12 ppbV
MeSH: PQL = 10.5 ppbV, MDL = 1.12 ppbV
DMS: PQL = 11.0 ppbV, MDL = 1.12 ppbV

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
7/9/2021	800	2A	FC Inlet	HAPs	Kelso	8.37	137.6	
				COD	Pace			
				Sulfides	0.039			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1310	2A	FC Inlet	HAPs	Kelso	8.39	135.5	
				COD	Pace			
				Sulfides	0.003			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1700	2A	FC Inlet	HAPs	Kelso	8.32	134.2	
				COD	Pace			
				Sulfides	0 (below dectection)			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1700 QA Duplicates	2A	FC Inlet	HAPs	Kelso	8.32	134.2	
				COD	Pace			
				Sulfides	0 (below dectection)			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	800	2B	FC Outlet	Methanol	Kelso	9.56	130.2	
				Sulfides	0.592			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1315	2B	FC Outlet	Methanol	Kelso	9.81	123.3	
				Sulfides	0.097			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1705	2B	FC Outlet	Methanol	Kelso	9.22	133.8	
				Sulfides	0.791			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1705 QA Duplicates	2B	FC Outlet	Methanol	Kelso	9.22	133.8	
				Sulfides	-			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	800	1A	ASB Influent	HAPs	Kelso	9.11	112.1	0.51
				Sulfides	0.202			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1340	1A	ASB Influent	HAPs	Kelso	9.08	110.1	0.15
				Sulfides	1.888			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1740	1A	ASB Influent	HAPs	Kelso	8.62	109.7	0.26
				Sulfides	1.252			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	1740 QA Duplicates	1A	ASB Influent	HAPs	Kelso	8.62	109.7	0.26
				Sulfides	-			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	Daily	1A	ASB Influent	COD	Daily Composite	7.7	112	1.24
7/9/2021	Drone Flight 1 0845	5A	ASB Zone 1	Methanol	Kelso	8.22[(1)]	89.3	1.99[(1)]
				Sulfides	2.28			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 2 1248	5A	ASB Zone 1	Methanol	Kelso	8.80	97.5	0.05
				Sulfides	8.4			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 3 1636	5A	ASB Zone 1	Methanol	Kelso	9.22	100.6	0.02
				Sulfides	9.6			
				TRS - 2 vials	Simi Valley			

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
	1030			TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 1 0925	5B	ASB Zone 2	Methanol	Kelso	8.53[1]	84.3	0.79
				Sulfides	0.037			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 2 1326	5B	ASB Zone 2	Methanol	Kelso	8.53	94.3	0.04
				Sulfides	0.051			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 3 1703	5B	ASB Zone 2	Methanol	Kelso	8.65	88.9	0.03
				Sulfides	0.131			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 1 0953	5C	ASB Zone 3	Methanol	Kelso	8.73[1]	83.3	2.59[1]
				Sulfides	0.017			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 2 1344	5C	ASB Zone 3	Methanol	Kelso	8.74	92.1	1.79
				Sulfides	0.045			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	Drone Flight 3 1719	5C	ASB Zone 3	Methanol	Kelso	8.74	86.2	1.66
				Sulfides	0.033			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/9/2021	After Drone Flight 1	1B	ASB Effluent	Methanol	Kelso	7.39	84.2	1.98
				Sulfides	0.002			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	After Drone Flight 2 1345	1B	ASB Effluent	Methanol	Kelso	7.38	89.9	1.25
				Sulfides	0.022			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	After Drone Flight 3 1745	1B	ASB Efffluent	Methanol	Kelso	7.31	88.3	1.05
				Sulfides	0.048			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	QA Duplicates	1B	ASB Efffluent	Methanol	Kelso	7.31	88.3	1.05
				Sulfides	0.048			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	Daily	1B	ASB Effluent	BOD5	Daily Composite	7.39	84.2	2.59
7/9/2021	Daily 11:11	4A	Post-Aeration Inlet	Sulfides	0.057	7.67	85.2	0.25
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	Daily 11:25	4B	Post-Aeration Surface	Sulfides	0.014	7.81	83.6	2.88
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/9/2021	Daily 11:23	4C	Post-Aeration Outlet	Sulfides	0.02	7.75	84.3	3.17
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			

Note: Measurements collected using New-Indy Catawba portable lab meter (YSI Pro 20, S/N 16E1017170) unless otherwise noted.

[1] Measurement collected using Horiba U-5000 meter (S/N TS19L67E) and Probe U-51 (S/N WHC25XR9).

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
7/10/2021	820	2A	FC Inlet	HAPs	Kelso	8.21	131.3	
				COD	Pace			
				Sulfides	0.202			
				Sulfides QA	0 (below dectection)			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1215	2A	FC Inlet	HAPs	Kelso	8.12	134.0	
				COD	Pace			
				Sulfides	0.068			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1605	2A	FC Inlet	HAPs	Kelso	8.16	134.9	
				COD	Pace			
				Sulfides	0.159			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	825	2B	FC Outlet	Methanol	Kelso	8.13	137.3	
				Sulfides	15.7			
				Sulfides QA	14.5			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1220	2B	FC Outlet	Methanol	Kelso	8.29	105.6	
				Sulfides	15.5			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1610	2B	FC Outlet	Methanol	Kelso	7.86	138.5	
				Sulfides	15.6			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	850	1A	ASB Influent	HAPs	Kelso	9.01	112.1	
				Sulfides	0.212			
				Sulfides QA	0.216			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1304	1A	ASB Influent	HAPs	Kelso	9.38	112.6	
				Sulfides	0.312			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1640	1A	ASB Influent	HAPs	Kelso	8.52	113.6	
				Sulfides	1.16			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	720	1A	ASB Influent	COD	Daily Composite	8.04	109.7	
7/10/2021	939	5A	ASB Zone 1	Methanol	Kelso	8.2	93.74	0.02
				Sulfides	0.314			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	939 - QA Sample	5A	ASB Zone 1	Methanol	Kelso	8.2	93.74	0.02
				Sulfides QA	0.170			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	1307	5A	ASB Zone 1	Methanol	Kelso	8.04	99.32	0.05
				Sulfides	4.0			
				Sulfides QA	2.5			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	1700	5A	ASB Zone 1	Methanol	Kelso	8.01	98.42	0.12
				Sulfides	13.4			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
				Methanol	Kelso			

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
7/10/2021	831	5B	ASB Zone 2	Sulfides	0.021	8.28	84.56	0.02
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	831 QA Samples	5B	ASB Zone 2	Methanol	Kelso	8.28	84.56	0.02
				Sulfides QA	0.020			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	1233	5B	ASB Zone 2	Methanol	Kelso	8.41	93.02	0.04
				Sulfides	0.119			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	1632	5B	ASB Zone 2	Methanol	Kelso	8.49	91.22	0.1
				Sulfides	0.123			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	814	5C	ASB Zone 3	Methanol	Kelso	8.33	82.94	1.98
				Sulfides	0.007			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	814 QA Samples	5C	ASB Zone 3	Methanol	Kelso	8.33	82.94	1.98
				Sulfides QA	0 (below dectection)			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	1214	5C	ASB Zone 3	Methanol	Kelso	8.43	89.06	1.51
				Sulfides	0.054			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	1615	5C	ASB Zone 3	Methanol	Kelso	8.37	91.4	0.93
				Sulfides	0.031			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/10/2021	855	1B	ASB Effluent	Methanol	Kelso	7.56	85.5	0.52
				Sulfides	0.124			
				Sulfides QA	0.108			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1309	1B	ASB Effluent	Methanol	Kelso	7.55	90.6	0.74
				Sulfides	0.076			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1645	1B	ASB Efffluent	Methanol	Kelso	7.51	90.6	0.09
				Sulfides	0.22			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	725	1B	ASB Effluent	BOD5	Daily Composite	7.51	85.1	1.93
7/10/2021	1011	4A	Post-Aeration Inlet	Sulfides	0.029	7.69	84.5	0.53
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1011 QA Samples	4A	Post-Aeration Inlet	Sulfides QA	0.020	7.69	84.5	0.53
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1021	4B	Post-Aeration Surface	Sulfides	0 (below dectection)	7.78	84.9	15.3
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1021 QA Samples	4B	Post-Aeration Surface	Sulfides	0 (below dectection)	7.78	84.9	15.3
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
7/10/2021	1023	4C	Post-Aeration Outlet	Sulfides	0 (below dectection)	7.77	84.3	18
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/10/2021	1023 QA Samples	4C	Post-Aeration Outlet	Sulfides	0 (below dectection)	7.77	84.3	18
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
7/11/2021	815	2A	FC Inlet	HAPs	Kelso	8.52	124.1	
				COD	Pace			
				Sulfides	0 (below dectection)			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1220	2A	FC Inlet	HAPs	Kelso	8.34	132.9	
				COD	Pace			
				Sulfides	0.115			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1610	2A	FC Inlet	HAPs	Kelso	8.22	134.7	
				COD	Pace			
				Sulfides	0.347			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	820	2B	FC Outlet	Methanol	Kelso	9.16	148.9	
				Sulfides	18.2			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1225	2B	FC Outlet	Methanol	Kelso	9.20	109.8	
				Sulfides	16.8			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1615	2B	FC Outlet	Methanol	Kelso	8.15	153.1	
				Sulfides	11			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	850	1A	ASB Influent	HAPs	Kelso	8.88	109.1	
				Sulfides	0.405			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1255	1A	ASB Influent	HAPs	Kelso	8.84	114.4	
				Sulfides	0.413			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1640	1A	ASB Influent	HAPs	Kelso	9.04	113.5	
				Sulfides	0.619			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	730	1A	ASB Influent	COD	Daily Composite	7.76	110.0	
7/11/2021	835	5A	ASB Zone 1	Methanol	Kelso	7.96	91.94	0.1
				Sulfides	7.70			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	1225	5A	ASB Zone 1	Methanol	Kelso	8.24	93.56	0.09
				Sulfides	0.884			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	1612	5A	ASB Zone 1	Methanol	Kelso	7.85	94.46	0.13
				Sulfides	1.804			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	904	5B	ASB Zone 2	Methanol	Kelso	8.06	87.26	0.13
				Sulfides	0.046			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	1249	5B	ASB Zone 2	Methanol	Kelso	8.00	94.82	0.11
				Sulfides	0.148			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
				Methanol	Kelso			
				Sulfides	0.042			

New-Indy Catawba
Field Data Sheet

Date	Time	Sample Location	Sample Location	Analyte	Lab Location	pH	Temp	DO
7/11/2021	1644	5B	ASB Zone 2	TRS - 2 vials	Simi Valley	7.98	93.92	0.1
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	925	5C	ASB Zone 3	Methanol	Kelso	8.23	85.1	1.43
				Sulfides	0.015			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	1309	5C	ASB Zone 3	Methanol	Kelso	7.93	91.94	1.38
				Sulfides	0.034			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	1702	5C	ASB Zone 3	Methanol	Kelso	7.82	91.58	0.27
				Sulfides	0.034			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
				MLVSS	Pace			
7/11/2021	855	1B	ASB Effluent	Methanol	Kelso	7.50	87.0	0.1
				Sulfides	0.025			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1300	1B	ASB Effluent	Methanol	Kelso	7.58	91.4	0.32
				Sulfides	0.025			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1645	1B	ASB Efffluent	Methanol	Kelso	7.46	91.6	0.07
				Sulfides	0.033			
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	735	1B	ASB Effluent	BOD5	Daily Composite	8.26	86.0	2.28
7/11/2021	1010	4A	Post-Aeration Inlet	Sulfides	0.034	7.60	84.5	3.68
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1017	4B	Post-Aeration Surface	Sulfides	0.035	7.99	83.8	3.27
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			
7/11/2021	1015	4C	Post-Aeration Outlet	Sulfides	0.014	7.90	84.3	0.74
				TRS - 2 vials	Simi Valley			
				TRS - 2 vials	Keiko			

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LABORATORY REPORT

July 29, 2021

Daniel Mallett
New-Indy Catawba LLC
5300 Cureton Ferry Road
Catawba, SC 29704

RE: DHEC Order

Dear Daniel:

Enclosed are the results of the samples submitted to our laboratory on July 13, 2021. For your reference, these analyses have been assigned our service request number P2103695.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 12:12 pm, Jul 29, 2021
Sue Anderson
Project Manager

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www.alsglobal.com

Client: New-Indy Catawba LLC
Project: DHEC Order

Service Request No: P2103695

CASE NARRATIVE

The samples were received intact under chain of custody on July 13, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The samples were analyzed for five sulfur compounds using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: New-Indy Catawba LLC
Project ID: DHEC Order

Service Request: P2103695

Date Received: 7/13/2021
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Sulfur Liq - Sulfur
1A ASB Inf	P2103695-001	Water	7/9/2021	08:00	X
1B ASB Eff	P2103695-002	Water	7/9/2021	08:00	X
2A Foul Cond Inlet	P2103695-003	Water	7/9/2021	08:00	X
2B Foul Cond Outlet	P2103695-004	Water	7/9/2021	08:05	X
5A ASB Zone 1	P2103695-005	Water	7/9/2021	08:45	X
5B ASB Zone 2	P2103695-006	Water	7/9/2021	09:25	X
5C ASB Zone 3	P2103695-007	Water	7/9/2021	09:53	X
4A Post Area In	P2103695-008	Water	7/9/2021	11:11	X
4B Post Area Surface	P2103695-009	Water	7/9/2021	11:25	X
4C Post Area Out	P2103695-010	Water	7/9/2021	11:23	X
2A Foul Cond. Inlet	P2103695-011	Water	7/9/2021	13:10	X
2B Foul Cond Outlet	P2103695-012	Water	7/9/2021	13:15	X
1A ASB Inf	P2103695-013	Water	7/9/2021	13:40	X
1B ASB Eff	P2103695-014	Water	7/9/2021	13:45	X
5A ASB Zone 1	P2103695-015	Water	7/9/2021	12:48	X
5B ASB Zone 2	P2103695-016	Water	7/9/2021	13:26	X
5C ASB Zone 3	P2103695-017	Water	7/9/2021	13:44	X
1A ASB Inf.	P2103695-018	Water	7/9/2021	17:40	X
2A Foul Cond. Inlet	P2103695-019	Water	7/9/2021	17:00	X
2B Foul Cond. Outlet	P2103695-020	Water	7/9/2021	17:05	X
5A ASB Zone 1	P2103695-021	Water	7/9/2021	16:36	X
5B ASB Zone 2	P2103695-022	Water	7/9/2021	17:03	X
5C ASB Zone 3	P2103695-023	Water	7/9/2021	17:19	X
1B ASB Eff.	P2103695-024	Water	7/9/2021	17:45	X
2A Foul Cond. Inlet	P2103695-025	Water	7/9/2021	17:00	X
2B Foul Cond. Outlet	P2103695-026	Water	7/9/2021	17:05	X
1A ASB Inf.	P2103695-027	Water	7/9/2021	17:40	X
1B ASB Eff.	P2103695-028	Water	7/9/2021	17:45	X
2A Foul Cond. Inlet	P2103695-029	Water	7/10/2021	08:20	X
2B Foul Cond. Outlet	P2103695-030	Water	7/10/2021	08:25	X
1A ASB Inf.	P2103695-031	Water	7/10/2021	08:50	X
1B ASB Eff	P2103695-032	Water	7/10/2021	08:55	X
5A ASB Zone 1	P2103695-033	Water	7/10/2021	09:39	X
5B ASB Zone 2	P2103695-034	Water	7/10/2021	08:31	X
5C ASB Zone 3	P2103695-035	Water	7/10/2021	08:14	X
5A ASB Zone 1	P2103695-036	Water	7/10/2021	09:39	X
5B ASB Zone 2	P2103695-037	Water	7/10/2021	08:31	X
5C ASB Zone 3	P2103695-038	Water	7/10/2021	08:14	X
4A Post Area Inlet	P2103695-039	Water	7/10/2021	10:11	X
4B Post Area Surface	P2103695-040	Water	7/10/2021	10:21	X

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: New-Indy Catawba LLC
Project ID: DHEC Order

Service Request: P2103695

Date Received: 7/13/2021
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Sulfur Liq - Sulfur
4C Post Area Outlet	P2103695-041	Water	7/10/2021	10:23	X
2A Foul Cond. Inlet	P2103695-042	Water	7/10/2021	12:15	X
2B Foul Cond. Outlet	P2103695-043	Water	7/10/2021	12:20	X
1A ASB Inf	P2103695-044	Water	7/10/2021	13:04	X
1B ASB Eff	P2103695-045	Water	7/10/2021	13:09	X
5A ASB Zone 1	P2103695-046	Water	7/10/2021	13:07	X
5B ASB Zone 2	P2103695-047	Water	7/10/2021	12:33	X
5C ASB Zone 3	P2103695-048	Water	7/10/2021	12:14	X
4A Post Area Inlet	P2103695-049	Water	7/10/2021	10:11	X
4B Post Area Surface	P2103695-050	Water	7/10/2021	10:21	X
4C Post Area Outlet	P2103695-051	Water	7/10/2021	10:23	X
2A Foul Cond. Inlet	P2103695-052	Water	7/10/2021	16:05	X
2B Foul Cond. Outlet	P2103695-053	Water	7/10/2021	16:10	X
1A ASB Inf.	P2103695-054	Water	7/10/2021	16:40	X
1B ASB Eff.	P2103695-055	Water	7/10/2021	16:45	X
5A ASB Zone 1	P2103695-056	Water	7/10/2021	17:00	X
5B ASB Zone 2	P2103695-057	Water	7/10/2021	16:32	X
5C ASB Zone 3	P2103695-058	Water	7/10/2021	16:15	X
2A Foul Cond. Inlet	P2103695-059	Water	7/11/2021	08:15	X
2B Foul Cond. Outlet	P2103695-060	Water	7/11/2021	08:20	X
1A ASB Inf.	P2103695-061	Water	7/11/2021	08:50	X
1B ASB Eff.	P2103695-062	Water	7/11/2021	08:55	X
5A ASB Zone 1	P2103695-063	Water	7/11/2021	08:35	X
5B ASB Zone 2	P2103695-064	Water	7/11/2021	09:04	X
5C ASB Zone 3	P2103695-065	Water	7/11/2021	09:25	X
4A Post Area Inlet	P2103695-066	Water	7/11/2021	10:10	X
4B Post Area Surface	P2103695-067	Water	7/11/2021	10:17	X
4C Post Area Outlet	P2103695-068	Water	7/11/2021	10:15	X
2A Foul Cond Inlet	P2103695-069	Water	7/11/2021	12:20	X
2B Foul Cond Outlet	P2103695-070	Water	7/11/2021	12:25	X
1A ASB Inf.	P2103695-071	Water	7/11/2021	12:55	X
1B ASB Eff.	P2103695-072	Water	7/11/2021	13:00	X
5A ASB Zone 1	P2103695-073	Water	7/11/2021	12:25	X
5B ASB Zone 2	P2103695-074	Water	7/11/2021	12:49	X
5C ASB Zone 3	P2103695-075	Water	7/11/2021	13:09	X
2A Foul Cond. Inlet	P2103695-076	Water	7/11/2021	16:10	X
2B Foul Cond. Outlet	P2103695-077	Water	7/11/2021	16:15	X
1A ASB Inf.	P2103695-078	Water	7/11/2021	16:40	X
1B ASB Eff.	P2103695-079	Water	7/11/2021	16:45	X
5A ASB Zone 1	P2103695-080	Water	7/11/2021	16:12	X

Soil / Water - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No. P2103695

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information:

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	Analysis	Comments
1-A ASB Inf	1	7-9-21	0800	x				Liq. Sulfur Analysis	* Collection date and time are crucial for sample identification
1-A ASB Inf		7-9-21	0800	x					
1-B ASB Eff	2	7-9-21	0800	x					
1-B ASB Eff		7-9-21	0800	x					
2-A Foul Cond Inlet	3	7-9-21	0800	x					
2-A Foul Cond Inlet		7-9-21	0800	x					
2-B Foul Cond Outlet	4	7-9-21	0805	x					
2-B Foul Cond Outlet		7-9-21	0805	x					
5-A ASB Zone 1	5	7-9-21	0845	x					
5-A ASB Zone 1		7-9-21	0845	x					
5-B ASB Zone 2	6	7-9-21	0925	x					
5-B ASB Zone 2		7-9-21	0925	x					

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Karen E Mayberry	7-9-21	810	Ref Secure Area	7-9-21	810
Lauren Harris	7-9-21	810	Ref Secure Area	7-9-21	810
Rebecca L. Ames	7-9-21	1000	Ref Secure Area	7-9-21	1000

2 coolers

7-13-21 10:00

Soil / Water - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No. P2103695

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	Analysis	Comments
5C - ASB Zone 3	7	7-9-21	0953	x				Liq. Sulfur Analysis	* Collection date and time are crucial for sample identification
5C - ASB Zone 3		7-9-21	0953	x					
4A - Post Aera In	8	7-9-21	1111	x					
4A - Post Aera In		7-9-21	1111	x					
4B - Post Aera Surface	9	7-9	1125	x					
4B - Post Aera Surface		7-9	1125	x					
4C - Post Aera Out	10	7-9	1123	x					
4C - Post Aera. Out		7-9	1123	x					
2A - Foul Cond. Inlet	11	7-9-21	1310	x					
2A - Foul Cond Inlet		7-9-21	1310	x					
2B - Foul Cond Outlet	12	7-9-21	1315	x					
2B - Foul Cond Out		7-9-21	1315	x					

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Darrell E Hanneley	7-9-21	11:35	Ref Secure Area	7-9-21	11:35
Darren Hanna	7-9-21	13:20	Ref. Secure Area	7-9-21	13:20
Reliquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 7-13-21	Time: 1000

Soil / Water - Chain of Custody Record & Analytical Service Request

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

P.O. # / Credit Card / Billing Information

Project Manager: Dan Mallett

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	Analysis	Comments
8A - ASB Inf	13	7-9-21	1340	x				Liq. Sulfur Analysis	* Collection date and time are crucial for sample identification
8A - ASB Inf		7-9-21	1340	x					
1B - ASB Eff	14	7-9-21	1345	x					
1B - ASB Eff		7-9-21	1345	x					
5A - ASB Zone 1	15	7-9-21	1248	x					
5A - ASB Zone 1		7-9-21	1248	x					
5B - ASB Zone 2	16	7-9-21	1326	x					
5B - ASB Zone 2		7-9-21	1326	x					
5C - ASB Zone 3	17	7-9-21	1344	x					
5C - ASB Zone 3		7-9-21	1344	x					
1A - ASB Inf.	18	7-9-21	1740	x					
1A - ASB Inf		7-9-21	1740	x					

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries) _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Daniel E Hensley	7-9-21	1350	Ref. Secure Area	7-9-21	1350
Rebecca D. Gomez	7-9-21	1350	Ref. Secure Area	7-9-21	1350
	Date:	Time:	Received by: (Signature)	Date: 7-13-21	Time: 1000

Soil / Water - Chain of Custody Record & Analytical Service Request

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.: P2103695

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	Analysis	Comments
2A - Foul Cond Inlet	19	7-9-21	1700	X				Liq. Sulfur Analysis	* Collection date and time are crucial for sample identification
2A - Foul Cond Inlet		7-9-21	1700						
2B - Foul Cond Outlet	20	7-9-21	1705						
2B - Foul Cond. Outlet		7-9-21	1705						
5A - ASB Zone 1	21	7-9-21	1636						
5A - ASB Zone 1		7-9-21	1636						
5B - ASB Zone 2	22	7-9-21	1703						
5B - ASB Zone 2		7-9-21	1703						
5C - ASB Zone 3	23	7-9-21	1719						
5C - ASB Zone 3		7-9-21	1719						
1B - ASB Eff.	24	7-9-21	1745						
1B - ASB Eff.		7-9-21	1745						

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Karsten Harris	7-9-21	1710	Ref Secure Area	7-9-21	1710
Rebecca L. Ames	7-9-21	1725	Ref Secure Area	7-9-21	1725
	Date:	Time:	Received by: (Signature)	Date: 7-13-21	Time: 1000

Soil / Water - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
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Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No. P21036095

CAS Contact:

Company Name & Address (Reporting Information)	Project Name	Analysis
New Indy Containe Board 5300 Cureton Ferry Rd Catawba, SC 29704	DHEC Order	
Project Manager: Dan Mallett	Project Number	
Phone: (803) 981-8010 Fax:	P.O. # / Credit Card / Billing Information	
Email Address for Result Reporting: dan.mallett@new-indycb.com		

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	Analysis	Comments
2A - Foul Cond. Inlet	25	7-9-21	1700	X				Liq Sulfur Analysis	* Collection date and time are crucial for sample identification
2A - Foul Cond Inlet			1700						
2B - Foul Cond Outlet	26		1705						
2B - Foul Cond. Outlet			1705						
1A - ASB Inf.	27		1740						
1A - ASB Inf			1740						
1B - ASB Eff.	28		1745						Duplicate Samples for QA *
1B - ASB Eff.			1745						

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____
EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Karen Harris	7-9-21	1710	Ref. Secure Area	7-9-21	1710
David E Moriarty	7-9-21	1750	Ref Secure Area	7-9-21	1750
Reliquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 7-13-21	Time: 1000

Soil / Water - Chain of Custody Record & Analytical Service Request

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	# of vials	Analysis	Comments
2A - Foul Cond Inlet	29	7-10-21	0820	x				2	Liq. Sulfur Analysis	* Collection date and time are crucial for sample identification
2B - Foul Cond Outlet	30	7-10-21	0825	x				2		
1A - ASB Inf.	31	7-10-21	0850	x				2		
1B - ASB Eff	32	7-10-21	0855	x				2		
5A - ASB Zone 1	33	7-10-21	0939	x				2		
5B - ASB Zone 2	34	7-10-21	0831	x				2		
5C - ASB Zone 3	35	7-10-21	0814	x				2		
5A - ASB Zone 1	36	7-10-21	0939	x				2		QA Duplicate Samples
5B - ASB Zone 2	37	7-10-21	0831	x				2		
5C - ASB Zone 3	38	7-10-21	0814	x				2		

Report Tier Levels - please select
Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries) _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Darren Harris	7-10-21	0830	Ref Secure Area	7-10-21	0830
David Edens Day	7-10-21	0900	Ref. Secure Area	7-10-21	0900
Rebecca L. Jones	7-10-21	0945	Ref. Secure Area	7-10-21	0945

1000
7-10-21

Soil / Water - Chain of Custody Record & Analytical Service Request

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Simi Valley, California 93065
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Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Orders

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	# of vials	Analysis		Comments
1A - Post Aera. Inlet	39	7-10-21	1011	x				2	Lg Sulfur Analysis		*Collection date and time are crucial for sample identification*
1B - Post Aera. Surface	40	7-10-21	1021	x				2			
4C - Post Aera. Outlet	41	7-10-21	1023	x				2			
2A - Foul Cond. Inlet	42	7-10-21	1215	x				2			
2B - Foul Cond. Outlet	43	7-10-21	1220	x				2			
1A - ASB Inf	44	7-10-21	1304	x				2			
1B - ASB Eff	45	7-10-21	1309	x				2			
5A - ASB Zone 1	46	7-10-21	1307	x				2			
5B - ASB Zone 2	47	7-10-21	1233	x				2			
5C - ASB Zone 3	48	7-10-21	1214	x				2			

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries) _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	7-10-21	1030	Ref Secure Area	7-10-21	1030
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	7-10-21	1225	Ref Secure Area	7-10-21	1225
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	7-10-21	1315	Ref Secure Area	7-10-21	1315

1030
7-13-21

Soil / Water - Chain of Custody Record & Analytical Service Request

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Gureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Orders

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	# of Vials	Analysis	Comments
1A- Post Area. Inlet	49	7-10-21	1011	x				2	Liq. Sulfur Analysis	QA Duplicate Samples
1B- Post Area. Surface	50	7-10-21	1021	x				2		*Collection date and time are crucial for sample identification*
1C- Post Area. Outlet	51	7-10-21	1023	x				2		
2A- Foul Cond. Inlet	52	7-10-21	1605	x				2		
2B- Foul Cond. Outlet	53	7-10-21	1610	x				2		
1A- ASB Inf.	54	7-10-21	1640	x				2		
1B- ASB Eff.	55	7-10-21	1645	x				2		
5A- ASB Zone 1	56	7-10-21	1700	x				2		
5B- ASB Zone 2	57	7-10-21	1632	x				2		
5C- ASB Zone 3	58	7-10-21	1615	x				2		

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Daniel E Mallett	7-10-21	1030	Ref Secure Area	7-10-21	1030
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Lauren Harris	7-10-21	1615	Ref Secure Area	7-10-21	1615
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Rebecca A. Armes	7-10-21	1710	Ref. Secure Area	7-10-21	1710

1500
7-13-21

Soil / Water - Chain of Custody Record & Analytical Service Request

5 Park Center Drive, Suite A
i Valley, California 93065
one (805) 526-7161
x (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.

CAS Contact:

mpany Name & Address (Reporting Information)
New Indy Container Board
5300 Overton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

P.O. # / Credit Card / Billing Information:

oject Manager: Dan Mallett

one: (803) 981-8010

Fax:

mail Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	# of vials	Analysis	Comments
2A - Foul Cond. Inlet	59	7-11-21	0815	x				2	Liq. Sulfur Analysis	*Collection date and time are crucial for sample identification*
2B - Foul Cond Outlet	60	7-11-21	0820	x				2		
1A - ASB Inf.	61	7-11-21	0850	x				2		
1B - ASB Eff.	62	7-11-21	0855	x				2		
5A - ASB Zone 1	63	7-11-21	0835	x				2		
5B - ASB Zone 2	64	7-11-21	0904	x				2		
5C - ASB Zone 3	65	7-11-21	0925	x				2		
4A - Post Aera Inlet	66	7-11-21	1010	x				2		
4B - Post Aera. Surface	67	7-11-21	1017	x				2		
4C - Post Aera. Out	68	7-11-21	1015	x				2		
2A - Foul Cond Inlet	69	7-11-21	1220	x				2		
2B - Foul Cond Outlet	70	7-11-21	1225	x				2		

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Karen Harris	7-11-21	0825	Ref Secure Area	7-11-21	0825
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	7-11-21	0900	Ref. Secure Area	7-11-21	0900
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	7-11-21	0935	Ref Secure Area	7-11-21	0935

1000
7-12-21

Soil / Water - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No.

CAS Contact:

Company Name & Address (Reporting Information)
New Indy Container Board
5300 Cureton Ferry Rd
Catawba, SC 29704

Project Name: DHEC Order

Project Number:

Project Manager: Dan Mallett

P.O. # / Credit Card / Billing Information

Phone: (803) 981-8010

Fax:

Email Address for Result Reporting: dan.mallett@new-indycb.com

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Water	Soil	Solid	Other	# of vials	Analysis		Comments
4A - ASB Inf.	1255	7-11-21	70	x				2	Liq. Sulfur Analysis		* Collection date and time are crucial for sample identification *
4B - ASB Eff.	1300	7-11-21	72	x				2			
5A - ASB Zone 1	1225	7-11-21	73	x				2			
5B - ASB Zone 2	1249	7-11-21	74	x				2			
5C - ASB Zone 3	1309	7-11-21	75	x				2			
2A - Foul Cond. Inlet	1610	7-11-21	76	x				2			
2B - Foul Cond. Outlet	1615	7-11-21	77	x				2			
1A - ASB Inf.	1640	7-11-21	78	x				2			
1B - ASB Eff.	1645	7-11-21	79	x				2			
5A - ASB Zone 1	1612	7-11-21	80	x				2			
5B - ASB Zone 2	1644	7-11-21	81	x				2			
5C - ASB Zone 3	1702	7-11-21	82	x				2			

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: ____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Karen Harris	7-11-21	1620	Ref Secure Area	7-11-21	1620
Mary E Mowday	7-11-21	1305/1650	Ref. Secure Area	7-11-21	1305 1650
Rebecca A. Turner	7-11-21	1315 1710	Ref. Secure Area	7-11-21	1315 1710

1000
7-13-21

ALS Environmental
Sample Acceptance Check Form

Client: New-Indy Catawba LLC Work order: P2103695

Project: DHEC Order

Sample(s) received on: 7/13/21 Date opened: 7/13/21 by: DENISE.POSADA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 2° C Blank Temperature: ° C	Wet Ic		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103695-001.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-001.02	40mL VOA NP				P	
P2103695-002.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-002.02	40mL VOA NP				P	
P2103695-003.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-003.02	40mL VOA NP				P	
P2103695-004.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-004.02	40mL VOA NP				P	
P2103695-005.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-005.02	40mL VOA NP				P	
P2103695-006.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-006.02	40mL VOA NP				P	
P2103695-007.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-007.02	40mL VOA NP				P	
P2103695-008.01	40mL VOA NP		6	1	P	GG 7/16/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: New-Indy Catawba LLC Work order: P2103695

Project: DHEC Order

Sample(s) received on: 7/13/21 Date opened: 7/13/21 by: DENISE.POSADA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103695-008.02	40mL VOA NP				P	
P2103695-009.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-009.02	40mL VOA NP				P	
P2103695-010.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-010.02	40mL VOA NP				P	
P2103695-011.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-011.02	40mL VOA NP				P	
P2103695-012.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-012.02	40mL VOA NP				P	
P2103695-013.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-013.02	40mL VOA NP				P	
P2103695-014.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-014.02	40mL VOA NP				P	
P2103695-015.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-015.02	40mL VOA NP				P	
P2103695-016.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-016.02	40mL VOA NP				P	
P2103695-017.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-017.02	40mL VOA NP				P	
P2103695-018.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-018.02	40mL VOA NP				P	
P2103695-019.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-019.02	40mL VOA NP				P	
P2103695-020.01	40mL VOA NP		6	1	P	GG 7/16/21
P2103695-020.02	40mL VOA NP				P	
P2103695-021.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-021.02	40mL VOA NP				P	
P2103695-022.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-022.02	40mL VOA NP				P	
P2103695-023.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-023.02	40mL VOA NP				P	
P2103695-024.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-024.02	40mL VOA NP				P	
P2103695-025.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-025.02	40mL VOA NP				P	
P2103695-026.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-026.02	40mL VOA NP				P	
P2103695-027.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-027.02	40mL VOA NP				P	
P2103695-028.01	40mL VOA NP		6	1	P	GG 7/20/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: New-Indy Catawba LLC Work order: P2103695

Project: DHEC Order

Sample(s) received on: 7/13/21 Date opened: 7/13/21 by: DENISE.POSADA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103695-028.02	40mL VOA NP				P	
P2103695-029.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-029.02	40mL VOA NP				P	
P2103695-030.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-030.02	40mL VOA NP				P	
P2103695-031.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-031.02	40mL VOA NP				P	
P2103695-032.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-032.02	40mL VOA NP				P	
P2103695-033.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-033.02	40mL VOA NP				P	
P2103695-034.01	40mL VOA NP		6	1	P	GG 7/20/21
P2103695-034.02	40mL VOA NP				P	
P2103695-035.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-035.02	40mL VOA NP				P	
P2103695-036.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-036.02	40mL VOA NP				P	
P2103695-037.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-037.02	40mL VOA NP				P	
P2103695-038.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-038.02	40mL VOA NP				P	
P2103695-039.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-039.02	40mL VOA NP				P	
P2103695-040.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-040.02	40mL VOA NP				P	
P2103695-041.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-041.02	40mL VOA NP				P	
P2103695-042.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-042.02	40mL VOA NP				P	
P2103695-043.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-043.02	40mL VOA NP				P	
P2103695-044.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-044.02	40mL VOA NP				P	
P2103695-045.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-045.02	40mL VOA NP				P	
P2103695-046.01	40mL VOA NP		6	1	P	GG 7/22/21
P2103695-046.02	40mL VOA NP				P	
P2103695-047.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-047.02	40mL VOA NP				P	
P2103695-048.01	40mL VOA NP		6	1	P	GG 7/23/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: New-Indy Catawba LLC Work order: P2103695

Project: DHEC Order

Sample(s) received on: 7/13/21 Date opened: 7/13/21 by: DENISE.POSADA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103695-048.02	40mL VOA NP				P	
P2103695-049.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-049.02	40mL VOA NP				P	
P2103695-050.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-050.02	40mL VOA NP				P	
P2103695-051.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-051.02	40mL VOA NP				P	
P2103695-052.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-052.02	40mL VOA NP				P	
P2103695-053.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-053.02	40mL VOA NP				P	
P2103695-054.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-054.02	40mL VOA NP				P	
P2103695-055.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-055.02	40mL VOA NP				P	
P2103695-056.01	40mL VOA NP		6	1	P	GG 7/23/21
P2103695-056.02	40mL VOA NP				P	
P2103695-057.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-057.02	40mL VOA NP				P	
P2103695-058.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-058.02	40mL VOA NP				P	
P2103695-059.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-059.02	40mL VOA NP				P	
P2103695-060.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-060.02	40mL VOA NP				P	
P2103695-061.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-061.02	40mL VOA NP				P	
P2103695-062.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-062.02	40mL VOA NP				P	
P2103695-063.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-063.02	40mL VOA NP				P	
P2103695-064.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-064.02	40mL VOA NP				P	
P2103695-065.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-065.02	40mL VOA NP				P	
P2103695-066.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-066.02	40mL VOA NP				P	
P2103695-067.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-067.02	40mL VOA NP				P	
P2103695-068.01	40mL VOA NP		6	1	P	GG 7/26/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: New-Indy Catawba LLC Work order: P2103695

Project: DHEC Order

Sample(s) received on: 7/13/21 Date opened: 7/13/21 by: DENISE.POSADA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103695-068.02	40mL VOA NP				P	
P2103695-069.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-069.02	40mL VOA NP				P	
P2103695-070.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-070.02	40mL VOA NP				P	
P2103695-071.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-071.02	40mL VOA NP				P	
P2103695-072.01	40mL VOA NP		6	1	P	GG 7/26/21
P2103695-072.02	40mL VOA NP				P	
P2103695-073.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-073.02	40mL VOA NP				P	
P2103695-074.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-074.02	40mL VOA NP				P	
P2103695-075.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-075.02	40mL VOA NP				P	
P2103695-076.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-076.02	40mL VOA NP				P	
P2103695-077.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-077.02	40mL VOA NP				P	
P2103695-078.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-078.02	40mL VOA NP				P	
P2103695-079.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-079.02	40mL VOA NP				P	
P2103695-080.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-080.02	40mL VOA NP				P	
P2103695-081.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-081.02	40mL VOA NP				P	
P2103695-082.01	40mL VOA NP		6	1	P	GG 7/27/21
P2103695-082.02	40mL VOA NP				P	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-001

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**36**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**56**	1.5	
75-15-0	Carbon Disulfide	**1.2**	0.93	
624-92-0	Dimethyl Disulfide	**11**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-002

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**130**	0.84	
74-93-1	Methyl Mercaptan	**5.5**	1.2	
75-18-3	Dimethyl Sulfide	**11**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-003

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.050 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**110,000**	170	
74-93-1	Methyl Mercaptan	**7,800**	240	
75-18-3	Dimethyl Sulfide	**9,100**	300	
75-15-0	Carbon Disulfide	ND	190	
624-92-0	Dimethyl Disulfide	**7,200**	230	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-004

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.050 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**12,000**	17	
74-93-1	Methyl Mercaptan	**280**	24	
75-18-3	Dimethyl Sulfide	**1,600**	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	**1,700**	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-005

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/9/21
Instrument ID:	Agilent 7890A/GC22/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/16/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.30 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**23,000**	28	
74-93-1	Methyl Mercaptan	**290**	39	
75-18-3	Dimethyl Sulfide	**59**	51	
75-15-0	Carbon Disulfide	ND	31	
624-92-0	Dimethyl Disulfide	ND	39	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-006

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/9/21
Instrument ID:	Agilent 7890A/GC22/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/16/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**5,700**	8.4	
74-93-1	Methyl Mercaptan	**93**	12	
75-18-3	Dimethyl Sulfide	ND	15	
75-15-0	Carbon Disulfide	ND	9.3	
624-92-0	Dimethyl Disulfide	ND	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-007

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**110**	0.84	
74-93-1	Methyl Mercaptan	**1.4**	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4A Post Area In**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-008

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**100**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.2**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4B Post Area Surface**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-009

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**98**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4C Post Area Out**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-010

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**110**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-011

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**150,000**	84	
74-93-1	Methyl Mercaptan	**8,500**	120	
75-18-3	Dimethyl Sulfide	**13,000**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**12,000**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-012

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.050 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**20,000**	17	
74-93-1	Methyl Mercaptan	**420**	24	
75-18-3	Dimethyl Sulfide	**2,100**	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	**1,700**	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-013

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**280**	0.84	
74-93-1	Methyl Mercaptan	**1.2**	1.2	
75-18-3	Dimethyl Sulfide	**72**	1.5	
75-15-0	Carbon Disulfide	**3.6**	0.93	
624-92-0	Dimethyl Disulfide	**29**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-014

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**130**	0.84	
74-93-1	Methyl Mercaptan	**4.7**	1.2	
75-18-3	Dimethyl Sulfide	**16**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	**14**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-015

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.30 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**40,000**	28	
74-93-1	Methyl Mercaptan	**540**	39	
75-18-3	Dimethyl Sulfide	**120**	51	
75-15-0	Carbon Disulfide	ND	31	
624-92-0	Dimethyl Disulfide	**93**	39	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-016

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/9/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/16/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.20 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**6,100**	4.2	
74-93-1	Methyl Mercaptan	**91**	5.9	
75-18-3	Dimethyl Sulfide	**9.8**	7.6	
75-15-0	Carbon Disulfide	ND	4.7	
624-92-0	Dimethyl Disulfide	ND	5.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-017

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**170**	0.84	
74-93-1	Methyl Mercaptan	**1.6**	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	**2.5**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-018

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**160**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**79**	1.5	
75-15-0	Carbon Disulfide	**4.1**	0.93	
624-92-0	Dimethyl Disulfide	**38**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-019

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**140,000**	84	
74-93-1	Methyl Mercaptan	**9,500**	120	
75-18-3	Dimethyl Sulfide	**13,000**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**10,000**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-020

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.20 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**7,300**	4.2	
74-93-1	Methyl Mercaptan	**140**	5.9	
75-18-3	Dimethyl Sulfide	**2,300**	7.6	
75-15-0	Carbon Disulfide	ND	4.7	
624-92-0	Dimethyl Disulfide	**3,200**	5.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210716-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210716-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/16/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210716-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/16/21
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	519	512	**126**	**124**	68-129	2	16	
74-93-1	Methyl Mercaptan	620	771	783	**124**	**126**	69-136	2	17	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210716-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/16/21
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	468	513	**113**	**124**	68-129	9	16	
74-93-1	Methyl Mercaptan	620	629	666	**101**	**107**	69-136	6	17	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-021

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**36,000**	17	
74-93-1	Methyl Mercaptan	**400**	24	
75-18-3	Dimethyl Sulfide	**210**	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	ND	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-022

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/9/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/20/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.20 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**3,400**	4.2	
74-93-1	Methyl Mercaptan	**55**	5.9	
75-18-3	Dimethyl Sulfide	**8.8**	7.6	
75-15-0	Carbon Disulfide	ND	4.7	
624-92-0	Dimethyl Disulfide	ND	5.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-023

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**220**	0.84	
74-93-1	Methyl Mercaptan	**1.9**	1.2	
75-18-3	Dimethyl Sulfide	**3.5**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-024

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**120**	0.84	
74-93-1	Methyl Mercaptan	**2.7**	1.2	
75-18-3	Dimethyl Sulfide	**10**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-025

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**130,000**	84	
74-93-1	Methyl Mercaptan	**9,400**	120	
75-18-3	Dimethyl Sulfide	**10,000**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**5,900**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-026

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**920**	0.84	
74-93-1	Methyl Mercaptan	**7.7**	1.2	
75-18-3	Dimethyl Sulfide	**2,200**	1.5	
75-15-0	Carbon Disulfide	**1.8**	0.93	
624-92-0	Dimethyl Disulfide	**2,800**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-027

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**160**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**100**	1.5	
75-15-0	Carbon Disulfide	**4.3**	0.93	
624-92-0	Dimethyl Disulfide	**88**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-028

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/9/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**120**	0.84	
74-93-1	Methyl Mercaptan	**1.8**	1.2	
75-18-3	Dimethyl Sulfide	**11**	1.5	
75-15-0	Carbon Disulfide	**0.96**	0.93	
624-92-0	Dimethyl Disulfide	**9.5**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-029

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**130,000**	84	
74-93-1	Methyl Mercaptan	**12,000**	120	
75-18-3	Dimethyl Sulfide	**14,000**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**13,000**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-030

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**3,100**	1.7	
74-93-1	Methyl Mercaptan	**130**	2.4	
75-18-3	Dimethyl Sulfide	**2,300**	3.0	
75-15-0	Carbon Disulfide	ND	1.9	
624-92-0	Dimethyl Disulfide	**4,100**	2.3	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-031

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**200**	0.84	
74-93-1	Methyl Mercaptan	**1.9**	1.2	
75-18-3	Dimethyl Sulfide	**150**	1.5	
75-15-0	Carbon Disulfide	**2.4**	0.93	
624-92-0	Dimethyl Disulfide	**120**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-032

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**140**	0.84	
74-93-1	Methyl Mercaptan	**1.8**	1.2	
75-18-3	Dimethyl Sulfide	**12**	1.5	
75-15-0	Carbon Disulfide	**0.97**	0.93	
624-92-0	Dimethyl Disulfide	**25**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-033

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/20/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.30 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**39,000**	28	
74-93-1	Methyl Mercaptan	**270**	39	
75-18-3	Dimethyl Sulfide	**67**	51	
75-15-0	Carbon Disulfide	ND	31	
624-92-0	Dimethyl Disulfide	ND	39	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-034

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/20/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**11,000**	8.4	
74-93-1	Methyl Mercaptan	**120**	12	
75-18-3	Dimethyl Sulfide	ND	15	
75-15-0	Carbon Disulfide	ND	9.3	
624-92-0	Dimethyl Disulfide	ND	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210720-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/20/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210720-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/20/21
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	517	468	**125**	**113**	68-129	10	16	
74-93-1	Methyl Mercaptan	620	838	772	**135**	**125**	69-136	8	17	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-035

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**120**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-036

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/22/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.30 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**30,000**	28	
74-93-1	Methyl Mercaptan	**170**	39	
75-18-3	Dimethyl Sulfide	ND	51	
75-15-0	Carbon Disulfide	ND	31	
624-92-0	Dimethyl Disulfide	ND	39	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-037

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**11,000**	8.4	
74-93-1	Methyl Mercaptan	**110**	12	
75-18-3	Dimethyl Sulfide	ND	15	
75-15-0	Carbon Disulfide	ND	9.3	
624-92-0	Dimethyl Disulfide	ND	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-038

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/22/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**120**	0.84	
74-93-1	Methyl Mercaptan	**1.5**	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4A Post Area Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-039

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**110**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.5**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4B Post Area Surface**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-040

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/22/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**79**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.5**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4C Post Area Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-041

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**83**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.5**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-042

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**110,000**	84	
74-93-1	Methyl Mercaptan	**8,900**	120	
75-18-3	Dimethyl Sulfide	**11,000**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**9,500**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P2103695-043

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**630**	1.7	
74-93-1	Methyl Mercaptan	**7.7**	2.4	
75-18-3	Dimethyl Sulfide	**1,900**	3.0	
75-15-0	Carbon Disulfide	ND	1.9	
624-92-0	Dimethyl Disulfide	**3,300**	2.3	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-044

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/22/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**240**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**100**	1.5	
75-15-0	Carbon Disulfide	**2.7**	0.93	
624-92-0	Dimethyl Disulfide	**27**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-045

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/22/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**150**	0.84	
74-93-1	Methyl Mercaptan	**5.1**	1.2	
75-18-3	Dimethyl Sulfide	**7.6**	1.5	
75-15-0	Carbon Disulfide	**1.7**	0.93	
624-92-0	Dimethyl Disulfide	**3.6**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-046

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/22/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**18,000**	17	
74-93-1	Methyl Mercaptan	**160**	24	
75-18-3	Dimethyl Sulfide	**68**	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	**25**	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210722-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/22/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210722-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/22/21
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	439	450	**106**	**109**	68-129	3	16	
74-93-1	Methyl Mercaptan	620	717	746	**116**	**120**	69-136	3	17	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-047

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/23/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.40 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**1,800**	2.1	
74-93-1	Methyl Mercaptan	**40**	3.0	
75-18-3	Dimethyl Sulfide	**6.1**	3.8	
75-15-0	Carbon Disulfide	ND	2.3	
624-92-0	Dimethyl Disulfide	ND	2.9	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-048

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/23/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**89**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4A Post Area Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-049

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/23/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**93**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.5**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4B Post Area Surface**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-050

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/23/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**83**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.6**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4C Post Area Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-051

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/23/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**73**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.5**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-052

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/23/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**12,000**	8.4	
74-93-1	Methyl Mercaptan	**1,200**	12	
75-18-3	Dimethyl Sulfide	**1,400**	15	
75-15-0	Carbon Disulfide	ND	9.3	
624-92-0	Dimethyl Disulfide	**1,200**	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-053

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/23/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**450**	1.7	
74-93-1	Methyl Mercaptan	**7.0**	2.4	
75-18-3	Dimethyl Sulfide	**1,900**	3.0	
75-15-0	Carbon Disulfide	**2.1**	1.9	
624-92-0	Dimethyl Disulfide	**3,400**	2.3	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-054

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/23/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**310**	0.84	
74-93-1	Methyl Mercaptan	**1.2**	1.2	
75-18-3	Dimethyl Sulfide	**140**	1.5	
75-15-0	Carbon Disulfide	**2.7**	0.93	
624-92-0	Dimethyl Disulfide	**76**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-055

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/23/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**100**	0.84	
74-93-1	Methyl Mercaptan	**1.6**	1.2	
75-18-3	Dimethyl Sulfide	**7.3**	1.5	
75-15-0	Carbon Disulfide	**1.4**	0.93	
624-92-0	Dimethyl Disulfide	**10**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-056

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/10/21
Date Received: 7/13/21
Date Analyzed: 7/23/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**16,000**	17	
74-93-1	Methyl Mercaptan	**180**	24	
75-18-3	Dimethyl Sulfide	**130**	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	**50**	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210723-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/23/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210723-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/23/21
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	434	431	**105**	**104**	68-129	1	16	
74-93-1	Methyl Mercaptan	620	688	719	**111**	**116**	69-136	4	17	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-057

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.40 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**3,800**	2.1	
74-93-1	Methyl Mercaptan	**36**	3.0	
75-18-3	Dimethyl Sulfide	**5.7**	3.8	
75-15-0	Carbon Disulfide	**2.7**	2.3	
624-92-0	Dimethyl Disulfide	ND	2.9	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-058

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/10/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**98**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**2.3**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-059

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**82,000**	84	
74-93-1	Methyl Mercaptan	**5,400**	120	
75-18-3	Dimethyl Sulfide	**11,000**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**8,100**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P2103695-060

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**540**	0.84	
74-93-1	Methyl Mercaptan	**5.2**	1.2	
75-18-3	Dimethyl Sulfide	**1,500**	1.5	
75-15-0	Carbon Disulfide	**1.2**	0.93	
624-92-0	Dimethyl Disulfide	**2,100**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-061

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**230**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**90**	1.5	
75-15-0	Carbon Disulfide	**2.2**	0.93	
624-92-0	Dimethyl Disulfide	**29**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-062

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**85**	0.84	
74-93-1	Methyl Mercaptan	**1.7**	1.2	
75-18-3	Dimethyl Sulfide	**6.6**	1.5	
75-15-0	Carbon Disulfide	**1.5**	0.93	
624-92-0	Dimethyl Disulfide	**7.9**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-063

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**27,000**	17	
74-93-1	Methyl Mercaptan	**100**	24	
75-18-3	Dimethyl Sulfide	ND	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	ND	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-064

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.20 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**6,500**	4.2	
74-93-1	Methyl Mercaptan	**53**	5.9	
75-18-3	Dimethyl Sulfide	ND	7.6	
75-15-0	Carbon Disulfide	ND	4.7	
624-92-0	Dimethyl Disulfide	ND	5.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-065

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**260**	0.84	
74-93-1	Methyl Mercaptan	**1.6**	1.2	
75-18-3	Dimethyl Sulfide	**1.7**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4A Post Area Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-066

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**98**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.4**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4B Post Area Surface**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-067

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**100**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.4**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **4C Post Area Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-068

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**86**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	**1.4**	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-069

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/11/21
Date Received: 7/13/21
Date Analyzed: 7/26/21
Liquid Amount: 1.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**72,000**	84	
74-93-1	Methyl Mercaptan	**6,600**	120	
75-18-3	Dimethyl Sulfide	**9,200**	150	
75-15-0	Carbon Disulfide	ND	93	
624-92-0	Dimethyl Disulfide	**10,000**	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond Outlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-070

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/26/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**320**	0.84	
74-93-1	Methyl Mercaptan	**3.9**	1.2	
75-18-3	Dimethyl Sulfide	**1,400**	1.5	
75-15-0	Carbon Disulfide	**0.97**	0.93	
624-92-0	Dimethyl Disulfide	**2,700**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-071

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/11/21
Date Received: 7/13/21
Date Analyzed: 7/26/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**180**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**110**	1.5	
75-15-0	Carbon Disulfide	**2.3**	0.93	
624-92-0	Dimethyl Disulfide	**67**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-072

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/11/21
Date Received: 7/13/21
Date Analyzed: 7/26/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**1,600**	0.84	
74-93-1	Methyl Mercaptan	**34**	1.2	
75-18-3	Dimethyl Sulfide	**7.7**	1.5	
75-15-0	Carbon Disulfide	**2.2**	0.93	
624-92-0	Dimethyl Disulfide	**19**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-073

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**15,000**	17	
74-93-1	Methyl Mercaptan	**57**	24	
75-18-3	Dimethyl Sulfide	ND	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	ND	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-074

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**1,200**	0.84	
74-93-1	Methyl Mercaptan	**19**	1.2	
75-18-3	Dimethyl Sulfide	**4.1**	1.5	
75-15-0	Carbon Disulfide	**3.8**	0.93	
624-92-0	Dimethyl Disulfide	**1.4**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-075

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**79**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**2.4**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2A Foul Cond. Inlet**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-076

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.20 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**63,000**	42	
74-93-1	Methyl Mercaptan	**5,100**	59	
75-18-3	Dimethyl Sulfide	**9,700**	76	
75-15-0	Carbon Disulfide	ND	47	
624-92-0	Dimethyl Disulfide	**7,400**	58	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **2B Foul Cond. Outlet** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P2103695-077

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**300**	0.84	
74-93-1	Methyl Mercaptan	**4.6**	1.2	
75-18-3	Dimethyl Sulfide	**1,200**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	**1,700**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1A ASB Inf.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-078

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/11/21
Date Received: 7/13/21
Date Analyzed: 7/27/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**280**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**130**	1.5	
75-15-0	Carbon Disulfide	**2.6**	0.93	
624-92-0	Dimethyl Disulfide	**53**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **1B ASB Eff.**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-079

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/11/21
Date Received: 7/13/21
Date Analyzed: 7/27/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**320**	0.84	
74-93-1	Methyl Mercaptan	**7.9**	1.2	
75-18-3	Dimethyl Sulfide	**4.9**	1.5	
75-15-0	Carbon Disulfide	**2.4**	0.93	
624-92-0	Dimethyl Disulfide	**7.1**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5A ASB Zone 1**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-080

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	1.0 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	0.50 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**25,000**	17	
74-93-1	Methyl Mercaptan	**100**	24	
75-18-3	Dimethyl Sulfide	ND	30	
75-15-0	Carbon Disulfide	ND	19	
624-92-0	Dimethyl Disulfide	**32**	23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5B ASB Zone 2**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-081

Test Code:	GC/SCD Reduced Sulfur Analysis	Date Collected:	7/11/21
Instrument ID:	Agilent 6890A/GC13/SCD	Date Received:	7/13/21
Analyst:	Gilbert Gutierrez	Date Analyzed:	7/27/21
Sample Type:	Water	Liquid Amount:	10 ml(s)
Test Notes:		Purge Volume:	0.30 Liter(s)
		Injection Volume(s):	1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**1,300**	0.84	
74-93-1	Methyl Mercaptan	**20**	1.2	
75-18-3	Dimethyl Sulfide	**4.3**	1.5	
75-15-0	Carbon Disulfide	**3.8**	0.93	
624-92-0	Dimethyl Disulfide	**1.4**	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **5C ASB Zone 3**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P2103695-082

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: 7/11/21
Date Received: 7/13/21
Date Analyzed: 7/27/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**91**	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	**3.1**	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210726-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/26/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **New-Indy Catawba LLC**
Client Sample ID: **Method Blank**
Client Project ID: **DHEC Order**

ALS Project ID: P2103695
ALS Sample ID: P210727-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Gilbert Gutierrez
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/27/21
Liquid Amount: 10 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
74-93-1	Methyl Mercaptan	ND	1.2	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
624-92-0	Dimethyl Disulfide	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210726-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Gilbert Gutierrez Date Analyzed: 7/26/21
Sample Type: Water Liquid Amount: 10.0 ml(s)
Test Notes: Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	415	426	**100**	**103**	68-129	3	16	
74-93-1	Methyl Mercaptan	620	676	703	**109**	**113**	69-136	4	17	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **New-Indy Catawba LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103695
Client Project ID: **DHEC Order** ALS Sample ID: P210727-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Gilbert Gutierrez Date Analyzed: 7/27/21
Sample Type: Water Liquid Amount: 10.0 ml(s)
Test Notes: Purge Volume: 0.30 Liter(s)
Injection Volume: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	413	439	447	**106**	**108**	68-129	2	16	
74-93-1	Methyl Mercaptan	620	705	722	**114**	**116**	69-136	2	17	