	VIII. ATTACHMENTS (as needed to support proposed test; check all that apply)							
NOT	TIFICATION/PROTOCOL ATTACHMENTS							
	Road Map Indicating Directions from Nearest New Mexico Town to Facility							
	Schematic of process being tested showing emission points, sampling sites and stack cross-section							
	Copy of proposed test methods (except for those promulgated test methods found in 40 CFR 51, 60, 61 and 63)							
	Fuel Heating Value Analysis							
	Fuel Flow Meter Calibration Certificate							
	Other:							
	Other:							
TES	T REPORT ATTACHMENTS							
	Section 2. Tables of Results							
	Supporting Documents (Specify)							
Reta	ain Report Section 3 - Test Procedures, Data, Calculations, Appendices – 2 years NSR permits, 5 years TV							

IX. CERTIFICATION										
This document has been prepared under my supervision and is accurate and complete to the best of my knowledge. I understand that										
acceptance of this protocol does not waive the	acceptance of this protocol does not waive the requirements of any permit or regulation. I understand that any procedural errors or									
omissions are the sole responsibility of the per	rmit holder.									
Signature:	Print Name and Title:	Date:								
a The	Jon E. Fields, Director-Field Compliance									
Jon Kield		8-18.2014								
Besponsible Official for Title V? Yes IN (R.O signature not required for routine periodic testing)										

2015 COMPLIANCE TEST REPORT

ON EXHAUST EMISSIONS

FROM TWO SOLAR CENTAUR T-4702 CENTRIFUGAL INTERNAL COMBUSTION ENGINE

AT THE SOUTH CARLSBAD COMPRESSOR STATION

NEAR LOVING, NEW MEXICO

PREPARED FOR

ENTERPRISE FIELD SERVICES

JANUARY 2015

PROJECT NUMBER 1187

STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT AIR QUALITY BUREAU PERMIT NUMBER 0220-M8-R1

PREPARED BY COMPLIANCE SERVICES & TESTING



P.O. Box 94191-87199 7108 Washington St. NE Suite A Albuquerque, NM 87109 (505) 681-4909 Phone www.comptesting.com February 5, 2015

Dina Babinski Enterprise Field Services PO Box 4324 Houston, TX 77210

RE: Annual testing at the South Carlsbad Compressor Station.

Mrs. Babinski:

On January 20, 2015 CST performed annual emissions testing at the South Carlsbad Compressor Station to satisfy the requirements of the New Mexico Environment Department Air Quality Bureau Permit Number 0220-M8-R1. The unit is identified as follows:

Engine Information										
Unit Number	1	2								
Engine Make	Solar									
Engine Model	Centaur	· T-4702								
Serial Number	OHD10-C-7915	OHE12-C-7057								
Rated Horsepower	36	09								
Rated Speed	15000									

The testing followed procedures found in the NMED "SOP for Using Portable Analyzers in Performance Testing." Mass emission rates were calculated using EPA Method 19 (combustion stoichiometry). The rates in terms of pounds per hour and tons per year were calculated using the oxygen F-factor (DSCFex/MMBtu), the fuel consumption rate (SCFH), the fuel higher heating value (Btu/SCF), and the pollutant concentration. Fuel consumption was monitored from a fuel meter. Three twenty-minute test runs were performed. The attached data sheet gives a detailed summary of the results of this test. Quality assurance data sheets are also attached. Strip charts are on file, and are available if needed.

Respectfully,

Derang Calm

Jeremy Cahn Compliance Services and Testing

Summary of Results South Carlsbad Compressor Station, Unit #1

Company: Enterprise Field Services Location: South Carlsbad Compressor Station Source: Solar Centaur 40-T4702 SN: OHD10C7915 Engine Site Rating: 3609 Hp @ 15000 RPM

Technician: SR				
Test Run Number	1	2	3	
EU Number	1	1	1	
Date	1/20/15	1/20/15	1/20/15	
Start Time	9:51	10:16	10:41	
Stop Time	10:11	10:36	11:01	
Engine/Compressor Operation				
Gas Producer Speed (%)	95.0	95.4	95.4	
Power Turbine Speed (%)	82.0	82.6	82.5	
Engine Horsepower (Hp)	3429	3443	3443	
Engine Compressor Discharge, PCD (psig)	101	102	102	
Fuel Valve Output (%)	58.7	59.3	59.4	
Suction Pressure (psig)	404	404	404	
Discharge Pressure (psig)	689	691	690	
Suction Temperature (°F)	130	132	133	
Discharge Temperature (°F)	167	172	173	
Air Inlet Temperature (T1) (°F)	61	64	65	
Average Exhaust Temperature (T5) (°F)	1104	1121	1126	
Compressor Throughput (MMCFD)	78.9	78.9	78.9	
Fuel Data				
Measured Fuel Consumption (MSCFD)	788.7	788.7	788.7	
Measured Fuel Consumption (SCFH)	32861	32861	32861	
O2 F-Factor (DSCF/MMBtu, HHV basis)	8697	8697	8697	
Fuel Heating Value (Btu/SCF, HHV)	1148	1148	1148	
BHp Specific Fuel Rate (Btu/Hp-hr, HHV basis)	9871	9871	9871	
Ambient Conditions	•	•		
Pressure Altitude (MSL)	3010	3010	3010	
Atmospheric Pressure ("Hg)	26.83	26.83	26.83	
Dry Bulb Temperature (°F)	60.3	62.4	63.7	
Wet Bulb Temperature (°F)	47.3	48.2	49.1	
Humidity (lb/lb air)	0.0046	0.0046	0.0048	
Measured Exhaust Emissions (Corrected)				Aver
NOx (ppmv)	82.52	83.57	83.12	83.0
CO (ppmv)	16.45	15.56	15.41	15.8
O2 (vol %)	16.52	16.52	16.53	16.5
CO2 (vol %)	2.52	2.54	2.57	2.5
Moisture Content (% - from Method 4)	4.64	4.64	4.64	4.6
Fo (Natural Gas)	1.74	1.73	1.70	1.7
Exhaust Flow Rates (EPA Method 19 - Fuel Based)			•	
Dry SCFH (dry basis, calc. from Fuel Consumption)	1.57E+06	1.57E+06	1.57E+06	1.57E
Calculated Mass Emission Rates (EPA Methods 1-4)				
NOx (lbs/hr) { Permit Limit = 27.0 }	15.43	15.63	15.58	15.
CO (lbs/hr) { Permit Limit = 7.4 }	1.87	1.77	1.76	1.8
NOx (tons/yr) { Permit Limit = 118.3 }	67.60	68.46	68.24	68.]
CO (tons/yr) { Permit Limit = 32.5 }	8.20	7.76	7.70	7.8

Summary of Results South Carlsbad Compressor Station, Unit #2

Company: Enterprise Field Services Location: South Carlsbad Compressor Station Source: Solar Centaur 40-T4702 SN: OHE12C7057 Engine Site Rating: 3609 Hp @ 15000 RPM

Technician: SR				_
Test Run Number	1	2	3	
EU Number	2	2	2	
Date	1/20/15	1/20/15	1/20/15	
Start Time	8:29	8:54	9:19	
Stop Time	8:49	9:14	9:39	
Engine/Compressor Operation				
Gas Producer Speed (%)	94.8	94.7	94.8	
Power Turbine Speed (%)	84.1	83.7	83.6	
Engine Horsepower (Hp)	3421	3418	3421	
Engine Compressor Discharge, PCD (psig)	105	105	104	
Fuel Valve Output (%)	37.8	37.7	38.1	
Suction Pressure (psig)	237	238	238	
Discharge Pressure (psig)	416	414	413	
Suction Temperature (°F)	49	49	49	
Discharge Temperature (°F)	129	127	127	
Air Inlet Temperature (T1) (°F)	52	53	54	
Average Exhaust Temperature (T5) (°F)	1054	1056	1059	
Compressor Throughput (MMCFD)	80.6	80.6	80.6	
Fuel Data				
Measured Fuel Consumption (MSCFD)	788.7	788.7	788.7	
Measured Fuel Consumption (SCFH)	32861	32861	32861	
O2 F-Factor (DSCF/MMBtu, HHV basis)	8697	8697	8697	
Fuel Heating Value (Btu/SCF, HHV)	1148	1148	1148	
BHp Specific Fuel Rate (Btu/Hp-hr, HHV basis)	9871	9871	9871	
Ambient Conditions	•		•	
Pressure Altitude (MSL)	3000	3000	3010	
Atmospheric Pressure ("Hg)	26.84	26.84	26.83	
Dry Bulb Temperature (°F)	47.7	48.7	51.1	
Wet Bulb Temperature (°F)	40.6	41.7	43	
Humidity (lb/lb air)	0.0043	0.0045	0.0046	
Measured Exhaust Emissions (Corrected)	•			Average
NOx (ppmv)	81.07	83.33	84.59	83.00
CO (ppmv)	10.51	9.99	10.61	10.37
O2 (vol %)	16.71	16.71	16.73	16.72
CO2 (vol %)	2.41	2.41	2.45	2.43
Moisture Content (% - from Method 4)	4.64	4.64	4.64	4.64
Fo (Natural Gas)	1.74	1.74	1.70	1.72
Exhaust Flow Rates (EPA Method 19 - Fuel Based)				
Dry SCFH (dry basis, calc. from Fuel Consumption)	1.64E+06	1.64E+06	1.64E+06	1.64E+0
Calculated Mass Emission Rates (EPA Methods 1-4)				
NOx (lbs/hr) { Permit Limit = 27.0 }	15.85	16.29	16.62	16.25
CO (lbs/hr) { Permit Limit = 7.4 }	1.25	1.19	1.27	1.24
NOx (tons/yr) {Permit Limit = 118.3}	69.42	71.36	72.79	71.19
CO (tons/yr) { Permit Limit = 32.5 }	5.48	5.21	5.56	5.41

Quality Assurance Report - Sample System #1 Converter Efficiency Test, Interference Test, Response Time and Bias Test, Mass Flow Controller Check, Pre and Post Leak Checks

		Ν	Ox Converter	Efficiency Cheo	ek –		
Method: 7E Sect	ion 8.2.4						
Frequency: Befor	re each field te	est					
Criteria: Equal t	o or greater th	an 90% convers	ion efficiency				
Test Date:	1/19/15	Technician [.]	SR				
Test Dute.	1/12/12	NO2 / N1	Dalamaa		140		
		Cortifie	Balance	120	suits		
		Observe	d Value	40.7	ppmv		
		Converter	Efficiency	90	5%		
			Interforence R	aspanse Checks	×		
	_		Thierjerence A	esponse encen			
<u>Method:</u> 7E Sect	ion 8.2.7						
Frequency: Prior	r to initial use	in the field or af	ter major altera	ation or modific	ation		
Criteria: Sum of	responses < 2.	.5 % of calibrati	on span				
Test Date:	1/20/15	Technician:	SR	_			
Interference	Test Gases	ſ	Analyze	olicable)			
Type Gas	Conc.	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	O2 (%)	CO2 (%)
NOx in N2	50 ppm		N/A			0.00	0.01
CO in N2	50 pp	N/A				0.00	0.01
O2 in N2	10.0%	0.23	-0.21				N/A
CO2 in N2	10.0%	0.23	-0.21			N/A	
THC in air							
		Gas Diluti	on Calibration	- 2 Mass Flow	Controllers	· · · · ·	
Mathad: 205							
Meinoa. 205 Frequency: Refo	re each field te	oct.					
Criteria: Produc	e Calibration	ases whose mea	usured values a	re within $\pm 2\%$ (of nredicted value	25	
<u></u>	Monufacturer	Environice		Col Gas:	NOv		
м	odel Number	Series 4040		Test Date:	1/19/15		l
S	erial Number:	4456		Technician:			
		MEC 2					
	D' of Laisat	MFC 3	D'L to I Come	D' - t Inicat	MFC 2	Dil tal Come	
Cartified Value	Direct Inject	Diluted Conc.	Diluted Conc.	Direct Inject	Diluted Conc.	Diluted Conc.	
Ex Dilution:	242	2931	2937	242	2937 750	2957	
Injection 1	246	239	147	245	743	896	
Injection 2	248	238	148	244	746	894	
Injection 3	246	237	147	245	742	897	I
Average	246.67	238.00	147.33	244.67	743.67	895.67	I
% Variation	0.47%	0.42%	0.39%	0.24%	0.28%	0.17%	I
% Difference	-1.91%	1.67%	1.79%	-1.10%	0.85%	0.48%	
		Sample	System Bias &	Response Tim	e Check		
Method: 7E Secti	on 8.2.5-6						
Frequency: Befor	re sampling be	egins					
Criteria: 5% of c	calibration spa	in					
Criteria: Note th	e longer of the	two times as the	e response time				
Test Date:	1/20/15	Technician:	SR				
			Sample Syste	m Bias Check			
Introduction	Technique	NOx (ppmy)	CO (npmy)	SO ₂ (ppmy)	THC (ppmy)	02 (%)	CO2 (%)
Direct Zer	To Input	0	0,0	502 (pp	me (pp	0.0	0.0
Bias Ir	iput	-1	-0.3			0.0	0.1
Zero E	Bias	-0.4%	-0.3%		<u> </u>	0.0%	1.0%
Direct Spa	ın Input	49.6	50.1			10.0	10.0
Bias Ir	iput	50.6	50.4			10.0	10.1
Span F	Bias	1.1%	0.3%			0.0%	1.0%
			Sample System	Response Time	2		
Param	eter	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	O2 (%)	CO2 (%)
Upscale R	esponse	35	45			50	55
Downscale	Response	40	50	110		55	55
Purge	ime		~ 1.0	110 s	econds		
			Sample System	m Leak Check			
Frequency: Daily	y or whenever	the sample syste	em is moved or a	disassembled (C	CST SOP)		
Criteria: Less the	an one inch de	crease in pressu	re in one minute	e (CST SOP)			
	Test Date						
	1/20/15	Vacuum Initial:	0.0 inches	/ minute at	13 inches Hg		
		Vacuum Final:	0.0 inches	/ minute at	13 inches Hg		

Quality Assurance Worksheet Instrument Calibration and Drift Correction

Company: Enterprise Field Services

Location: South Carlsbad Compressor Station

Source: Solar Centaur 40-T4702 SN: OHD10C7915

Engine Site Rating: 3609 Hp @ 15000 RPM Test Date: Tuesday, January 20, 15

	UNIT NUMBER 1 TEST RUN 1				TEST RUN 2					TEST RUN 3									
GAS	CALIBRATI	ON GAS	INITIAL CA	LIBRATION	Start Run	Start Run ZERO and SPAN			Start Run	Start Run ZERO and SPAN			Start Run		ZERO and S	SPAN			
LEVELS	CONCENTR	ATIONS	& LINEAR	ITY CHECK	9:51	CAI	JBRATION	CHECK		10:16	CAI	LIBRATION	CHECK	:	10:41	CAI	IBRATION	CHECK	
PER	Certified	Target	Analyzer	Calibration	Stop Run	Initial	Final	Drift l	Bias	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias
METHOD	Concentration	(% Span)	Response	Error < 2%	10:11	Response	Response	< 3% <	5%	10:36	Response	Response	< 3%	< 5%	11:01	Response	Response	< 3%	< 5%
	NOx				Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	-0.4 ppmv	-0.4%	82.00	-1.6 ppmv	-0.6 ppmv	1.1% 0	.6%	83.00	-0.6 ppmv	-0.7 ppmv	0.1%	0.7%	83.00	-0.7 ppmv	0.8 ppmv	1.6%	0.8%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	50.0 ppmv	52.6	49.6 ppmv	-0.4%	82.52	49.3 ppmv	49.2 ppmv	0.2% 0	.8%	83.57	49.2 ppmv	49.6 ppmv	0.8%	0.4%	83.12	49.6 ppmv	50.3 ppmv	1.4%	0.3%
High	95.0 ppmv	100.0	95.8 ppmv	0.8%	Cal. Span					Cal. Span					Cal. Span				
	Analyzer Range =	100 ppmv	Span =	= 95.0	95					95					95				
	CO				Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0 ppmv	0.0%	15.00	-1.5 ppmv	-1.8 ppmv	0.3% 1	.9%	14.00	-1.8 ppmv	-1.5 ppmv	0.3%	1.6%	14.00	-1.5 ppmv	-1.5 ppmv	0.0%	1.6%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	50.0 ppmv	52.6	50.1 ppmv	0.1%	16.45	49.3 ppmv	48.6 ppmv	1.4% 1	.5%	15.56	48.6 ppmv	48.7 ppmv	0.2%	1.4%	15.41	48.7 ppmv	48.9 ppmv	0.4%	1.2%
High	95.0 ppmv	100.0	95.6 ppmv	0.6%	Cal. Span					Cal. Span					Cal. Span				
	Analyzer Range =	100 ppmv	Span =	= 95.0	95					95					95				
	02				Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	16.52	0.0%	0.0%	0.0% 0	.0%	16.52	0.0%	0.0%	0.0%	0.0%	16.53	0.0%	0.0%	0.0%	0.0%
					Corr. %					Corr. %					Corr. %				
Mid	10.0%	47.6	10.0%	0.0%	16.52	10.0%	10.0%	0.0% 0	.0%	16.52	10.0%	10.0%	0.0%	0.0%	16.53	10.0%	10.0%	0.0%	0.0%
High	21.0%	100.0	21.0%	0.0%	Cal. Span					Cal. Span					Cal. Span				
	Analyzer Range =	22.0%	Span =	= 21.0	21					21					21				
	CO2				Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	2.79	0.3%	0.3%	0.0% 3	.0%	2.81	0.3%	0.3%	0.0%	3.0%	2.83	0.3%	0.3%	0.0%	3.0%
					Corr. %					Corr. %				/ / *	Corr. %				
Mid	5.0%	50.0	5.2%	2.0%	2.52					2.54					2.57				
High	10.0%	100.0	10.0%	0.0%	Cal. Span	10.2%	10.2%	0.0% 2	.0%	Cal. Span	10.2%	10.2%	0.0%	2.0%	Cal. Span	10.2%	10.1%	1.0%	1.0%
	Analyzer Range =	11.0%	Span =	= 10.0	10					10					10				

Quality Assurance Worksheet Instrument Calibration and Drift Correction

Company: Enterprise Field Services

Location: South Carlsbad Compressor Station

Source: Solar Centaur 40-T4702 SN: OHE12C7057

Engine Site Rating: 3609 Hp @ 15000 RPM Test Date: Tuesday, January 20, 15

	UNIT NUMBER 2 TEST RUN 1				TEST RUN 2					TEST RUN 3									
GAS	CALIBRATI	ON GAS	INITIAL CA	LIBRATION	Start Run	Start Run ZERO and SPAN			Start Run	Start Run ZERO and SPAN			Start Run		ZERO and S	PAN			
LEVELS	CONCENTR	ATIONS	& LINEAR	ITY CHECK	8:29	CAI	IBRATION	CHECK		8:54	CAI	LIBRATION	CHECK		9:19	CAI	JBRATION	CHECK	
PER	Certified	Target	Analyzer	Calibration	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias
METHOD	Concentration	(% Span)	Response	Error < 2%	8:49	Response	Response	< 3%	5%	9:14	Response	Response	< 3%	< 5%	9:39	Response	Response	< 3%	< 5%
	NOx				Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	-0.4 ppmv	-0.4%	82.00	-0.8 ppmv	-0.9 ppmv	0.1% 0	.9%	83.00	-0.9 ppmv	-0.6 ppmv	0.3%	0.6%	84.00	-0.6 ppmv	-1.6 ppmv	1.1%	1.7%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	50.0 ppmv	52.6	49.6 ppmv	-0.4%	81.07	50.6 ppmv	49.9 ppmv	1.4% 0	.1%	83.33	49.9 ppmv	49.1 ppmv	1.6%	0.9%	84.59	49.1 ppmv	49.3 ppmv	0.4%	0.7%
High	95.0 ppmv	100.0	95.8 ppmv	0.8%	Cal. Span					Cal. Span					Cal. Span				
	Analyzer Range =	100 ppmv	Span =	95.0	95					95					95				
	CO				Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0 ppmv	0.0%	10.00	-0.3 ppmv	-1.1 ppmv	0.8% 1	.2%	9.00	-1.1 ppmv	-1.3 ppmv	0.2%	1.4%	9.40	-1.3 ppmv	-1.5 ppmv	0.2%	1.6%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	50.0 ppmv	52.6	50.1 ppmv	0.1%	10.51	50.4 ppmv	50.0 ppmv	0.8% 0	.0%	9.99	50.0 ppmv	49.7 ppmv	0.6%	0.3%	10.61	49.7 ppmv	49.3 ppmv	0.8%	0.7%
High	95.0 ppmv	100.0	95.6 ppmv	0.6%	Cal. Span					Cal. Span					Cal. Span				
	Analyzer Range =	100 ppmv	Span =	95.0	95					95					95				
	02				Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	16.71	0.0%	0.0%	0.0%	.0%	16.71	0.0%	0.0%	0.0%	0.0%	16.73	0.0%	0.0%	0.0%	0.0%
					Corr. %					Corr. %					Corr. %				
Mid	10.0%	47.6	10.0%	0.0%	16.71	10.0%	10.0%	0.0% 0	.0%	16.71	10.0%	10.0%	0.0%	0.0%	16.73	10.0%	10.0%	0.0%	0.0%
High	21.0%	100.0	21.0%	0.0%	Cal. Span					Cal. Span					Cal. Span				
	Analyzer Range =	22.0%	Span =	21.0	21					21					21				
	CO2				Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	2.56	0.1%	0.2%	1.0% 2	.0%	2.65	0.2%	0.3%	1.0%	3.0%	2.73	0.3%	0.3%	0.0%	3.0%
					Corr. %					Corr. %					Corr. %				
Mid	5.0%	50.0	5.2%	2.0%	2.41					2.41					2.45				
High	10.0%	100.0	10.0%	0.0%	Cal. Span	10.1%	10.2%	1.0% 2	.0%	Cal. Span	10.2%	10.2%	0.0%	2.0%	Cal. Span	10.2%	10.2%	0.0%	2.0%
	Analyzer Range =	11.0%	Span =	10.0	10					10					10				

Fuel Gas Analysis Diluent F Factors, Higher Heating Value Calculation, Predicted Fo, Fuel VOC Content

Company: Enterprise

Sample ID: South Carlsbad Turbine Fuel

Time: N/A Date: 1/20/15

	CALCULATION OF DENSITY AND HEATING VALUE @ 68°F and 29.92 in Hg										
				% volume		Component		Gross	Volume		
	%	Molecular	Density	х		Gross	Weight	Htng. Val.	Fract.		
Component	Volume	Wt.	(lb/ft3)	Density	weight %	Btu/lb	Fract. Btu	(Btu/SCF)	Btu		
Hydrogen		2.016	0.0052	0.00000	0.0000	61100	0.00	325.0	0.000		
Oxygen		32.000	0.0831	0.00000	0.0000	0	0.00	0.0	0.000		
Nitrogen	2.8955	28.016	0.0731	0.00212	4.1617	0	0.00	0.0	0.000		
CO2	0.3163	44.010	0.1149	0.00036	0.7149	0	0.00	0.0	0.000		
СО		28.010	0.0727	0.00000	0.0000	4347	0.00	322.0	0.000		
Methane	81.9762	16.041	0.0417	0.03414	67.1515	23879	16035.10	1013.0	830.419		
Ethane	9.6418	30.067	0.0789	0.00760	14.9562	22320	3338.23	1792.0	172.781		
Ethylene		28.051	0.0733	0.00000	0.0000	21644	0.00	1614.0	0.000		
Propane	3.9297	44.092	0.1175	0.00462	9.0790	21661	1966.61	2590.0	101.779		
propylene		42.077	0.1090	0.00000	0.0000	21041	0.00	2336.0	0.000		
Isobutane	0.3515	58.118	0.1554	0.00055	1.0742	21308	228.90	3363.0	11.821		
n-butane	0.6939	58.118	0.1554	0.00108	2.1207	21257	450.79	3370.0	23.384		
Isobutene		56.102	0.1454	0.00000	0.0000	20840	0.00	3068.0	0.000		
Isopentane	0.0885	72.144	0.1870	0.00017	0.3255	21091	68.66	4008.0	3.547		
n-pentane	0.0729	72.144	0.1870	0.00014	0.2681	21052	56.45	4016.0	2.928		
n-hexane +	0.0337	86.169	0.2234	0.00008	0.1480	20940	31.00	4762.0	1.605		
H2S		34.076	0.0895	0.00000	0.0000	7100	0.00	647.0	0.000		
Totals	100.00	731.25	1.91	0.0508	100.00	Gross Heating Value					
Total D	ensity:	0.0508	Specific	Gravity:	0.665	Btu/lb: 22176 Btu/SCF:			1148		

	CALCULATION OF F FACTORS									
							We	eight Percent	:S	
Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Carbon	Hydrogen	Nitrogen	Oxygen	Sulfur
Hydrogen	2.016	0.0000	1.0000	0.0000	0.0000		0.0000			
Oxygen	32.000	0.0000	0.0000	0.0000	0.0000				0.0000	
Nitrogen	28.016	0.0000	0.0000	2.8955	81.1203			4.1632		
CO2	44.010	0.2723	0.0000	0.3163	13.9204	0.1945			0.5194	
СО	28.010	0.4259	0.0000	0.0000	0.0000	0.0000			0.0000	
Methane	16.041	0.7500	0.2500	81.9762	1314.9802	50.6153	16.8718			
Ethane	30.067	0.8000	0.2000	9.6418	289.9000	11.9025	2.9756			
Ethylene	28.051	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000			
Propane	44.092	0.8182	0.1818	3.9297	173.2683	7.2756	1.6168			
Propene	42.077	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000			
Isobutane	58.118	0.8276	0.1725	0.3515	20.4285	0.8677	0.1808			
n-butane	58.118	0.8276	0.1725	0.6939	40.3281	1.7129	0.3570			
Isobutene	56.102	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000			
Isopentane	72.144	0.8333	0.1667	0.0885	6.3847	0.2731	0.0546			
n-pentane	72.144	0.8333	0.1667	0.0729	5.2593	0.2249	0.0450			1
n-hexane	86.169	0.8372	0.1628	0.0337	2.9039	0.1248	0.0243			
H2S	34.076	0.0000	0.0587	0.0000	0.0000	0.0000	0.0000			0.0000
Totals	731.25	9.80	2.96	100.00	1948.494	73.191	22.126	4.163	0.519	0.000

CALCULATED VALUES								
O2 F Factor (dry)	8697	DSCF of Exhaust/MMBtu of Fuel Burned @ 0% excess air						
O2 F Factor (wet)	10623	SCF of Exhaust/MMBtu of Fuel Burned @ 0% excess air						
Moisture F Factor	1926	SCF of Water/MMBtu of Fuel Burned @ 0% excess air						
Combust. Moisture	18.13	Volume % water in flue gas @ 0% excess air						
CO2 F Factor	1059	DSCF of CO2/MMBtu of Fuel Burned @ 0% excess air						
Carbon Dioxide	12.18	Volume % CO2 in flue gas @ 0% O2						
Predicted Fo Factor	1.72	EPA Method 3b Fo value						
Fuel VOC %	29.17%	Non-methane						
Fuel VOC %	13.56%	Non-methane, non-ethane						

Nolan, Shiver

From:	Nolan, Shiver
Sent:	Tuesday, February 09, 2016 8:30 AM
То:	'stacktest.aqb@state.nm.us'
Cc:	Ferguson, Dina; Polk, Alena (ampolk@eprod.com)
Subject:	South Carlsbad Eng 1 & 2 Solar Centaur T-4702
Attachments:	201601 South Carlsbad Annual Test Report.pdf - Adobe Acrobat Pro.pdf

Attached are the two stack test referenced above. Contact Information has been included on the NMED forms.

Shiver Nolan Sr. Compliance Administrator



New Mexico Environment Department 525 Camino de los Marquez, Suite 1 Santa Fe, NM 87505 Phone (505) 476-4300 Fax (505) 476-4375



Version 1/1/2010					
NM	IED USE ONLY				
DTS					
TEMPO					

UNIVERSAL STACK TEST NOTIFICATION, PROTOCOL AND REPORT FORM

NME	NMED USE ONLY					
Staff						
Admin						

Submit to: Stacktest.aqb@state.nm.us

I. DATABASE HEADER INFORMATION (drop down menus in bold)						
a. Al# 218	Test Report			Periodic Test (Portable Analyzer)		
d. Company Name: e.				lity Name:		
Enterprise Field Services LLC South Carlsbad Compressor Station						
f. Emission Unit Numbers: g. Emission Unit			Description (boiler, Waukesha 7042, etc)			
1, 2		Turbines,	Sola	ar Centaur T-47	702	
h. Reports - Track			i. F	Proposed Test Date:	j. Actual test date:	
from notification response: CWI Week of 1/18/16 1/20/16					1/20/16	
k. Reason for test (name permit requirement, NSPS, MACT, consent decree, etc. Indicate here is this notification is a revised test date only)						
Annual performance test of existing turbines pursuant to NSR condition A205C.						
k. Reason for test (name permit requirement, NSPS, MACT, consent decree, etc. Indicate here is this notification is a revised test date only) Annual performance test of existing turbines pursuant to NSR condition A205C.						

II. GENERAL COMPANY AND FACILITY INFORMATION							
a.Company Address:			k Facility Address:				
PO Box 4324			Roberson Road, E	Eddy Cour	nty		
b. City:	c. State:	d. Zip:	I. City:	m. State:	n. Zip:		
Houston	ТХ	77210	Loving	NM	88526		
e. Environmental Contact:	f. Title:		o. Facility Contact:	p. Title:			
Alena Polk Sr. Env. Engineer			Thomas Green	Area	Supervisor		
g. Phone Number:	h. Cell Nu	mber:	q. Phone Number:	r. Cell Nu	mber:		
575-706-4926	575-7	06-4926	575-885-7235	575-708-0015			
i. Email Address:			s. Email Address:				
ampolk@eprod.co	om		tdgreen@eprod.com				
j. Title V Permit Number:			t. NSR Permit Number:				
P-130-M1R2			NSR 220M9				
u. Detailed driving directions from nearest New Mexico town:							
From Loving, UN285 north to Roberson Road west, Roberson Road west to							
station.							

III. TESTING FIRM					
a. Company:	g. Contact:				
Compliance Services and Testing	Chris Spencer				
b. Address 1: h. Title:					
7108 Washington NE Ste. A	Director				
c. Address 2:	i. Office Phone:	j. Cell Phone:			
PO Box 94191-87199		505-681-4909			

NMED Air Quality Bureau

UNIVERSAL STACK TEST NOTIFICATION, PROTOCOL AND REPORT FORM

Page 2 of 4

d. City:	e. St	ate:	f. Zip:	k. Email Addre	SS:		
Albuquerque			87109	cspence	er@c	omptesting.co	om
		_					
IV. EMISSION UNIT						STACK PARAM	IETERS
a. Emission Unit Number:		b. N	Aake & Model Numb	ber	m. Ve	elocity (ft/sec):	177
1 and 2		S	olar Centau	ur T-4702	n. Ter	mperature (ºC):	486
c. Serial Number:		d. F	Permitted Capacity:		o. Sta	ack Diameter, D (in.):	NA
See section g	•	36	609 hp		p. Dis	stance to Stack Bends or C	Obstructions:
e Exceptions: Explain if te	st is late, reschedul	ed, rela	ted to an enforceme	ent action:	Upstr	eam, Distance A (in.):	NA
					Down	stream, Distance B (in.):	NA
g. Emission Unit Description and brief process name or description: Turbine 1 SN: OHD10C795 Turbine 2 SN: OHE12C7057 Natural gas-fired turbines for natural gas compression.				A ↓ B B ↓ A A A A A A A A A A A A A	'LE PORT ON		
h. Installation Date:	i. Startup Dat	e:	k. Date R	eached Max. Capacity:			
I. Control Equipment Description as listed in permit (model, ser. # etc. if applicable):					EXAMPLE VIEW SHOWING I SAMPLE PORT TO FLOW	LOW DIRECTION DISTURBANCE DISTANCES FROM DISTURBANCES	
					Attach an explanation or drawing to explain any difficult or unusual stack geometry or parameters		
	V					THODS	
	v.						

	V. FOLLOTANTS AND PROPOSED TEST METHODS					
Pollutant or Parameter:		Proposed Test Methods (Deviations from approved methods require supporting documentation and prior authorization)	Deviation to Test Method Requested			
\boxtimes	Portable A	Portable Analyzer Methods for NOx, CO, SO ₂				
	NOx	EPA Method 7E				
	со	EPA Method 10				
	SO2	EPA Method 6				
	VOCs	(Specify)				
	HAPs	(Specify)				
	PM (TSP)	EPA Method 5				
	PM10	EPA Method 201				
	PM2.5	(Specify)				
	Opacity	EPA Method 9				
	Visual E.	EPA Method 22				
	Stack Flow	EPA Methods 1 - 3				
	Moisture	EPA Method 4				
\boxtimes	Other	(Specify) EPA Method 19				
	Other	(Specify)				

List Specific VOC's and HAP's:

VI. PROPOSED TEST RUN AND TEST LOAD INFORMATION						
a. Number of Test Runs:	b. Run Duration	c. Required by	(regulation or permit number):	d. Specific	Condition or Section:	
3	20 min	NSR 22	D M9	A2050	С	
PLEASE NOTE – Default run	duration is 60 minutes, ur	less otherwise	specified by an applicable regulat	tion.		
e. Expected Load:	f. Percent of Permitted	Capacity:	g. Is this an opacity te	st?	h. If yes, no. of observation pts .:	
>90%	>90%		Yes 🗌 🛛 No 🖄	3		
i. If expected load during test is less than 90% of capacity, explain: NOTE – Failure to test at 90-100% of permitted load will limit unit operation to 110% of tested load until a new initial compliance test is conducted.						
PLANT OR UNIT OPERATING PARAMETERS TO BE MONITORED						
j. List and explain the plant operating parameters that will be monitored and applicable permit conditions or regulatory standards.						
Fuel usage, compressor operating parameters, turbine operating parameters.						

VII. ADDITIONAL DETAILS (where applicable)							
RATA and INSTRUMENTAL ANALYZER CALIBRATION PROCEDURES							
a. Do any of the methods you are proposing utilize instrumental analyzers (i.e.; EPA Methods 3A, 6C, 7E, 10, 18, 25/25A, 320 etc.)? If yes, briefly describe analyzer calibration procedures and/or calibration standard procedures. Enter the highest pollutant concentration expected and the proposed concentrations of calibration gases.	🛛 Yes	🗌 No					
As described in the methods.							
SAMPLING TRAIN LEAK CHECK PROCEDURES							
b. Do any of the methods you are proposing utilize the EPA Method 5 sampling train (i.e.; EPA Methods 1-4, 5, 17, 26/26A, 29, etc.)? If yes, briefly describe sampling train and pitot tube leak check procedures:	🗌 Yes	🛛 No					
EPA METHOD 19 IN LIEU OF EPA METHODS 1-4							
c. Are you proposing to utilize EPA Method 19 in lieu of EPA Methods 1-4? If yes, explain why you believe this proposal is justified:	🛛 Yes	🗌 No					
Method 19 with use of a calibrated fuel meter and current fuel gas ana	lysis.						
6	,						
PLEASE NOTE – EPA Method 19 may be utilized in lieu of EPA Methods 1-4, subject to the approval of the Department. If you are proposing to utilize EPA Method 19 in lieu of EPA Methods 1-4, you MUST include a recent fuel gas heating value analysis as well as a recent fuel flow meter calibration certificate, preferably conducted on the day of the test, but no earlier than three months prior to the test date. If the analyses have been conducted prior							
to the test date, you MUST append the certificates to the protocol. If conducted on the day of the test, you MUST append the certificates to the protocol.	icates to the	final test					

	VIII. ATTACHMENTS (as	needed to support proposed test; check all that	it apply)						
NO	NOTIFICATION/PROTOCOL ATTACHMENTS								
	Road Map Indicating Directions from Nearest New Mexico Town to Facility								
	Schematic of process being tested showing emis	ion points, sampling sites and stack cross-section							
	Copy of proposed test methods (except for those	promulgated test methods found in 40 CFR 51, 60, 61 and 63)							
	Fuel Heating Value Analysis								
	Fuel Flow Meter Calibration Certificate								
	Other:								
	Other:								
TES	ST REPORT ATTACHMENTS								
\boxtimes	Section 2. Tables of Results								
	Supporting Documents (Specify)								
Ret	etain Report Section 3 - Test Procedure	s, Data, Calculations, Appendices – 2 years NSI	R permits, 5 years TV						
_									
		DL CERTIFICATION							
This document has been prepared under my supervision and is accurate and complete to the best of my knowledge. I understand that acceptance of this protocol does not waive the requirements of any permit or regulation. I understand that any procedural errors or omissions are the sole responsibility of the permit holder.									
Signa	Signature: Van Kulla Print Name and Title: Jon E. Fields - Director, Field Environmental 2-2-270/2								

Responsible Official for Title V?
Yes

 \boxtimes No (R.O signature not required for routine periodic testing)

2016 COMPLIANCE TEST REPORT

ON EXHAUST EMISSIONS

FROM TWO SOLAR CENTAUR T-4702 CENTRIFUGAL INTERNAL COMBUSTION ENGINE

AT THE SOUTH CARLSBAD COMPRESSOR STATION

> NEAR LOVING, NEW MEXICO

> > PREPARED FOR

ENTERPRISE FIELD SERVICES

PROJECT NUMBER 1377

STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT AIR QUALITY BUREAU PERMIT NUMBER 0220-M8-R1

PREPARED BY COMPLIANCE SERVICES & TESTING



P.O. Box 94191-87199 7108 Washington St. NE Suite A Albuquerque, NM 87109 (505) 681-4909 Phone www.comptesting.com February 3, 2016

Dina Ferguson Enterprise Field Services PO Box 4324 Houston, TX 77210

RE: Annual testing at the South Carlsbad Compressor Station.

Mrs. Ferguson:

On January 20, 2016 CST performed annual emissions testing at the South Carlsbad Compressor Station to satisfy the requirements of the New Mexico Environment Department Air Quality Bureau Permit Number 0220-M8-R1. The unit is identified as follows:

Engine Information					
Unit Number	1 2				
Engine Make	Solar				
Engine Model	Centaur T-4702				
Serial Number	OHD10-C-7915 OHE12-C-7057				
Rated Horsepower	3609				
Rated Speed	150	000			

The testing followed procedures found in the NMED "ASTM D 6522-00 SOP". The mass emission rates were determined using EPA Method 19 (combustion stoichiometry). The rates in terms of pounds per hour and tons per year were calculated using the oxygen F-factor (DSCFex/MMBtu), the fuel consumption rate (SCFH), the fuel higher heating value (Btu/SCF), and the pollutant concentration. Fuel consumption was monitored from a fuel meter. The attached data sheet gives a detailed summary of the results of this test. Quality assurance data sheets are also attached.

Respectfully,

Detery Calm

Jeremy Cahn Compliance Services and Testing

Summary of Results South Carlsbad Compressor Station, Unit #1

Company: Enterprise Field Services

Location: South Carlsbad Compressor Station				
Source: Solar Centaur 40-14/02 SN: OHD10C/915				
Engine Site Rating: 3609 Hp (a) 15000 RPM				
lechnician: JC,FC				
Sample System #: 1	-			1
Test Run Number	I	2	3	
Emissions Unit	1	1	1	
Date	1/20/16	1/20/16	1/20/16	
Start Time	7:53	8:18	8:43	
Stop Time	8:13	8:38	9:03	
Engine/Compressor Operation	-			
Turbine Load (%)	94.7	95.0	95.2	
Gas Producer Speed (%)	94.7	95.0	95.2	
Power Turbine Speed (%)	82.7	83.0	83.1	
Engine Horsepower (Hp)	3418	3429	3436	
Engine Compressor Discharge, PCD (psig)	104	105	105	
Fuel Valve Output (%)	59.9	61.3	60	
Suction Pressure (psig)	419	423	424	
Discharge Pressure (psig)	659	712	712	
Suction Temperature (°F)	98	98	99	
Discharge Temperature (°F)	123	124	177	
Air Inlet Temperature (T1) (°F)	40.2	39	43.2	
Average Exhaust Temperature (T5) (°F)	1080	1047	1090	
Compressor Throughput (MCFD)	72	72	72	
Fuel Data				
Measured Fuel Consumption (MSCFD)	788	788	788	
Calculated Fuel Consumption (SCFH)	17905	17905	17905	
O2 F-Factor (DSCF/MMBtu, HHV basis)	8696	8696	8696	
Fuel Heating Value (Btu/SCF, HHV)	1155	1155	1155	
BHp Specific Fuel Rate (Btu/Hp-hr, HHV basis)	198790	196897	6017	
Ambient Conditions				
Pressure Altitude (MSL)	3090	3090	3090	
Atmospheric Pressure ("Hg)	26.75	26.75	26.75	
Dry Bulb Temperature (°F)	41.7	42.1	44.8	
Wet Bulb Temperature (°F)	35.8	35.1	38.5	
Humidity (lb/lb air)	0.0035	0.0032	0.0040	
Measured Exhaust Emissions (Corrected)				Average
NOx (ppmv)	67.41	71.88	69.61	69.63
CO (ppmv)	13.62	8.90	8.16	10.23
O2 (vol %)	16.77	16.79	16.79	16.78
CO2 (vol %)	2.46	2.54	2.53	2.51
Fo (Natural Gas)	1.67	1.62	1.62	1.64
Exhaust Flow Rates (EPA Method 19 - Fuel Based)	•			
Dry SCFH (dry basis, calc, from Fuel Consumption)	910.503	914.424	913.092	912.673
Calculated Mass Emission Rates (EPA Method 19)		· - ·, · - ·	,=	
NOx (lbs/hr) {Permit Limit = 27.0 }	7 33	7 85	7 50	7 50
$CO (lbs/hr) {Permit Limit = 7.4}$	0.90	0.59	0.54	0.68
NOx $(tons/vr)$ { Permit Limit = 118 3 }	32.11	34 38	33.25	33 25
$CO (tons/vr) {Permit Limit = 32.5}$	3.95	2.59	2.37	2.97

Summary of Results South Carlsbad Compressor Station, Unit #2

Company: Enterprise Field Services

Location: South Carlsbad Compressor Station											
Source: Solar Centaur 40-T4702 SN: OHE12C7057											
Engine Site Rating: 3609 Hp @ 15000 RPM											
Technician: JC,FC											
Sample System #: 2											
Test Run Number	1	2	3								
Emissions Unit	2	2	2								
Date	1/20/16	1/20/16	1/20/16								
Start Time	7:53	8:18	8:43								
Stop Time	8:13	8:38	9:03								
Engine/Compressor Operation											
Turbine Load (%)	94.7	95.2	95.3								
Gas Producer Speed (%)	94 7	95.2	95 3								
Power Turbine Speed (%)	85.2	85.7	86.1								
Engine Horsenower (Hn)	3418	3436	3439								
Engine Compressor Discharge PCD (nsig)	109	110	110.0								
Fuel Valve Output (%)	39.2	39.5	39.6								
Suction Pressure (psig)	237	236	236								
Discharge Pressure (psig)	427	428	427								
Suction Temperature (°F)	41	42	42								
Discharge Temperature (°F)	123	124	125								
Air Inlet Temperature (T1) (°F)	40.2	39	41								
Average Exhaust Temperature (T5) (°F)	1080	1047	1056								
Compressor Throughput (MCFD)	72	72	72								
Fuel Data											
Measured Fuel Consumption (MSCED)	788	788	788								
Calculated Fuel Consumption (SCFH)	17905	17905	17905								
O2 F-Factor (DSCF/MMBtu HHV basis)	8696	8696	8696								
Fuel Heating Value (Btu/SCF_HHV)	1155	1155	1155								
BHn Specific Fuel Rate (Btu/Hn-hr HHV basis)	6049	6017	6011								
Ambient Conditions	0017	0017	0011								
Pressure Altitude (MSL)	3000	3000	3000								
Atmospheric Pressure ("Hg)	26 75	26 75	26 75								
Dry Bulh Temperature (°F)	20.75 A1 7	42.1	20.75 44.8								
Wet Bulb Temperature (°F)	35.8	35.1	38.5								
Humidity (lb/lb air)	0.0035	0.0032	0.0040								
Magsurad Exhaust Emissions (Corracted)	0.0055	0.0052	0.0040	Average							
Meusureu Exhaust Emissions (Correcteu)	71.70	75.00	72 52	Averuge							
$O(n_{\rm print})$	/1./0	12.02	/3.33	12.23							
CO(ppinv)	14.07	12.05	9.98	12.23							
O2 (vol 76)	2 00	2.12	2.18	2 10							
EQ2 (Vol 70) Eq (Natural Cas)	2.00	1.63	2.18	2.10							
Full rest Elow Pater (EPA Mathed 10 Eval Pared)	1.00	1.03	1.05	1.05							
Exhaust Flow Rates (EFA Method 19 - Fuel Based)	1 124 456	1.007.650	1.044.100	1 000 7/0							
Dry SCFH (dry basis, calc. from Fuel Consumption)	1,134,456	1,087,659	1,044,190	1,088,769							
Calculated Mass Emission Rates (EPA Method 19)	0 =1	0 = -	0.1-	0.77							
NOx (lbs/hr) { Permit Limit = 27.0 }	9.71	9.75	9.17	9.55							
$\frac{ \text{CO}(\text{lbs/hr}) \{\text{Permit Limit} = 7.4\}}{ \text{NO}(1-1) ^2}$	1.21	0.95	0.76	0.97							
NOX (tons/yr) { Permit Limit = 118.3 }	42.55	42.72	40.17	41.81							
$(CO (tons/yr) $ { Permit Limit = 32.5 }	5.30	4.17	3.32	4.26							

Quality Assurance Report - Sample System #1 Converter Efficiency Test, Interference Test, Response Time and Bias Test, Mass Flow Controller Check, Pre and Post Leak Checks

NOx Converter Efficiency Check												
Method: 7E Sec	Method: 7E Section 8.2.4											
Frequency: Befo	ore each field t	est										
Criteria: Equal	to or greater th	han 90% convers	tion efficiency									
Test Date:	1/20/16	Technician:	JC									
		NO)?	Ras	ults							
		Certified	l Value	48.9	nnmv							
		Observe	d Value	49.0	ppmv							
		Converter	Efficiency	10	0%							
	Interference Response Checks											
Method: 7E Sec	tion 8.2.7											
Frequency: Prio	or to initial use	in the field or a	fter maior alter	ation or modific	cation							
Criteria: Sum of	f responses < 2	2.5 % of calibrati	ion span									
Test Date:	1/20/16	Technician [.]	JC									
Interference	Test Gases		Analyze	r Response (pp	mv or % as ap	olicable)						
Type Gas	Conc.	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	O2 (%)	CO2 (%)					
$NO_{\rm W}$ in N2	44.5 mm					0.00	0.02					
CO in N2	44.5 ppm	 Ν/Δ	IN/A			0.00	-0.03					
O2 in N2	9.6%	0.05	-0.24			0.00	-0.03 N/A					
CO2 in N2	6.5%	0.05	-0.24			N/A						
THC in air												
		Sampla	System Rias &	Rasponsa Tim	n Chack							
		Sumple	System Dius Q	Response Time	. Cheek							
<u>Method:</u> 7E Sect	ion 8.2.5-6											
Frequency: Bef	ore sampling b	egins										
<u>Criteria:</u> 5% of	calibration spe	an a two timog ag th	a namanga tim									
<u>Criteria.</u> Note il		$= 1 \times 0$ times as inc	e response time									
Test Date:	1/20/16	lechnician:										
		0 1	Sample Syste	m Bias Check	1							
Introduction	Technique	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	<u>O2 (%)</u>	<u>CO2 (%)</u>					
Direct Zer	ro Input	0.0	0.0			0.0	0.0					
Dias I. Zero	nput Bias	0.0	0.0			0.0	0.0					
Direct Sp	an Innut	0.076	<u> </u>			9.6	6.5					
Bias I	nput	43.7	44.8			9.6	6.5					
Span	Bias	-1.1%	0.0%			0.0%	0.0%					
			Sample System	Response Time	2							
Param	neter	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	O2 (%)	CO2 (%)					
Upscale R	lesponse	40	35			50	50					
Downscale	Response	40	35			45	55					
Purge Time 110 seconds												
Sample System Leak Check												
Frequency: Daily or whenever the sample system is moved or disassembled (CST SOP)												
Criteria: Less th	<u>Criteria:</u> Less than one inch decrease in pressure in one minute (CST SOP)											
	Test Date	-										
	1/20/16 Vacuum Initial: 0.0 inches / minute at 14 inches Hg											
		Vacuum Final:	0.0 inches	/ minute at	14 inches Hg							

Quality Assurance Worksheet Instrument Calibration and Drift Correction

Company: Enterprise Field Services

Location: South Carlsbad Compressor Station

Source: Solar Centaur 40-T4702 SN: OHD10C7915

Engine Site Rating: 3609 Hp @ 15000 RPM

Test Date: Wednesday, January 20, 2016

Sampl	le Sys	tem #:	1

	UNIT NUMBER 1 TEST RUN 1							TEST RUN 2					TEST RUN 3						
GAS	CALIBRAT	ION GAS	INITIAL CA	ALIBRATION	Start Run		ZERO and S	PAN		Start Run	ZERO and SPAN			Start Run		ZERO and SPAN			
LEVELS	CONCENT	RATIONS	& LINEAR	ITY CHECK	7:53	CALIBRATION CHECK		8:18	CALIBRATION CHECK				8:43	CAI	CALIBRATION CHECK				
PER	Certified	Target	Analyzer	Calibration	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias
METHOD	Concentration	(% Span)	Response	Error < 2%	8:13	Response	Response	< 3%	< 5%	8:38	Response	Response	< 3%	< 5%	9:03	Response	Response	< 3%	< 5%
		NOx			Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0.0 ppmv	0.0%	66.35	0.0 ppmv	0.0 ppmv	0.0%	0.0%	71.15	0.0 ppmv	0.0 ppmv	0.0%	0.0%	69.49	0.0 ppmv	1.0 ppmv	1.2%	1.2%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	44.5 ppmv	52.0	44.6 ppmv	0.1%	67.41	43.7 ppmv	43.9 ppmv	0.4%	0.7%	71.88	43.9 ppmv	44.2 ppmv	0.7%	0.4%	69.61	44.2 ppmv	45.0 ppmv	1.8%	0.6%
High	85.5 ppmv	100.0	85.7 ppmv	0.2%	Cal. Span					Cal. Span					Cal. Span				
Aı	nalyzer Range =	100 ppmv	Span =	= 85.5	85.5					85.5					85.5				
		С0			Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0.0 ppmv	0.0%	13.52	0.0 ppmv	0.0 ppmv	0.0%	0.0%	8.80	0.0 ppmv	0.0 ppmv	0.0%	0.0%	7.71	0.0 ppmv	-1.0 ppmv	1.2%	1.2%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	44.8 ppmv	53.7	44.8 ppmv	0.0%	13.62	44.8 ppmv	44.1 ppmv	1.6%	0.8%	8.90	44.1 ppmv	44.5 ppmv	0.9%	0.4%	8.16	44.5 ppmv	44.7 ppmv	0.4%	0.1%
High	83.4 ppmv	100.0	83.0 ppmv	-0.5%	Cal. Span					Cal. Span					Cal. Span				
Ai	nalyzer Range =	100 ppmv	Span =	= 83.4	83.4					83.4					83.4				
		02			Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	16.77	0.0%	0.0%	0.0%	0.0%	16.79	0.0%	0.0%	0.0%	0.0%	16.79	0.0%	0.0%	0.0%	0.0%
					Corr. %					Corr. %					Corr. %				
Mid	9.6%	45.5	9.6%	0.0%	16.77	9.6%	9.6%	0.0%	0.0%	16.79	9.6%	9.6%	0.0%	0.0%	16.79	9.6%	9.6%	0.0%	0.0%
High	21.1%	100.0	21.0%	-0.5%	Cal. Span					Cal. Span					Cal. Span				
A	nalyzer Range =	22.0%	Span =	= 21.1	21.1					21.1					21.1				
		<i>CO</i> 2			Δνσ %					Ανσ %					Ανσ %				
Zero	0.0%	0.0	0.0%	0.0%	2.46	0.0%	0.0%	0.0%	0.0%	2.54	0.0%	0.0%	0.0%	0.0%	2.53	0.0%	0.0%	0.0%	0.0%
2010	0.070	0.0	0.070	0.070	Corr. %	0.070	0.070	0.070	0.070	Corr. %	0.070	0.070	0.070	0.070	Corr. %	0.070	0.070	0.070	0.070
Mid	4.0%	61.5	4.1%	1.5%	2.46					2.54					2.53				
High	6.5%	100.0	6.5%	0.0%	Cal. Span	6.5%	6.5%	0.0%	0.0%	Cal. Span	6.5%	6.5%	0.0%	0.0%	Cal. Span	6.5%	6.5%	0.0%	0.0%
A	nalvzer Range =	7.0%	Span =	6.5	6.5					6.5					6.5				

Quality Assurance Report - Sample System #2 Converter Efficiency Test, Interference Test, Response Time and Bias Test, Mass Flow Controller Check, Pre and Post Leak Checks

NOx Converter Efficiency Check												
Method: 7E Sec	tion 8.2.4											
Frequency: Befo	ore each field t	est										
Criteria: Equal	to or greater th	han 90% convers	sion efficiency									
Test Date:	1/20/16	Technician:	JC									
		NO)2	Ras	ults							
		Certified	l Value	48.9	nnmv							
		Observed	d Value	49.4	ppmv							
		Converter	Efficiency	10	1%							
	Interference Response Checks											
Method: 7E Sec	tion 8.2.7											
Frequency: Pric	or to initial use	in the field or at	fter maior alter	ation or modific	cation							
Criteria: Sum of	f responses < 2	2.5 % of calibrati	ion span									
Test Date:	1/20/16	Technician:	JC									
Interference	Test Gases	 	Analvze	r Response (pp	mv or % as an	olicable)						
Type Gas	Conc.	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	<i>O2 (%)</i>	CO2 (%)					
NOx in N2	11.5 mm					0.01	0.02					
CO in N2	44.5 ppm	 Ν/Δ	IN/A			0.01	0.02					
O2 in N2	9.6%	0.37	-0.12				0.02 N/A					
CO2 in N2	6.5%	0.37	-0.12			N/A						
THC in air												
	1	Sample	System Bias &	Response Time	e Check							
<u>Method:</u> 7E Sect	tion 8.2.5-6	4	•	1								
<u>Frequency:</u> Befo	ore sampling b	egins										
Criteria: 5% of	calibration spe	an										
<u>Criteria:</u> Note th	he longer of the	e two times as the	e response time	2								
Test Date:	1/20/16	Technician:	JC									
			Sample Syste	<u>m Bias Check</u>								
Introduction	Technique	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	O2 (%)	CO2 (%)					
Direct Zer	ro Input	0.0	0.0			0.0	0.0					
Zara l	nput	0.0	0.0			0.0	0.0					
Direct Sp	an Innut		45.0			0.0%	6.5					
Bias I	nput	43.6	43.0			9.0	6.5					
Span	Bias	-0.6%	-1.3%			0.0%	0.0%					
			Sample System	Response Time	2							
Param	neter	NOx (ppmv)	CO (ppmv)	SO2 (ppmv)	THC (ppmv)	O2 (%)	CO2 (%)					
Upscale R	lesponse	35	40			45	55					
Downscale	Response	35	40			45	55					
Purge Time 110 seconds												
Sample System Leak Check												
Frequency: Dai	ly or whenever	the sample syste	em is moved or	disassembled (C	CST SOP)							
Criteria: Less th	han one inch de	ecrease in pressu	re in one minu	te (CST SOP)								
	Test Date											
	1/20/16 <u>Vacuum Initial</u> : 0.0 inches / minute at 16 inches Hg											
	Vacuum Final: 0.0 inches / minute at 16 inches Hg Vacuum Final: 0.0 inches / minute at 16 inches Hg											

Quality Assurance Worksheet Instrument Calibration and Drift Correction

TEST RUN 2

TEST RUN 3

Company: Enterprise Field Services

Location: South Carlsbad Compressor Station

Source: Solar Centaur 40-T4702 SN: OHE12C7057

Engine Site Rating: 3609 Hp @ 15000 RPM

Test Date: Wednesday, January 20, 2016 Sample System #: 2

	UN		TESI	TRUN 1			
GAS	CALIBRAT	TON GAS	INITIAL CA	LIBRATION	Start Run		ZERO an
LEVELS	CONCENT	RATIONS	& LINEAR	ITY CHECK	7:53	CAI	IBRATI
PER	Certified	Target	Analyzer	Calibration	Stop Run	Initial	Final
METHOD	Concentration	(% Span)	Response	Error < 2%	8:13	Response	Respon

GAS	CALIBRAT	ION GAS	INITIAL CA	LIBRATION	Start Run		ZERO and S	PAN		Start Run		ZERO and S	PAN		Start Run		ZERO and S	PAN	
LEVELS	CONCENTI	RATIONS	& LINEAR	ITY CHECK	7:53	CAI	JIBRATION	CHECK		8:18	CAI	LIBRATION	CHECK		8:43	CAI	IBRATION	CHECK	
PER	Certified	Target	Analyzer	Calibration	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias	Stop Run	Initial	Final	Drift	Bias
METHOD	Concentration	(% Span)	Response	Error < 2%	8:13	Response	Response	< 3%	< 5%	8:38	Response	Response	< 3%	< 5%	9:03	Response	Response	< 3%	< 5%
		NOx			Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0.0 ppmv	0.0%	70.49	0.0 ppmv	0.0 ppmv	0.0%	0.0%	73.73	0.0 ppmv	1.0 ppmv	1.2%	1.2%	72.22	1.0 ppmv	1.0 ppmv	0.0%	1.2%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	44.5 ppmv	52.0	44.1 ppmv	-0.5%	71.70	43.6 ppmv	43.9 ppmv	0.7%	0.7%	75.09	43.9 ppmv	43.9 ppmv	0.0%	0.7%	73.53	43.9 ppmv	44.3 ppmv	0.9%	0.2%
High	85.5 ppmv	100.0	84.8 ppmv	-0.8%	Cal. Span					Cal. Span					Cal. Span				
Ar	alyzer Range =	100 ppmv	Span =	85.5	85.5					85.5					85.5				
		СО			Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0.0 ppmv	0.0%	14.43	0.0 ppmv	0.0 ppmv	0.0%	0.0%	11.91	0.0 ppmv	0.0 ppmv	0.0%	0.0%	9.57	0.0 ppmv	-1.0 ppmv	1.2%	1.2%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	44.8 ppmv	53.7	45.0 ppmv	0.2%	14.67	43.9 ppmv	44.2 ppmv	0.7%	0.7%	12.03	44.2 ppmv	44.5 ppmv	0.7%	0.4%	9.98	44.5 ppmv	44.9 ppmv	0.9%	0.1%
High	83.4 ppmv	100.0	83.9 ppmv	0.6%	Cal. Span					Cal. Span					Cal. Span				
Ar	nalyzer Range =	100 ppmv	Span =	83.4	83.4					83.4					83.4				
		02			Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	17.59	0.0%	0.0%	0.0%	0.0%	17.45	0.0%	0.0%	0.0%	0.0%	17.39	0.0%	0.0%	0.0%	0.0%
					Corr. %					Corr. %					Corr. %				
Mid	9.6%	45.5	9.6%	0.0%	17.59	9.6%	9.6%	0.0%	0.0%	17.45	9.6%	9.6%	0.0%	0.0%	17.30	9.6%	9.7%	1.0%	0.5%
High	21.1%	100.0	21.1%	0.0%	Cal. Span					Cal. Span					Cal. Span				
Ar	1alyzer Range =	22.0%	Span =	= 21.1	21.1					21.1					21.1				
		<i>CO2</i>			Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.0%	0.0%	2.00	0.0%	0.0%	0.0%	0.0%	2.10	0.0%	0.0%	0.0%	0.0%	2.14	0.0%	0.0%	0.0%	0.0%
					Corr. %					Corr. %					Corr. %				
Mid	4.0%	61.5	4.0%	0.0%	2.00					2.12					2.18]			
High	6.5%	100.0	6.5%	0.0%	Cal. Span	6.5%	6.5%	0.0%	0.0%	Cal. Span	6.5%	6.4%	1.5%	1.5%	Cal. Span	6.4%	6.4%	0.0%	1.5%
Ar	nalvzer Range =	7.0%	Span =	6.5	6.5					6.5					6.5				

ENTERPRISE ^{TR} Measurement Processing System								
MPS Home Meter Data Find	Reports	1	Work Orders	Communications	On Call	1	Paging	
60								

Snap	-shot	G	eneral Inf	formation For	Measu	rement	
	DED	WellName		SO CARLS	BAD TURB FUEL		
1/20/201	6.8:00:00	PIN		1.2.1	696101		
Static	63.18	Group Number	5	Local Address	57	1/20/201 Static	16 8:00:00 198.13
Temp	33.28	System	GTTAES2	Scada Server	AESTX2	- DP Temp	63.18 33.28
Volume Yest MCF	1,575.00 1,463.88	DAL / OrgID	661 / EPF	Team	C2	Volume Flow	65.63
Forecast	1,575.17	Model	827	Load File	AESORIF	Time	60.00
		Business Party	0	Operator Name	ENTERPRISE FIELD SERVICES LLC		
		Pipe: 4.03	P	late: 1.5	B/R: 0.37		
		Meter Type	Non WATT	Meter			
		S/T/R	12/235/27	E			
80 60 40 20		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Mu	Ayun	80 60 40 20		Temp DP
	0 1/7	1/9 1/8 1/10	1/11 1/13 1/12 Static	3 1/15 1 1/14 1/16	/17 1/19 1/18 1/20		

Μ E Ν U

03

07

031

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05

14

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○75 ● 150 ○ 300 ○ 800

Diff. Pressure Range

● 250 ○ 500 ○ 1000 ○ 1500 ○ 2000

Print

Fuel Gas Analysis, Gas Fuel O2 F-Factor, Moisture Content, Fuel VOC%, and Heating Value Calculation

Company: Enterprise Field Services

Sample ID: South Carlsbad

Time: N/A Date: 2/2/16

Propene

Isobutane

n-butane

Isobutene

Isopentane

n-pentane

n-hexane

H2S

Totals

42.077

58.118 58.118

56.102

72.144

72.144

0.8571

0.8276

0.8276

0.8571

0.8333

0.8333

Predicted Fo Factor

Fuel VOC %

Fuel VOC %

0.1429

0.1725

0.1725

0.1429

0.1667

0.1667

0.0000

0.3608

0.7075

0.0000

0.0822

0.0662

1.72

29.63%

13.94%

	СА	LCULATIO N	OF DENSI	TY AND HEA	ATING VALU	UE @ 68°F an	d 29.92 in H	!g	
				% volume		Component		Gross	Volume
	%	Molecular	Density	x		Gross	Weight	Htng. Val.	Fract.
Component	Volume	Wt.	(lb/ft3)	Density	weight %	Btu/lb	Fract. Btu	(Btu/SCF)	Btu
Hydrogen		2.016	0.0052	0.00000	0.0000	61100	0.00	325.0	0.000
Oxygen		32.000	0.0831	0.00000	0.0000	0	0.00	0.0	0.000
Nitrogen	2.9591	28.016	0.0731	0.00216	4.2554	0	0.00	0.0	0.000
CO2	0.0001	44.010	0.1149	0.00000	0.0002	0	0.00	0.0	0.000
CO		28.010	0.0727	0.00000	0.0000	4347	0.00	322.0	0.000
Methane	81.9206	16.041	0.0417	0.03412	67.1414	23879	16032.70	1013.0	829.856
Ethane	9.7466	30.067	0.0789	0.00769	15.1268	22320	3376.30	1792.0	174.659
Ethylene		28.051	0.0733	0.00000	0.0000	21644	0.00	1614.0	0.000
Propane	4.1308	44.092	0.1175	0.00485	9.5487	21661	2068.34	2590.0	106.988
propylene		42.077	0.1090	0.00000	0.0000	21041	0.00	2336.0	0.000
Isobutane	0.3608	58.118	0.1554	0.00056	1.1032	21308	235.08	3363.0	12.134
n-butane	0.7075	58.118	0.1554	0.00110	2.1634	21257	459.87	3370.0	23.843
Isobutene		56.102	0.1454	0.00000	0.0000	20840	0.00	3068.0	0.000
Isopentane	0.0822	72.144	0.1870	0.00015	0.3025	21091	63.80	4008.0	3.295
n-pentane	0.0662	72.144	0.1870	0.00012	0.2436	21052	51.29	4016.0	2.659
n-hexane +	0.0261	86.169	0.2234	0.00006	0.1147	20940	24.02	4762.0	1.243
H2S		34.076	0.0895	0.00000	0.0000	7100	0.00	647.0	0.000
Totals	100.00	731.25	1.91	0.0508	100.00		Gross Hea	ting Value	
Average	Density:	0.0508	Specific	Gravity:	0.664	Btu/lb:	22311	Btu/SCF:	1155
		•	(CALCULATI	ON OF FFA	ACTORS		•	
							W	eight Percent	s
Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0.0000	1.0000	0.0000	0.0000		0.0000		
Öxygen	32.000	0.0000	0.0000	0.0000	0.0000		}		0.0000
Nitrogen	28.016	0.0000	0.0000	2.9591	82.9021			4.2575	
CO2	44.010	0.2723	0.0000	0.0001	0.0044	0.0001	1		0.0002
CO	28.010	0.4259	0.0000	0.0000	0.0000	0.0000			0.0000
Methane	16.041	0.7500	0.2500	81.9206	1314.0883	50.6139	16.8713		
Ethane	30.067	0.8000	0.2000	9.7466	293.0510	12.0397	3.0099		
Ethylene	28.051	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000		
Propane	44.092	0.8182	0.1818	4.1308	182.1352	7.6529	1.7007		

86.169 0.8372 0.1628 0.0261 2.2490 0.0967 0.0188 34.076 0.0587 0.0000 0.0000 0.0000 0.0000 0.0000 731.25 9.80 2.96 100.00 1947.224 73.500 22.242 4.257 0.000 CALCULATED VALUES O2 F Factor (dry) 8696 DSCF of Exhaust/MMBtu of Fuel Burned @ 0% excess air O2 F Factor (wet) 10620 SCF of Exhaust/MMBtu of Fuel Burned @ 0% excess air **Moisture F Factor** 1924 SCF of Water/MMBtu of Fuel Burned @ 0% excess air **Combust.** Moisture 18.12 Volume % water in flue gas @ 0% excess air **CO2 F Factor** 1057 DSCF of CO2/MMBtu of Fuel Burned @ 0% excess air Carbon Dioxide 12.16 Volume % CO2 in flue gas @ 0% O2

Non-methane

EPA Method 3b Fo value

Non-methane, non-ethane

0.0000

20.9690

41.1185

0.0000

5.9302

4.7759

0.0000

0.8912

1.7476

0.0000

0.2538

0.2044

0.0000

0.1857

0.3642

0.0000

0.0508

0.0409

.

0.0000

0.000

Example Calculations

	Drift Corrected Emission Concentrations										
	Formula										
	$C_{GAS} = (\mathbf{C} - \mathbf{Co}) \mathbf{x} - \frac{\mathbf{C}_{MA}}{\mathbf{C}_{M} - \mathbf{Co}} (eq. 7E - \mathbf{Co})$	5)									
	All Calculations Refer to Test Run 1 Unit	#1									
Ç _{NOx} =	Raw Concentration of NOx	= 66.35 ppmv									
Co =	Avg. of Initial and Final Zero Checks	= 0.00 ppmv									
См =	Avg. of Initial and Final Span Checks	= 43.80 ppmv									
Cma =	Certified Concentration of Span Gas	= 44.50 ppmv									
$C_{NOx} =$	(66.35 - 0.00) x <u>44.50</u>	= 67.41 ppmv									
(43.80 - 0.00)											
Çco =	Raw Concentration of CO	= 13.52 ppmv									
Co =	Avg. of Initial and Final Zero Checks	= 0.00 ppmv									
См =	Avg. of Initial and Final Span Checks	= 44.45 ppmv									
Cma =	Certified Concentration of Span Gas	= 44.80 ppmv									
Cco =	$(13.52 - 0.00) \times 44.80$	= 13.62 ppmv									
	(44.45 - 0.00)										
Ç02 =	Raw Concentration of O2	= 16.77%									
Co =	Avg. of initial and final zero bias checks	= 0.00%									
См =	Avg. of initial and final span bias checks	= 9.60%									
Cma =	Actual concentration of span gas	= 9.60%									
Co2 =	(16.77 - 0.00) x <u>9.60</u>	= 16.77%									
	(9.60 - 0.00)										
Çco2 =	Raw Concentration of CO2	= 2.46%									
Co =	Avg. of initial and final zero bias checks	= 0.00%									
См =	Avg. of initial and final span bias checks	= 6.50%									
Cma =	Actual concentration of span gas	= 6.50%									
Cco2 =	(2.46 - 0.00) x <u>6.50</u>	= 2.46%									
	(6.50 - 0.00)										
Fo	Calculation to Verify O2 / CO2 Measurements	(Eq. 3b-1)									
Co2 =	Corrected Concentration of O2	= 16.77%									
$C_{CO2} =$	Corrected Concentration of CO2	= 2.46%									
1 m. ro =	(20.0 - 0.20%)	- 1./2									
FO =	(20.9 - 0.2%)										
Fo =	<u>(20.9 - 16.77)</u> 2.46	= 1.67									

Example Calculations

Μ	ass Emission Rate	es via	EPA	M	ethod 19					
Ме	asured Data and Consta	ants fro	m Test	Ru	n 1 Unit #1					
$C_{NOx} =$ $C_{CO} =$ $Horsepower =$ $Q_{S M19} =$ $lb / mole =$ $lbs / hr to tpy =$ $C_{F} =$ $MW_{NOx} =$ $MW_{CO} =$	67.41 13.62 3418 910,503 385.15 4.38 1.00E-06 46 28	ppmv ppmv Hp SCF/H Dry SCF hrs-tons / lbs-yr 1 / ppmv lb / lb-mol lb / lb-mol								
	Stack Gas Flow Rate	via Met	hod 19	(eq.	. 19-1)					
$Q_{F} =$ $F_{BTU} =$ $F_{O2} =$ $C_{O2} =$ $Q_{S M19} =$	Fuel Flow (Meas Fuel Higher Heatir O2 F-Facto Corrected Concentra QF x FBTU 2	sured) ng Valu r tion of x Fo2 x	e O2 10^6 x	=	17905 1155 8696 16.77 20.9	SCF/H Btu/SCF DSCF/MMBtu % DSCF/H				
			-	(2	0.9 - %O2)	-				
$Q_{S M19} = Q_{S M19} =$	17905 x 1155 910,503	x 8 DSCF	8696 7/ H	X	5.06	x 1.00E-06				
Adjust Measured Concentrations to 15% O2 (Eq. 60.335)										
Cx @ 15% O2 CNOx @ 15% O2	= Cx (ppmv) x $= 67.41 x (t)$	5 (20.9 - 5 20.9 -	.9 02%) .9 16.77)	=	96.37	@ 15% O2				
	For	mulas								
Ex	Pounds per Ex (lb/hr) = Cx x CF x Q Tons per (tpy) = Ex (lb/hr) x { 87	Hour ()s x { N Year (60 (hr /	(lbs/hr) 1Wx / (l (tpy) yr) / 20	b / : 00	mole)					
Calculated	Mass Emission Rates	From M	lethod 1	!9 E	Exhaust Flo	ow Rate				
	E	NOx								
lbs/hr =	67.41 x 1.00E-06	x 9	10,503	x _	46 385.15	_ = 7.33				
tpy =	7.33 lb/hr	X 4	4.38		hrs-ton lbs-yr	_ = 32.11				
	E	Co								
lbs/hr =	13.62 x 1.00E-06	x 9	10,503	x	28 385.15	= 0.90				
tpy =	0.90 lb/hr	X 4	4.38		hrs-ton lbs-yr	= 3.95				

c	MATHESON	
	askThe Gas Professionals"	

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1700 Scepter Rd

Waverly, TN 37185

931-296-3357

Certificate of Analysis - EPA Protocol Mixtures Customer: CST Customer PO#: Protocol: Reference #: Lot#: 9303606470 G1 T186938-4 Cylinder Number: CC203971 DO NOT USE THIS CYLINDER WHEN THE Cylinder Pressure: 1900 PSIG PRESSURE FALLS BELOW 100 PSIG Last Analysis Date: 8/22/2013 Expiration Date: 8/23/2016 REPLICATE RESPONSES Date: 8/15/2013 Date: 8/22/2013 Component: Nitric Oxide 49.0 48.9 49.0 48.8 Certified Conc: 48.9 PPM +/- 0.2 PPM ABS 48.7 49.1 NOx: 49.9 PPM Reference Only **BALANCE GAS:** Nitrogen REFERENCE STANDARDS: Component: Nitric Oxide Reference Standard: NTRM Cylinder #: ND44693 Concentration: 98.17 PPM Exp Date: 9/20/2015 NIST Sample #: 121101 CERTIFICATION INSTRUMENTS Component: Nitric Oxide Make/Model: Antaris IGS Serial Number: AKS1000151 Measurement Principle: FTIR Last Calibration: 8/12/2013

Notes:

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62013, PGVP Participation Date: 01/01/13, PGVP Renewal Date: 01/01/14

Analyst:

Daylor Wallace

8/22/2013 Date:

MA MA	THES	ON				1700 Scepter F Waverly, TN 3	Rd 17185
Se akut	The Gas Professi	ionals"				931-296-3357	
Collection of the second se		Certifi	cate of Analy	/sis -	EPA Prot	ocol Mixtu	ires
Customer: CST			Customer PO#	£		Part #	G2676958
			Protocol:	Refere	nce #:	Lot#:	
			G1	T2049	60-2	9305612	2744
Cylinder Number:	SX3702	8					
Cviinder Pressure.	1900 ps	iq	DO NOT US	E THIS C	YLINDER WH	EN THE PRES	SURE
Last Analysis Date:	2/18/20	15		FALL	S BELOW TH	Paig	
Cast Analysis Date.	2110/20			-			
Expiration Date:	2/19/20	18					
					REPLICATE	RESPONSE	S
Compo	nent: Carbon	Monoxide		Date:	2/9/2015		
0.000.00			ADC		44.85		
Certified (Jonc: 44.84 p	pm +/- 0.06 ppm	ABS		44.83		
Compo	nent: Nitric O	xide		Date	2/9/2015	Date:	2/18/2015
					44.6		44.6
Certified (Conc: 44.5 pp	m +/- 0.2 ppm	ABS		44.4		44.6
	NOx: 44.6 pp	m Reference O	nly				110
BALANCE GAS:	Nitroger	n					
REFERENCE STAN	DARDS:						
Comp	onent: Carbon M	Monoxide	Component:	Nitric O	xide		
Reference Sta	ndard SRM	R	eference Standard:	SRM	a		
Cylin	Ider #: FF10672	000	Concentration	19.06 0	601		
Concent	Date: 0/00/000		Eve Dela	4/31/20	16		
NIST San	nole #: 58-E-11		NIST Sample #:	50-G-0	9		
CERTIFICATION IN	STRUMENTS	· · · · · · · · · · · · · · · · · · ·					
Comp	onent: Carbon M	Aonoxide	Component:	Nitric O	xida		
Make/	Model: Horiba V	IA-510	Make/Model:	Horiba	CLA-510SS		
Serial No	mber. ETYS790	C6	Serial Number:	FDRJS	FDME		
Measurement Pri	nciple: NDIR	Mea	surement Principle:	CHEMI			
Last Calib	ration: 1/27/201	5	Last Calibration:	1/19/20	15		

Notes:

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62015, PGVP Participation Date: 01/01/15, PGVP Renewal Date: 01/01/16

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Analyst:

Roman Khidekel

Date:

2/26/2015

6	MATH	IESON s Professionals ^w	Certific	ate of Anal	vsis -	EPA Proto	1700 Scept Waverly, TI 931-296-33	ter Rd N 37185 357 (tures
Customer:	Matheson Tri	-Gas			Custo	mer PO#:		
				Protocol:	Refere	ence #:	Lot#:	
Cylinder Nur	mber:	SX46823		G1	T2017	19-3	9304611	1567
Cylinder Pre	ssure:	1900 psig		DO NO PRE	T USE TI	HIS CYLINDER	WHEN THI 100 PSIG	E
Last Analysi	s Date:	10/28/2014						
Expiration D	ate:	10/29/2022						
Matheson P	art Number:	G2687072				REPLICATE	RESPON	ISES
	Component:	Carbon Mono	xide		Date:	10/21/2014 83.39		
С	ertified Conc:	83.39 ppm	+/- 0.08 ppm	ABS		83.25 83.53		
	Component:	Nitric Oxide			Date:	10/21/2014 85.4	Date:	10/28/2014 85.9
C	ertified Conc:	85.5 ppm	+/- 0.3 ppm	ABS		85.3 85.5		85.7 86.0
	NOx:	86.3 ppm	Reference O	nly				
BALANCE	GAS:	Nitrogen						
REFERENC	CE STANDAR	DS:						
	Component:	Carbon Monoxi	de	Componen	t: Nitric (Oxide		
Refe	erence Standard:	SRM	R	Cylinder #	# ND44	704		
	Concentration:	49.136 ppm		Concentration	1: 98.17	ppm		
	Eve Date	2/24/2021		Exp. Date	e: 9/20/2	015		
	NIST Sample #:	04-L-64		NIST Sample #	#: 12110	1		
CERTIFICA	ATION INSTRU	JMENTS						
	Component:	Carbon Monoxi	de	Componen	t: Nitric	Oxide		
	Make/Model:	Antaris IGS		Make/Mode	I: Antari	s IGS		
	Serial Number:	AKS1000151		Serial Numbe	r: AKS1	000151		
Measu	rement Principle:	FTIR	Mea	surement Principle	e: FTIR			
	Last Calibration	9/30/2014		Last Calibration	n: 10/27	/2014	-	

Notes:

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62014, PGVP Participation Date: 01/01/14, PGVP Renewal Date: 01/01/15

Analyst:

Roman Khidekel

10

11

Date:

10/29/2014

MATH ask The Ga	ESON	Certificate of Analy	sis - EPA Pr	otocol M	1700 Scepter Rd Waverly, TN 3718 931-296-3357 I xtures	5
Sustomer: WHS: 710					Part #	G2689319
		Protocol:	*Reference #:		Lot#:	
Cylinder Number	SX35534	G1	T212837-01		9305615921	
Cylinder Pressure:	1900 psig 10/16/2015	DO NOT USE 1	HIS CYLINDER WI 10	HEN THE PRE 0 PSIG	SSURE FALLS B	ELOW
Expiration Date:	10/16/2023		F	REPLICATE	RESPONSES	
Component:	Carbon Dioxide		Date:	10/16/2015 6.46		
Certified Conc:	6.46% +/-	0.02% ABS		6.46		
Component:	Oxygen		Date:	10/16/2015 9.56		
Certified Conc:	9.56 % +/-	0.02% ABS		9.56 9.55		
BALANCE GAS:	Nitrogen					
REFERENCE STANDAR	DS:	- Children	5.7			
Component	Carbon Dioxide	Component: Reference Standard:	Oxygen			
Reference Standard Cylinder #	FF10608	Cylinder #:	CAL016848			
Concentration	6.944 %	Concentration:	9.918 %			
Exp. Date	7/14/2018	Exp. Date:	6/1/2017			
NIST Sample	ŧ 7-H-18	NIST Sample#	72-D-11			
CERTIFICATION INSTR	UMENTS	a la la contra				
Component	: Carbon Dioxide	Component:	Oxygen)		
Make/Model	: HORIBA VIA 510	Serial Number:	U1LSAGS6			
Serial Number Measurement Principle	: NDIR	Measurement Principle:	PARAMAGNETIC			
Last Calibration	: 10/14/2015	Last Calibration:	10/13/2015			

Notes:

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62015, PGVP Participation Date: 01/01/15, PGVP Renewal Date: 01/01/16 The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

tokes

Analyst:

Ashley Stokes

Date: 10/19/2015



1700 Scepter Rd

Waverly, TN 37185

931-296-3357

Certificate of Analysis - EPA Protocol Mixtures

Customer: CST

		Protocol:	Refere	ence #:	Lot#:
Cvlinder Number:	SX48140	G1	T1895	641-5	9303607405
Cylinder Pressure:	1900psig	D	O NOT USE TI PRESSURE F	HIS CYLINDER	R WHEN THE V 100 PSIG
Last Analysis Date:	11/13/2013	1 - and	a distant	2233	
Expiration Date:	11/14/2021			REPLICAT	E RESPONSES
Component:	Carbon Dioxide		Date:	11/13/2013 3.98	3
Certified Conc:	3.97% +/- 0.03%	ABS		3.97 3.97	
Component:	Oxygen		Date:	11/13/2013 21.1	3
Certified Conc:	21.1% +/- 0.4%	ABS		21.1 21.0	
BALANCE GAS:	Nitrogen				
REFERENCE STANDAR Component: Reference Standard:	DS: Carbon Dioxide PRM	Comp Reference Sta	oonent: Oxyge andard: SRM	n	50
Reference Otaridard.	50.0705	Culi	nder # CALO	15730	

Component:	Carbon Dioxide	Component.	ox)gon
Reference Standard:	PRM	Reference Standard:	SRM
Cvlinder #:	D249735	Cylinder #:	CAL015730
Concentration:	19.793%	Concentration:	23.03%
Exp. Date:	4/4/2018	Exp. Date:	1/1/2016
NIST Sample #:	VSL PRIMARY	NIST Sample #:	71-D-36
CERTIFICATION INSTRU	IMENTS		
Component:	Carbon Dioxide	Component:	Oxygen
Make/Model:	HORIBA VIA-510	Make/Model:	HORIBA MPA-510
Serial Number:	41679080021	Serial Number:	U1LSAGS6
Measurement Principle:	NDIR	Measurement Principle:	PARAMAGNETIC
Last Calibration:	10/30/2013	Last Calibration:	11/13/2013

Notes:

Analyst:

This Certification was performed according to EPA Traceability Protocol for Assay & Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2.

U.S. EPA Vendor ID No.: D62013 PGVP Participation Date: 01/01/13: PGVP Renewal Date: 1/1/2014

La Shawn Heisen - Brown

Date: 11/13/2013

La'Shawn Grissom-Brown



Particulate Matter Emission Estimates

Leslie Witherspoon Solar Turbines Incorporated

PURPOSE

This document summarizes Solar's recommended $PM_{10/2.5}$ emission levels for our combustion turbines. The recommended levels are based on an analysis of emissions tests collected from customer sites.

Particulate Matter Definition

National Ambient Air Quality Standards (NAAQS) for particulate matter were first set in 1971. Total suspended particulate (TSP) was the first indicator used to represent suspended particles in the ambient air. Since July 1, 1987, the Environmental Protection Agency (EPA) has used the indicator PM_{10} , which includes only the particles with aerodynamic diameter smaller than 10 micrometers. PM_{10} (coarse particles) come from sources such as windblown dust from the desert or agricultural fields and dust kicked up on unpaved roads by vehicle traffic.

The EPA added a $PM_{2.5}$ ambient air standard in 1997. $PM_{2.5}$ includes particles with an aerodynamic diameter less than 2.5 micrometers. $PM_{2.5}$ (fine particles) are generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Fine particles are also formed in the atmosphere when gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, emitted by combustion activities, are transformed by chemical reactions.

Nearly all particulate matter from gas turbine exhaust is less than one micrometer (micron) in diameter. Thus the emission rates of TSP, PM_{10} , and $PM_{2.5}$ from gas turbines are theoretically equivalent although source testing will show variation due to test method detection levels and processes.

TESTING FOR PARTICULATE MATTER

The turbine combustion process has little effect on the particulate matter generated and measured. The largest contributor to particulate matter emissions for gas and liquid fired combustion turbines is measurement technique and error. Other, minor contributing, sources of particulate matter emissions include carbon, ash, fuel-bound sulfur, artifact sulfate formation, compressor/lubricating oils, and inlet air.

Historical customer particulate matter source test data show that there is significant variability from test to test. The source test results support the common industry argument that particulate matter from natural gas fired combustion sources is difficult to measure accurately. The reference test methods for particulate matter were developed primarily for measuring emissions from coal-fired power plants and other major emitters of particulates. Particulate concentrations from gas turbine can be 100 to 10,000 times lower than the "traditional" particulate sources. The test methods were not developed or verified for low emission levels. There are interferences, insignificant at higher exhaust particulate matter concentrations that result in emissions greater than the actual emissions from gas turbines. New methods are being developed to address this problem.

Due to measurement and procedural errors, the measured results, in most cases, may not be representative of actual particulate matter emitted. There are many potential error sources in measuring particulate matter. Most of these have to do with contamination of the samples, material from the sampling apparatus getting into the samples, and general human error in samples and analysis.

Recommended Particulate Matter Emission Factors

When necessary to support the air permitting process Solar recommends the following $PM_{10/2.5}$ emission factors:

- Natural Gas: 0.015 lb/MMBtu fuel input (HHV)
- Landfill Gas: 0.03 lb/MMBtu fuel input (HHV)
- Liquid Fuel: 0.06 lb/MMBtu fuel input (HHV). The liquid fuel emission factor assumes fuel sulfur content is <500 ppm and ash content is <0.005% by wt.

The emission levels cited above are only for engine operation with the fuels listed. Other fuels may not yield similar results.

Recent customer source testing has shown that AP-42 (EPA AP-42 "Compilation of Air Pollutant Emission Factors.") emission factors for natural gas are achievable in the field, when the test method recommendations shown below are followed. Historically, Solar did not recommend using AP-42 because while some source test firms have measured below AP-42 levels, others have measured higher. Because particulate matter emissions levels are highly dependent on the test firm and have very little to do with the turbine, Solar does not warrant AP-42 levels but does recognize they are achievable in the field. Customers generally choose a particulate matter emissions factor at or above the AP-42 level that works for their site permitting recognizing that the lower the emissions factor the higher the risk for source testing. Any Solar warranty on particulate matter would be at the recommended levels above, e.g. 0.015 lb/MMBtu (HHV) for natural gas.

Test Method Recommendation

Solar recommends that EPA Methods 201/201A¹ be used to measure the "front half". "Front half" represents filterable particulate matter.

EPA Method 202² (with nitrogen purge and field blanks) should be used to measure the "back half". "Back half" measurements represent the condensable portion of particulate matter.

EPA Method 5³, which measures the front and back halves may be substituted (e.g. where exhaust temperatures do not allow the use of Method 202).

Testing should include three test runs of 4 hours each.

Solar recommends using the aforementioned test methods until more representative test methods are developed and made commercially available.

References

¹ EPA Method 201, Determination of PM10 Emissions, Exhaust Gas Recycle Procedure. EPA Method 201A, Determination of PM10 Emissions, Constant Sampling Rate Procedure, 40 CFR 60, Part 60, Appendix A.

² EPA Method 202, Determination of Condensible Particulate Emissions from Stationary Sources, 40 CFR 60, Part 60, Appendix A.

³ EPA Method 5, Determination of Particulate Emissions from Stationary Sources, 40 CFR 60, Part 60, Appendix

Solar Turbines Incorporated 9330 Sky Park Court San Diego, CA 92123-5398

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PIL 171 Revision 4

10 February 2014

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Solar Turbines

PREDICTED EMISSION PERFORMANCE

A Caterpillar Company

Customer							Engine Model CENTAUR 40-4700					
Job ID						CS/M	D 80F N	АТСН				
Inquiry Numb	per					Fuel Type Water Injection SD NATURAL GAS NO						
Run By Javier M	arquez	Date Ru 9-Jul	^{ın} - 20			Engine REV.	Emissions Da 1.2	ta				
		NOx	EMISSIC	ONS	СО	EMISS	IONS	UHCE	MISSIONS			
1	4111 HP	100.0% Load	Elev.	3075 ft	Rel. Hun	nidity	60.0%	Temperature	20.0 Deg. F			
Р	PMvd at 15%	02	165.00		50.00] 5	50.00			
	ton	/yr	112.54		20.76] 1	1.89			
lbm/M	MBtu (Fuel LH	IV)	0.661		0.122] C	.070			
	lbm/(MW-	hr)	8.38		1.55 0.89							
(gas	turbine shaft Ibm	pwr) /hr	25.69			4.74			2.71			
2	3583 HP	100.0% Load	Elev.	3075 ft	Rel. Hun	nidity	60.0%	Temperature	80.0 Deg. F			
Р	PMvd at 15%	02	165.00			50.00		50.00				
	ton	/yr	100.38			18.52] [1	0.61			
lbm/M	MBtu (Fuel LH	1V)	0.652			0.120		0	.069			
	lbm/(MW-	hr)	8.58			1.58			0.91			
(gas	(gas turbine shaft pwr) Ibm/hr 22.92			4.23 2.42				2.42				

- necessarily the same for another.
- Solar's typical SoLoNOx warranty, for ppm values, is available for greater than and between 50% and 100% load for gas fuel, and between 65% and 100% load for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available or -20 deg F and between 80% and 100% load.
- 3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based composition, or, San Diego natural gas or equivalent.
- 4. If needed, Solar can provide Product Information Letters to address turbine ope warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and
- 5. Solar can provide factory testing in San Diego to ensure the actual unit(s) mee the tolerances quoted. Pricing and schedule impact will be provided upon reque
- 6. Any emissions warranty is applicable only for steady-state conditions and does shut-down, malfunction, or transient event.

Solar Turbines

A Caterpillar Company

Customer	
Job ID	
Run By	Date Run
Javier Marquez	9-Jul-20
Engine Performance Code	Engine Performance Data
REV. 4.20.1.25.13	REV. 2.1

Model	
CENTAUR 40-4700	
Package Type CS/MD	
Match 80F MATCH	
Fuel System GAS	
^{Fuel Type} SD NATURAL GAS	

DATA FOR MINIMUM PERFORMANCE

Elevation Inlet Loss Exhaust Loss Accessory on GP Shaft	feet in H2O in H2O HP	3075 3.5 2.0 15.5	
		1	2
Engine Inlet Temperature	deg F	20.0	80.0
Relative Humidity	%	60.0	60.0
Driven Equipment Speed	RPM	15500	15500
Specified Load	HP	FULL	FULL
Net Output Power	HP	4111	3583
Fuel Flow	mmBtu/hr	38.90	35.14
Heat Rate	Btu/HP-hr	9462	9809
Therm Eff	%	26.891	25.938
Engine Exhaust Flow	lbm/hr	143144	126652
PT Exit Temperature	deg F	771	850
Exhaust Temperature	deg F	771	850
-	-		

Fuel Gas Composition	Methane (CH4)	92.79	
(volume Percent)	Ethane (C2H6)	4.16	
	Propane (C3H8)	0.84	
	N-Butane (C4H10)	0.18	
	N-Pentane (C5H12)	0.04	
	Hexane (C6H14)	0.04	
	Carbon Dioxide (CO2)	0.44	
	Hydrogen Sulfide (H2S)	0.0001	
	Nitrogen (N2)	1.51	
Fuel Gas Properties		2 Specific Cr	<u></u>
i dei odo i ropertico	LULA (DIU/301) 338	.z j specific Gra	avity

y 0.5970 Wobbe Index at 60F 1215.6

This performance was calculated with a basic inlet and exhaust system. Special noise silencers, special filters, heat recovery systems or cooling devices will Performance shown is "Expected" performance at the pressure drops stated, not g

Solar Turbines

shut-down, malfunction, or transient event.

A Caterpillar Company

Customer Enterprise						Engine Model CENTAUR 40-4700S CS/MD 80F MATCH					
S.Carlsbad Inquiry Number						Fuel Type Water Injection SD NATURAL GAS NO					
Run By Jose Gui	llen	Date Run 1-Sep- 2	20				Engine I REV.	Emissions Da 0.1	ta		
	[NOx E	MISSIC	ONS	С						MISSIONS
1	4329 HP 100.	0% Load	Elev.	3070 ft	Rel. H	un	nidity	60.0%	Tempe	rature	0 Deg. F
P	PMvd at 15% O2 [2	25.00				50.00			2	5.00
	ton/yr	1	7.64				21.48			6	6.15
lbm/M	MBtu (Fuel LHV)	0	.100				0.122			0	.035
(000)	lbm/(MW-hr)		1.25				1.52			().44
(yas i	Ibm/hr		4.03				4.90			1	.40
2	4056 HP 100.	0% Load	Elev.	3070 ft	Rel. H	un	nidity	60.0%	Tempe	rature	40.0 Deg. F
P		2	25.00		50.00 25.00					5.00	
	ton/yr	1	6.54				20.14			Ę	5.77
lbm/M	MBtu (Fuel LHV)	0	.100				0.122		0.035		
(lbm/(MW-hr)		1.25				1.52			0.44	
(gas t	Ibm/hr		3.78		4.60					1.32	
3	3666 HP 100.	0% Load	Elev.	3070 ft	Rel. Humidity 60.0% Temperature 80.0 Deg. F						
P		2	25.00				50.00			2	5.00
	ton/yr	1	5.19		18.50 5.30					5.30	
lbm/M	MBtu (Fuel LHV)	0	.099		0.120 0.034						.034
(lbm/(MW-hr) [1.27).44
(yas i	Ibm/hr		3.47				4.22			1	.21
Notes											
1. For she conditi necess	ort-term emission lim ons specific to the ap sarily the same for ar	its such as oplication ar nother.	lbs/hr., nd the s	Solar reco ite conditi	ommend ons. Wo	ls orsi	using "v t case fe	vorst c or			
2. Solar's and be the Ce or -20	typical SoLoNOx wa etween 50% and 100 entaur 40). An emiss deg F and between	arranty, for 0% load for ion warrant 80% and 10	ppm val gas fue ty for no 00% loa	lues, is av I, and betv on-SoLoN(id.	ailable fo veen 65 Ox equip	or % om	greater and 10 nent is a	than 0% load f vailable	or		
3. Fuel m compo	ust meet Solar stand sition, or, San Diego	dard fuel spo natural gas	ecificati s or equ	on ES 9-9 iivalent.	8. Emis	si	ons are	based			
4. If need warran	led, Solar can provid ity ranges, as well as	e Product Ir non-warra	nformati nted err	ion Letters nissions of	s to addr SO2, P	res M	ss turbin 10/2.5,	ie ope VOC, and	l		
5. Solar of the tole	can provide factory te erances quoted. Prio	esting in Sar cing and sch	n Diego nedule i	to ensure mpact will	the acture be prov	ua /ide	l unit(s) ed upor	mee 1 reque			
6. Any en	nissions warranty is	applicable c	only for s	steady-sta	ite condi	itic	ons and	does			
Solar Turbines

A Caterpillar Company

Customer Enterpi	rise			Engine Model CENTAUR 40-47	700S
Job ID S.Carlsb	ad				ICH
Inquiry Numb	er			Fuel Type SD NATURAL G	Water Injection
Run By Jose Gu i	illen	Date Run 1-Sep-20		Engine Emissions Data REV. 0.1	
	[NOX EMISSIONS	СО	EMISSIONS	UHC EMISSIONS
4	3163 HP 100.	0% Load Elev. 3070 ft	Rel. Hur	midity 60.0% 7	Temperature 105.0 Deg. F
P	PMvd at 15% O2	25.00		50.00	25.00
	ton/yr	13.55		16.50	4.72
lbm/M	MBtu (Fuel LHV)	0.097		0.118	0.034
	lbm/(MW-hr)	1.31		1.60	0.46
(gas t	turbine shaft pwr) Ibm/hr [3.09		3.77	1.08
Notes					
1. For she conditi neces	ort-term emission lim ons specific to the a sarily the same for ar	nits such as lbs/hr., Solar rec pplication and the site condit nother.	ommends ions. Wors	using "worst c at case for	
2. Solar's and be the Ce or -20	s typical SoLoNOx wa etween 50% and 100 entaur 40). An emiss deg F and between	arranty, for ppm values, is av)% load for gas fuel, and bet ion warranty for non-SoLoN 80% and 100% load.	vailable for ween 65% Ox equipm	greater than and 100% load for nent is available	

- 3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based composition, or, San Diego natural gas or equivalent.
- 4. If needed, Solar can provide Product Information Letters to address turbine ope warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and
- 5. Solar can provide factory testing in San Diego to ensure the actual unit(s) mee the tolerances quoted. Pricing and schedule impact will be provided upon reque
- 6. Any emissions warranty is applicable only for steady-state conditions and does shut-down, malfunction, or transient event.

Solar Turbines

A Caterpillar Company

Customer	
Enterprise	
Job ID	
S.Carlsbad	
Run By	Date Run
Jose Guillen	1-Sep-20
Engine Performance Code	Engine Performance Data
REV. 4.20.1.25.13	REV. 2.2

Model	
CENTAUR 40-4700S	
Package Type CS/MD	
Match 80F MATCH	
Fuel System GAS	
Fuel Type SD NATURAL GAS	

DATA FOR NOMINAL PERFORMANCE

Elevation Inlet Loss Exhaust Loss Accessory on GP Shaft	feet in H2O in H2O HP	3070 4.0 4.0 15.5			
		1	2	3	4
Engine Inlet Temperature	deg F	0	40.0	80.0	105.0
Relative Humidity	%	60.0	60.0	60.0	60.0
Driven Equipment Speed	RPM	15500	15500	15500	15042
Specified Load	HP	FULL	FULL	FULL	FULL
Net Output Power	HP	4329	4056	3666	3163
Fuel Flow	mmBtu/hr	40.20	37.80	35.10	31.87
Heat Rate	Btu/HP-hr	9286	9321	9574	10075
Therm Eff	%	27.400	27.299	26.575	25.255
Engine Exhaust Flow	lbm/hr	147450	138006	126500	115569
PT Exit Temperature	deg F	754	800	852	876
Exhaust Temperature	deg F	754	800	852	876

Fuel Gas Composition	Methane (CH4)	92.79			
(volume Percent)	Ethane (C2H6)	4.16			
	Propane (C3H8)	0.84			
	N-Butane (C4H10)	0.18			
	N-Pentane (C5H12)	0.04			
	Hexane (C6H14)	0.04			
	Carbon Dioxide (CO2)	0.44			
	Hydrogen Sulfide (H2S)	0.0001			
	Nitrogen (N2)	1.51			
Fuel Gas Properties		0.2 Specific Cr	ov <i>itv</i> 0.5070	Wabba Inday at COE	4045 C
ruer das rroperties		9.2 Specific Gr	avity 0.5970	WODDE INDEX at OUF	1215.0

This performance was calculated with a basic inlet and exhaust system. Special noise silencers, special filters, heat recovery systems or cooling devices will Performance shown is "Expected" performance at the pressure drops stated, not g

Notes		
3070 FT		



www.zeeco.com sales@zeeco.com

April 13, 2016

Enterprise Products 1100 Louisiana St Houston, TX 77002

Attention: Jing Li

RE: South Carlsbad Flare Zeeco Ref.: 2016-00271RE-01 Rev 1

Dear Mr. Li,

The hydrocarbon destruction efficiency for the UF-24-38 Flare system proposed in quote number 2016-00271RE-01 Rev 1 will be 99% or higher for C1-C3 compounds and 98% or higher for all other compounds given as long as the flare is operated and maintained within the design operating parameters and accepted industry standard practices for this type of equipment.

Sincerely,

Andrew Grider Applications Engineer Zeeco Combustion Rental & Rapid Response Group



Zeeco, Inc. 22151 E. 91st St. Broken Arrow, Oklahoma 74014 Phone: (918) 258-8551 Fax: (918) 251-5519

DELIVER TO:	Jenessa Duncan	DATE: February 10, 2016
COMPANY:	Enterprise Products	
SENDERS NAME	: Andrew Grider / Andrew_Grider@zeeco.com	PHONE: (918) 893-8448
YOUR REFEREN	ICE: Budgetary Low BTU Flare Quote	QUOTE #: 2016-00271RE-01 Rev 1

Design Information (Estimated):

	Design - Upset	Fuel Gas-	Fuel Gas-	Fuel Gas-	Design + Fuel
	Condition 1	<u>Normal</u>	<u>High BTU</u>	Low BTU	Gas Low BTU
Gas MW (lb/mol)	33.27	19.42	20.58	18.76	30.40
Gas LHV (Btu/Scf)	6	1,033	1,086	986	200
Flow Rate (MScfd)	7,690*	1,793*	1,685*	1,901*	9,591*
Available Pressure (psig)	6.97	>6.97	>6.97	>6.97	6.97

Scope of Supply:

- 1. (1) 38' OAH guy supported flare stack
- 2. (1) Utility (UF) flare tip w/ Integral Purge Reducing Velocity Seal
- 3. (1) Shepherd Ring
- 4. (1) Low Btu Windshield
- 5. (3) HSLF-Z-HEI Electric Ignition Pilot assembly with Retractable HEI & Type K Thermocouple
- 6. (1) Nema 4, Skid Mounted Pilot Ignition and Monitoring Panel
- 7. (1) Optional Manual Knock Out Drum

Required Utilities:

Pilot Fuel Gas:	65 Scfh Natural Gas at 15 Psig OR 25 Scfh Propane at 7 psig (per pilot)
Electricity:	120V / 1 Phase / 60 Hz
Shepherd Ring:	3.016 MMBtu/hr
*Enrichment Gas:	Flow rates for the 3 different fuel gas compositions are listed in the design information above. For the fuel gas that is being used, the specified flow rate is to be added to the gas being flared as far as possible upstream in the header in order to enrich the combined stream to a minimum required heating value of 200 Btu/SCF
Purge Gas:	435 Scfh of a gas that does not contain oxygen and will not go to its dew point at jobsite conditions

Equipment Description:

- <u>Skid Mounted Guy Supported Flare Stack</u>: The stack is mounted on a carbon steel skid that eliminates the need for a concrete foundation. The skid only needs to be set on firm, flat soil and anchored with the provided guy wires and screw anchors. Design wind speed for this type of installation is 90 mph.
- <u>UF Flare Tip</u>: The UF style flare tip provides high stability flaring while also ensuring reliability of the flame from purge all the way to max flow rates. Components located in the high heat zone will be made of 310SS or equivalent casting material. The flare tip will provide a VOC destruction efficiency of at least 98 wt%. An integral purge reducing velocity seal is also included to reduce the quantity of purge gas to prevent oxygen ingress through the flare tip at low rates.
- <u>Shepherd Ring</u>: A major key to obtaining high destruction efficiency with low Btu gases is to have a consistent ignition source circumferentially around the flare tip to ignite gases exiting the tip. High Btu flares usually have 3 pilots equally spaced around the tip and this is more than adequate. However, with low Btu flares three pilots are insufficient. This is a special concern with flares that are being enriched upstream. Not only do three pilots not provide the coverage required to ensure a cross sectional light off of flames across the tip. But with enriched gases, there is further danger of inadequate mixing of the gases and enrichment gas which can result in pilots being located in areas that do not have sufficient heating value to ignite. Addition of a Shepherd Ring to the flare tip has the same effect as adding an infinite number of pilots. The ring completely surrounds the exit of the tip and is drilled with burner ports that establish a "ring of fire" around the flare tip. The ring itself is lit with pilots but once the Shepherd Ring's fire has been established, it becomes the primary ignition source for the gases.
- <u>Low BTU Windshield</u>: Since gases have to be burned at very low velocities to ensure stable flames and meet national and state guidelines, the resultant flames are extremely vulnerable to atmospheric wind conditions. Even with only light to moderate wind conditions, flames can become unstable or be blown out. Addition of a Low Btu Windshield reduces the impact of wind on the flames. The addition of the low Btu windshield also helps capture a portion of the heat emitted as the gases are burned. This heat in turn helps produce higher destruction efficiencies by increasing the heat present at the tip exit which in turn promotes more consistent ignition of the gases.
- <u>HSLF-HEI Ignition Pilot</u>: The pilot is proven to stay lit in hurricane force weather conditions. Testing has shown that a stable flame is present even in wind speeds greater than 150 mph in addition to rainfall of over 10 inches per hour. The pilot will be equipped with a Type K thermocouple for continuous monitoring of the pilot status. The pilot also meets API 537 design requirements.
- <u>Retractable Pilot Components</u>: For ease of service, instead of retracting the entire pilot, only the components that need service are made retractable. This ensures that the location of the pilot with relation to the flare tip is maintained, ensuring proper ignition every time. The ignition probe and thermocouple are the only components that can need maintenance. Both components will be retractable so that maintenance can be performed without needing a shutdown of the flare or any special equipment.
- <u>Automatic Ignition/Monitoring Panel</u>: The automatic pilot ignition and monitoring panel will continuously monitor the pilot and attempt to relight if a pilot failure signal is received. The control panel (Nema 4 enclosure) will also be skid mounted.
- <u>Knock Out (KO) Drum</u> For areas where liquid entrainment is possible in the flare header, we can offer a separate KO drum. The knock out drum will separate any liquids that condense as the flare gas moves through the header. The KO drum vessel comes complete with level gage and manual drain line. As an option, the drum can also be equipped with automatic liquid level monitoring, alarming and draining capabilities.

COMMERCIAL

BUDGETARY PUR	+/- 15%):	<u>Unit</u>				
Guy-Supporte	ed 38' Tall Flare as Det	tailed (UF-24-38)	\$100,000			
OPTIONAL EQUIP	PMENT BUDGETAR	RY PURCHASE PRICING (+/- 15%)				
4' dia x 8' len	gth Manual KOD		\$30,000			
Freight:	Prepaid and added to	Prepaid and added to our invoice at cost + 15%				
Shipping:	Ex-works (Point of M	Ianufacture) per Incoterms 2010				
Schedule:	The flare equipment offered can be readied for shipment within 6-8 weeks ARO. <i>Please contact Zeeco if your project requires a faster delivery.</i>					
Storage:	Zeeco will provide sp of readiness to ship fi months, a fee of 1% of equipment is moved of	Zeeco will provide space for storage of each unit up to 2 months after notification of readiness to ship free of charge. If you require storage periods longer than 2 months, a fee of 1% of the equipment value will be charged per month until the equipment is moved off site.				
Warranty:	cranty: Length; 18 months from date of shipment or 12 months after startup, whichever condition occurs first. Refer to Zeeco terms and conditions of sale for further clarifications.					
Pricing Validity:	Pricing quoted	d is valid for 30 days.				
Payment Schedule:	Net 60 –	25% Upon Order Placement75% Upon Notification of Readiness to Ship	0			
Terms and Conditio	ns: This proposal Terms and Co	is contingent upon acceptance of Zeeco, Inc onditions of Sale (attached).	Standard			





ECIFICATIONS		DESIGN DATA			
A36	TYPE	GUY WIRE SUPPORT TYPE			
	DESIGN CODE	ASME STS-1			
	WIND LOAD	ASCE 7-05			
	SEISMIC LOAD	-			
	FLUID	FLARE GAS			
	DESIGN PRESS.	N/A	psig		
	DESIGN TEMP.	0" ~ 350"	۰F		
	M.A.W.P.(NEW & COLD)	-	psig		
	OPERATING PRESS.	-	psig		
	OPERATING TEMP.	-	۰F		
	HYDRO'C TEST PRESS.	-	psig		
	PNEUM'C TEST PRESS.	-	psig		
	P.W.H.T.	NO			
	RADIOGRAPH	AS PER ITP, SPOT			
	JOINT EFFICIENCY	85	%		
	CORROSION ALLOWANCE	N/A			
	PAINTING	SEE NOTE 6			
	A36	A36 TYPE DESIGN CODE WIND LOAD SEISMIC LOAD FLUID DESIGN PRESS. DESIGN TEMP. MA.W.P.(NEW & COLD) OPERATING PRESS. OPERATING TEMP. HYDRO'C TEST PRESS. PNEUM'C TEST PRESS. P.W.H.T. RADIOGRAPH JOINT EFFICIENCY CORROSION ALLOWANCE PAINTING	DESIGN DATA A36 TYPE GUY WIRE SUPPORT TYPE DESIGN CODE ASME STS-1 WIND LOAD ASCE 7-05 SEISMIC LOAD - FLUID FLARE GAS DESIGN TEMP. 0° ~ 350° M.A.W.P.(NEW & COLD) - OPERATING PRESS. - OPERATING PRESS. - OPERATING TEMP. - HYDRO'C TEST PRESS. - PNEUM'C TEST PRESS. - PADIOGRAPH AS PER ITP, SPOT JOINT EFFICIENCY 85 CORROSION ALLOWANCE N/A PAINTING SEE NOTE 6		

NOZZLE AND CONNECTIONS

IARK	Q'TY	SIZE	SCH.	RATING	FACING	SERVICE	REMARKS	ф TO FACE	PIPING SPEC.
N1	1	12"	STD.	ASME #150	WN, RF	FLARE GAS INLET		see dwg.	
N2	1	2"	STD.	ASME #150	WN, RF	ASSIST GAS INLET	ORIEN.: 180°	SEE DWG.	
/1,2	2	4"	40	-	-	VENT		SEE DWG.	
C1	1	1"	40	ASME #150	SW, RF	PILOT GAS		SEE DWG.	

NOTE

- 1. PILOT MIXER ORIFICE DRILLED: 3/64" DIA
- 2. PILOT GAS CONSUMPTION: 65 SCFH @ 15 PSIG PER PILOT
- 3. PILOT ORIFICE DRILLING BASED ON 1000 BTU/SCF (LHV) GAS WITH 0.6 SP. GR.
- 4. THE FLARE TIP REQUIRES A MINIMUM CONTINUOUS PURGE RATE OF
- 45 SCFH OF A GAS THAT WILL NOT GO TO DEW POINT
- AT OPERATING TEMPERATURES TO ENSURE AIR DOES NOT MIGRATE DOWN
- THE FLARE STACK. IT SHOULD BE NOTED THAT DEPENDING UPON THE
- TURNDOWN OPERATION OF THE FAN AND THE TYPE OF PURGE GAS USED IT MAY BENECESSARY TO INCREASE THIS MINIMUM PURGE RATE TO ENSURE
- PROPER COMBUSTION OF THE PURGE GAS DURING IDLE OPERATION.
- 5. ALL FLANGE BOLTING TO STRADDLE NORMAL CENTERLINES.
- 6. ALL EXTERNAL CARBON STEEL SURFACES TO BE PREPARED PER SSPC-SP6.
- PRIME WITH ONE COAT INORGANIC ZINC (2 1/2 MILS DFT MIN.)
- PAINT ONE COAT HIGH TEMP ALUMINUM (1 MIL DFT MIN.)
- THE PILOT THERMOCOUPLE IS FOR ON/OFF INDICATION ONLY, NOT FOR ACCURATE PILOT FLAME MEASUREMENT.
 FLAME ARRESTOR (IF APPLICABLE) SHALL BE MOUNTED DIRECTLY TO GAS INLET NOZZLE NO PIPING ALLOWED BETWEEN FLAME ARRESTOR AND FLARE GAS INLET NOZZLE.

-				1.004944	0.175
┦		ZEECO, INC. 22151 EAST 91st STREET BROKEN ARROW, OK 74014		SK	01SEP15
+		PHONE: (918) 258-8551 FAX: (918) 251-5519	GUY WIRE SUPPORTED FLARE STACK SYSTEM	снк МN	APP JO
		www.zeeco.com scies@zeeco.com PROPRIETARY DATA IS INCLUDED IN THE INFORMATION	GENERAL ARRANGEMENT	SCALE NTS	rev 1
╉	JTO	disclosed herein and is the property of zeecoung. This information is submitted in confidence and must be used in connection with work done for	FOR:	DRAWING NUME	ER 7004
1	APP.	ZEECO, INC. AND ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. UNAUTHORIZED DISCLOSURE OR USE IS PROMUMED BY LAW.		SD-	3224 IT. 1 OF 2

THE SALE OF EQUIPMENT, PARTS, MATERIALS, SUPPLIES, SOFTWARE AND OTHER GOODS (THE "GOODS") OR SERVICES (THE "SERVICES"), AS DESCRIBED IN SELLER'S QUOTATION OR PROPOSAL (THE "PROPOSAL"), ARE EXPRESSLY CONDITIONED UPON BUYER'S AGREEMENT TO THESE TERMS & CONDITIONS. ANY ADDITIONAL OR DIFFERENT TERMS PROPOSED BY BUYER ARE EXPRESSLY OBJECTED TO AND WILL NOT BE BINDING UPON SELLER UNLESS AGREED TO IN WRITING BY SELLER. ANY PURCHASE ORDER (THE "ORDER") ISSUED BY BUYER FOR THE PURCHASE OF GOODS OR SERVICES SHALL CONSTITUTE BUYER'S AGREEMENT TO THESE TERMS & CONDITIONS. UNLESS OTHERWISE SPECIFIED IN THE PROPOSAL OR THE ORDER, ANY PROPOSAL BY SELLER SHALL EXPIRE THIRTY (30) DAYS FROM ITS DATE AND MAY BE MODIFIED OR WITHDRAWN BY SELLER BEFORE RECEIPT OF BUYER'S ACCEPTANCE. THE GOODS AND SERVICES ARE COLLECTIVELY REFERRED TO AS THE "WORK." UNLESS OTHERWISE STATED, THE SELLER SHALL BE ZEECO, INC., 22151 EAST 91ST STREET, BROKEN ARROW, OKLAHOMA 74014 (USA), AND THE BUYER SHALL BE THE PARTY IDENTIFIED AS SUCH ON THE ORDER.

1. PRICE: Unless otherwise stated in the Proposal, the price of the Order (the "Price") is fixed and firm and is exclusive of all taxes, duties, fees, charges or assessments of any nature levied by any governmental authority. Additionally, unless otherwise stated in the Proposal, the Price is contingent upon the use of sub-contractors and sub-suppliers listed on Seller's Approved Manufacturers List ("AML") as may be amended from time-to-time, and the manufacture of Goods pursuant to Seller's standard painting procedures. Payment terms shall be as stated in the Proposal and Seller's acceptance of the Order is subject to credit approval that may include payment by means of an irrevocable documentary letter of credit issued by a first-class U.S. bank acceptable to Seller with funds payable upon delivery of customary presentation documents. The form of the letter of credit shall be negotiated by the parties and submitted to Seller for approval prior to issuance. All costs and fees of the letter of credit shall be to Buyer's account. Seller shall not be required to obtain any form of payment or performance security in favor of the Buyer, including but not limited to, bank guarantees, standby letters of credit, or surety bonds. Buyer's breach of agreed payment terms may result in: (a) Seller's suspension of the Work; (b) Seller's termination of the Order due to Buyer's default; (c) Buyer's liability for Seller's mobilization and demobilization costs in the event of suspension or termination by Seller, in addition to other damages; (d) Seller's demand for further assurances of performance by Buyer which may include, without limitation: (i) alteration of payment terms or milestones; (ii) full payment prior to shipment; (iii) additional payment security; (iv) or a delay in shipment that may exceed the length of Buyer's delay in payment.

2. CHANGES: Order changes by Buyer may significantly and disproportionately affect both the Price and completion or delivery date(s) (the "Delivery Schedule"). If Buyer desires to make a modification to the quantity, place, Delivery Schedule, or method of delivery, or the drawings, designs, or specifications of the Work (a "Change"), then Buyer shall so notify Seller in writing and provide sufficient details and descriptions of the price, Delivery Schedule, or both. Under no circumstances shall Seller be obligated to perform a Change without an agreement concerning modifications to the Price, Delivery Schedule, or both.

3. DELAYS BY BUYER: If Buyer delays delivery for any reason, including but not limited to technical modifications or Changes, suspension, failure to review drawings submitted by Seller within the time specified, or any other cause (whether or not within Buyer's control), such delays may significantly and disproportionately affect both the Price and Delivery Schedule, which shall then be subject to a reasonable adjustment. The impact of Buyer caused delays on the Delivery Schedule may, in some cases, be more significant or of a longer duration than the actual period of Buyer's delay. In the event of Buyer's delay for any reason Seller shall be entitled to invoice Buyer, and Buyer agrees to pay timely, for materials on hand, fabrication completed or in process, and services provided. Unless specified in the Order, or otherwise by written agreement, where the Order requires submission of certain documents (including but not limited to drawings, manuals, or other documents related to the Goods) by Seller to Buyer for approval, then Buyer shall respond to such submission with approval or rejection within fourteen (14) days after Seller's issuance of such document(s) to Buyer. The failure of Buyer to approve or reject the document(s) by such time shall result in the document(s) being deemed approved and accepted.

4. LIMITED WARRANTY FOR GOODS: Seller warrants the Goods will operate substantially in conformance with Seller's specifications stated the

Proposal and will be free from defects in material and workmanship for a period of twelve (12) months from the date of initial operation, or eighteen (18) months from the date of shipment, whichever is earlier (the "Warranty Period") when subjected to normal, proper and intended usage by properly trained personnel. Seller agrees during the Warranty Period, to repair or replace, at Seller's option, defective Goods so as to cause the Goods to operate in substantial conformance with Seller's specifications; provided that Buyer shall: (a) promptly notify Seller in writing upon the discovery of any defect and specify details of the warranty claim; (b) provide Seller with all operating data that Seller may reasonably request in order for Seller to evaluate the warranty claim; and (c) after Seller's review of the warranty claim, return the defective Goods to Seller with costs prepaid by Buyer if required to do so by Seller. Replacement parts may be new or refurbished. Shipment to Buyer of repaired or replaced Goods shall be in accordance with the delivery terms of the Order. Notwithstanding any other provision of this warranty, Seller may at its option, elect to send a service technician to Buyer's site to inspect, repair or replace (if applicable) warranted Goods, or otherwise to determine whether the Goods should be returned to Seller for repair or replacement. Goods or components thereof that are obtained by Seller from an original manufacturer or third party supplier are not warranted by Seller, but Seller will, to the extent possible, assign to Buyer any warranty rights in such Goods or components that Seller received from the original manufacturer or third party supplier. Consumables such as, but not limited to, bulbs, fuses, thermocouples, gaskets, and similar items are outside the scope of this warranty. Seller's warranty assumes the Goods are "at grade," and all responsibility for and costs of removal and/or reinstallation of warranted parts or Goods as well as the cost of and responsibility for gaining access to the warranted parts or Goods, are excluded from this warranty. If the Goods are not placed into service within six (6) months after shipment, in order to validate the warranty, the Goods shall be inspected by Seller at the time of commissioning and refurbished, if necessary, to like new condition at the Buyer's expense. For any extended time of storage at the jobsite without assembly/installation, the Goods shall be stored and protected in accordance with Seller's instructions and industry standard long-term storage methods. This warranty shall be void if the Goods have been: (w) exposed to corrosion, erosion, or chemical attack; (x) operated contrary to Seller's instructions or accepted industry practices; (y) improperly maintained or operated, or subjected to accident, abuse, or vandalism; or (z) operated in conditions other than those stated in Buyer's written specifications. Additionally, this warranty shall be void if the Buyer is not in compliance with its payment obligations to Seller pursuant to the Order. Seller shall have no obligation to make repairs, replacements or corrections resulting from normal wear and tear to the Goods. If Seller determines that a warranty claim is not valid, then Buyer shall pay or reimburse Seller for all costs of investigating and responding to such claim, including nonwarranty parts sold or installed, at Seller's then prevailing daily service rates and materials rates. ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION OR OTHER TAMPERING WITH THE GOODS, THAT IS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE GOODS. IF THE WARRANTY BECOMES VOID, THE BUYER MAY PURCHASE FROM SELLER, IF AVAILABLE, A SERVICE AGREEMENT OR ONE-TIME SERVICE AT THEN CURRENT RATES. THE OBLIGATIONS CREATED BY THIS WARRANTY TO REPAIR OR REPLACE DEFECTIVE GOODS SHALL BE THE SOLE REMEDY OF BUYER IN THE EVENT OF A WARRANTY CLAIM. SELLER MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, OTHER THAN AS STATED HEREIN. SELLER DISCLAIMS ALL IMPLIED WARRANTIES.

5. LIMITED WARRANTY FOR SERVICES: Seller warrants the Services will conform to the specifications stated in the Proposal and will be performed in a workmanlike manner. The warranty on Services shall be for a period of three (3) months following completion of the Services (the "Service Warranty Period"). Seller agrees during the Service Warranty Period, to re-perform any defective Services; provided that Buyer shall promptly notify Seller in writing upon the discovery of any defect and specify details of the warranty claim. THE OBLIGATIONS CREATED BY THIS WARRANTY TO REPERFORM DEFECTIVE SERVICES SHALL BE THE SOLE REMEDY OF BUYER IN THE EVENT OF A WARRANTY CLAIM. SELLER MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, OTHER THAN AS STATED HEREIN. SELLER DISCLAIMS ALL IMPLIED WARRANTIES.

6. BACKCHARGES: No backcharges will be paid or allowed by Seller unless Seller is notified in writing of any claim of defect in the Goods or Services and Seller is given a minimum of thirty (30) days within which to begin remediation of such defect. All backcharges must be approved in writing by Seller before

GENERAL TERMS & CONDITIONS OF SALE – ENGINEERED GOODS & SERVICES (Revised 19 October 2010) CONFIDENTIAL & PROPRIETARY © Copyright Zeeco, Inc. 2010 – All rights reserved.

any Services are reperformed or any Goods are repaired, replaced, or altered in any manner by Buyer or returned to Seller.

7. CANCELLATION FEE: Buyer may cancel the Order for convenience prior to delivery upon written notice to Seller, in which case Seller will cease activity (except that related to the cancellation) and promptly terminate all related subcontracts. In such event, Buyer shall pay the greater of: (a) Seller's total costs incurred in performing the Order up to the date of receipt of notice of cancellation and all costs associated with the cancellation, including but not limited to, costs of canceling related subcontracts and any currency hedge(s) maintained by Seller relative to the Order, plus reasonable overhead and profit; or (b) a cancellation fee of twenty-five percent (25%) of the Price. However, the amount payable to Seller for cancellation will not exceed the Price.

8. TERMINATION FOR DEFAULT: Buyer may declare Seller in default only if: (a) Seller breaches a material provision of the Order; (b) Buyer provides Seller thirty (30) days written notice specifying Seller's alleged breach in detail; and (c) Seller fails to reasonably cure such alleged breach with the thirty (30) day period following Seller's receipt of Buyer's written notice. In the event of Seller's uncured default, Buyer's sole remedy shall be to terminate the Order and recover any payments made to Seller for the Order.

9. INTELLECTUAL PROPERTY INFRINGEMENT & INDEMNITY: Seller warrants the Goods do not infringe any United States patent. Seller shall, subject to the limitations herein, indemnify Buyer for reasonable damages if the Goods are held to constitute infringement of a United States patent. This indemnity shall not apply: (a) to Goods or parts thereof manufactured pursuant to Buyer's design, or to changes in Seller's design requested by Buyer; and (b) if the infringement is a result of Buyer's operation of the Goods. Buyer shall promptly notify Seller in writing of any alleged claim of infringement, permit Seller to control the defense or compromise of any such claim, and render such assistance as Seller may require. Seller shall have no indemnity obligations to Buyer under this Section if the Buyer is not in compliance with its payment obligations to Seller pursuant to the Order.

10. INDEMNITY: Seller shall be responsible for any illness, injury or death, of the employees of the Seller, its subsidiaries, and their officers, directors, employees, agents, and contractors (collectively, the "Seller Group") and for the loss or damage to the property of any member of the Seller Group, arising out of or relating to the performance of this Order and REGARDLESS OF WHETHER CAUSED OR BROUGHT ABOUT BY THE NEGLIGENCE (INCLUDING ACTIVE, PASSIVE, SOLE, JOINT OR CONCURRENT NEGLIGENCE) OF THE BUYER, ITS SUBSIDIARIES AND ITS CUSTOMER OR ULTIMATE RECIPIENT OR USER OF THE GOODS OR SERVICES AND THEIR OFFICERS. DIRECTORS, EMPLOYEES, AGENTS AND CONTRACTORS (COLLECTIVELY, THE "BUYER GROUP") OR ANY OTHER THEORY OF LEGAL LIABILITY, and Seller shall release, defend, protect, indemnify and hold harmless all members of the Buyer Group from and against any loss, cost, claim, suit, judgment, award or damage (including reasonable attorney's fees) on account of such illness, injury or death, loss or damage. In exchange, Buyer shall be responsible for any illness, injury or death, of the employees of any member of the Buyer Group and for the loss or damage to the property of any member of the Buyer Group, arising out of or relating to the performance of this Order and REGARDLESS OF WHETHER CAUSED OR BROUGHT ABOUT BY THE NEGLIGENCE (INCLUDING ACTIVE, PASSIVE, SOLE, JOINT OR CONCURRENT NEGLIGENCE) OF ANY MEMBER OF THE SELLER GROUP OR ANY OTHER THEORY OF LEGAL LIABILITY, and Buyer shall release, defend, protect, indemnify and hold harmless all members of the Seller Group from and against any loss, cost, claim, suit, judgment, award or damage (including reasonable attorney's fees) on account of such illness, injury or death, loss or damage. Seller and Buyer shall each release, defend, protect, indemnify and hold harmless each other, and the applicable members of the Seller Group or Buyer Group, from and against any loss, cost, claim, suit, judgment, award or damage (including reasonable attorney's fees) for illness, injury, death, or damage to property of third parties (not included within the definitions of Seller Group or Buyer Group) but only to the extent caused by the negligent acts or omissions of such party. Seller shall have no indemnity obligations to Buyer under this Section if the Buyer is not in compliance with its payment obligations to Seller pursuant to the Order. Should any of the preceding indemnities be judged unenforceable or be limited by applicable law, then each party's indemnity obligations to the other shall be limited to the extent that liability for any such illness, injury, death or damage to property is caused by the negligent acts or omissions of such party.

11. GOVERNING LAW: To the maximum extent permissible, this Order shall be governed and construed in accordance with the laws of the State of

GENERAL TERMS & CONDITIONS OF SALE – ENGINEERED GOODS & SERVICES (Revised 19 October 2010) CONFIDENTIAL & PROPRIETARY © Copyright Zeeco, Inc. 2010 – All rights reserved. Oklahoma (U.S.A.), exclusive of any principles of conflicts of laws that would require application of the substantive laws of another jurisdiction. The exclusive venue for all legal actions under this Order shall be the State or Federal Courts sitting in Tulsa, Oklahoma (U.S.A.), and the parties submit to the personal jurisdiction thereof and waive any other venue that may be applicable to such action. This Order excludes the application of the United Nations Convention on Contracts for the International Sale of Goods.

12. FORCE MAJEURE: Except for Buyer's obligations to pay sums to Seller when due, neither party shall be liable for its failure to perform obligations under the Order if such failure results from fire, flood, earthquake, storm, hurricane or other natural disaster, war, invasion, act of foreign enemies, rebellion, terrorist activities, nationalization, government sanction, blockage, embargo, or interruption or failure of electricity, water, telephone or utility service.

13. ASSIGNMENT: Buyer shall not assign the Order without the prior written consent of Seller, and such consent shall not be unreasonably withheld; however, any assignment shall not relieve Buyer of its payment and indemnity obligations to Seller.

14. ENFORCEABILITY: Should a court of competent jurisdiction rule that any provision herein is invalid or unenforceable, such ruling shall not affect the validity or enforceability of any other provision.

15. WAIVER: Seller's failure to enforce any provisions herein shall not constitute a waiver of such rights, or preclude their later enforcement.

16. WAIVER OF CONSEQUENTIAL DAMAGES: SELLER SHALL NOT BE LIABLE FOR PUNITIVE, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LIABILITY FOR REMOVAL AND REINSTALLATION COSTS, LOSS OF USE, LOSS OF BUSINESS OPPORTUNITY, LOSS OF PROFIT OR REVENUE, LOSS OF PRODUCT OR OUTPUT, OR BUSINESS INTERRUPTION.

ANYTHING TO THE CONTRARY **17. LIMITATION OF LIABILITY:** A CONTAINED IN THIS ORDER NOTWITHSTANDING. SELLER'S CUMULATIVE LIABILITY ARISING OUT OF OR IN ANY MANNER RELATED TO ITS PERFORMANCE SHALL NOT EXCEED, IN THE AGGREGATE, ONE HUNDRED PERCENT (100%) OF THE MONIES RECEIVED BY SELLER UNDER THIS ORDER. THE REMEDIES PROVIDED TO BUYER UNDER THIS ORDER ARE IN LIEU OF ALL OTHER REMEDIES WHICH MAY BE OR BECOME AVAILABLE TO BUYER AT LAW OR IN EQUITY. THE LIMITATIONS SET FORTH HEREIN APPLY WHETHER CLAIMS ARISE PURSUANT TO CONTRACT, TORT, INDEMNITY, STATUTE, EQUITY OR ANY OTHER THEORY OF LAW, INCLUDING, BUT NOT LIMITED TO, THE BREACH OF ANY LEGAL DUTY OR THE FAULT, NEGLIGENCE, PROFESSIONAL LIABILITY OR STRICT LIABILITY OF SELLER. THIS LIMITATION SHALL BE INCLUSIVE OF ALL INSURANCE, BOND, AND LETTER OF CREDIT PROCEEDS, WHICH MAY BE PAID TO THE BUYER BY THE INSURERS, SURETIES OR BANKS OF SELLER. SHOULD THESE REMEDIES BE FOUND INADEQUATE OR TO HAVE FAILED IN THEIR ESSENTIAL PURPOSE FOR ANY REASON WHATSOEVER, THEN THE BUYER AGREES THAT THE SELLER'S RETURN TO THE BUYER OF NO GREATER THAN ONE HUNDRED PERCENT (100%) OF THE MONIES RECEIVED BY SELLER UNDER THIS ORDER SHALL PREVENT THE REMEDIES FROM FAILING THEIR ESSENTIAL PURPOSE AND SHALL BE CONSIDERED BY BUYER AS A FAIR AND ADEQUATE REMEDY.

18. ENTIRE AGREEMENT: This Order contains the entire agreement of the parties and supersedes any and all prior course of dealing, agreements, understandings and communications between Buyer and Seller related to the subject matter of this Order. No amendment or modification of this Order shall be binding unless it is in writing and is signed by an authorized representative of Buyer and Seller.



ATTACHMENT A START-UP/MAINTENANCE SERVICES, EQUIPMENT DATA/DRAWINGS AND STANDARD TERMS AND CONDITIONS



START-UP/MAINTENANCE SERVICES ١.

RATES	DOMESTIC (Within US)	FOREIGN (Outside US)
Base Rates for Start-Up/Maintenance personnel on all non-holiday (U.S Government recognized) Monday through Friday, inclusive, up to a maximum of ten (10) hours per day.	\$1,600.00 per day	2,300.00 per day
Hours in Excess of ten (10) hours per day Monday through Friday, non-holiday.	\$240.00 per hour	\$345.00 per hour
Saturdays and Sundays - up to a maximum of ten (10) hours per day	\$2,400.00	\$3,450.00
Hours in Excess of ten (10) hours per day Saturday and Sunday, non-holiday	\$368.00 per hour	\$518.00 per hour
Holidays (U.S. Government Recognized) - up to a maximum of ten (10) hours per day	\$3,200.00	\$4,600.00
Hours in Excess of ten (10) hours per day Holidays	\$480.00 per hour	\$690.00 per hour
Air Travel (Class) Ground Transportation	Coach Mid-Sized Rental Car	Business Mid-Sized Rental Car
Engineering Rates	\$375.00 per hour	\$375.00 per hour
Design / Drafting Rates	\$185.00 per hour	\$185.00 per hour

** The above Domestic and Foreign rates do not include OFFSHORE assistance. Please contact Zeeco if you are interested in obtaining a proposal for OFFSHORE assistance

Compensable Days

Per diem rates will apply from, and including, the day the start-up/maintenance personnel leaves his basing point up to, and including, his date of return to the basing point.

Expenses

Zeeco shall be reimbursed at actual cost plus 15% for all non-Buyer provided living and travel expenses incurred, which are related to the supply of services rendered.

Engineering / Drafting Charges

Engineering and/or drafting charges will apply for all work performed by Zeeco personnel as required to support Start-Up/Maintenance personnel. These charges will apply at the rate indicated in the chart above.

Independent Contractor

Zeeco personnel shall be considered an independent contractor with respect to services provided hereunder and the start-up/maintenance personnel shall in no respect be considered an employee of the Buyer. Zeeco reserves the right to recall, replace, or return the personnel at Zeeco's sole discretion.

EQUIPMENT DATA/DRAWINGS Ш

Α STANDARD QUANTITY

Priced quotation for equipment include three (3) print copies of approval drawings; three (3) print copies and one (1) reproducible copy of the final drawings; and three (3) copies of an operational manual. Additional copies of drawings will be provided at \$30.00 per print and \$45.00 per reproducible. Additional operational manuals will be prices on application, and based on the complexity of the equipment.

Drawings and data provided hereunder are the property of Zeeco. Inc. and may not be used for any purpose other than the repair, operation and maintenance of the equipment depicted.

III TERMS AND CONDITIONS

- А All service and data provided under this Attachment are in accordance with Zeeco's Standard Terms and Conditions of Sale.
- B. All rates quoted herein are subject to change without notice.
- Zeeco will require a purchase order from the Buyer accepting the terms and condition set forth herein, as well as an estimate of duration and C. nature of the work to be done.
- Prior to dispatch of Zeeco personnel, Buyer may be required to provide a deposit equal to the charges for the anticipated duration of service, or D. two weeks of service, whichever is greater. This requirement will be enforced at the discretion of Zeeco, Inc.
- E. The transportation modes and carriers and all arrangements therefore, and the choice of lodgings and all arrangements therefore, will be at the sole discretion of Zeeco, Inc.
- F. Where on-site room and board are furnished by the customer, Zeeco, Inc. expects their personnel to be roomed and boarded in a comfortable environment similar to Buyer's personnel or mutually agreed upon accommodations.
- G. It is the Buyer's responsibility to secure all work permits, licenses, and other documents required to allow our personnel to complete their assignment in accordance with local government regulations and labor laws.
- All tools, materials, and equipment for use by Zeeco personnel will be furnished by the Buyer, unless other mutually agreed upon arrangements H. have been made.
- The service rates and expenses described herein do not include any taxes of any kind that may be assessed by any governmental department 1. outside the U.S.A. Any such taxes that may be applicable to the service rates and expenses will be for the Buyer's account. Page 8 of 9

Effective Date: August 1, 2013

THE SALE OF SERVICES (THE "SERVICES"), AS DESCRIBED IN CONTRACTOR'S QUOTATION OR PROPOSAL (THE "PROPOSAL"), IS EXPRESSLY CONDITIONED UPON BUYER'S AGREEMENT TO THESE TERMS & CONDITIONS. ANY ADDITIONAL OR DIFFERENT TERMS PROPOSED BY BUYER ARE EXPRESSLY OBJECTED TO AND WILL NOT BE BINDING UPON CONTRACTOR UNLESS AGREED TO IN WRITING BY CONTRACTOR. ANY PURCHASE ORDER (THE "ORDER") ISSUED BY BUYER FOR THE PURCHASE OF SERVICES SHALL CONSTITUTE BUYER'S AGREEMENT TO THESE TERMS & CONDITIONS. UNLESS OTHERWISE SPECIFIED IN THE PROPOSAL OR THE ORDER, ANY PROPOSAL BY CONTRACTOR SHALL EXPIRE THIRTY (30) DAYS FROM ITS DATE AND MAY BE MODIFIED OR WITHDRAWN BY CONTRACTOR BEFORE RECEIPT OF BUYER'S ACCEPTANCE. UNLESS OTHERWISE STATED, THE CONTRACTOR SHALL BE ZEECO, INC., 22151 EAST 91ST STREET, BROKEN ARROW, OKLAHOMA 74014 (USA), AND THE BUYER SHALL BE THE PARTY IDENTIFIED AS SUCH ON THE ORDER.

1. PRICE: Unless otherwise stated in the Proposal, the price of the Order (the "Price") is exclusive of all taxes, duties, fees, charges or assessments of any nature levied by any governmental authority. Payment terms shall be as stated in the Proposal and Contractor's acceptance of the Order is subject to credit approval.

2. LIMITED WARRANTY: Contractor warrants the Services will be performed in a workmanlike manner. The warranty on Services shall be for a period of three (3) months following completion of the Services (the "Service Warranty Period"). Contractor agrees during the Service Warranty Period, to re-perform any defective Services; provided that Buyer shall promptly notify Contractor in writing upon the discovery of any defect and specify details of the warranty claim. Contractor warrants all parts manufactured by Contractor and sold in conjunction with the Services (the "Goods") will be free from defects in material and workmanship for a period of twelve (12) months from the date of installation (the "Goods Warranty Period") when subjected to normal, proper and intended usage by properly trained personnel. Contractor agrees during the Goods Warranty Period, to repair or replace any defective Goods; provided that Buyer shall promptly notify Contractor in writing upon the discovery of any defect and specify details of the warranty claim. Goods that are obtained by Contractor from an original manufacturer or third party supplier are not warranted by Contractor, but Contractor will, to the extent possible, assign to Buyer any warranty rights in such Goods that Contractor received from the original manufacturer or third party supplier. Consumables such as, but not limited to, bulbs, fuses, thermocouples, gaskets, and similar items are outside the scope of this warranty. All responsibility for and costs of removal and/or reinstallation of warranted Goods as well as the cost of and responsibility for gaining access to the warranted Goods, are excluded from this warranty. This warranty shall be void if the Goods have been: (a) exposed to corrosion, erosion, or chemical attack; (b) operated contrary to Contractor's instructions or accepted industry practices; (c) improperly maintained or operated, or subjected to accident, abuse, or vandalism; or (d) operated in conditions other than those stated in Buyer's written specifications. Additionally, this warranty shall be void if the Buyer is not in compliance with its payment obligations to Contractor pursuant to the Order. Contractor shall have no obligation to make repairs, replacements or corrections resulting from normal wear and tear to the Goods. If Contractor determines that a warranty claim is not valid, then Buyer shall pay or reimburse Contractor for all costs of investigating and responding to such claim, including non-warranty parts sold or installed, at Contractor's then prevailing to same and materials rates. THE OBLIGATIONS CREATED BY THIS WARRANTY TO REPERFORM DEFECTIVE SERVICES, OR REPAIR OR REPLACE DEFECTIVE GOODS, SHALL BE THE SOLE REMEDY OF BUYER IN THE EVENT OF A WARRANTY CLAIM. CONTRACTOR MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, OTHER THAN AS STATED HEREIN. CONTRACTOR DISCLAIMS ALL IMPLIED WARRANTIES.

3. BACKCHARGES: No backcharges will be paid or allowed by Contractor unless Contractor is notified in writing of any claim of defect and Contractor is given a minimum of thirty (30) days within which to begin remediation of such defect. All backcharges must be approved in writing by Contractor before any Services are reperformed and charged to Contractor's account or any Goods are repaired, replaced or altered in any manner by Buyer or returned to Contractor.

4. TERMINATION FOR DEFAULT: Buyer may declare Contractor in default only if: (a) Contractor breaches a material provision of the Order; (b) Buyer provides Contractor thirty (30) days written notice specifying Contractor's alleged breach in detail; and (c) Contractor fails to reasonably cure such alleged breach with the thirty (30) day period following Contractor's receipt of Buyer's written notice. In the event of Contractor's uncured default, Buyer's sole remedy shall be to terminate the Order and recover any payments made to Contractor for the Order.

5. INDEMNITY: Contractor shall be responsible for any illness, injury or death, of the employees of the Contractor, its subsidiaries, and their officers, directors, employees, agents, and contractors (collectively, the "Contractor Group,") and for the loss or damage to the property of any member of the Contractor Group, arising out of or relating to the performance of this Order and REGARDLESS OF WHETHER CAUSED OR BROUGHT ABOUT BY THE NEGLIGENCE (INCLUDING ACTIVE, PASSIVE, SOLE, JOINT OR CONCURRENT NEGLIGENCE) OF THE BUYER, ITS SUBSIDIARIES AND ITS CUSTOMER OR ULTIMATE RECIPIENT OR USER OF THE GOODS OR SERVICES AND THEIR OFFICERS, DIRECTORS, EMPLOYEES, AGENTS AND CONTRACTORS (COLLECTIVELY, THE "BUYER GROUP") OR ANY OTHER THEORY OF LEGAL LIABILITY, and Contractor shall release, defend, protect, indemnify and hold harmless all members of the Buyer Group from and against any loss, cost, claim, suit, judgment, award or damage. In exchange, Buyer shall be responsible for any illness, injury or death, of the employees of any member of the Buyer Group and for the loss or damage to the property of any member of the Buyer Group and for the loss or damage to the isorder and REGARDLESS OF WHETHER CAUSED OR BROUGHT ABOUT BY THE

NEGLIGENCE (INCLUDING ACTIVE, PASSIVE, SOLE, JOINT OR CONCURRENT NEGLIGENCE) OF ANY MEMBER OF THE CONTRACTOR GROUP OR ANY OTHER THEORY OF LEGAL LIABILITY, and Buyer shall release, defend, protect, indemnify and hold harmless all members of the Contractor Group from and against any loss, cost, claim, suit, judgment, award or damage (including reasonable attorney's fees) on account of such illness, injury or death, loss or damage. Contractor and Buyer shall each release, defend, protect, indemnify and hold harmless each other, and the applicable members of the Contractor Group or Buyer Group, from and against any loss, cost, claim, suit, judgment, award or damage (including reasonable attorney's fees) for illness, injury, death, or damage to property of third parties (not included within the definitions of Contractor Group or Buyer Group) but only to the extent caused by the negligent acts or omissions of such party. Contractor shall have no indemnity obligations to Buyer under this Section if the Buyer is not in compliance with its payment obligations to Contractor pursuant to the Order. Should any of the preceding indemnities be judged unenforceable or be limited by applicable law, then each party's indemnity obligations to the other shall be limited to the extent that liability for any such illness, injury, death or damage to property is caused by the negligent acts or omissions of such party.

6. INSURANCE: Contractor shall maintain the following insurance coverage and, at Buyer's request, shall provide Buyer with certificates evidencing such coverage: (a) Statutory Workers' Compensation and Employer's Liability Insurance with limits of USD \$1,000,000 per occurrence; (b) Commercial General Liability Insurance with a combined single limit for bodily injury and property damage of USD \$1,000,000 per occurrence and in the aggregate; and (c) Automobile Liability Insurance with a combined single limit for bodily injury and property damage of USD \$1,000,000 per occurrence and in the aggregate; and (c) Automobile Liability Insurance with a combined single limit for bodily injury and property damage of USD \$1,000,000 per accident.

7. GOVERNING LAW: To the maximum extent permissible, this Order shall be governed and construed in accordance with the laws of the State of Oklahoma (U.S.A.), exclusive of any principles of conflicts of laws that would require application of the substantive laws of another jurisdiction. The exclusive venue for all legal actions under this Order shall be the State or Federal Courts sitting in Tulsa, Oklahoma (U.S.A.), and the parties submit to the personal jurisdiction thereof and waive any other venue that may be applicable to such action.

8. FORCE MAJEURE: Except for Buyer's obligations to pay sums to Contractor when due, neither party shall be liable for its failure to perform obligations under the Order if such failure results from fire, flood, earthquake, storm, hurricane or other natural disaster, war, invasion, act of foreign enemies, rebellion, terrorist activities, nationalization, government sanction, blockage, embargo, or interruption or failure of electricity, water, telephone or utility service.

9. ASSIGNMENT: Buyer shall not assign the Order without the prior written consent of Contractor, and such consent shall not be unreasonably withheld; however, any assignment shall not relieve Buyer of its payment and indemnity obligations to Contractor.

10. ENFORCEABILITY: Should a court of competent jurisdiction rule that any provision herein is invalid or unenforceable, such ruling shall not affect the validity or enforceability of any other provision.

11. WAIVER: Contractor's failure to enforce any provisions herein shall not constitute a waiver of such rights, or preclude their later enforcement.

12. WAIVER OF CONSEQUENTIAL DAMAGES: CONTRACTOR SHALL NOT BE LIABLE FOR PUNITIVE, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LIABILITY FOR REMOVAL AND REINSTALLATION COSTS, LOSS OF USE, LOSS OF BUSINESS OPPORTUNITY, LOSS OF PROFIT OR REVENUE, LOSS OF PRODUCT OR OUTPUT, OR BUSINESS INTERRUPTION.

13. LIMITATION OF LIABILITY: ANYTHING TO THE CONTRARY CONTAINED IN THIS ORDER NOTWITHSTANDING, CONTRACTOR'S CUMULATIVE LIABILITY ARISING OUT OF OR IN ANY MANNER RELATED TO ITS PERFORMANCE SHALL NOT EXCEED, IN THE AGGREGATE, ONE HUNDRED PERCENT (100%) OF THE MONIES RECEIVED BY CONTRACTOR UNDER THIS ORDER. THE REMEDIES PROVIDED TO BUYER UNDER THIS ORDER ARE IN LIEU OF ALL OTHER REMEDIES WHICH MAY BE OR BECOME AVAILABLE TO BUYER AT LAW OR IN EQUITY. THE LIMITATIONS SET FORTH HEREIN APPLY WHETHER CLAIMS ARISE PURSUANT TO CONTRACT, TORT, INDEMNITY, STATUTE, EQUITY OR ANY OTHER THEORY OF LAW, INCLUDING, BUT NOT LIMITED TO, THE BREACH OF ANY LEGAL DUTY OR THE FAULT, NEGLIGENCE, PROFESSIONAL LIABILITY OR STRICT LIABILITY OF CONTRACTOR. THIS UMITATION SHALL BE INCLUSIVE OF ALL INSURANCE, BOND, AND LETTER OF CREDIT PROCEEDS, WHICH MAY BE PAID TO THE BUYER BY THE INSURERS, SURETIES OR BANKS OF CONTRACTOR. SHOULD THESE REMEDIES BE FOUND INADEQUATE OR TO HAVE FAILED IN THEIR ESSENTIAL PURPOSE FOR ANY REASON WHATSOEVER, THEN THE BUYER AGREES THAT THE CONTRACTOR'S RETURN TO THE BUYER OF NO GREATER THAN ONE HUNDRED PERCENT (100%) OF THE MONIES RECEIVED BY CONTRACTOR UNDER THIS ORDER SHALL PREVENT THE REMEDIES FROM FAILING THEIR ESSENTIAL PURPOSE AND SHALL BE CONSIDERED BY CONTRACTOR UNDER THIS ORDER SHALL PREVENT THE REMEDIES FROM FAILING THEIR ESSENTIAL PURPOSE AND SHALL BE CONSIDERED BY BUYER AS A FAIR AND ADEQUATE REMEDY.

14. ENTIRE AGREEMENT: This Order contains the entire agreement of the parties and supersedes any and all prior course of dealing, agreements, understandings and communications between Buyer and Contractor related to the subject matter of this Order. No amendment or modification of this Order shall be binding unless it is in writing and is signed by an authorized representative of Buyer and Contractor.

Annual Turbine Emissions TEST REPORT ON EXHAUST EMISSIONS FROM

ONE NATURAL GAS FIRED TURBINE

AT THE SOUTH CARLSBAD COMPRESSOR STATION LOVING, NM

PREPARED FOR ENTERPRISE PRODUCTS OPERATING

May 2010

Relient Emissions Testing, Inc Project Number: 0023



05/15/2010

Ms. Jennifer Courser Enterprise Products Operating 2162 Commerce Dr. Midland, TX 79707 (432) 681-2600

Re: Annual emissions testing at the South Carlsbad Compressor Station on Unit 1

Ms. Courser,

Exhaust emissions from one compressor turbine was tested at the South Carlsbad compressor station near Loving, New Mexico on. Testing was conducted to demonstrate compliance with emission limits set forth by NMED permit. The engine is identified as follows:

Engine Information			
Unit Number:	Unit 1		
Manufacturer:	Solar		
Serial Number:	4920		
Model:	CENTAUR 40		
Mfr. Rated Hp:	4500hp		
Mfr. Rated Speed:	15,000		

This is a natural gas fired turbine used for compression of natural gas for transportation through the pipeline.

The test matrix consisted of three 20-minute test runs on the turbine in accordance with NMED requirements. For each test, the average emission concentrations of nitrogen oxides (NO_X), oxygen (O₂), and carbon monoxide (CO) were measured using analytical instrumentation. Operational data such as Gas Producer Speed, Turbine Speed, and suction and discharge pressures were recorded during each run from available operational data on the unit.

Results of the tests are presented in tabular format in this report. Included in this table are engine operational data, ambient conditions, emission concentrations, and mass emission rates.

Continuous emission monitors housed in an air-conditioned mobile laboratory were used to measure the exhaust concentrations of NO_X , CO and O_2 . This testing utilized the following analytical methods:

EPA Reference Method 3a	O_2 concentration
EPA Reference Method 7e	NO _X concentration
EPA Reference Method 10	CO concentration
EPA Reference Method 19	Mass emission rates

A computerized data recorder was used to record output from the analyzers. The data logger record provides documentation of the emission measurements and the instrument calibrations. The data logger records are also useful for indicating trends in the data.

Mass emission rates were calculated using EPA Method 19 calculations (combustion stoichiometry). Emission rates in terms of lbs/hr and TPY were calculated using the pollutant concentration (ppmv), the oxygen F-factor (DSCFex/MMBtu) and the horsepower specific fuel consumption rate (Btu/Hp-hr). The O₂ F-Factor used in this test series was 8710 (DSCFex/MMBtu), the EPA default value for engines burning natural gas. The horsepower specific fuel rate used in the test was 9080 Btu/Hp-hr.

A summary of the quality assurance procedures associated with the EPA test methods is presented in tabular format in the appendix of this report. Examples of these procedures include daily multipoint calibrations, zero and span checks between each test run, NO_2 to NO converter efficiency check results, sample system bias check results, and analyzer interference test results.

The appendix of this report also includes supporting test documentation, example calculations, and data logger records.

If you have any questions, please feel free to contact me at (806) 773-8851.

Sincerely,

Ross Thompson Principal Scientist Relient Emissions Testing, Inc



A Caterpillar Company

Solar Turbines Incorporated

9330 Sky Park Court San Diego, CA 92123 Tel: (858) 694-1616

Submitted Electronically

September 4, 2019

Attn: Jing Li Enterprise Products

Subject: Centaur 40 Routine Maintenance Overhaul South Carlsbad (NM)

The Centaur 40 turbine package (S/N 3020123) at the above facility recently underwent a routine maintenance overhaul utilizing Solar Turbine's engine exchange program.

The overhaul engine core that Solar Turbines provided to Enterprise was a like-for-like replacement with the same guarantees on performance and emissions as the core that was replaced.

Per 40 CFR 60, Subpart KKKK rule language, an overhaul does not trigger the definition of "modification" because it is a like-for-like exchange with the same performance and emissions specifications as the original equipment. In addition, an overhaul is not "reconstruction" as the cost of a routine overhaul is well less than 50% of the cost of a new comparable unit.

This turbine package "commenced construction" in 1973. Routine overhaul exchange of turbine components does not signify a new affected facility per the NSPS provisions in 40 CFR 60.

Because routine overhaul exchange of components on an existing facility does not trigger the definitions of "new", "modification" or "reconstruction" there are no federal NSPS ramifications. Solar recommends a review of the State-issued operating permit for any facility specific requirements associated with the overhaul which typically may include agency notification and/or emissions testing.

Please call me at 858.505.8554 if you have any questions.

Sincerely,

Anthony Pocengal Solar Turbines Incorporated

cc: Joey Guillen, Solar Turbines



A Caterpillar Company

Solar Turbines Incorporated

9330 Sky Park Court San Diego, CA 92123 Tel: (858) 694-1616

Submitted Electronically

October 3, 2019

- Attn: Alena Miro Enterprise Products
- Subject: Centaur 40 Routine Maintenance Overhaul South Carlsbad Unit 2 (NM)

The Centaur 40 turbine (S/N CC79419) at the above facility underwent a routine maintenance overhaul utilizing Solar Turbine's engine exchange program in September 2018.

The overhauled turbine core (gas producer and power turbine) that Solar Turbines provided Enterprise is a like-kind replacement with the same guarantees on performance and emissions as the core that was replaced.

Per 40 CFR 60, Subparts GG and KKKK rule language, an overhaul does not trigger the definition of "modification" because it is a like-for-like exchange with the same performance and emissions specifications as the original equipment. In addition, the engine exchange is not "reconstruction" as the cost of a routine overhaul is well less than 50% of the cost of a new comparable unit.

The overhauled engine is not "new" as per the NSPS General Provisions in 40 CFR 60, Subpart A, this turbine "commenced construction" in 1979. Routine overhaul exchange of turbine components does not signify a new affected facility per either of the Subpart GG or KKKK definitions.

Because routine overhaul exchange of components on an existing facility does not trigger the definitions of "new", "modification" or "reconstruction", there are no NSPS ramifications due to this activity.

Please call me at 858.505.8554 if you have any questions.

Sincerely,

Anthony Pocengal Solar Turbines Incorporated

cc: Joey Guillen, Solar Turbines Incorporated

Section 8

Map(s)

<u>A map</u> such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

A map is included in this section



Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC) (This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☑ I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"

This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and Significant Permit Revision public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

- 1. I A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
- 2. ☑ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
- 3. ☑ A copy of the property tax record (20.2.72.203.B NMAC).
- 4. \square A sample of the letters sent to the owners of record.
- 5. 🗹 A sample of the letters sent to counties, municipalities, and Indian tribes.
- 6. 🗹 A sample of the public notice posted and a verification of the local postings.
- 7. 🗹 A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
- 8. 🗹 A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
- 9. ☑ A copy of the <u>classified or legal</u> ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
- 10. A copy of the <u>display</u> ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
- 11. A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.







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11/20/2023

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US POSTAGE



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\$ Postage **Certified Fee** Return Receipt Fee (Endorsement Required) Restricted Delivery Fee (Endorsement Required) ¢ Total Postage & Food TOM BRANTLEY **1002 W RIVERSIDE DRIVE** Street & Apt. N CARLSBAD NM, 88220

CERTIFIED MAIL® RECEIPT

For delivery information, visit our website

U.S. Postal Service[™]

Domestic Mail Only

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U.S. Postal Service[™] **CERTIFIED MAIL® RECEIPT Domestic Mail Only** -0 11 For delivery information, visit our website A \$0.00 US POSTAGE 11/20/2023 062512395454 12 \$ Postage 87113 + 000028126 **Certified Fee** TOOO 1. E & 2 Return Receipt Fee (Endorsement Required) Restricted Delivery Fee (Endorsement Required) r-\$ Total Postage . Ease -0 П STEVEN F ELLYSON Sent To t **PO BOX 477** F Street & Apt. No CARLSBAD, NM 88221 or PO Box No. P City, State, ZIP PS Form 3800













U.S. Postal Service[™] CERTIFIED MAIL® RECEIPT **Domestic Mail Only** п For delivery information, visit our website F \$0.00 A US POSTAGE 11/20/2023 062S12395454 P Postage \$ + 87113 **Certified Fee** 000028135 F **Return Receipt Fee** (Endorsement Required) Restricted Delivery Fee (Endorsement Required) 2 -0 Total Postane & Fees nu JOSE L & MARTHA A (JT) PINA Sent To + 7320 PORTER ROAD Street & Au CARLSBAD, NM 88220 or PO Box n City, State, PS Form 3













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Table of Posted Public Notice Locations

Name	Address	City	State	Zip Code
Facility Entrance				
Allsups	105 N 8th Street	Loving	NM	88256
United States Post Office	402 W Beech Street	Loving	NM	88256
Carlsbad Public Library	101 S Halagueno Street	Carlsbad	NM	88220

- Account Search View Created Report(s)
- Help?

* Estimated

- Eddy County Website County Treasurer
- County Assessor
- <u>County Clerk</u>
 <u>Logout Public</u>

Account: C200173 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

<u>Location</u>			Owner Information	Assessment History	
Account Number C200173			Owner Name ENTERPRISE FIELD SERVICES LLC	Actual Value (2019)	\$0
Situs Address 65 S ROBERSON	NROAD		In Care Of Name ATTN LAND DEPT	No taxable value types	
Tax Area 100_NR - LOVING-C	DUT (Nonresidential)		Owner Address 1100 LOUISIANA ST STE 1000		
Parcel Number 4-162-134-466-	488		PO BOX 4324		
Legal Summary Subd: KIMBERLY JOLEE CARRASCO EXEMPTION PLAT OF LANDS Tract: 2 Quarter: SE S: 12 T: 23S R: 27E		HOUSTON, TX 77002			
Map Number 408-KJCEPL-2, C	CAB 8-585				
Parcel Size 17.130 AC, ODD SH	IAPE				
<u>Tax History</u>			Images		
Tax Year	Taxes				
	*2024	\$0.00			
	2023	\$0.00			



November 20, 2023

<u>CERTIFIED MAIL 7014 2870 0001 4719 1262</u> <u>RETURN RECEIPT REQUESTED (certified mail is required, **return receipt is optional**)</u>

Dear Neighbor,

Enterprise Field Services, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas compressor station** facility. The expected date of application submittal to the Air Quality Bureau is **November 24, 2023.**

The exact location for the proposed facility known as, **South Carlsbad Compressor Station**, is at **32° 18' 49.7814" N, 104° 8' 13.6749" W**. The approximate location of this facility is **2.5** miles **northwest** of **Loving, NM** in **Eddy** county.

The proposed **modification** consists of the addition of four (4) Caterpillar G3612 compressor engines, one (1) Caterpillar G3608 compressor engine, and one (1) slop storage tank, and one (1) Caterpillar GG3516A4 emergency generator.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	4	17
PM 10	4	17
PM _{2.5}	4	17
Sulfur Dioxide (SO ₂)	6	34
Nitrogen Oxides (NO _x)	172	339
Carbon Monoxide (CO)	295	297
Volatile Organic Compounds (VOC)	327	427
Total sum of all Hazardous Air Pollutants (HAPs)	6	24.9
Hydrogen Sulfide (H ₂ S)	2	4
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO ₂ e	N/A	205,322

The standard operating schedule of the facility will be 24 hours a day, 7 days a week, 52 weeks per year.

Owners and operators of the facility include Enterprise Field Services, LLC PO Box 4324 Houston, TX 77210-4324

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Sincerely, Enterprise Field Services, LLC PO Box 4324 Houston, TX 77210-4324

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

November 20, 2023

<u>CERTIFIED MAIL 7014 2870 0001 4719 1279</u> <u>RETURN RECEIPT REQUESTED (certified mail is required, **return receipt is optional**)</u>

Dear Municipal Official,

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General Posting of Notices – Certification

I, <u>David Feather</u>, the undersigned, certify that on 11/28/2023, posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **City** of **Loving in Eddy** County, State of New Mexico on the following dates:

- 1. Facility entrance 11/28/2023
- 2. Allsups, 105 N 8th Street, Loving, NM 88256. 11/28/2023
- 3. United States Post Office, 402 W Beech Street, Loving, NM 88256. 11/28/2023
- 4. Carlsbad Public Library, 101 S Halagueno Street, Carlsbad, NM 88220. 11/28/2023

Signed this <u>28th</u> day of <u>November</u> <u>2023</u>

11/28/23

Signature

David Feather Printed Name

Environmental Compliance Specialist Consultant Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

NOTICE

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Green House (TAP)	2	4
Gas Emissions as Total CO-e	N/A	N/A
The standard operation	N/A	205,322

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i onutant:		
Particulate Matter (PM) PM 10	Pounds per hour	Tons per year
PM 25	4	17
Sulfur Dioxida (co.)	4	17
Nitrogen Oxida (No.	4	17
Carbon Monaci (NOx)	0 170	34
Volatilo Orrania (CO)	205	339
Total and Compounds (VOC)	295	297
Hudes of all Hazardous Air Pollutants (HAPs)	527	427
Hydrogen Sulfide (H ₂ S)	D	24.9
Toxic Air Pollutant (TAP)	2	4
Green House Gas Emissions as Total COre	N/A	N/A
	N/A	205.322

The standard operating schedule of the facility will be 24 hours a day, 7 days a week, 52 weeks per year.

The owner and/or operator of the Facility is: **Enterprise Field Services, LLC** PO Box 4324 Houston, TX 77210-4324

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Table of Noticed Citizens								
Name	Address	City	State	Zip Code				
CHAVEZ, ANDREW C	PO BOX 26	LOVING	NM	88256				
DND PROPERTIES LLC	25528 GENESEE TRAIL RD	GOLDEN	CO	80401				
DND PROPERTIES LLC	25528 GENESEE TRAIL RD	GOLDEN	CO	80401				
ELLYSON, STEVEN F	PO BOX 477	CARLSBAD	NM	88221				
HARO, JUAN	11800 GWEN EVANS LANE	EL PASO	ТΧ	79736				
HB PROPERTIES LLC	PO BOX 5182	CARLSBAD	NM	88221				
HB PROPERTIES LLC	PO BOX 5182	CARLSBAD	NM	88220				
HUGHES, TREY & KALI (JT)	PO BOX 5097	CARLSBAD	NM	88221				
HUGHES, TREY & KALI (JT)	PO BOX 5097	CARLSBAD	NM	88221				
HUGHES, TREY & KALI (JT)	PO BOX 5097	CARLSBAD	NM	88221				
JURVA, NATHAN & KRISTA (N-JT)	5110 OLD CAVERN HWY	CARLSBAD	NM	88220				
MOSS FAMILY TRUST	25274 CAMINO DE TIERRA	DESCANSO	CA	91916				
ODELL, DAVID L	PO BOX 5097	CARLSBAD	NM	88220				
ONSUREZ, SILVIA	PO BOX 1271	LOVING	NM	88256				
PERFORMANCE RENTALS LLC	10800 W 73RD PL	ARVADA	CO	80005				
PINA, JOSE L & MARTHA A (JT)	7320 PORTER ROAD	CARLSBAD	NM	88220				
SCHER INVESTMENTS LLC	121 N DEWEY STE 209	NORTH PLATTE	NE	69101				
THOMPSON, MELINDA AND MARTINEZ, GREG	8270 CHASE WAY	ARVADA	CO	80003				
THOMPSON, MELINDA AND MARTINEZ, GREG	8270 CHASE WAY	ARVADA	CO	80003				
URQUIDEZ FAMILY LIVING TRUST	URQUIDEZ, CORINA TRUSTEE, 9021 N 63RD DRIVE	GLENDALE	AZ	85302				
VASQUEZ, CARMEN M	406 S MESA ST	CARLSBAD	NM	88220				
VASQUEZ, CARMEN M	406 S MESA ST	CARLSBAD	NM	88220				
VASQUEZ, CARMEN M	406 S MESA ST	CARLSBAD	NM	88220				
VASQUEZ, STEVEN A	601 FREEDOM LN	CARLSBAD	NM	88220				
VGGT PROPERTIES LLC	9420 GATEWAY BLVD EAST	EL PASO	ТΧ	79907				

Table of Noticed Municipalities

Name	Address	City	State	Zip Code
LOVING CITY MANAGER	415 WEST CEDAR STREET	LOVING	NM	87256
CARLSBAD CITY MANAGER	101 N HALUGUENO	CARLSBAD	NM	88221

Table of Noticed Counties									
Name	Address	City	State	Zip Code					
EDDY COUNTY - COUNTY MANAGER	101 W GREENE ST., STE. 110	CARLSBAD	NM	88220					
LEA COUNTY - COUNTY MANAGER	100 N. MAIN AVENUE, SUITE 4	LOVINGTON	NM	88260					

_	Table of Noticed Tribes		
Name	Address	City	State Zip Code
	N/A		

Submittal of Public Service Announcement – Certification

I, ______ Daniel Dolce _____, the undersigned, certify that on **December 5, 2023**, submitted a public service announcement to **Carlsbad Radio** that serves the City of **Carlsbad**, **Eddy** County, New Mexico, in which the source is or is proposed to be located and that **Carlsbad Radio** DID NOT RESPOND.

Signed this <u>5</u> day of <u>December</u>, <u>2023</u>,

Daniel Dolce

Signature

12/05/23

Date

Daniel Dolce

Printed Name

Associate Consultant - Trinity Consultants Title {APPLICANT OR RELATIONSHIP TO APPLICANT}



Lights, Camera, Action! 2

Find and circle all of the movie related terms that are hidden in the grid. The remaining letters spell an Audrey Hepburn quotation.

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Legal Notice

NOTICE OF AIR QUALITY PERMIT APPLICATION Enterprise Field Services, LLC announces its appli-cation submittal to the New Mexico Environment Department for an air quality permit for the modification of its natural gas compressor station facility. The expected date of application submittal to the Air Quality Bureau is **November 24, 2023**.

The exact location for the proposed facility known as, South Carlsbad Compressor Station, is at 32° 18' 49.7814" N, 104° 8' 13.6749" W. The approximate location of this facility is 2.5 miles northwest of Loving, NM in Eddy county.

The proposed **modification** consists of the addition of four (4) Caterpillar G3612 compressor engines, one (1) Caterpillar G3608 compressor engine, one (1) slop storage tank, and one (1) Caterpillar GG3516A4 emergency generator.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant: Pounds per hour Tons per year Particulate Matter (PM) 17 4 PM 10 17 PM 17 Sulfur Dioxide (SO₂) 34 Nitrogen Oxides (\dot{NO}_x) 172 339 Carbon Monoxide (CO) 295 Volatile Organic Compounds (VOC) 327 297 427 Total sum of all Hazardous 24.9 6

Air Pollutants (HAPs) Hydrogen Sulfide (H₂S) Toxic Air Pollutant (TAP) N/A N/A Green House Gas Emissions N/A as Total CO₂e 205,322

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ACTRESS COMPOSER ADAPTATION CREDITS DIGITAL ARTIST BACKDROP DIRECTOR BASED ON A BOOK DISASTER BLOCKBUSTER EDITING CAR CHASE FICTION FILM NOIR CAST CHILDREN'S FLOP FOREIGN CLAYMATION CLIFFHANGER

GENRE HISTORICAL HOLLYWOOD MAKEUP NATURE PRODUCER REMAKE SCENE SCORE SCREENPLAY FRANCHISE SCREWBALL COMEDY

SCRIPT SLAPSTICK SOUND EFFECTS SUPERHERO SUPPORTING ACTOR SUSPENSE THEME SONG VILLAIN WAR WESTERN

Published in the Artesia Daily Press, Artesia, N.M., Nov. 19, 2023 Legal No. 26696.

Need to sell something? I can sell it for you. Call 746-3524 FIE

Public Record

ARTESIA POLICE DEPARTMENT Nov. 8

DISORDERLY CONDUCT 4:18 p.m. - Officer dispatched to Wal-Mart in reference to disorderly conduct. An arrest was made.

ACCIDENT

5:40 p.m. - Officer dispatched to 904 1/2 W. Champ Clark Ave. in reference to a motor vehicle accident with no injuries. VICIOUS ANIMAL

5:54 p.m. - Officer dispatched to the 2800 block of West Dallas Avenue in reference to a vicious animal. The animal was picked up.

INTOXICATED SUBJECT 6:13 p.m. - Officer dispatched to Pecos Inn in reference to an intoxicated subject.

SUSPICIOUS ACTIVITY 6:33 p.m. - Officer dispatched to the 1300 block of West Yucca Avenue in reference to suspicious activity.

SUSPICIOUS PERSON 7:28 p.m. - Officer dispatched to the 1800 block of West Washington Avenue in reference to a suspicious person.

ALARM

10:31 p.m. - Officer dispatched to 2405 Cerro Road in reference to a burglar alarm. **Nov.** 7

ARRESTS

2:04 p.m. - Antonio Ramirez Saiz, 36, of Artesia, arrested on a municipal warrant for contempt of court, failure to appear. 8:08 p.m. - Liborio Callazo Lebron, 50, of Artesia, arrested and charged with aggravated DWI, driving on a suspended license, no proof of insurance, and no proof of registration.

SUSPICIOUS PERSON

5:39 a.m. - Officer dispatched to Brewer, 2601 W. Main St., in reference to a suspicious person.

ALARM

5:53 a.m. - Officer dispatched to Ferguson Industrial in reference to a burglar alarm.

7:06 a.m. - Officer dispatched to 1401 W. Ray Ave. in reference to a burglar alarm.

VICIOUS ANIMAL 8:40 a.m. - Officer dispatched to the 1100 block of South Second Street in reference to a vicious animal. The animal was picked up.

GRAFFITI

9:54 a.m. - Officer dispatched to the Dr. Martin Luther King

An arrest warrant was served. ACCIDENT

1:41 p.m. - Officer dispatched to North Eighth Street and West JJ Clarke Drive in reference to a motor vehicle accident with no injuries.

DISORDERLY CONDUCT

1:49 p.m. - Officer dispatched to the 1300 block of West Champ Clark Avenue in reference to disorderly conduct. ACCIDENT

2:41 p.m. - Officer dispatched to Dollar Tree in reference to a

hit-and-run motor vehicle accident. **LOUD NOISE**

5:06 p.m. - Officer dispatched to Roselawn Manor in refer-

ence to loud noise. VICIOUS ANIMAL

5:20 p.m. - Officer dispatched to the 1100 block of South Fourth Street in reference to a vicious animal.

ALARM

6:07 p.m. - Officer dispatched to 709 W. Richardson Ave. in reference to an audible alarm. **BREAKING AND**

ENTERING

6:40 p.m. - Officer dispatched to 1008 S. Second St. in reference to breaking and entering. ACCIDENT

7:03 p.m. - Officer dispatched to North 26th Street and West JJ Clarke Drive in reference to a motor vehicle accident with no injuries.

ALARM

10:48 p.m. - Officer dispatched to the Church of God in reference to a burglar alarm. **DISORDERLY CONDUCT** 11:02 p.m. - Officer dispatched to the Abo Apartments in reference to disorderly conduct.

11:18 p.m. - Officer dispatched to the Abo Apartments in reference to disorderly conduct.

Nov. 6

WANTED SUBJECT 8:40 a.m. - Officer dispatched to the Public Safety Complex in reference to a wanted subject.

BATTERY

10:04 a.m. - Officer dispatched to Zia Intermediate School in reference to battery.

FOUND PROPERTY 10:08 a.m. - Officer dispatched to the Public Safety Complex in reference to found property.

LOST PROPERTY 11:33 a.m. - Officer dis-

FOUND PROPERTY

2:55 p.m. - Officer dispatched to 503 W. Runyan Ave. in reference to found property.

ABANDONED VEHICLE 3:24 p.m. - Officer dispatched to South Roselawn and West Richardson avenues in reference to an abandoned vehicle. **DISORDERLY CONDUCT** 3:46 p.m. - Officer dispatched to the Artesia Aquatic Center in reference to disorderly conduct.

LARCENY

3:52 p.m. - Officer dispatched to Roselawn Manor in reference to larceny. 4:12 p.m. - Officer dispatched

to the Public Safety Complex in reference to larceny.

ABANDONED VEHICLE 4:17 p.m. - Officer dispatched to the Artesia Public Library in reference to an abandoned vehicle

SUSPICIOUS PERSON 4:43 p.m. - Officer dispatched to the 300 block of North 14th Street in reference to a suspicious person.

SUSPICIOUS VEHICLE 6:19 p.m. - Officer dispatched to South 28th Street and West Grand Avenue in reference to a suspicious vehicle.

RECKLESS DRIVING 6:22 p.m. - Officer dispatched to Roswell Highway and East Mill Road in reference to reckless driving.

ASSIST

6:56 p.m. - Officer dispatched to Jaycee Park to assist the Artesia Fire Department.

SUSPICIOUS VEHICLE 7:10 p.m. - Officer dispatched to the 500 block of West Lolita Avenue in reference to a suspicious vehicle.

UNWANTED SUBJECT 7:47 p.m. - Officer dispatched to A1 Tobacco and Vape in reference to an unwanted subject. SUSPICIOUS ACTIVITY 8:22 p.m. - Officer dispatched to the 100 block of La Cuesta Road in reference to suspicious activity.

OVERDOSE

8:40 p.m. - Officer dispatched to the 700 block of West Lolita Avenue in reference to an overdose.

SUSPICIOUS ACTIVITY 11:51 p.m. - Officer dispatched to the 200 block of North Fourth Street in reference to suspicious activity.

EDDY COÚNTY SHERIFF'S OFFICE Nov. 16

SUSPICIOUS ACTIVITY 3:01 p.m. - Deputy dispatched to Deuces Wild Disel Performance in reference to

suspicious activity. WANTED SUBJECT

3:50 p.m. - Deputy dispatched to the 2700 block of West Grand Avenue in reference to a wanted subject.

4:13 p.m. - Deputy dispatched to the Abo Apartments in reference to a wanted subject.

patched to South Fourth Street and West Washington Avenue in reference to a motor vehicle accident with no injuries.

FIGHT IN PROGRESS

5:19 p.m. - Deputy dispatched fight in progress.

Enterprise Field Services, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its natural gas compressor station facility. The expected date of application submittal to the Air Quality Bureau is November 24, 2023.

The exact location for the proposed facility known as, South Carlsbad Compressor Station, is at 32° 18' 49.7814" N, 104° 8' 13.6749" W. The approximate location

of this facility is 2.5 miles northwest of Loving, NM in Eddy county.

The proposed **modification** consists of the addition of four (4) Caterpillar G3612 compressor engines, one (1) Caterpillar G3608 compressor engine, one (1) slop storage tank, and one (1) Caterpillar GG3516A4 emergency generator.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Tons per year

17

17

17

34

339

297

427

ABANDONED VEHICLE	Pollutant:	Pounds per hour
3:16 p.m Deputy dispatched	Particulate Matter	(PM) 4
to West Blevins Road and Sev-	PM	4
en Rivers Highway in reference	PM ¹⁰	4
to an abandoned vehicle.	Sulfur Dioxide (SC	$(1)_{2}$ 6
5.33 n m Deputy dis	Nitrogen Oxides (1	ŇO_) 172
patched to the 1900 block of	Carbon Monoxide	(CŎ) 295
Maple Street in reference to an	Volatile Organic	
unwanted subject.	Compounds (VOC	C) 327
RECKLÉSS DRIVING	Total sum of all Ha	ızardous
6:42 p.m Deputy dis-	Air Pollutants (HA	.Ps) 6

24.9 Hydrogen Sulfide (H₂S) 2 4 Toxic Air Pollutant (TAP) N/A N/A Green House Gas Emissions as Total CO₂e 205,322 N/A

The standard operating schedule of the facility will be 24



RPD makes arrest in October shooting

Numerous people were in the yard and residences and build-

ings on the property when the shooting occurred, and investigators

learned that Archuleta and Deck had been having ongoing issues,

Archuleta was taken into custody Wednesday, Nov. 15, during a

traffic stop in the area of Union Avenue and Poe Street in Roswell.

He is scheduled for a detention hearing at 11 a.m. Wednesday,

Nov. 22, before Judge Thomas E. Lilley in Roswell District Court.

NOTICE OF AIR QUALITY PERMIT

APPLICATION

including previous verbal and physical altercations.

ROSWELL -- The Roswell Police Department (RPD) has announced the arrest of a Roswell man in connection with a shooting death in October.

Carlos Archuleta, 49, is charged with second-degree murder and possession of a firearm by a felon in the Oct. 22 shooting of 33-year-old Corey Adam Deck of Roswell. As reported in the Oct. 25 edition of the Daily Press, Deck was found dead Oct. 22 in the backyard of a residence in the 300 block of East Deming Street, having suffered multiple gunshot wounds.

ACCIDENT 4:59 p.m. - Deputy dis-

to the 600 block of North 26th Rural Street in reference to a

LARCENY

9:42 p.m. - Deputy dispatched to 7429 Roswell Hwy. in reference to larceny. Nov. 15

ASSIST

12:21 a.m. - Deputy dispatched to South 10th Street and West Quay Avenue to assist the Artesia Police Department. ACCIDENT

6:37 a.m. - Deputy dispatched

to the 8100 block of Hope Highway in reference to a motor vehicle accident with no injuries.

HARASSMENT 8:18 a.m. - Deputy dispatched to the 3300 block of West Grand Avenue in reference to harass-

BREAKING AND ENTERING

ment.

12:54 p.m. - Deputy dispatched to 1906 Maple St. in reference to breaking and entering.

to an abandoned veh **UNWANTED S**

reckless driving.

Jr. Recreation Complex in reference to graffiti. ALARM

10:29 a.m. - Officer dispatched to 807 1/2 S. 10th St. in reference to a burglar alarm. 12:54 p.m. - Officer dispatched to 602 S. 23rd St. in reference to a burglar alarm.

FIGHT IN PROGRESS

1:29 p.m. - Officer dispatched to Park Junior High School in reference to a fight in progress. WANTED SUBJECT

1:31 p.m. - Officer dispatched

to the Public Safety Complex in reference to a wanted subject.

Vehicles

patched to 1908 W. Currier Ave. in reference to lost property.

SUSPICIOUS VEHICLE 11:40 a.m. - Officer dispatched to the 1100 block of South Fourth Street in reference to a suspicious vehicle.

VICIOUS ANIMAL

1:08 p.m. - Officer dispatched to the 2800 block of West Dallas Avenue in reference to a vicious animal.

SUSPICIOUS ACTIVITY

2:52 p.m. - Officer dispatched to the 500 block of West Runyan Avenue in reference to suspicious activity.

LOUD NOISE

12:06 a.m. - Deputy dispatched to North 26th Rural Street and West Jackson Road in reference to loud noise.

ACCIDENT

6:30 a.m. - Deputy dispatched to South 26th Street and West Fairgrounds Road in reference to a motor vehicle accident with no injuries.

ABANDONED VEHICLE 1:52 p.m. - Deputy dispatched to Lovington Highway, mile marker 119, in reference to an abandoned vehicle.

ence to an abandoned vehicle. Nov. 14 **RECKLESS DRIVING**

patched to Roswell Highway,

mile marker 78, in reference to

ABANDONED VEHICLE

6:54 p.m. - Deputy dispatched

to Lake Arthur Highway and

East Compress Road in refer-

2:36 a.m. - Deputy dispatched to the 10 block of South Roselawn Rural Avenue in reference

to reckless driving. LOUD ŇOISE

3:34 a.m. - Deputy dispatched to the 10 block of South Roselawn Rural Avenue in reference to loud noise.

LIVESTOCK

6:29 a.m. - Deputy dispatched to Bluestem Road, mile marker 11, in reference to livestock in the roadway.

(Continued from Page 1)

New Mexico auto dealerships. Starting in calendar year 2026, 43% of all new passenger cars and light-duty trucks shipped to New Mexico auto dealerships by national auto manufacturers must be zero-emission vehicles. Similarly, beginning in calendar year 2026, 15% of all new commercial heavy-duty trucks shipped to New Mexico auto dealerships by national auto manufacturers must be zero-emission vehicles. These percentages gradually increase over time, according to the included table.

"The adoption of these rules is a victory for customer choice, our ambitious climate goals, and cleaner air for every New Mexican," said Gov. Michelle Lujan Grisham.

New Mexico has invested more than \$11.5 million in electric vehicle charging stations from state and federal funding sources and received an additional \$38 million in U.S. Department of Transportation federal grants. Starting in January 2024, New Mexicans who purchase a qualifying new or used electric vehicle will see immediate savings of up to \$7,500 at the point of sale.

This federal change eliminates the need to wait until tax return season to receive the federal tax credit. In October, Lujan Grisham committed to the adoption of additional state tax credits for zero-emission vehicles and infrastructure in the upcoming legislative session

While federal funding has largely concentrated on electric vehicle chargers along heavily trafficked interstate corridors, the administration will request \$55 million this legislative session to build out a statewide network for charging stations to improve infrastructure in rural New Mexico.

"This is an important step forward for our climate and air quality goals, especially in environmental justice and frontline communities," said NMED Cabinet Secretary James Kenney. "To accelerate the benefits of the rules, we need more clean cars and clean trucks on the road and the Environment Department will work with New Mexico's urban and rural auto dealerships to make that happen."

Auto manufacturers have flexibility in achieving these standards if they cannot meet the annual percentages mandated by the rules. One example is early delivery of zero-emission vehicles to the state before the compliance year begins to create a longer averaging period. A second example is the auto manufacturer obtaining credits toward the annual percentage in one clean car state by delivering a surplus of zero-emission vehicles to another clean car state.

A third example is the auto manufacturer trading or even buying credits from another auto manufacturer to achieve the annual percentage. To date, the states that have adopted these clean car rules include California, Maryland, Massachusetts, New York, Oregon, Vermont and Washington. Last month, Colorado also voted to adopt similar rules. New Mexico's adoption of these rules adds one more state to the list of clean car states, providing auto manufacturers with flexibility in meeting these standards.

"Adopting these rules is essential for the health of New Mexicans, especially as we approach or exceed standards for ozone in communities throughout the state," said NMED Environmental Protection Division Director Michelle Miano. "These rules chart the course so that New Mexicans will no longer have to choose between mobility and health impacts."

Learn more about the rules at www.env.nm.gov/transportation.

Calico Christmas A Holiday Artisan Show FRIDAY NOVEMBER 24TH 8:30 AM-6 PM URDAY NOVEMBER 25TH 8:30 AM-4 PM PECOS RIVER VILLAGE CONFERENCE CENTER 711 MUSCATEL DR. CARLSBAD, NM ALL HANDMADE - FREE ADMISSION

hours a day, 7 days a week, 52 weeks per year.

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General information about air quality and the permitting process, and links to the regulations can be found at the Air Quality Bureau's website: www.env.nm.gov/air-quality/ permitting-section-home-page/. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env. nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.



Landowners Within 0.5 miles of Facility Web Print: 11/09/2023

1,505 Feet

0

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appear on this map may or may not be accurate, current, or otherwise reliable.

Written Description of the Routine Operations of the Facility

<u>A written description of the routine operations of the facility</u>. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

The facility is a natural gas compressor station or transport of natural gas. Gas enters the facility through a separator and is compressed by three gas turbine-driven compressors (Units 1, 2, & 5) and ten 4-stroke lean burn compressor engines (Units 6 - 15). The water-rich gas is then routed through a dehydrator, Unit 3a, where water is removed. The water from the dehydrator regenerator, which contains some hydrocarbons, is routed through a condenser to recover salable hydrocarbons, which are routed to T-006. The non-condensable gas from the condenser is routed to a packaged burner system for use as burner fuel in the dehydrator reboiler. During periods when the reboiler is not operating or not calling for fuel, the non-condensable gas stream is routed to the enclosed combustion device (Unit ECD) and combusted with a 98% DRE. The gas stream from the flash tank is send to the fuels system and is not a source of emissions. After inlet compression, gas is sent directly to a chiller and cold separator, where liquids (primarily water) condense and are removed from the stream. The dry gas stream then goes to a pipeline for transport.

Liquids from the inlet separator are routed to a 3-phase separator, where water, hydrocarbon liquids, and gas are separated. The gas stream from the 3-phase separator is used as turbine fuel (along with makeup fuel if needed from the discharge residue gas stream and/or the gas stream from the condensate stabilizer). The water goes to tanks for storage. The hydrocarbon liquids from the 3-phase separator and from the cold separator go to the condensate stabilizer where the water and hydrocarbons are further separated. Liquid hydrocarbons and water are stored in separate tanks, and hydrocarbon gases are added to the turbine fuel stream.

In the event of an emergency, the gas streams from the 3-phase separator and from the condensate stabilizer may be routed to the flare. During non-routine conditions such as when gas must be released from portions of the facility for maintenance or in the event of an emergency, some VOCs will be directed to the flare. Gas from the 3-phase separator and stabilizer overheads will be directed to the flare in the event of a plant shutdown. Additionally, during an emergency shutdown, pressure vessels or the gas contents of the refrigeration system may be released to the flare; however, the quantity of gas in these vessels or systems is less than the assumed maximum gas volume from the 3-phase separator and stabilizer overheads. Additionally, during routine maintenance of the compressor engines, compressor blowdown vapors will be routed to the flare for combustion.

Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, <u>Single Source Determination Guidance</u>, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe):

All sources listed in Table 2-A of this application.

B. Apply the 3 criteria for determining a single source:

<u>SIC Code</u>: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, <u>OR</u> surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☑ Yes □ No

<u>Common</u> <u>Ownership</u> or <u>Control</u>: Surrounding or associated sources are under common ownership or control as this source.

🗹 Yes 🗆 No

<u>Contiguous</u> or <u>Adjacent</u>: Surrounding or associated sources are contiguous or adjacent with this source.

🗹 Yes 🛛 🗆 No

C. Make a determination:

- ✓ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "YES" boxes should be checked. If in "A" above you evaluated other sources as well, you must check AT LEAST ONE of the boxes "NO" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.
- The source, as described in this application, <u>does not</u> constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

<u>A PSD applicability determination for all sources</u>. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the <u>EPA New Source Review Workshop Manual</u> to determine if the revision is subject to PSD review.

- A. This facility is:
 - □ a minor PSD source before and after this modification (if so, delete C and D below).
 - □ a major PSD source before this modification. This modification will make this a PSD minor source.
 - □ an existing PSD Major Source that has never had a major modification requiring a BACT analysis.
 - □ an existing PSD Major Source that has had a major modification requiring a BACT analysis
 - **I** a new PSD Major Source after this modification.

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:

For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:

See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:

If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example, if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:

For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. Here are examples: a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:

All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: <u>http://cfpub.epa.gov/adi/</u>

Table for State Regulations:

<u>State</u> <u>Regulation</u> Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets maximum allowable concentrations of TSP, SO ₂ , H ₂ S, NOx, and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emission per 20.2.7.110 NMAC.
20.2.23 NMAC	Fugitive Dust Control	No	Facility	This regulation does not apply as the facility has no need of fugitive dust control measures as the facility fugitive dust sources are roadways and are exempt under 20.2.23.108.B(2) NMAC.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This facility does not have gas burning equipment (external combustion emission sources, such as gas fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit. The facility is not subject to this regulation and does not have emission sources that meet the applicability requirements under 20.2.33.108 NMAC.
20.2.34 NMAC	Oil Burning Equipment: NO ₂	No	N/A	This facility does not have oil burning equipment (external combustion emission sources, such as oil fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit. The facility is not subject to this regulation and does not have emission sources that meet the applicability requirements under 20.2.34.108 NMAC.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	Yes	Facility	This regulation establishes sulfur emission standards for natural gas processing plants. This facility is a new natural gas processing plant as defined in 20.2.35.7.B NMAC. The facility does not meet the minimum sulfur emission requirement of an average of 5 tpy [20.2.35.110.A NMAC]. This facility is subject to the stack height, recordkeeping, and reporting requirements of this regulation [20.2.35.111-112 NMAC].
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	This facility is not a petroleum production facility as defined in 20.2.38.7.D NMAC. Natural gas enters this facility via pipeline and inlet separator. Condensate stored at this facility comes from the pipeline, not a well. Accordingly, the tanks at this facility do not meet the definition of a tank battery as defined in 20.2.38.7.E.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	This regulation establishes sulfur emission standards for sulfur recovery plants that are not part of petroleum or natural gas processing facilities. This regulation does not apply to the facility because this facility does not have a sulfur recovery plant.

<u>State</u> <u>Regulation</u> Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,15, ECD, Flare	 Check the box for the subparts that are applicable: □ 113 - Engines and Turbines - Enterprise will comply with the requirements of this subpart. □ 114 - Compressor Seals - Reciprocating compressors located at boosting stations are subject to the requirements of this subpart. □ 115 - Control Devices and Closed Vent Systems - Enterprise will comply with the requirements of this subpart. □ 116 - Equipment Leaks and Fugitive Emissions - Enterprise will comply with the requirements of this subpart. □ 117 - Natural Gas Well Liquid Unloading - N/A - This facility does not contain natural gas wells; therefore, they are not subject to the requirements of this subpart. □ 118 - Glycol Dehydrators - N/A - The glycol dehydrator has a PTE of less than 2 tpy and will therefore not be subject to this subpart. □ 119 - Heaters - N/A - The firing rates of the heaters are less than 20 MMBtu/hr; therefore, they are not subject to this subpart. □ 120 - Hydrocarbon Liquid Transfers - This facility trucks out more than 13 times a year and is therefore subject to this subpart. □ 121 - Pig Launching and Receiving - N/A - Pig launching and receiving operations at this facility are below 1 tpy and will therefore not be subject to this subpart. □ 123 - Storage Vessels - N/A - The permitted PTE for the storage tanks is less than the applicability thresholds; therefore, the requirements of this subpart do not apply. □ 124 - Well Workovers - N/A - The permitted PTE for the storage tanks is less than the applicability; therefore, this subpart does not apply. □ 125 - Small Business Facilities - N/A - This facility does not qualify as a small business facility; therefore, this subpart does not apply. □ 126 - Produced Water Management Unit - N/A - There are no produced water management units located at this facility; therefore, this subpart does not apply. □ 127 - Flowback Vessels and Preproduction Operations - N
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1, 2, 5, 3b, 6 - 15, GEN-1, ECD, Flare	This regulation establishes controls on smoke and visible emissions from certain sources, including stationary combustion equipment. This regulation is applicable to the following stationary combustion units: 1, 2, 5, 3b, 6 - 15, GEN-1, ECD, and Flare.
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation establishes requirements for obtaining an operating permit. This facility is a major source with respect to Title V and is permitted under P-130-R3M1. The facility will comply with all operating permit conditions as applicable.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. The facility is subject to 20.2.70 NMAC and is therefore subject to requirements of this regulation.
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation establishes the requirements for obtaining a construction permit. This facility is subject to the requirements of this subpart and complies with NSR Permit 0220-M12R1

<u>State</u> <u>Regulation</u> Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet all applicable reporting requirements under 20.2.73.300.B.1 NMAC.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility	This regulation establishes requirements for obtaining a prevention of significant deterioration permit. This facility will become a major PSD source after this modification. Therefore, this regulation is not applicable for this facility.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. This facility is subject to 20.2.72 NMAC and in turn subject to 20.2.75 NMAC. The facility is exempt from annual fees under this part (20.2.75.11.E NMAC) as it is subject to fees pursuant to 20.2.71 NMAC.
20.2.77 NMAC	New Source Performance	Yes	F-001, 2, 5, 6 – 15, GEN-1	This regulation establishes state authority to implement new source performance standards (NSPS) for stationary sources, as amended through January 15, 2017. F-001, 2, 5, 6-15, and GEN-1 are subject to the subparts (GG, JJJJ, OOOOa & OOOOb) of this regulation.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This regulation establishes state authority to implement emission standards for hazardous air pollutants subject to 40 CFR Part 61. This facility does not emit hazardous air pollutants which are subject to the requirements of 40 CFR Part 61 and is therefore not subject to this regulation.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	This regulation establishes the requirements for obtaining a nonattainment area permit. The facility is not located in a non-attainment area and therefore is not subject to this regulation.
20.2.80 NMAC	Stack Heights	No	N/A	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. This regulation does not apply, as all stacks at the facility will follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	3a, 6 – 15, GEN-1	The glycol dehydrator at this facility is Subject to the requirements of 40 CFR 63 Subpart HH; since benzene emissions is less than 1 tpy, only subject to recordkeeping requirements Also, the engines 6 - 15 & GEN-1 are subject to Subpart ZZZZ. Therefore, this regulation applies.

Table for Applicable Federal Regulations (Note: This is not an exhaustive list):

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	This regulation defines national ambient air quality standards. The facility meets all applicable national ambient air quality standards for NO _x , CO, SO ₂ , H ₂ S, PM ₁₀ , and PM _{2.5} under this regulation.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	2, 5, 6 – 15, GEN- 1, F-001	 This regulation defines general provisions for relevant standards that have been set under this part. The facility is subject to this regulation because the following subparts apply: Units 2 & 5 are subject to NSPS GG. Unit F-001 is subject to the leak detection requirements of NSPS OOOOa. Units 6 - 15 are subject to JJJJ and will be subject to NSPS OOOOb. Unit GEN-1 is subject to JJJJ
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for Electric Utility Steam Generating Units	No	N/A	This regulation establishes standards of performance for fossil-fuel-fired stream generators. This regulation does not apply as the facility does not have any fossil-fuel-fired steam generating units with a heat input rate of 250 MMBtu/hr [60.40(a)(1)].
NSPS 40 CFR60.40b Subpart Db	Electric Utility Steam Generating Units	No	N/A	This regulation establishes standards of performance for electric utility steam generating units. This regulation does not apply because the facility does not operate any electric utility steam generating units.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial- Commercial- Institutional Steam Generating Units	No	N/A	This regulation does not apply as the facility does not have any steam generating units.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No	N/A	This regulation establishes performance standards for storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 18, 1978, and prior to July 23, 1984. The tanks at the facility, which are regulated emission sources, are 300 bbl (12,600 gallons) and 210 bbl (8,820 gallons). The capacities of the tanks at the facility are less than 40,000 gallons and are not subject to this regulation. [40 CFR Part 60.110a(a)]
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including	No	N/A	This regulation establishes performance standards for volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984. This facility does not have any storage vessels with a capacity greater than or equal to 75 cubic

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984			meters that were constructed, reconstructed or modified after July 23, 1984. This regulation is not applicable.
NSPS 40 CFR 60.330 Subpart GG	Stationary Gas Turbines	Yes	2 & 5	This regulation establishes standards of performance for stationary gas turbines with a heat input of 10 MMBtu/hr or greater. Units 2 & 5 each have heat inputs of 35.3 MMBtu/hour and commenced construction after October 3, 1977. Accordingly, these units are subject to this regulation. [60.330(b)]
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from Onshore Gas Plants	No	N/A	This regulation defines standards of performance for equipment leaks of VOC emissions from onshore natural gas processing plants for which construction, reconstruction, or modification commenced after January 20, 1984, and on or before August 23, 2011. The facility is not subject to this regulation because the operations performed at this site are no longer consistent to those carried out at an onshore natural gas processing plant. The removal of the dew point plant ensured that the facility is no longer subject to this regulation.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing : SO ₂ Emissions	No	N/A	This regulation establishes standards of performance for SO2 emissions from onshore natural gas processing for which construction, reconstruction, or modification of the amine sweetening unit commenced after January 20, 1984 and on or before August 23, 2011. This regulation is not applicable as this site does not have sweetening units.
NSPS 40 CFR Part 60 Subpart 0000	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No	N/A	This regulation establishes standards of performance for crude oil and natural gas production, transmission, and distribution. Facility fugitive emissions are not subject to the leak detection requirements of this regulation. Compressors associated with units 1, 2, 5, and unit EC-1 were manufactured prior to August 23, 2011. Relocation does not constitute a modification; therefore, compressors associated with units 1,2,5 and unit EC-1 are not subject to this regulation. Unit T- 006 is an existing exempt tank. This unit was constructed prior to 8/23/2011 and is not subject to this regulation T-008 through T-012 are also constructed prior to 8/23/2011 and are not subject to this regulation.
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Yes	F-001	This regulation establishes standards of performance for crude oil and natural gas production, transmission, and distribution. F-001 is subject to the leak detection requirements of this regulation. Storage tanks T-007 and TK-1000 were constructed after 9/18/2015, but have a PTE of less than 6 tpy of VOC and are therefore not subject to this regulation.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR Part 60 Subpart OOOOb	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022	Yes	6 – 15, F-001	This regulation establishes standards of performance for crude oil and natural gas production, transmission, and distribution. F-001 is subject to the leak detection requirements of this regulation. The reciprocating compressors associated with units 6-15 are subject to this regulation. Storage Tanks T-007 and TK-1000 were constructed after 12/6/2022, but have a PTE of less than 6 tpy of VOC and are therefore not subject to this regulation.
NSPS 40 CFR Part 60 Subpart OOOOc	Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities	Yes	1, 2, 5, EC-1.	This regulation establishes emission guidelines for greenhouse gas emissions from existing crude oil and natural gas production, transmission, and distribution. F-001 is subject to this regulation. Compressors associated with units 1, 2, 5, and unit EC-1 were manufactured prior to December 6, 2022 and are therefore subject to this regulation. Compressors associated with engines 6-15 were constructed after December 6, 2022 are therefore not subject to this regulation. The storage tanks TK-1000, T-007, and T-008 through T-012 have a combined PTE of less than 20 tpy of methane gas and are therefore not subject to this regulation.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation establishes standards of performance for stationary compression ignition internal combustion engines. This rule applies to IC engines (diesel engines) that commenced construction after July 11, 2005. This regulation does not apply, as there are no stationary compression ignition internal combustion engines at this facility.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	6 – 15, GEN-1	This regulation establishes standards of performance for stationary spark ignition combustion engines. The site has an emergency generator Unit GEN-1 used for backup power only that will be subject to this regulation. Units 6 - 15 are subject to this regulation.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	N/A	This facility does not generate electricity; therefore, this regulation does not apply.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	N/A	This facility does not generate electricity; therefore, this regulation does not apply.
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No	N/A	This facility is not a landfill; therefore, this regulation does not apply.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	NSPS 40 CFR 61 does not apply to the facility because the facility does not emit or have the triggering substances on site and/or the facility is not involved in the triggering activity. The facility is not subject to this regulation. None of the subparts of Part 61 apply to the facility.

<u>Federal</u> <u>Regulation</u> Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:		
NESHAP 40 CFR 61 Subpart E	National Emission Standards for Mercury	No	N/A	The provisions of this subpart are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge. This facility does not process mercury ore, use mercury chlor-alkali cells, or incinerate or dry wastewater treatment plant sludge. Therefore, this facility is not subject to this regulation.		
NESHAP 40 CFR 61 Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	N/A	This regulation establishes national emission standards for equipment leaks (fugitive emission sources). The facility does not have equipment that operates in volatile hazardous air pollutant (VHAP) service [40 CFR Part 61.240]. The regulated activities subject to this regulation do not take place at this facility. The facility is not subject to this regulation.		
MACT 40 CFR 63, Subpart A	General Provisions	Yes	3a, 6 – 15, GEN-1	This regulation defines general provisions for relevant standards that have been set under this part. The regulation applies to the glycol dehydrator 3a, the engines 6 - 15, and the emergency generator GEN-1 are subject to MACT ZZZZ and comply by following the requirements of NSPS JJJJ.		
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	Yes	За	This regulation establishes national emission standards for hazardous air pollutants from oil and natural gas production facilities. This facility is an Area Source of HAPs, therefore Unit 3 (200 MMscf/day Glycol Dehydrator) is subject to this regulation per 40 CFR 63.760(d)(2). Since benzene emission is less than 1 tpy, only subject to recordkeeping requirements.		
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This regulation establishes national emission standards for hazardous air pollutants from boilers and heaters at major sources for HAPs. This facility is a area source for HAPs therefore this regulation does not apply. [63.1270(a)]. Additionally, this facility is not a natural gas transmission or storage facility, as defined by this regulation.		
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	The facility does not have any heaters or boilers on site; therefore, this regulation does not apply.		
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	N/A	This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from coal- and oil-fired electric utility steam generating units (EGUs) as defined in §63.10042 of this subpart. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations. This facility does not contain the affected units and is therefore not subject to this regulation.		
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	6 – 15, GEN-1	This regulation defines national emissions standards for HAPs from stationary reciprocating Internal Combustion Engines. The engines 6 – 15 are subject to MACT ZZZZ and comply by following the requirements of NSPS JJJJ. The emergency generator Unit GEN-1 is subject to MACT ZZZ and will comply by following the requirements of NSPS JJJJ.		

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:				
40 CFR 64	Compliance CFR 64 Assurance Monitoring		N/A	This regulation does not apply as the amine units were removed from the facility.				
40 CFR 68	Chemical Accident Prevention	No	N/A	Enterprise has more than a threshold quantity of a regulated substance in a process, as determined under §68.115, and is therefore subject to this regulation. Enterprise complies by maintaining a Risk Management Plan.				
Title IV – Acid Rain 40 CFR 72	Acid Rain	No	N/A	This part establishes the acid rain program. This facility is not an acid rain sour This regulation does not apply.				
Title IV – Acid Rain 40 CFR 73	Sulfur Dioxide Allowance Emissions	No	N/A	This regulation establishes sulfur dioxide allowance emissions for certain types of facilities. This facility is not an acid rain source. This regulation does not apply.				
Title IV-Acid Rain 40 CFR 75	Continuous Emissions Monitoring	No	N/A	This facility does not produce commercial electricity for sale; therefore, this regulation does not apply.				
Title IV – Acid Rain 40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	No	N/A	This regulation establishes an acid rain nitrogen oxides emission reduction program. This regulation applies to each coal-fired utility unit that is subject to an acid rain emissions limitation or reduction requirement for SO2. This part does not apply because the facility does not operate any coal-fired units [40 CFR Part 76.1].				
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	No	N/A	Enterprise owns appliances containing CFCs and is therefore subject to this requirement. However, this requirement imposes no obligations on the facility beyond those imposed on any individual or corporate owner of such appliances, and is mentioned here only in the interest of being thorough. Enterprise uses only certified technicians for the maintenance, service, repair, and disposal of appliances and maintains the appropriate records for this requirement.				

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Title V Sources (20.2.70 NMAC): By checking this box and certifying this application the permittee certifies that it has developed an <u>Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies</u> defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

- NSR (20.2.72 NMAC), PSD (20.2.74 NMAC) & Nonattainment (20.2.79 NMAC) Sources: By checking this box and certifying this application the permittee certifies that it has developed an <u>Operational Plan to Mitigate Source Emissions During</u> <u>Malfunction, Startup, or Shutdown</u> defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☑ Title V (20.2.70 NMAC), NSR (20.2.72 NMAC), PSD (20.2.74 NMAC) & Nonattainment (20.2.79 NMAC) Sources: By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

Startup and shutdown procedures are either based on manufacturer's recommendations or based on Enterprise's experience with specific equipment. These procedures are designed to proactively address the potential for malfunction to the greatest extent possible. These procedures dictate a sequence of operations that are designed to minimize emissions from the facility during events that result in shutdown and subsequent startup.

Equipment located at this facility is equipped with various safety devices and features that aid in the prevention of excess emissions in the event of an operational emergency. If an operational emergency does occur and excess emissions occur, Enterprise will submit the required Excess Emissions Report as per 20.2.7 NMAC. Corrective action to eliminate the excess emissions and prevent recurrence in the future will be undertaken as quickly as safety allows.

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

There are no alternative operating scenarios.

Air Dispersion Modeling

- 1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
- 2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (<u>http://www.env.nm.gov/aqb/permit/app_form.html</u>) for more detailed instructions on SSM emissions modeling requirements.
- 3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC).	v
See #1 above. Note: Neither modeling nor a modeling waiver is required for VOC emissions.	Χ.
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3	
above.	
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application	
(20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4),	
20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling	
Guidelines.	

Check each box that applies:

- See attached, approved modeling **waiver for all** pollutants from the facility.
- See attached, approved modeling **waiver for some** pollutants from the facility.
- Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
- Attached in UA4 is a **modeling report for some** pollutants from the facility.
- □ No modeling is required.

Daniel Dolce

From:	Mingcheng Ren
Sent:	Thursday, November 16, 2023 10:58 AM
То:	Mustafa, Sufi A., ENV; Peters, Eric, ENV
Cc:	JLI (JLI@eprod.com); Adam Erenstein; Daniel Dolce
Subject:	Updated Modeling Protocol RE: Enterprise South Carlsbad Compressor Station - Modeling Protocol
Attachments:	South Carlsbad_Modeling Protocol_v2.2_2023 1116 DD.pdf

Hi Sufi and Eric,

I hope this email finds you well.

Thank you for answering my question, Eric.

Attached is the updated modeling protocol for Enterprise's South Carlsbad Compressor Station for your review. We updated this modeling protocol to include the addition of two (2) more engines per Enterprise's request.

I apologize for any inconvenience. Please let me know if you have any questions.

Best, Mingcheng

Mingcheng Ren, Ph.D. Consultant

9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122 Email: <u>Mingcheng.Ren@trinityconsultants.com</u> (603)-866-0968



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From: Adam Erenstein <AErenstein@trinityconsultants.com>
Sent: Friday, November 10, 2023 5:10 PM
To: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>; Peters, Eric, ENV <eric.peters@env.nm.gov>
Cc: JLI (JLI@eprod.com) <JLI@eprod.com>
Subject: Enterprise South Carlsbad Compressor Station - Modeling Protocol

Hi Sufi and Eric, Attached is the modeling protocol for Enterprise's South Carlsbad Compressor Station for your review. Please contact me if you have any questions. Thanks!

Regards,

Adam Erenstein Principal Consultant, Manager of Consulting Services P 505.266.6611 M 480.760.3860 **NEW ADDRESS:** 9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122 Email: <u>aerenstein@trinityconsultants.com</u>



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AIR DISPERSION MODELING PROTOCOL NSR Significant Revision Modeling Protocol

Enterprise Field Services, LLC South Carlsbad Compressor Station

Prepared By:

Adam Erenstein – Principal Consultant

TRINITY CONSULTANTS

9400 Holly Avenue NE Building 3, Suite B Albuquerque, NM 87122 (505) 266-6611

November 2023

Project 233201.0175



1.1 Purpose of Modeling

South Carlsbad Compressor Station (South Carlsbad) is a natural gas compressor station for transport of natural gas owned by Enterprise Field Services, LLC (Enterprise) and operated by Enterprise Products Operating, LLC. Gas enters the facility through an inlet separator, compresses the gas, and cryogenically separates methane (residue gas) from gas liquids. Residue and liquids are transported from the facility by pipeline. South Carlsbad is located approximately 2.8 miles northwest of Loving, NM in Eddy County.

Enterprise is submitting an application pursuant to 20.2.72.219.D.1.a NMAC for significant revision of NSR Permit 0220-M13. The purpose of this revision is to add one (1) Caterpillar G3608 compressor engine with catalyst (Unit 11), four (4) Caterpillar G3612 compressor engines with catalysts (Units 12 through 15), one (1) slop oil tank (Unit TK-1000), and additionally auxiliary equipment. Additionally, the locations of the previously permitted engines (Units 6 through 10) will also be updated.

Enterprise seeks to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS), New Mexico Ambient Air Quality Standards (NMAAQS), and PSD Increment standards as applicable for the following pollutants and averaging periods: NO₂ (1-hour and annual), CO (1-hour and 8-hour), SO₂ (1-hour, 3-hour, 24-hour, and annual), H₂S (1-hour), PM_{2.5} (24-hour and annual), and PM₁₀ (24-hour and annual).

1.2 Facility Description and Location

The approximate UTM coordinates of the facility are 581,225 meters east and 3,575,549 meters north with WGS84 datum at an elevation of approximately 3,070 feet above mean sea level. This facility center is updated to reflect facility expansion.

2.1 Model Input Options

The latest version of the AERMOD dispersion model (version 22112) will be used for this analysis. The model will be run in regulatory mode with all default options. The ARM2 method will be used to convert NO_x to NO₂. Default minimum and maximum ambient ratios will be utilized.

Table 1 shows the emission sources and stack parameters for the facility including the new units (Units 11 through 15). Please note that emissions may vary throughout the development of this application. The Flare (Process) and Flare (SSM) emission sources will not occur simultaneously. Source groups may be used to represent the various scenarios:

ROUTINE: All sources except Flare (SSM). **SSM:** All sources except Flare (Process).

Unit Number	NOx	СО	SO ₂	PM 10	PM _{2.5}	H ₂ S	Height	Temp	Velocity	Diam.
Unit Number	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	ft	F	ft/s	ft
1	27.00	7.40	0.50	0.55	0.55	2.52E-04	25.0	907	177.0	3.30
2	27.00	7.40	0.50	0.55	0.55	2.52E-04	25.0	907	177.0	3.30
5	4.43	5.89	0.56	0.27	0.27	2.78E-04	25.0	907	177.0	3.30
3b	0.29	0.25	0.041	0.022	0.022	1.04E-03	35.0	800	17.3	1.33
Flare (Process)	7.78	75.00	0.11	-	-	5.64E-02	65.0	1832	65.6	8.20*
Flare (SSM)	20.83	55.85	0.15	-	-	1.61E-03	28.5	1832	65.6	10.66*
6	1.65	3.31	0.24	0.17	0.17	1.18E-04	28.5	833	85.3	2.00
7	1.65	3.31	0.24	0.17	0.17	1.18E-04	28.5	833	85.3	2.00
8	1.65	3.31	0.24	0.17	0.17	1.18E-04	28.5	833	85.3	2.00
9	1.65	3.31	0.24	0.17	0.17	1.18E-04	28.5	833	85.3	2.00
10	1.65	3.31	0.24	0.17	0.17	1.18E-04	28.5	833	85.3	2.00
11	1.65	3.31	0.24	0.17	0.17	1.18E-04	28.5	833	85.3	2.00
12	2.73	5.46	0.38	0.28	0.28	1.91E-04	47.0	766	136.3	2.00
13	2.73	5.46	0.38	0.28	0.28	1.91E-04	47.0	766	136.3	2.00
14	2.73	5.46	0.38	0.28	0.28	1.91E-04	47.0	766	136.3	2.00
15	2.73	5.46	0.38	0.28	0.28	1.91E-04	47.0	766	136.3	2.00
ECD	0.15	0.12	0.067	5.10E-03	5.10E-03	7.61E-04	12.0	650	0.7	4.50

Table 1- Emission sources and stack parameters to be included in the air dispersion modeling.

* The Flare (Process) and Flare (SSM) diameters were estimated following the NMED modeling guidelines on effective diameter calculations for flare units. These diameters may vary throughout the development of this application.

A downwash analysis using the latest version of BPIP will be conducted and incorporated into the modeling analysis to account for potential effluent downwash due to structures at the facility. Tables 2 and 3 below list the parameters for the building downwash structures. Please note that rectangular and circular buildings are based off of an aerial view of the facility and some buildings listed may be awnings instead. Enterprise will verify where buildings and tanks are located as well as their height for modeling.

Building ID	X Coordinate	Y Coordinate	Elevation	Height*	X Length	Y Length
Building 15	m	m	m	m	m	m
MCCBLDG	581238.6	3575541.7	934.0	-	4.5	13.5
BLDG1	581328.9	3575472.6	934.0	-	9.3	12.4
BLDG2	581311.0	3575468.6	934.1	-	4.0	13.0
BLDG3	581295.6	3575469.2	934.2	-	4.0	5.8
BLDG4	581287.7	3575467.4	934.3	-	3.3	3.9
BLDG5	581298.4	3575494.6	934.1	-	7.2	7.2
BLDG6	581342.7	3575544.7	933.7	-	9.7	8.0
CCBLDG	581263.3	3575546.9	933.9	-	2.1	3.6

Table 2- Rectangular Building Downwash Structures

* Rectangular building heights will be verified by Enterprise for prior to modeling.

Puilding ID	X Coordinate	Y Coordinate	Elevation	Height	Radius	Corners
Building ID	m	m	m	m	m	
TANK1	581362.0	3575546.4	933.6	4.9	1.5	24
TK1000	581177.6	3575497.7	934.6	6.1	1.9	24
TANK2	581189.3	3575499.3	934.5	4.6	2.1	24
TANK3	581194.0	3575499.3	934.5	4.6	2.0	24
TANK4	581189.7	3575492.7	934.6	4.6	1.8	24
TANK5	581194.4	3575492.8	934.6	4.6	1.9	24
TANK6	581184.7	3575492.7	934.6	6.1	1.8	24
TANK7	581178.0	3575492.6	934.7	6.1	1.6	24
TANK8	581357.8	3575538.1	933.6	4.9	2.1	24
TANK9	581220.5	3575590.1	934.0	7.3	2.6	24

2.2 Receptor Grid Description and Elevation Data

The center point of the facility will be designated at 581,225 meters east and 3,575,549 meters north. This center point will serve as the center point for a variable density circular receptor grid. The facility fenceline will be modeled using 25 meter grid spacing. A 50 meter grid spacing will extend out to 800 meters in each direction from the facility center point for a very fine grid resolution. A 100 meter grid spacing will extend from 800 meters to 3,000 meters in each direction for a fine grid resolution. A 250 meter grid spacing will extend from 3,000 meters to 6,000 meters in each directions for a medium grid resolution. A 500 meter grid spacing will extend from 6,000 meters to 10,000 meters in each direction for a coarse grid resolution. A 100 meter grid spacing will extend from 10,000 meters to 50,000 meters in each direction for a very coarse grid resolution. It is expected that the highest impacts from the proposed source will be at or near the facility property.

For the Class I area analysis, a grid spacing of 1000 m is used for receptors over the Class I area. Class I receptors will be obtained through NMED MergeMaster.

The elevations of receptors and facility sources will be determined using the most recent NED data currently available (1 arc-second NED).

2.3 Meteorological Data

We will use the Carlsbad NWS dataset for five meteorological years (2017-2021) available on the NMED website.

2.4 Significance Analysis (SIL) and Cumulative Impact Analysis (CIA)

The modeled ground-level concentrations will be compared to the corresponding significant impact levels (SILs) to determine whether any modeled ground-level concentrations at any receptor locations are greater than the SIL (i.e., "significant" receptors). If the significance analysis reveals that modeled ground-level concentrations for a particular pollutant and averaging period are greater than the applicable SIL, a Cumulative Impact Analysis (CIA) will be performed at the significant receptors. The CIA will include impacts from the facility sources and background concentrations/surround sources if applicable.

If necessary, the background concentration used for NO₂ will be from the Carlsbad Monitor (5ZR). The background concentration for PM_{2.5} and PM₁₀ will be the Hobbs-Jefferson Monitor (5ZS). The inclusion of background concentrations will follow the guidance shown in Table 20: "Modeling the Design Value Summary (Default Modeling)" from the Modeling Guidelines.

For SO₂ modeling, based on the NMED Modeling Guidelines, if the facility is in the Pecos-Permian Basin Intrastate AQCR (AQCR 155), we will model the facility and surrounding sources (because representative monitoring may not be available).

For PM_{2.5} and PM₁₀ modeling, we will include modeling the facility and nearby sources and adding secondary formation (if applicable) and a background concentration. For modeling nearby sources, all sources within 10 km of the facility will be included in the model. An inventory of the surrounding sources will be obtained from the NMED. Based on EPA's Guidance for PM_{2.5} Permit Modeling and NMED'S Modeling Guidelines, sources that emit at least 40 tons per year of NO_x or at least 40 tons per year of SO₂ are considered to emit significant amounts of precursors. Sources with significant increases of PM_{2.5} precursors must qualitatively and/or quantitatively account for the secondary formation of PM_{2.5}. The secondary formation of PM_{2.5} will be calculated in this modeling following the NMED Modeling Guidelines.

2.5 **PSD Increment Analysis**

If the results of the ROI analysis for NOx, SO₂, or PM₁₀ indicate concentrations greater than significance levels, PSD increment analysis will be conducted for the appropriate averaging periods. If required, the PSD increment analysis will be conducted including all PSD increment consuming and expanding sources within 25 km of the facility, plus sources emitting over 1000 pounds per hour within 50 km of the facility. These surrounding sources' information will be obtained from NMED-AQB. The predicted maximum concentrations will be compared to the appropriate Class II PSD Standard.

2.6 Class I Areas Analysis

The nearest Class I area is Carlsbad Caverns National Park at 26.1 km from the facility. Pollutants will be modeled for significance using the Carlsbad Caverns receptor grid. Class I area analysis will be performed if concentrations are greater than significance levels as the national park is inside of the 100 km inclusion zone for PSD major sources.

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-	16-A: Identification					
1	Name of facility:	South Carlsbad Compressor Station				
2	Name of company:	Enterprise Field Services, LLC				
3	Current Permit number:	0220-M12R1				
4	Name of applicant's modeler:	Daniel Dolce				
5	Phone number of modeler:	(505) 266-6611				
6	E-mail of modeler:	Daniel.Dolce@trinityconsultants.com				

16	-B: Brief							
1	Was a modeling protocol submitted and approved?	Yes⊠	No					
2	Why is the modeling being done?	Adding New Equipment						
_	Describe the permit changes relevant to the modeling.							
3	The purpose of this significant revisions is to add one (1) CAT G3608 compressor engine (Unit 11) and four (4) CAT G2612 compressor engines (Units 12 – 15). Enterprise will also update the facility wide fuel gas analysis and will modify every combustion source.							
4	What geodetic datum was used in the modeling?	WGS84						
5	How long will the facility be at this location?	Longer than 1	year					

6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?			No⊠			
7	Identify the Air Quality Control Region (AQCR) in which the fac	ility is located	155				
	List the PSD baseline dates for this region (minor or major, as	appropriate).					
0	NO2	3/16/1988					
0	SO2	7/28/1978					
	PM10	2/20/1979					
	PM2.5	11/13/2013					
	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).						
9	Carlsbad Caverns (~26.1 km)						
10	Is the facility located in a non-attainment area? If so describe l	below	Yes□	No⊠			
	N/A						
11	Describe any special modeling requirements, such as streamline permit requirements.						
	N/A						

16-	16-C: Modeling History of Facility							
	Describe the modeling Ambient Air Quality Sta modeling waivers).	Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).						
	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments				
	CO	0220-M11	5/16/2023					
	NO ₂	0220-M11	5/16/2023					
1	SO ₂	0220-M11	5/16/2023					
	H ₂ S	0220-M11	5/16/2023					
	PM2.5	0220-M11	5/16/2023					
	PM10	0220-M11	5/16/2023					
	Lead	N/A	N/A					
	Ozone (PSD only)	N/A	N/A					
	NM Toxic Air Pollutants (20.2.72.402 NMAC)	N/A	N/A					

16-D: Modeling performed for this application

For each pollutant, indicate the modeling performed and submitted with this application. Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

analysis were also performed.						
	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
	СО	\boxtimes				
	NO ₂	\boxtimes	\boxtimes			
1	SO ₂	\boxtimes				
	H ₂ S	\boxtimes				
	PM2.5	\boxtimes	\boxtimes			
	PM10	\boxtimes				
	Lead					\boxtimes
	Ozone					\boxtimes
	State air toxic(s) (20.2.72.402 NMAC)					\boxtimes

16-	16-E: New Mexico toxic air pollutants modeling							
1	List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application. N/A – No TAPs were modeled at this facility.							
	List any NN below, if re	List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.						
2	Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor		

16-F: Modeling options						
1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes⊠	No□			

16-	16-G: Surrounding source modeling					
1	Date of surroundi	ng source retrieval	November 20, 2023			
2	If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.					
	1119E1	Incorrect facility coordinates (previously 379310.968 m E and 3926388.442 m N). Coordinates were updated to 569310 m E and 3580883 m N based on the NMED AP-MAP of this facility.				

1767E1	Incorrect facility coordinates (previously 460004.659 m E and 3917189.141 m N). Source was removed since facility is no longer in operation (closed on 4/2/2014).
26530E1	Incorrect facility coordinates (previously 460004.659 m E and 3917189.141 m N). Coordinates were set equal to Equipment 2 at the same facility (26530E2).
535E1	Incorrect facility coordinates (previously 218896.481 m E and 3646226.829 m N). Coordinates were updated to 567164 m E and 3593887 m N based on the NMED AP-MAP of this facility.

16-H: Building and structure downwash							
1	How many buildings are present at the facility?	5					
2	How many above ground storage tanks are present at the facility?	10					
3	Was building downwash modeled for all buildings and	tanks? If not explain why below.	Yes⊠	No□			
4	Building comments						

16-I: Receptors and modeled property boundary								
1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.							
	The property is	enclosed by	a fence and red	ceptors are placed star	ting along the fenceli	ne.		
2	Receptors mus Are there publi	t be placed al c roads passir	ong publicly ac ng through the	cessible roads in the re restricted area?	estricted area.		Yes□	No⊠
3	Are restricted a	area boundary	/ coordinates i	ncluded in the modelin	g files?		Yes□	No⊠
	Describe the re	eceptor grids a	and their spaci	ng. The table below ma	ay be used, adding ro	ws as nee	eded.	
4	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments		
	Variable Density	Circular	50	0	800			
	Variable Density	Circular	100	800	3,000			

	Variable Density	Circular	250	3,000	6,000		
	Variable Density	Circular	500	6,000	10,000		
	Variable Density	Circular	1000	10,000	50,000		
	Describe recept	Describe receptor spacing along the fence line.					
5	25 m spacing.						
Describe the PSD Class I area receptors.							
6	The PSD Class I Area receptors were required from the MergeMaster database.						

16-	16-J: Sensitive areas						
1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes□	No⊠				
3	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes□	No⊠				

16	16-K: Modeling Scenarios					
1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include u rates, times of day, times of year, simultaneous or alternate operation of old and new equipme etc. Alternative operating scenarios should correspond to all parts of the Universal Application described in Section 15 of the Universal Application (UA3).	sing different p ent during trans and should be f	roduction ition periods, ^f ully			
	The modeled facility operates 24 hours a day, 7 days a week, and 8760 hours a year.					
2	Which scenario produces the highest concentrations? Why?					
2	N/A					
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes	No⊠			
4	If so, describe factors for each group of sources. List the sources in each group before the factor (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes for Sources:	r table for that ormatting easie	group. r.)			

	Hour of Day	Factor	Hour of Day	Factor								
	1		13									
	2		14									
	3		15									
	4		16									
5	5		17									
	6		18									
	7		19									
	8		20									
	9		21									
	10		22									
	11		23									
	12		24									
	If hourly, variable emission rates were used that were not described above, describe them below.											
6	Were different emission rates used for short-term and annual modeling? If so describe below.									Yes		No⊠

16-L: NO ₂ Modeling										
1	Which types of NO ₂ modeling were used? Check all that apply.									
	ARM2									
		100% NO_X to NO_2 conversion								
		PVMRM								
		Other:								
2	Describe the NO ₂ modeling.									
	The ARM2 Methodology was used with the default maximum and minimum ambient ratios.									
3	Were default NO2/NOx ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.YesNo									
	N/A									
4	Describe the design value used for each averaging period modeled.									
	1-hour: High eighth high Annual: One Year Annual Average									
16-	16-M: Particulate Matter Modeling									
-----	--	-----------------------	--------------------------------	---------------------------	----------------------------	-------------	--			
	Select the pollutants for which plume depletion modeling was used.									
1		PM2.5								
		PM10								
	\boxtimes	None								
_	Describe the	e particle size distr	ibutions used. Include the sou	rce of information.						
2	N/A									
3	Does the facility emit at least 40 tons per year of NOx or at least 40 tons per year of SO2? Sources that emit at least 40 tons per year of NOx or at least 40 tons per year of SO2 are considered to emit significant amounts of precursors and must account for secondaryYes NoNo									
4	Was secondary PM modeled for PM2.5? Yes□ No⊠					No⊠				
	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.					ed describe				
5	NO _x (ton/yr)		SO ₂ (ton/yr)	[PM2.5] _{annual}	[PM2.5] _{24-hour}					
	307.63		30.72	N/A	0.069					

16-	-N: Setback Distances
1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location. N/A
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling. N/A

16-	16-O: PSD Increment and Source IDs				
1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit Yes□ No⊠ 1 numbers if they do not match below. Yes□ No⊠				
	Unit Number in UA-2 Unit Number in Modeling File			S	
	Flare (Process) Flare_P				
	Flare (SSM) Flare_S				
2	The emission rates in the Tables 2-E and 2-F should match the these match? If not, explain why below.	ones in the modeling files. Do	Yes□	No⊠	

	Flare (SSM) emissions in Table 2-F do not match what was modeled for Flare_S. The flare pilot emission were calculated and accounted for in the emissions from Flare (Process) reported in Table 2-E. Pilot emissions are not part of the total Flare (SSM) emissions reported in Table 2-F as that would double-count the pilot. For the purposes of modeling, Flare (SSM) emissions were used for NO _x , CO, and SO ₂ since it had higher emissions than Flare (Process) for these pollutants. Pilot emissions were included in with the Flare_S emissions which is why they are slightly higher than what is reported for Flare (SSM) in Table 2-F.							
3	Have the minor NSR been modeled?	exempt sources or T	itle V Insignificant A	ctivities" (Tal	ole 2-B) sources	Yes□	No⊠	
	Which units consume	e increment for whic	h pollutants?					
	Unit ID	NO ₂	SO ₂		PM10	PM2.	5	
	11	Yes	Yes		Yes Yes		es	
4	12	Yes	Yes		Yes		Yes	
	13	Yes	Yes		Yes	Yes	Yes	
	14	Yes	Yes		Yes	Yes		
	15	Yes	Yes		Yes	Yes		
	Flare (Process)	Yes	Yes		No		No	
	Flare (SSM)	Yes	Yes		No	No		
5	PSD increment descr (for unusual cases, i. after baseline date).	iption for sources. e., baseline unit expa	anded emissions	N/A				
6	Are all the actual installation dates included in Table 2A of the application form, as required?Yes⊠This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.Yes⊠					No□		

16-P: Flare Modeling					
1	For each flare or flaring scenar	io, complete the following			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)	
	Flare (Process)	20.82	8,006,278	2.50	
	Flare (SSM)	25.10	14,609,725	3.33	

16-	16-Q: Volume and Related Sources				
1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes□	No⊠		
	N/A				
	Describe the determination of sigma-Y and sigma-Z for fugitive sources.				

2	N/A
3	Describe how the volume sources are related to unit numbers. Or say they are the same.
	N/A
	Describe any open pits.
4	N/A
E	Describe emission units included in each open pit.
5	N/A

16-	16-R: Background Concentrations						
	Were NMED used below. that was use	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data Yes ⊠ No□ that was used. No□ No□ No□					
	CO: N/A						
	NO ₂ : Outside	Carlsbad (350151005)					
	PM2.5: Hobb	s-Jefferson (350450019)					
	PM10: N/A						
1	SO ₂ : N/A						
	Other:						
	NO2: 98th percentile concentration was used for facility sources along with the 1-hr background concentration for the 1-hr NAAQS and PSD analysis. The annual average of the facility sources and the background concentration was used for the annual averaging time.Comments:PM2.5: The high second high concentration was used with surrounding sources for the 24-hr PSD increment analysis, and the 98 th percentile concentration was used with surrounding sources along with the						
2		background concentration for the 24-hr NAAQS analysis.	1	 			
	Were background concentrations refined to monthly or hourly values? If so describe below. $Yes \Box$ No \boxtimes						

16-S: Meteorological Data				
1	Was NMED provided meteorological data used? If so select the station used. Carlsbad 2017-2021 NWS dataset	Yes⊠	No□	
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discu handled, how stability class was determined, and how the data were processed.	uss how missing	data were	

N/A

16-T: Terrain						
1	Was complex terrain used in the modeling? If not, describe why below.	Yes⊠	No□			
2	What was the source of the terrain data?					
Z	https://apps.nationalmap.gov/downloader/#/					

16-	16-U: Modeling Files				
	Describe the modeling files:				
		1			
	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative,		
			cupability analysis, other)		
	South Carisbad_NO2 1-hr SIL	NO ₂	SIL		
	South Carlsbad_NO2 24-hr SIL	NO ₂	SIL		
	South Carlsbad_NO2 Annual SIL	NO ₂	SIL		
	South Carlsbad_Class I NO2 Annual SIL	NO ₂	Class I SIL		
	South Carlsbad_NO2 1-hr CIA	NO ₂	CIA		
	South Carlsbad_NO2 24-hr CIA	NO ₂	CIA		
	South Carlsbad_NO2 Annual CIA	NO ₂	CIA		
	South Carlsbad_CO 1-hr SIL	СО	SIL		
	South Carlsbad_CO 8-hr SIL	СО	SIL		
	South Carlsbad_SO2 1-hr SIL	SO ₂	SIL		
1	South Carlsbad_SO2 3-hr SIL	SO ₂	SIL		
	South Carlsbad_SO2 24-hr SIL	SO ₂	SIL		
	South Carlsbad_SO2 Annual SIL	SO ₂	SIL		
	South Carlsbad_Class I SO2 3-hr SIL	SO ₂	Class I SIL		
	South Carlsbad_Class I SO2 24-hr SIL	SO ₂	Class I SIL		
	South Carlsbad_Class I SO2 Annual SIL	SO ₂	Class I SIL		
	South Carlsbad_PM2.5 24-hr SIL	PM _{2.5}	SIL		
	South Carlsbad_PM2.5 Annual SIL	PM _{2.5}	SIL		
	South Carlsbad_Class I PM2.5 24-hr SIL	PM _{2.5}	Class I SIL		
	South Carlsbad_Class I PM2.5 Annual SIL	PM _{2.5}	Class I SIL		
	South Carlsbad_PM2.5 24-hr CIA	PM _{2.5}	CIA		
	South Carlsbad_PM10 24-hr SIL	PM ₁₀	SIL		
	South Carlsbad_PM10 Annual SIL	PM ₁₀	SIL		
	South Carlsbad_Class I PM10 24-hr SIL	PM ₁₀	Class I SIL		
	South Carlsbad Class I PM10 Annual SIL	PM ₁₀	Class I SIL		

16-	16-V: PSD New or Major Modification Applications				
1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes□	No⊠		
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes□	No⊠		
Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitor monitoring exemption.					
N/A					
Д	Describe the additional impacts analysis required at 20.2.74.304 NMAC.				
	N/A				
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes	No⊠		

16-W: Modeling Results												
1		If ambi require significa describ	f ambient standards are exceeded because of surrounding sources, a culpability analysis is equired for the source to show that the contribution from this source is less than the ignificance levels for the specific pollutant. Was culpability analysis performed? If so lescribe below.									
2		Identify as nece	the maximum co ssary.	ncentrations	from the modeling	g analysis. Rows m	nay be modif	ied, added a	nd removed	l from the ta	ble below	
Pollutant,	Modeled Project/Facility Concentration (µg/m3)		Modeled Concentration with	Secondary	Background	Cumulative	nulative Value of			Location		
and Standard			Surrounding Sources (µg/m3)	μg/m3) (μg/m3) (μg/m3) (μg/m3) (μg/m3)	Standard (µg/m3)	Standard	UTM E (m)	UTM N (m)	Elevation (ft)			
CO 8-hr SIL	47	.67	-	-	-	-	500	9.5%	581284	3575655	3062.20	
CO 1-hr SIL	68	.86	-	-	-	-	2000	3.4%	581023	3575373	3073.13	
NO₂ Annual SIL	1.	67	-	-	-	-	1	Significant	580973	3575773	3067.26	
NO₂ 24-hr Sil	13	.91	-	-	-	-	5	Significant	581284	3575655	3062.20	
NO₂ 1-hr SIL	24	.80	-	-	-	-	7.52	Significant	581284	3575655	3062.20	
PM _{2.5} Annual SIL	0.	17	-	-	-	-	0.2	86.1%	580973	3575773	3067.26	
PM _{2.5} 24-hr SIL	1.	21	-	-	-	-	1.2	Significant	581323	3575673	3061.12	
PM ₁₀ Annual SIL	0.	17	-	-	-	-	1	17.2%	580973	3575773	3067.26	
PM ₁₀ 24-hr SIL	1.	59	-	-	-	-	5	31.7%	581284	3575655	3062.20	
SO₂ Annual SIL	0.	24	-	-	-	-	1	23.6%	580973	3575773	3067.26	

Pollutant,	Modeled Project/Facility	Modeled Concentration with	Secondary	Background Concentration (μg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (μg/m3)	Percent of Standard	Location		
and Standard	Concentration (µg/m3)	Surrounding Sources (µg/m3)	μg/m3)					UTM E (m)	UTM N (m)	Elevation (ft)
SO₂ 24-hr SIL	2.15	-	-	-	-	5	43.1%	581284	3575655	3062.20
SO ₂ 3-hr SIL	4.04	-	-	-	-	25	16.1%	581073	3575323	3072.24
SO ₂ 1- hr SIL	3.84	-	-	-	-	7.8	49.2%	581284	3575655	3062.20
H2S 1-hr SIL	0.058	-	-	-	-	1	5.8%	581323	3575373	3065.65
NO₂ Annual Class I SIL	0.0076	-	-	-		0.1	7.6%	559359	3560480	3620.77
PM _{2.5} Annual Class I SIL	0.00016	-	-	-	-	0.05	0.3%	558179	3558860	3598.03
PM _{2.5} 24-hr Class I SIL	0.0041	-	-	-	-	0.27	1.5%	558179	3558860	3598.03
PM ₁₀ Annual Class I SIL	0.00016	-	-	-	-	0.2	0.1%	558179	3558860	3598.03
PM ₁₀ 24-hr Class I SIL	0.0061	-	-	-	-	0.3	2.0%	558179	3558860	3598.03
SO₂ Annual Class I SIL	0.00026	-	-	-	-	0.1	0.3%	559359	3560480	3620.77
SO₂ 24-hr Class I SIL	0.0095	-	-	-	-	0.2	4.7%	558179	3558860	3598.03
SO ₂ 3-hr Class I SIL	0.044	-	-	-	-	1	4.4%	557365	3558860	3588.85
NO₂ Annual NAAQS	5.05	-	-	9.3	14.35	99.66	14.4%	581234	3575655	3062.93
NO₂ 1-hr NAAQS	85.90	-	-	54.50	140.40	188.03	74.7%	581523	3575523	3059.55
PM _{2.5} 24-hr NAAQS	0.93	4.66	-	16.50	21.16	35	60.5%	581323	3575673	3061.19

Form Revision: 8/31/2020

Pollutant,	Modeled Project/Facility	Modeled deled Concentration t/Facility with		Background	Cumulative	Value of		Location		
and Standard	Concentration (µg/m3)	Surrounding Sources (µg/m3)	μg/m3)	(μg/m3)	(μg/m3)	Standard (µg/m3)	Standard	UTM E (m)	UTM N (m)	Elevation (ft)
NO ₂ Annual PSD Class II	5.05	-	-	9.3	14.35	25	57.4%	581234	3575655	3062.93
PM _{2.5} 24-hr PSD Class II	0.93	4.68	0.069	-	4.75	9	52.8%	581323	3575673	3061.19

16-	-X: Summary/conclusions
	A statement that modeling requirements have been satisfied and that the permit can be issued.
1	Enterprise has demonstrated that the proposed changes to NSR Permit 0220-M12R1 would neither cause nor contribute to an exceedance of the standards for CO, H_2S , NO_2 , $PM_{2.5}$, PM_{10} , and SO_2 .

Daniel Dolce

From:	Kimbrell, Joseph, ENV <joseph.kimbrell@env.nm.gov></joseph.kimbrell@env.nm.gov>
Sent:	Tuesday, November 21, 2023 12:00 PM
То:	Daniel Dolce
Cc:	Peters, Eric, ENV; Mingcheng Ren; Adam Erenstein; Romo, Fernando, ENV; Reimer, Allen, ENV
Subject:	RE: [EXTERNAL] MergeMaster PM2.5 Surrounding Source Errors

Daniel,

There is no data for AI-1767 since it was closed on 4/2/2014. I assume you have what you need for the others, if not let me know.

Thanks, Joe

	8		Cen	tral File		
- t	Agency Interest 1767: James Hamilton Construction - Crus (Construction Activity) Portable Source Portable Source, (Eddy), NM 88062-1287 Open Master File Record	ct Agency Interest Retriev	ve Activities By ory: Permitting am: Air Quality : New Source Review [All]	▼ Sta ▼ Yea v ▼	itus: [All] ar:	Refresh <u>D</u> ocum
			Docu	ment List		
	Air Quality PRN20140001	Administrative	Revision	Closed - 04/02/	2014 - Comple	eted
	Work Activity Log	4/2/2014	Checked Out To	c		

Joseph W. Kimbrell, Technical Services Manager, Permitting Section NMED Air Quality Bureau Main Office: 525 Camino de los Marquez Suite 1, Santa Fe NM, 87505-1816 Joe's Office: 8801 Horizon Blvd., Ste 260, NE, Albuquerque, New Mexico 87113 (505) 476-4300 fax (505) 476-4375, direct # (505) 629-2718

Joseph.Kimbrell@env.nm.gov

Air Quality Bureau; Website: <u>https://www.env.nm.gov/air-quality/</u>

Air Quality Regulations Website: <u>https://www.srca.nm.gov/nmac-home/nmac-titles/title-20-environmental-protection/</u> *Minor and Major Source Emission Inventory in 2023*

P.S. The NM Environment Department – Air Quality Bureau (Bureau) will conduct a Minor and Major Source Emissions Inventory (per 20.2.73.300 NMAC) for calendar year 2023. This inventory will apply to all sources with air quality construction permits (20.2.72 NMAC), including General Construction Permits (GCPs), and Title V Operating Permit (20.2.70 NMAC). It will also apply to Notices of Intent (NOIs) sources (20.2.73 NMAC). Facility-wide emissions during the calendar year 2023 must be calculated and reported to the Bureau during the period of January 1 through April 1, 2024, using the online reporting tool specified by the Bureau.

We encourage you to sign up for the Minor and Major Source Emissions Inventory bulletins at: https://public.govdelivery.com/accounts/NMED/subscriber/new to receive updates and guidance on the implementation of this requirement.

From: Daniel Dolce <Daniel.Dolce@trinityconsultants.com> Sent: Tuesday, November 21, 2023 11:47 AM To: Kimbrell, Joseph, ENV <joseph.kimbrell@env.nm.gov> **Cc:** Peters, Eric, ENV <eric.peters@env.nm.gov>; Mingcheng Ren <Mingcheng.Ren@trinityconsultants.com>; Adam Erenstein AErenstein@trinityconsultants.com>

Subject: [EXTERNAL] MergeMaster PM2.5 Surrounding Source Errors

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Hello Joe,

I am attempting to run a CIA air dispersion model using AERMOD for PM2.5 for a facility located South of Carlsbad, NM. I pulled all the surrounding source information from MergeMaster, but when I attempted to run AERMAP to get the elevation data of the surrounding sources, I received an error that four (4) of the surrounding sources were located outside of the bounds of the simulation and I believe these are a mistake.

I was able to look up the AIRs ID for three (3) of the four (4) sources and I was able to pull their correct facility coordinates from the NMED AP-MAP website. However, I am having difficulty finding information regarding facility AIRs ID 1767: It does not show up in AP-MAP. Can you please confirm if this facility still exists and if so, what the facility coordinates are?

The following is a table of the sources with the wrong location.

AIRs ID and	From Me	ergeMaster	Master From NMED AP-MAP				
Equipment	UTM E (m)	UTM N (m)	Decimal Coordinates	Decimal Coordinates	UTM E	UTM N	
#			(Latitude)	(Longitude)	(m)	(m)	
1119E1	379310.968	3926388.442	32.362750	-104.263306	569310	3580883	
1767E1	460004.659	3917189.141					
26530E1	460004.659	3917189.141	32.276583	-104.366667	559642	3571270	
535E1	218896.481	3646226.829	32.480179	-104.285189	567164	3593887	

If you could please get back to me as soon as possible, that would be greatly appreciated.

Thank you and regards, Daniel Dolce

Daniel Dolce Associate Consultant

P 505.266.6611 M 505.818.8761 Email: <u>daniel.dolce@trinityconsultants.com</u> 9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122



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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

compliance rest instory ruble							
Unit No.	Test Description	Test Date					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	May 2008					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	July 2009					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	May 2010					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	June 2011					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	May 2012					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	April 2013					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	January 2014					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	January 2018					
2	Tested for NO _x and CO as required by Title V Permit P118-R2	April 2018					
1	Tested for NO _x and CO as required by Title V Permit P118-R2	May 2018					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	February 2019					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	June 2019					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	August 2019					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	November 2019					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	March 2020					
1, 2	Tested for NO _x and CO as required by Title V Permit P118-R2	May 2020					
5	Tested for NO _x and CO as required by Title V Permit P118-R2	May 2021					
5	Tested for NO _x and CO as required by Title V Permit P118-R2	July 2021					
1, 2, 5	Tested for NO _x and CO as required by Title V Permit P118-R2	March 2022					
1, 2, 5	Tested for NO _x and CO as required by Title V Permit P118-R2	June 2022					
1, 2, 5	Tested for NO _x and CO as required by Title V Permit P118-R2	December 2022					

Compliance Test History Table

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

No other relevant information is being submitted as part of this application.

Section 22: Certification

Company Name: _____Enterprise Field Services, LLC

I, <u>Bradley J. Cooley</u>, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 215t day of _______ 2023 upon my oath or affirmation, before a notary of the State of

*Signature

Bradley J. Cooley

Printed Name

12/21

Date

Senior Director, Environmental Title

Scribed and sworn before me on this 215^{t} day of December 2023

My authorization as a notary of the State of Levas expires on the

23rd day of February, 2026.

21-2023 Date **BRENDA J. MENDEZ** Notary Public, State of Texas Comm. Expires 02-23-2026 's Printed Name Notary ID 10264322

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.