

9.0 AMBIENT AIR QUALITY MONITORING AND ANALYSIS

9.1 EXISTING AMBIENT AIR QUALITY MONITORING DATA

The nearest ambient air quality monitoring station is located at the intersection of Northwest 53rd Avenue and Northwest 43rd Street, approximately 7 km (4.5 miles) south of GREC. This station monitors the ambient air for PM₁₀ and PM_{2.5}. The nearest ambient air quality monitoring station that monitors for 1- and 8-hour average ozone is located at 2821 Northwest 143rd Street, approximately 14 km (8 miles) southwest of GREC. The nearest NO₂ ambient air quality monitoring station is located on Bennett Street in Jacksonville, Duval County, approximately 98 km (61 miles) northeast of GREC. The nearest CO ambient air quality monitoring station is located on South McDuff Avenue in Jacksonville, approximately 89 km (55 miles) northeast of GREC. The nearest ambient air quality monitoring station for lead is situated in Valdosta, Lowndes County, Georgia, approximately 148 km (92 miles) north west of GREC. Tables 9-1 and 9-2 provide summaries of the 2004 through 2008 ambient air quality data for these monitoring stations.

9.2 PRECONSTRUCTION AMBIENT AIR QUALITY MONITORING EXEMPTION APPLICABILITY

As previously discussed in Section 3.4.2, PSD review may require continuous ambient air monitoring data to be collected in the area of the proposed source for pollutants emitted in significant amounts. Because several PSD pollutants will be emitted from GREC in excess of their respective significant emission rates, preconstruction monitoring is required. However, Rule 62-212.400(3)(e), F.A.C., provides for an exemption from the preconstruction monitoring requirement for sources with *de minimis* air quality impacts. The *de minimis* ambient impact levels were previously presented in Table 3-3. To assess the appropriateness of monitoring exemptions, dispersion modeling analyses were performed to determine the maximum pollutant concentrations caused by GREC emissions.

The results of these analyses were presented in detail in Section 8.0. The following paragraphs summarize the GREC dispersion modeling results as applied to the preconstruction ambient air quality monitoring exemptions.

Table 9-1. Alachua County Ambient Air Quality Data—2004 through 2008

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Pollutant	Site Location		Site Name	Site Number	Distance From Site (km)	Direction From Site (Vector °)	Year	Averaging Period	Number of Observations	Ambient Concentration (ug/m ³)				Percent of Standard
	County	City								1 st High	2 nd High	Arithmetic Mean	Standard*	
PM ₁₀	Alachua	Gainesville	Northwest 53 rd Avenue and Northwest 43 rd Street	120010023	7	175	2004	24-Hour	343	63	48		150†	32.0
							2005	24-Hour	307	61	61		150†	40.7
							2006	24-Hour	353	54	39		150†	26.0
							2007	24-Hour	354	163‡	77‡		150†	51.3
							2008	24-Hour	273	53	51		150†	34.0
							2004	Annual	362			18	50§	36.0
							2005	Annual	355			19	50§	38.0
							2006	Annual	347			18	50§	36.0
							2007	Annual	355			20‡	50§	40.0
							2008	Annual	348			18	50§	36.0
PM _{2.5}	Alachua	Gainesville	Northwest 53 rd Avenue and Northwest 43 rd Street	120010023	7	175	2004	24-Hour	115	22.4	21.4		65†	32.9
							2005	24-Hour	120	39.5	25.3		65†	38.9
							2006	24-Hour	113	21.1	20.9		65†	32.2
							2007	24-Hour	118	60.9‡	50.9‡		65†	78.3
							2008	24-Hour	89	17.7	15.7		65†	24.2
							2004	Annual	115			9.18	15§	61.2
							2005	Annual	120			9.28	15§	61.9
							2006	Annual	113			9.09	15§	60.6
							2007	Annual	118			38.1‡	15§	254.0
							2008	Annual	89			15.7	15§	104.7
PM _{2.5}	Alachua	Gainesville	Southwest 8 th Avenue	120010024	14	188	2004	24-Hour	115	39.1	23.2		65†	0.0
							2005	24-Hour	110	34.5	24.6		65†	0.0
							2006	24-Hour	117	21.2	20.0		65†	0.0
							2007	24-Hour	117	50.0‡	44.8‡		65†	68.9
							2008	24-Hour	91	18.0	16.0		65†	0.0
							2004	Annual				9.45	15§	63.0
							2005	Annual				9.74	15§	64.9
							2006	Annual				9.34	15§	62.3
							2007	Annual				9.85	15§	65.7
							2008	Annual				8.08	15§	53.9
SO ₂	Putnam	Palatka	Comfort and Port Roads	121071008	72	98	2004	3-Hour	8,706	99	94		1,300†	7.2
							2005	3-Hour	8,686	133	128		1,300†	9.8
							2006	3-Hour	8,657	196	128		1,300†	9.8
							2007	3-Hour	8,533	65	63		1,300†	4.8
							2008	3-Hour	6,469	269	71		1,300†	5.4
							2004	24-Hour	8,706	34	26		260†	10.0
							2005	24-Hour	8,686	34	34		260†	13.1
							2006	24-Hour	8,657	37	37		260†	14.1
							2007	24-Hour	8,533	21	18		260†	7.0
							2008	24-Hour	6,469	39	18		260†	7.0

Table 9-1. Alachua County Ambient Air Quality Data—2004 through 2008

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Pollutant	Site Location		Site Name	Site Number	Distance From Site (km)	Direction From Site (Vector °)	Year	Averaging Period	Number of Observations	Ambient Concentration (ug/m ³)				
	County	City								1 st High	2 nd High	Arithmetic Mean	Standard*	Percent of Standard
SO ₂ (Continued)	Putnam	Palatka	Comfort and Port Roads	121071008	72	98	2004	Annual	8,706			5.2	60§	8.7
							2005	Annual	8,686			5.2	60§	8.7
							2006	Annual	8,657			5.2	60§	8.7
							2007	Annual	8,533			5.2	60§	8.7
							2008	Annual	6,469			5.2	60§	8.7
NO ₂	Duval	Jacksonville	2900 Bennett Street	120310032	98	49	2004	Annual	7,451			26.3	100§	26.3
							2005	Annual	7,890			24.4	100§	24.4
							2006	Annual	8,086			22.5	100§	22.5
							2007	Annual	7,990			18.8	100§	18.8
							2008	Annual	6,032			16.9	100§	16.9
CO	Duval	Jacksonville	1184 South McDuff Avenue	120310083	89	49	2004	1-Hour	7,963	4,300	3,500		40,000†	8.8
							2005	1-Hour	7,862	3,800	3,300		40,000†	8.3
							2006	1-Hour	8,467	3,900	3,900		40,000†	9.8
							2007	1-Hour	8,576	3,000	2,900		40,000†	7.3
							2008	1-Hour	6,318	2,900	2,400		40,000†	6.0
							2004	8-Hour	7,963	3,000	2,600		10,000†	26.0
							2005	8-Hour	7,862	2,300	2,200		10,000†	22.0
							2006	8-Hour	8,467	2,600	1,800		10,000†	18.0
							2007	8-Hour	8,576	2,100	1,700		10,000†	17.0
							2008	8-Hour	6,318	1,600	1,400		10,000†	14.0
							2004	24-Hour	24	0.01	0.01		0.15⊗	6.7
							2005	24-Hour	27	0.01	0.00		0.15⊗	6.7
							2006	24-Hour	31	0.01	0.01		0.15⊗	6.7
Lead	Lowndes	Valdosta, GA	Valdosta_S.L. Mason	131850003	148	326	2007	24-Hour	27	0.00	0.00		0.15⊗	0.0
							2008	24-Hour	23	0.00	0.00		0.15⊗	0.0
							2004	Max quarterly	24	0.00			1.5§	0.0
							2005	Max quarterly	27	0.00			1.5§	0.0
							2006	Max quarterly	31	0.00			1.5§	0.0
							2007	Max quarterly	27	0.00			1.5§	0.0
							2008	Max quarterly	23	0.00			1.5§	0.0
							2004	Max quarterly	24	0.00			1.5§	0.0
							2005	Max quarterly	27	0.00			1.5§	0.0
							2006	Max quarterly	31	0.00			1.5§	0.0

*See Table 3.3.7-4 for the complete conditions associated with each standard.

†Not to be exceeded more than once per year.

‡FDEP suggests interference from a fire. EPA is currently reviewing the exclusion of this data.

§Arithmetic mean.

⊗Rolling 3-month average.

Sources: FDEP, 2007.
 EPA AirData, 2009.
 ECT, 2009.

Table 9-2. Alachua County Ozone Ambient Air Quality Data—2002 through 2008

Site Location		Site Name	Site Number	Distance From Site (km)	Direction From Site (Vector °)	Year	Averaging Period	Number of Days	Ambient Ozone Concentration ($\mu\text{g}/\text{m}^3$)					Percent of Standard*
County	City								1 st High	2 nd High	3 rd high	4 th high	Standard	
Alachua	Gainesville	200 Savannah Boulevard	120013011	27	159	2002	1-Hour	243	176	167	157	157	235†	N/C
						2003	1-Hour	238	174	170	159	157	235†	N/C
						2004	1-Hour	232	186	178	167	161	235†	74.2
						2005	1-Hour	146	168	165	165	163	235†	72.5
						2006	1-Hour	244	174	168	167	167	235†	71.7
						2007	1-Hour	245	188	182	182	178	235†	75.9
						2008	1-Hour	209	165	149	147	147	235†	62.5
						2002	8-Hour	240	149	141	139	139	157‡	N/C
						2003	8-Hour	236	159	147	143	139	157‡	N/C
						2004	8-Hour	231	161	155	153	147	157‡	90.3
						2005	8-Hour	146	153	147	143	143	157‡	91.1
						2006	8-Hour	244	153	151	147	147	157‡	92.8
						2007	8-Hour	245	161	159	155	153	157‡	94.0
						2008	8-Hour	207	149	139	137	135	157‡	92.3
Alachua	Gainesville	2821 Northwest 143 rd Street	120010025	13	223	2002	1-Hour	N/A	N/A	N/A	N/A	N/A	235†	N/A
						2003	1-Hour	234	174	168	161	155	235†	N/C
						2004	1-Hour	219	182	161	159	155	235†	N/C
						2005	1-Hour	243	165	165	165	165	235†	70.0
						2006	1-Hour	N/A	N/A	N/A	N/A	N/A	235†	N/A
						2007	1-Hour	N/A	N/A	N/A	N/A	N/A	235†	N/A
						2008	1-Hour	N/A	N/A	N/A	N/A	N/A	235†	N/A
						2002	8-Hour	N/A	N/A	N/A	N/A	N/A	157‡	N/A
						2003	8-Hour	234	165	153	151	143	157‡	N/C
						2004	8-Hour	216	165	147	143	143	157‡	N/C
						2005	8-Hour	242	151	151	143	141	157‡	90.7
						2006	8-Hour	N/A	N/A	N/A	N/A	N/A	157‡	N/A
						2007	8-Hour	N/A	N/A	N/A	N/A	N/A	157‡	N/A
						2008	8-Hour	N/A	N/A	N/A	N/A	N/A	157‡	N/A

Note: N/A = not available.
N/C = not calculated.

*Percent of standard for 1-hour values is based on 1-hour design values (4th highest daily 1-hour maximum over a 3-year period).

†Average number of expected exceedances above the standard per year, over a 3-year period, is less than or equal to one.

‡4th highest daily 8-hour concentration averaged over a 3-year period.

Sources: FDEP, 2007.
EPA AirData, 2009.
ECT, 2009.

9.2.1 PM₁₀

The GREC maximum 24-hour PM₁₀ impact of 20.4 µg/m³ is above the 10-µg/m³ *de minimis* level ambient impact level for PM₁₀, and therefore a preconstruction monitoring exemption in accordance with Rule 62-212.400(3)(e), F.A.C., is not applicable. However, in accordance with EPA guidance (EPA, 1992) representative current quality-assured ambient data collected at an FDEP ambient monitoring site in the general vicinity of GREC can be used to satisfy the PSD preconstruction ambient air monitoring requirements. Ambient air data collected by FDEP at Site 120010023, intersection of Northwest 53rd Avenue and Northwest 43rd Street (located approximately 4.5 miles south of GREC), is representative ambient air data for PM₁₀, and therefore onsite preconstruction ambient air monitoring is not required.

9.2.2 SO₂

The GREC maximum 24-hour SO₂ impact of 3.3 µg/m³ is below the 13-µg/m³ *de minimis* ambient impact level for the 24-hour averaging period. Therefore, a preconstruction monitoring exemption for SO₂ is appropriate in accordance with FDEP PSD regulations.

9.2.3 NO₂

The GREC maximum annual NO₂ impact of 0.52 µg/m³ is below the 14-µg/m³ *de minimis* ambient impact level. Therefore, a preconstruction monitoring exemption is appropriate for NO₂ in accordance with the FDEP PSD regulations.

9.2.4 CO

The GREC maximum 8-hour CO impact of 160 µg/m³ is below the 575-µg/m³ *de minimis* ambient impact level. Therefore, a preconstruction monitoring exemption is appropriate for CO in accordance with the FDEP PSD regulations.

9.2.5 OZONE

Preconstruction monitoring for ozone is required if potential VOC emissions from a project subject to PSD review exceed 100 tpy. Estimated GREC potential VOC emissions are 78.1 tpy. Therefore, a preconstruction monitoring exemption is appropriate for ozone in accordance with the FDEP PSD regulations.