

**APPENDIX D2:**  
SEMINOLE ROAD NEAR-FIELD MODELING,  
SOURCE EMISSIONS AND MODELING PARAMETERS

## **Appendix D2 – Seminole Road Near-Field Modeling - Source Emissions and Modeling Parameters**

The following is a list of the tables included within this appendix.

- D1.1 PM<sub>10</sub> Source Emissions and Modeling Parameters
- D1.2 PM<sub>2.5</sub> Source Emissions and Modeling Parameters
- D1.3 SO<sub>2</sub> Source Emissions and Modeling Parameters
- D1.4 NO<sub>x</sub> Source Emissions and Modeling Parameters
- D1.5 CO Source Emissions and Modeling Parameters
- D1.6 Formaldehyde Source Emissions and Modeling Parameters
- D1.7 Compression Modeling Summary

Table D2.1  
 Seminole Road Near-Field Modeling  
 PM<sub>10</sub> Source Emissions and Modeling Parameters

PM <sub>10</sub> Sources	Modeled Emission Rate (lb/hr)	Modeled Area Source (m <sup>2</sup> )	Modeled Emission Rate (g/s/m <sup>2</sup> )	Modeled Emission Rate (g/s)	Source Type	Source Exit Characteristics and Layout	Area Source Release Height (m)	Area Source X <sub>init</sub> (m)	Area Source Y <sub>init</sub> (m)	Volume Source Release Height (m)	Volume Source y <sub>init</sub>	Volume Source σ z <sub>init</sub>
Well Pad Construction	6.52	--	--	0.821	Volume	Volume source centered around well pad. Includes well pad construction emissions and heavy equipment tailpipe.	--	--	--	2.29	21.95	2.13
Road Construction	0.11	--	--	0.0139	Volume	87 volume sources over the length of newly constructed road (0.58 miles). Information listed for one volume source. Emissions include road construction, heavy equipment tailpipe, and traffic.	--	--	--	2.29	4.96	2.13
Construction Traffic	0.026	--	--	3.33E-03	Volume	302 volume sources over a representative length of road (2 miles). Emissions include traffic.	--	--	--	2.29	4.96	2.13
Well Pad Wind Erosion	31.47	8,903.09	4.45E-04	--	Area	Area source centered around the well pad.	0.00	94.40	94.40	--	--	--
Access Road Wind Erosion	35.19	4,981.41	8.90E-04	--	Area	Divided into 18 equal area sources over length of newly constructed road. Information listed is total emissions for all 18 area sources.	0.00	51.86	5.34	--	--	--

Table D2.2  
 Seminole Road Near-Field Modeling  
 PM<sub>2.5</sub> Source Emissions and Modeling Parameters

PM <sub>2.5</sub> Sources	Modeled Emission Rate (lb/hr)	Modeled Area Source (m <sup>2</sup> )	Modeled Emission Rate (g/s/m <sup>2</sup> )	Modeled Emission Rate (g/s)	Source Type	Source Exit Characteristics and Layout	Area Source Release Height (m)	Area Source X <sub>init</sub> (m)	Area Source Y <sub>init</sub> (m)	Source Release Height (m)	Volume Source σ Y <sub>init</sub>	Volume Source σ Z <sub>init</sub>
Well Pad Construction	1.85	--	--	0.233	Volume	Volume source centered around well pad. Includes well pad construction emissions and heavy equipment tailpipe.	--	--	--	2.29	21.95	2.13
Road Construction	0.028	--	--	0.00352	Volume	87 volume sources over the length of newly constructed road (0.58 miles). Information listed for one volume source. Emissions include road construction, heavy equipment tailpipe, and traffic.	--	--	--	2.29	4.96	2.13
Construction Traffic	4.05E-03	--	--	5.10E-04	Volume	302 volume sources over a representative length of road (2 miles). Emissions include traffic.	--	--	--	2.29	4.96	2.13
Well Pad Wind Erosion	12.59	8,903.09	1.78E-04	--	Area	Area source centered around the well pad.	0.00	94.40	94.40	--	--	--
Access Road Wind Erosion	14.08	4,981.41	3.56E-04	--	Area	Divided into 18 equal area sources over length of newly constructed road. Information listed is total emissions for all 18 area sources.	0.00	51.86	5.34	--	--	--

Table D2.3  
 Seminole Road Near-Field Modeling  
 SO<sub>2</sub> Source Emissions and Modeling Parameters

SO <sub>2</sub> Source	Modeled Emission Rate (lb/hr)	Modeled Emission Rate (g/s)	Source Type	Source Exit Characteristics and Layout	Stack Height (m)	Stack Temperature (K)	Stack Velocity (g/s)	Stack Diameter (m)
Drilling Rigs	1.82	0.229	Point	Located in the Center of the Well Pad.	5.00	675.00	30.00	0.20

Table D2.4  
 Seminole Road Near-Field Modeling  
 NO<sub>x</sub> Source Emissions and Modeling Parameters

NO <sub>x</sub> Sources	Modeled Emission Rate (lb/hr)	Modeled Area Source (m <sup>2</sup> )	Modeled Emission Rate (g/s/m <sup>2</sup> )	Source Type	Source Exit Characteristics and Layout	Release Height (m)	Number of Vertices
Field-Wide Area Source	248.00	581,573,171.00	5.37E-08	Areapoly	Includes heavy equipment tailpipe and down-hole pump emissions. Polygon shaped area source covers entire field.	5.00	10
Compression - please see Table D2.7 Seminole Road Compression Modeling Summary.							

Table D2.5  
 Seminoe Road Near-Field Modeling  
 CO Source Emissions and Modeling Parameters

CO Sources	Modeled Emission Rate (lb/hr)	Modeled Area Source (m <sup>2</sup> )	Modeled Emission Rate (g/s/m <sup>2</sup> )	Source Type	Source Exit Characteristics and Layout	Release Height (m)	Number of Vertices
Field-Wide Area Source	868.00	581,573,171.00	1.88E-07	Areapoly	Includes heavy equipment tailpipe and down-hole pump emissions. Polygon shaped area source covers entire field.	5.00	10
Compression - please see Table D2.7 Seminoe Road Compression Modeling Summary.							

Table D2.6  
 Seminole Road Near-Field Modeling  
 Formaldehyde Source Emissions and Modeling Parameters

Formaldehyde Sources	Modeled Emission Rate (lb/hr)	Modeled Area Source (m <sup>2</sup> )	Modeled Emission Rate (g/s/m <sup>2</sup> )	Source Type	Source Exit Characteristics and Layout	Release Height (m)	Number of Vertices
Field-wide Area Source	1.24	581,573,171.00	2.69E-10	Areapoly	Includes heavy equipment tailpipe and down-hole pump emissions. Polygon shaped area source covers entire field.	5.00	10
Compression - please see Table D2.7 Seminole Road Compression Modeling Summary.							

Table D2.7  
 Seminole Road Near-Field Modeling  
 Compression Modeling Summary

Facility	Unit Description	Horsepower	Stack ID	Source Type	Source Location		Stack Parameters				Stack Parameter Source	Permitted Emissions			Emissions Source	Modeled Emissions		
					UTM Zone 13		Height	Temperature	Velocity	Diameter		NO <sub>x</sub>	CO	Formaldehyde		NO <sub>x</sub>	CO	Formaldehyde
					Easting	Northing	(m)	(K)	(m/s)	(m)		(tpy)	(tpy)	(tpy)		(g/s)	(g/s)	(g/s)
Seminole Road C. S.	compressor engine	1,340	CS1_1	point	335509	4650305	7.32	672.20	27.30	0.40	Seminole Road C.S. Permit Application	19.30	6.60	0.90	Seminole Road C.S. Permit CT-2833	0.555	0.190	0.026
	compressor engine	1,206	CS1_2	point	335505	4650294	7.32	672.20	27.30	0.40		19.30	6.60	0.90		0.555	0.190	0.026
Unpermitted C.S. #1	compressor engine	1,340	CS2_1	point	337953	4636609	7.32	672.20	27.30	0.40	Assumed to be identical to the permitted compressor station.	19.30	6.60	0.90	Assumed to be identical to the permitted compressor station.	0.555	0.190	0.026
	compressor engine	1,206	CS2_2	point	337950	4636598	7.32	672.20	27.30	0.40		19.30	6.60	0.90		0.555	0.190	0.026
Unpermitted C.S. #2	compressor engine	1,340	CS3_1	point	335966	4642112	7.32	672.20	27.30	0.40	Assumed to be identical to the permitted compressor station.	19.30	6.60	0.90	Assumed to be identical to the permitted compressor station.	0.555	0.190	0.026
	compressor engine	1,206	CS3_2	point	335962	4642101	7.32	672.20	27.30	0.40		19.30	6.60	0.90		0.555	0.190	0.026