



## **MVP Southgate Project**

Docket No. PF18-4-000

Draft

## **Resource Report 9 Supplement**

## **Air and Noise Quality**

August 2018

**Table 9.2-8**

**Estimated Construction Emissions from the MVP Southgate Project – 2020**

SOURCE	2020 CONSTRUCTION EMISSIONS (TPY)							
	CO <sub>2</sub>	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	VOC	HAPS
<b>Lambert Compressor Station/Interconnect:</b>								
Construction Equipment Engines	7,664	15.26	22.16	1.64	1.64	0.0413	3.13	0.18
On-Road Vehicle Travel	470	3.77	0.46	0.09	0.02	0.0033	0.13	0.05
Off-Road Vehicle Travel	1,766	5.78	3.87	0.46	0.20	0.0144	0.50	0.11
Earthmoving Fugitives	--	--	--	12.28	1.23	--	--	--
Wind Erosion	--	--	--	1.77	0.27	--	--	--
<b>Lambert Total</b>	<b>9,900</b>	<b>24.80</b>	<b>26.49</b>	<b>16.2</b>	<b>3.36</b>	<b>0.0589</b>	<b>3.76</b>	<b>0.34</b>
<b>Russell Compressor Station:</b>								
Construction Equipment Engines	5,304	11.62	15.44	1.15	1.15	0.0287	2.19	0.12
On-Road Vehicle Travel	330	2.52	0.36	0.06	0.02	0.0023	0.09	0.03
Off-Road Vehicle Travel	1,033	3.22	2.30	0.27	0.12	0.0084	0.29	0.06
Earthmoving Fugitives	--	--	--	13.60	1.36	--	--	--
Wind Erosion	--	--	--	1.96	0.29	--	--	--
<b>Russell Total</b>	<b>6,667</b>	<b>17.35</b>	<b>18.09</b>	<b>17.0</b>	<b>2.94</b>	<b>0.0394</b>	<b>2.57</b>	<b>0.22</b>
<b>Meter Stations:</b>								
Construction Equipment Engines	4,411	7.61	13.04	0.91	0.91	0.0238	1.71	0.10
On-Road Vehicle Travel	150	1.26	0.13	0.03	0.01	0.0010	0.04	0.02
Off-Road Vehicle Travel	1,855	4.52	4.46	0.51	0.24	0.0155	0.53	0.11
Earthmoving Fugitives	--	--	--	0.77	0.08	--	--	--
Wind Erosion	--	--	--	0.00	0.00	--	--	--
<b>Meter Station Total</b>	<b>6,416</b>	<b>13.38</b>	<b>17.63</b>	<b>2.2</b>	<b>1.23</b>	<b>0.0403</b>	<b>2.28</b>	<b>0.22</b>
<b>Pipeline:</b>								
Construction Equipment Engines	83,586	71.95	196.60	11.22	11.22	0.4379	24.76	1.92
On-Road Vehicle Travel	2,822	25.24	2.10	0.50	0.10	0.0190	0.75	0.32
Off-Road Vehicle Travel	1,464	6.50	2.77	0.36	0.15	0.0115	0.41	0.11
Earthmoving Fugitives	--	--	--	952.8	95.28	--	--	--
Wind Erosion	--	--	--	137.1	20.57	--	--	--
<b>Pipeline Total</b>	<b>87,872</b>	<b>103.69</b>	<b>201.47</b>	<b>1,102.0</b>	<b>127.32</b>	<b>0.4684</b>	<b>25.92</b>	<b>2.35</b>
Pipeline in Pittsylvania, VA	29,322	34.67	67.22	400.71	45.99	0.1564	8.65	0.78
Pipeline in Rockingham, NC	29,250	34.45	67.06	414.42	47.87	0.1558	8.63	0.78
Pipeline in Alamance, NC	29,300	34.57	67.18	282.92	33.47	0.1562	8.64	0.78
<b>2020 TOTAL:</b>	<b>110,855</b>	<b>159.2</b>	<b>263.7</b>	<b>1,137.5</b>	<b>134.9</b>	<b>0.6</b>	<b>34.5</b>	<b>3.1</b>

Table 9.2-9								
Estimated Construction Emissions from the MVP Southgate Project – 2021								
SOURCE	2021 CONSTRUCTION EMISSIONS (TPY)							
	CO <sub>2</sub>	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS
<b>Lambert Compressor Station/Interconnect:</b>								
Construction Equipment Engines	1,929	2.14	4.46	0.34	0.34	0.0101	0.69	0.04
On-Road Vehicle Travel	95	0.65	0.12	0.02	0.01	0.0007	0.03	0.01
Off-Road Vehicle Travel	233	0.84	0.49	0.06	0.03	0.0019	0.07	0.02
Earthmoving Fugitives	--	--	--	6.14	0.61	--	--	--
Wind Erosion	--	--	--	0.88	0.13	--	--	--
<b>Lambert Total</b>	<b>2,257</b>	<b>3.62</b>	<b>5.07</b>	<b>7.44</b>	<b>1.12</b>	<b>0.0126</b>	<b>0.78</b>	<b>0.07</b>
<b>Russell Compressor Station:</b>								
Construction Equipment Engines	1,841	1.96	4.10	0.31	0.31	0.0096	0.64	0.04
On-Road Vehicle Travel	77	0.48	0.11	0.02	0.01	0.0006	0.02	0.01
Off-Road Vehicle Travel	231	0.82	0.49	0.06	0.03	0.0019	0.07	0.02
Earthmoving Fugitives	--	--	--	6.80	0.68	--	--	--
Wind Erosion	--	--	--	0.98	0.15	--	--	--
<b>Russell Total</b>	<b>2,149</b>	<b>3.26</b>	<b>4.70</b>	<b>8.16</b>	<b>1.17</b>	<b>0.0120</b>	<b>0.73</b>	<b>0.06</b>
<b>Meter Stations:</b>								
Construction Equipment Engines	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00
On-Road Vehicle Travel	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00
Off-Road Vehicle Travel	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00
Earthmoving Fugitives	--	--	--	0.11	0.02	--	--	--
Wind Erosion	--	--	--	0.00	0.00	--	--	--
<b>Meter Station Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.11</b>	<b>0.02</b>	<b>0.0000</b>	<b>0.00</b>	<b>0.00</b>
<b>Pipeline:</b>								
Construction Equipment Engines	4,417	2.21	5.93	0.32	0.32	0.0221	1.14	0.10
On-Road Vehicle Travel	292	1.75	0.43	0.06	0.02	0.0022	0.08	0.03
Off-Road Vehicle Travel	131	0.60	0.24	0.03	0.01	0.0010	0.04	0.01
Earthmoving Fugitives	--	--	--	555.82	55.58	--	--	--
Wind Erosion	--	--	--	80.01	12.00	--	--	--
<b>Pipeline Total</b>	<b>4,840</b>	<b>4.56</b>	<b>6.61</b>	<b>636.24</b>	<b>67.93</b>	<b>0.0253</b>	<b>1.26</b>	<b>0.14</b>
Pipeline in Pittsylvania, VA	1,629	1.53	2.25	231.54	24.71	0.0086	0.42	0.05
Pipeline in Rockingham, NC	1,594	1.51	2.15	241.88	25.81	0.0083	0.41	0.04
Pipeline in Alamance, NC	1,617	1.52	2.21	162.83	17.41	0.0085	0.42	0.05
<b>2021 TOTAL:</b>	<b>9,246</b>	<b>11.4</b>	<b>16.4</b>	<b>651.9</b>	<b>70.2</b>	<b>0.05</b>	<b>2.8</b>	<b>0.3</b>

## **MVP Southgate Project**

**Docket No. PF18-4-000**

**Draft Resource Report 9**

### **Appendix 9-A**

## **Construction Emissions Calculations**

Table 9-A1

MVP Southgate Project  
Construction Period Emissions Summary

County	Activity	2020 Emission Totals (Tons)								2021 Emission Totals (Tons)							
		CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS
Pittsylvania, VA	Non-Road and On-Road Construction Vehicles and Worker Commutes	39,222.0	59.5	93.7	6.2	5.7	0.2	12.4	1.1	3,885.8	5.2	7.3	0.6	0.5	0.0	1.2	0.1
	Fugitive Dust	0.0	0.0	0.0	410.7	43.7	0.0	0.0	0.0	0.0	0.0	0.0	238.4	25.3	0.0	0.0	0.0
	<b>TOTAL</b>	<b>39,222.0</b>	<b>59.5</b>	<b>93.7</b>	<b>416.9</b>	<b>49.3</b>	<b>0.2153</b>	<b>12.40</b>	<b>1.12</b>	<b>3,885.8</b>	<b>5.2</b>	<b>7.3</b>	<b>239.0</b>	<b>25.8</b>	<b>0.0212</b>	<b>1.20</b>	<b>0.11</b>
Rockingham, NC	Non-Road and On-Road Construction Vehicles and Worker Commutes	40,194.2	60.7	96.9	6.5	5.9	0.2	12.7	1.1	3,743.0	4.8	6.8	0.5	0.5	0.0	1.1	0.1
	Fugitive Dust	0.0	0.0	0.0	430.7	45.8	0.0000	0.0	0.0	0.0	0.0	0.0	249.5	26.5	0.0	0.0	0.0
	<b>TOTAL</b>	<b>40,194.2</b>	<b>60.7</b>	<b>96.9</b>	<b>437.1</b>	<b>51.6</b>	<b>0.2221</b>	<b>12.72</b>	<b>1.15</b>	<b>3,743.0</b>	<b>4.8</b>	<b>6.8</b>	<b>250.0</b>	<b>27.0</b>	<b>0.0203</b>	<b>1.14</b>	<b>0.11</b>
Alamance, NC	Non-Road and On-Road Construction Vehicles and Worker Commutes	31,438.9	39.0	73.1	4.5	4.2	0.2	9.4	0.9	1,616.8	1.5	2.2	0.1	0.1	0.0	0.4	0.0
	Fugitive Dust	0.0	0.0	0.0	279.1	29.7	0.0	0.0	0.0	0.0	0.0	0.0	162.7	17.3	0.0	0.0	0.0
	<b>TOTAL</b>	<b>31,438.9</b>	<b>39.0</b>	<b>73.1</b>	<b>283.6</b>	<b>33.9</b>	<b>0.1696</b>	<b>9.40</b>	<b>0.86</b>	<b>1,616.8</b>	<b>1.5</b>	<b>2.2</b>	<b>162.8</b>	<b>17.4</b>	<b>0.0085</b>	<b>0.42</b>	<b>0.05</b>
<b>PROJECT TOTAL</b>		<b>110,855.0</b>	<b>159.2</b>	<b>263.7</b>	<b>1,137.7</b>	<b>134.9</b>	<b>0.6</b>	<b>34.5</b>	<b>3.1</b>	<b>9,245.6</b>	<b>11.4</b>	<b>16.4</b>	<b>651.8</b>	<b>70.2</b>	<b>0.05</b>	<b>2.8</b>	<b>0.3</b>

Table 9-A2

MVP Southgate Project  
Construction Period Work Activity Emissions Summary

Summary of Non-Road Emissions

Activity	2020 Emission Totals (Tons)									2021 Emission Totals (Tons)							
	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	
H-650 Pipeline - Pittsylvania County, VA	27,862	23.98	65.53	3.74	3.74	0.1460	8.25	0.64	1,472	0.74	1.98	0.11	0.11	0.0074	0.38	0.03	
H-650 Pipeline - Rockingham County, NC	27,862	23.98	65.53	3.74	3.74	0.1460	8.25	0.64	1,472	0.74	1.98	0.11	0.11	0.0074	0.38	0.03	
H-650 Pipeline - Alamance County, NC	27,862	23.98	65.53	3.74	3.74	0.1460	8.25	0.64	1,472	0.74	1.98	0.11	0.11	0.0074	0.38	0.03	
Lambert Compressor Station/ Interconnect	7,664	15.26	22.16	1.64	1.64	0.0413	3.13	0.18	1,929	2.14	4.46	0.34	0.34	0.0101	0.69	0.04	
Russel Compressor Station	5,304	11.62	15.44	1.15	1.15	0.0287	2.19	0.12	1,841	1.96	4.10	0.31	0.31	0.0096	0.64	0.04	
LN 3600 Interconnect	1,470	2.54	4.35	0.30	0.30	0.0079	0.57	0.03	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
T-15 Dan River Interconnect	1,470	2.54	4.35	0.30	0.30	0.0079	0.57	0.03	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
T-21 Haw River Interconnect	1,470	2.54	4.35	0.30	0.30	0.0079	0.57	0.03	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
<b>TOTAL</b>	<b>100,964</b>	<b>106.43</b>	<b>247.24</b>	<b>14.91</b>	<b>14.91</b>	<b>0.5317</b>	<b>31.79</b>	<b>2.32</b>	<b>8,187</b>	<b>6.31</b>	<b>14.48</b>	<b>0.96</b>	<b>0.96</b>	<b>0.0418</b>	<b>2.47</b>	<b>0.19</b>	

Summary of On-Road Construction Vehicle Emissions including Material Deliveries/Removals and Worker Commutes

Activity	2020 Emission Totals (Tons)									2021 Emission Totals (Tons)							
	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	
H-650 Pipeline - Pittsylvania County, VA	972	8.52	0.77	0.17	0.04	0.0066	0.26	0.11	113	0.60	0.19	0.03	0.01	0.0009	0.03	0.01	
H-650 Pipeline - Rockingham County, NC	900	8.30	0.61	0.15	0.03	0.0060	0.24	0.10	78	0.57	0.09	0.02	0.00	0.0006	0.02	0.01	
H-650 Pipeline - Alamance County, NC	950	8.42	0.73	0.17	0.04	0.0064	0.25	0.11	101	0.59	0.15	0.02	0.01	0.0008	0.03	0.01	
Lambert Compressor Station/ Interconnect	470	3.77	0.46	0.09	0.02	0.0033	0.13	0.05	95	0.65	0.12	0.02	0.01	0.0007	0.03	0.01	
Russel Compressor Station	330	2.52	0.36	0.06	0.02	0.0023	0.09	0.03	77	0.48	0.11	0.02	0.01	0.0006	0.02	0.01	
LN 3600 Interconnect	50	0.42	0.04	0.01	0.00	0.0003	0.01	0.01	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
T-15 Dan River Interconnect	50	0.42	0.04	0.01	0.00	0.0003	0.01	0.01	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
T-21 Haw River Interconnect	50	0.42	0.04	0.01	0.00	0.0003	0.01	0.01	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
<b>TOTAL</b>	<b>3,772</b>	<b>32.78</b>	<b>3.05</b>	<b>0.68</b>	<b>0.15</b>	<b>0.0256</b>	<b>1.00</b>	<b>0.42</b>	<b>463</b>	<b>2.88</b>	<b>0.66</b>	<b>0.10</b>	<b>0.03</b>	<b>0.0034</b>	<b>0.13</b>	<b>0.04</b>	

Summary of Off-Road Vehicle Travel

Activity	2020 Emission Totals (Tons)									2021 Emission Totals (Tons)							
	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	CO <sub>2</sub>	CO	NOx	PM <sub>10</sub>	PM <sub>25</sub>	SO <sub>2</sub>	VOC	HAPS	
H-650 Pipeline - Pittsylvania County, VA	488	2.17	0.92	0.12	0.05	0.0038	0.14	0.04	44	0.20	0.08	0.01	0.00	0.0003	0.01	0.00	
H-650 Pipeline - Rockingham County, NC	488	2.17	0.92	0.12	0.05	0.0038	0.14	0.04	44	0.20	0.08	0.01	0.00	0.0003	0.01	0.00	
H-650 Pipeline - Alamance County, NC	488	2.17	0.92	0.12	0.05	0.0038	0.14	0.04	44	0.20	0.08	0.01	0.00	0.0003	0.01	0.00	
Lambert Compressor Station/ Interconnect	1,766	5.78	3.87	0.46	0.20	0.0144	0.50	0.11	233	0.84	0.49	0.06	0.03	0.0019	0.07	0.02	
Russel Compressor Station	1,033	3.22	2.30	0.27	0.12	0.0084	0.29	0.06	231	0.82	0.49	0.06	0.03	0.0019	0.07	0.02	
LN 3600 Interconnect	618	1.51	1.49	0.17	0.08	0.0052	0.18	0.04	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
T-15 Dan River Interconnect	618	1.51	1.49	0.17	0.08	0.0052	0.18	0.04	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
T-21 Haw River Interconnect	618	1.51	1.49	0.17	0.08	0.0052	0.18	0.04	0	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	
<b>TOTAL</b>	<b>6,119</b>	<b>20.01</b>	<b>13.39</b>	<b>1.59</b>	<b>0.71</b>	<b>0.0498</b>	<b>1.74</b>	<b>0.39</b>	<b>596</b>	<b>2.25</b>	<b>1.23</b>	<b>0.15</b>	<b>0.06</b>	<b>0.0048</b>	<b>0.17</b>	<b>0.04</b>	

Summary of Fugitive Dust Emissions

Activity	2020 Emission Totals (Tons)		2021 Emission Totals (Tons)	
	PM <sub>10</sub>	PM <sub>25</sub>	PM <sub>10</sub>	PM <sub>25</sub>
H-650 Pipeline - Pittsylvania County, VA	397	42.16	231.39	24.60
H-650 Pipeline - Rockingham County, NC	414	44.05	241.74	25.70
H-650 Pipeline - Alamance County, NC	279	29.64	162.69	17.29
Lambert Compressor Station/ Interconnect	14	1.49	7.02	0.75
Russel Compressor Station	16	1.65	7.78	0.83
LN 3600 Interconnect	0	0.02	0.00	0.00
T-15 Dan River Interconnect	0	0.05	0.00	0.00
T-21 Haw River Interconnect	0	0.02	0.00	0.00
<b>TOTAL</b>	<b>1,120</b>	<b>119.10</b>	<b>650.63</b>	<b>69.16</b>

**Table 9-A3**  
**MVP Southgate Project**  
**Fugitive Dust Emissions During Construction**

Facility	County	Disturbed Acreage	Construction Duration (months)	Exposed Soils (acre-months)	Total PM Emissions (tons)				Earth Moving - Total PM Emissions (tons)				Wind Erosion - Total PM Emissions (tons)			
					2020		2021		2020		2021		2020		2021	
					PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
H-650 Pipeline	Pittsylvania, VA	525.4	19	9,983	396.68	42.16	231.39	24.60	346.76	34.68	202.28	20.23	49.91	7.49	29.12	4.37
	Rockingham, NC	548.9	19	10,429	414.42	44.05	241.74	25.70	362.27	36.23	211.33	21.13	52.15	7.82	30.42	4.56
	Alamance, NC	369.4	19	7,019	278.90	29.64	162.69	17.29	243.80	24.38	142.22	14.22	35.09	5.26	20.47	3.07
Lambert Compressor Station/ Interconnect	Pittsylvania, VA	18.6	18	335	14.04	1.49	7.02	0.75	12.28	1.23	6.14	0.61	1.77	0.27	0.88	0.13
Russel Compressor Station	Rockingham, NC	20.6	18	371	15.55	1.65	7.78	0.83	13.60	1.36	6.80	0.68	1.96	0.29	0.98	0.15
LN 3600 Interconnect	Rockingham, NC	0.7	5	4	0.22	0.02	0.00	0.00	0.19	0.02	0.00	0.00	0.03	0.00	0.00	0.00
T-15 Dan River Interconnect	Rockingham, NC	1.5	5	8	0.47	0.05	0.00	0.00	0.41	0.04	0.00	0.00	0.06	0.01	0.00	0.00
T-21 Haw River Interconnect	Alamance, NC	0.6	5	3	0.19	0.02	0.00	0.00	0.17	0.02	0.00	0.00	0.02	0.00	0.00	0.00
<b>Total</b>				<b>28,150</b>	<b>1120.47</b>	<b>119.10</b>	<b>650.63</b>	<b>69.16</b>	<b>979.48</b>	<b>97.95</b>	<b>568.76</b>	<b>56.88</b>	<b>140.99</b>	<b>21.15</b>	<b>81.87</b>	<b>12.28</b>

**Fugitive Dust Emission Factors (Construction)**

PM<sub>10</sub><sup>2</sup> 5.50E-02 ton/acre-month  
 PM<sub>2.5</sub><sup>1,2</sup> 5.50E-03 ton/acre-month

<sup>1</sup>WRAP Fugitive Dust Handbook, Countess Environmental, September 2006, Section 3.4.1.

<sup>2</sup>WRAP Fugitive Dust Handbook, Table 3-2, level 1, average conditions

**Fugitive Dust Emission Factors (Wind Erosion)**

PM<sub>10</sub><sup>3</sup> 7.92E-03 ton/acre-month  
 PM<sub>2.5</sub><sup>3,4</sup> 1.19E-03 ton/acre-month

<sup>3</sup>Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook, Table 11-6)

<sup>4</sup>PM<sub>10</sub>/TSP = 0.5, PM<sub>2.5</sub>/PM<sub>10</sub> = 0.15, (WRAP Fugitive Dust Handbook, Section 7-2)

<sup>5</sup>Water and other approved dust suppressants would be used at construction sites (50% minimum control applied per WRAP Fugitive Dust Handbook).

Table 9-A4

H-650 Pipeline Construction Equipment Air Emissions - Pittsylvania County

MVP Southgate Project  
H-650 Pipeline, Pittsylvania, VA

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)							Engine Load Factor	2020 Emission Totals (Tons)							2021 Emission Totals (Tons)										
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC		HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	
		2020		2021			CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2		CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs			
<b>Nonroad construction equipment</b>																																		
Light plants	15	X		2	4	2270002027	2,149	277	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	9.00	0.04	0.07	0.005	0.005	0.0001	0.007	0.000	1.16	0.00	0.01	0.001	0.001	0.0000	0.001	0.000	
Bore rigs	250	X		6	10	2270002033	2,080	0	530.27	0.68	2.86	0.15	0.15	0.0031	0.24	0.01	0.43	130.70	0.17	0.70	0.036	0.036	0.0008	0.060	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
HDD Reaming/Pullback Rig	875	X		6	10	2270002033	2,080	0	530.03	1.09	4.71	0.18	0.18	0.0031	0.32	0.01	0.43	457.24	0.94	4.06	0.157	0.157	0.0027	0.272	0.011	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
HDD Assist Reaming/Pilot Hole Rig	440	X		6	10	2270002033	2,080	0	530.35	0.88	3.08	0.14	0.14	0.0031	0.22	0.01	0.43	230.06	0.38	1.33	0.060	0.060	0.0014	0.094	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Excavators (CAT 345C)	325	X		6	10	2270002036	71,240	3,640	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	8076.65	5.70	15.00	0.819	0.819	0.0417	2.101	0.185	412.68	0.29	0.77	0.042	0.042	0.0021	0.107	0.009	
Excavators (JD 350G LC)	271	X		6	10	2270002036	8,060	0	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	761.97	0.24	0.75	0.030	0.030	0.0037	0.191	0.017	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Excavators (CAT 320DL)	148	X		6	10	2270002036	71,240	3,900	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	3678.05	1.56	3.83	0.244	0.244	0.0182	0.935	0.084	201.35	0.09	0.21	0.013	0.013	0.0010	0.051	0.005	
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	8	2270002051	6,656	1,456	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	717.48	0.26	0.70	0.028	0.028	0.0035	0.179	0.016	156.95	0.06	0.15	0.006	0.006	0.0008	0.039	0.004	
Water Truck	175	X		6	10	2270002051	4,160	1,560	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	253.97	0.06	0.15	0.005	0.005	0.0012	0.063	0.006	95.24	0.02	0.06	0.002	0.002	0.0005	0.023	0.002	
Utility Truck	100	X		6	10	2270002051	10,140	2,080	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	353.74	0.10	0.22	0.008	0.008	0.0017	0.087	0.008	72.56	0.02	0.04	0.002	0.002	0.0004	0.018	0.002	
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	6	2270002066	1,560	0	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	32.51	0.09	0.14	0.018	0.018	0.0002	0.023	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Dozers (CAT D6K)	125	X		6	10	2270002069	49,920	4,160	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	2176.73	1.15	2.92	0.207	0.207	0.0109	0.571	0.050	181.39	0.10	0.24	0.017	0.017	0.0009	0.048	0.004	
Dozers (CAT D7E)	235	X		6	10	2270002069	49,400	3,900	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	4049.71	1.54	5.08	0.220	0.220	0.0201	1.039	0.093	319.71	0.12	0.40	0.017	0.017	0.0016	0.082	0.007	
Off-highway tractors (John Deere 6115D)	115	X		6	6	2270002051	1,404	468	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	56.33	0.02	0.03	0.001	0.001	0.0003	0.014	0.001	18.78	0.01	0.01	0.000	0.000	0.0001	0.005	0.000	
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	3,120	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	269.88	0.23	0.67	0.043	0.043	0.0014	0.081	0.006	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Feller Buncher (CAT 553C)	173	X		6	10	2270002081	260	0	536.28	0.61	1.44	0.14	0.14	0.0029	0.17	0.01	0.59	15.69	0.02	0.04	0.004	0.004	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	780	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	49.51	0.04	0.12	0.008	0.008	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Chipper (Bandit 1850)	250	X		6	10	2270002081	780	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	68.01	0.06	0.17	0.011	0.011	0.0004	0.020	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Sideboom (CAT 583T Pipelayer)	347	X		6	10	2270002081	37,700	0	536.26	0.95	2.24	0.14	0.14	0.0031	0.18	0.01	0.59	4562.39	8.12	19.09	1.169	1.169	0.0261	1.524	0.105	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Bending Machine	175	X		6	10	2270002081	3,900	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	238.05	0.20	0.59	0.038	0.038	0.0013	0.071	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	1,560	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	16.32	0.01	0.09	0.001	0.001	0.0001	0.004	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Chain Saw	10	X		6	10	2270002081	7,540	0	594.37	4.49	4.32	0.35	0.35	0.0040	0.56	0.01	0.59	29.15	0.22	0.21	0.017	0.017	0.0002	0.027	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
<b>Nonroad Industrial Equipment</b>																																		
Bobcat with sweeper attachment	70	X		6	2	2270003040	572	364	589.79	1.16	3.25	0.14	0.14	0.0033	0.18	0.01	0.43	11.19	0.02	0.06	0.003	0.003	0.0001	0.003	0.000	7.12	0.01	0.04	0.002	0.002	0.0000	0.002	0.000	
Bobcat with brush hog attachment	70	X		6	2	2270003040	312	0	589.79	1.16	3.25	0.14	0.14	0.0033	0.18	0.01	0.43	6.11	0.01	0.03	0.001	0.001	0.0000	0.002	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
<b>Nonroad Commercial Equipment</b>																																		
Pumps	15	X		6	6	2270006010	13,416	1,092	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	56.16	0.23	0.44	0.034	0.034	0.0004	0.046	0.001	4.57	0.02	0.04	0.003	0.003	0.0000	0.004	0.000	
Air compressors	275	X		6	10	2270006015	18,200	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	1257.68	2.09	7.29	0.463	0.463	0.0075	0.659	0.029	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Welders	55	X		6	9	2270006025	19,422	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	268.43	0.45	1.56	0.099	0.099	0.0016	0.141	0.006	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Pressure washers	5	X		6	4	2270006030	2,392	728	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	3.01	0.00	0.02	0.001	0.001	0.0000	0.002	0.000	0.91	0.00	0.01	0.000	0.000	0.0000	0.000	0.000	
Hydro power units	200	X		6	10	2270006035	520	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	26.13	0.04	0.15	0.010	0.010	0.0002	0.014	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
<b>On-road construction vehicles</b>																																		
							Number of Vehicle Miles Traveled		MOVES Emission Factors (g/VMT)							2020 Emission Totals (Tons)							2021 Emission Totals (Tons)											
							2020		2021		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP
Light duty gasoline vehicles (< 6,000 lb GVW)	150		X	6	2		46,800	1,560	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		22.55	0.21	0.02	0.004	0.001	0.0002	0.006	0.003	0.75	0.01	0.00	0.000	0.000	0.0000	0.000	0.000	
Heavy duty gasoline vehicles (>6,000 lb GVW)	300		X	6	2		393,120	39,000	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		189.43	1.75	0.13	0.032	0.006	0.0013	0.050	0.022	18.79	0.17	0.01	0.003	0.001	0.0001	0.005	0.002	
Light duty diesel vehicles (< 6,000 lb GVW)	150		X																															



**Table 9-A5**  
**H-650 Pipeline Construction Equipment Air Emissions - Rockingham County**

MVP Southgate Project  
H-650 Pipeline, Rockingham, NC

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)							2021 Emission Totals (Tons)								
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs
<b>Nonroad construction equipment</b>																																	
Light plants	15	X		2	4	2270002027	2,149	277	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	9.00	0.04	0.07	0.005	0.005	0.0001	0.007	0.000	1.16	0.00	0.01	0.001	0.001	0.0000	0.001	0.000
Bore rigs	250	X		6	10	2270002033	2,080	0	530.27	0.68	2.86	0.15	0.15	0.0031	0.24	0.01	0.43	130.70	0.17	0.70	0.036	0.036	0.0008	0.060	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
HDD Reaming/Pullback Rig	875	X		6	10	2270002033	2,080	0	530.03	1.09	4.71	0.18	0.18	0.0031	0.32	0.01	0.43	457.24	0.94	4.06	0.157	0.157	0.0027	0.272	0.011	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
HDD Assist Reaming/Pilot Hole Rig	440	X		6	10	2270002033	2,080	0	530.35	0.88	3.08	0.14	0.14	0.0031	0.22	0.01	0.43	230.06	0.38	1.33	0.060	0.060	0.0014	0.094	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Excavators (CAT 345C)	325	X		6	10	2270002036	71,240	3,640	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	8076.65	5.70	15.00	0.819	0.819	0.0417	2.101	0.185	412.68	0.29	0.77	0.042	0.042	0.0021	0.107	0.009
Excavators (JD 350G LC)	271	X		6	10	2270002036	8,060	0	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	761.97	0.24	0.75	0.030	0.030	0.0037	0.191	0.017	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Excavators (CAT 320DL)	148	X		6	10	2270002036	71,240	3,900	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	3678.05	1.56	3.83	0.244	0.244	0.0182	0.935	0.084	201.35	0.09	0.21	0.013	0.013	0.0010	0.051	0.005
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	8	2270002051	6,656	1,456	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	717.48	0.26	0.70	0.028	0.028	0.0035	0.179	0.016	156.95	0.06	0.15	0.006	0.006	0.0008	0.039	0.004
Water Truck	175	X		6	10	2270002051	4,160	1,560	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	253.97	0.06	0.15	0.005	0.005	0.0012	0.063	0.006	95.24	0.02	0.06	0.002	0.002	0.0005	0.023	0.002
Utility Truck	100	X		6	10	2270002051	10,140	2,080	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	353.74	0.10	0.22	0.008	0.008	0.0017	0.087	0.008	72.56	0.02	0.04	0.002	0.002	0.0004	0.018	0.002
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	6	2270002066	1,560	0	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	32.51	0.09	0.14	0.018	0.018	0.0002	0.023	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Dozers (CAT D6K)	125	X		6	10	2270002069	49,920	4,160	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	2176.73	1.15	2.92	0.207	0.207	0.0109	0.571	0.050	181.39	0.10	0.24	0.017	0.017	0.0009	0.048	0.004
Dozers (CAT D7E)	235	X		6	10	2270002069	49,400	3,900	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	4049.71	1.54	5.08	0.220	0.220	0.0201	1.039	0.093	319.71	0.12	0.40	0.017	0.017	0.0016	0.082	0.007
Off-highway tractors (John Deere 6115D)	115	X		6	6	2270002051	1,404	468	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	56.33	0.02	0.03	0.001	0.001	0.0003	0.014	0.001	18.78	0.01	0.01	0.000	0.000	0.0001	0.005	0.000
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	3,120	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	269.88	0.23	0.67	0.043	0.043	0.0014	0.081	0.006	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Feller Buncher (CAT 553C)	173	X		6	10	2270002081	260	0	536.28	0.61	1.44	0.14	0.14	0.0029	0.17	0.01	0.59	15.69	0.02	0.04	0.004	0.004	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	780	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	49.51	0.04	0.12	0.008	0.008	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Chipper (Bandit 1850)	250	X		6	10	2270002081	780	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	68.01	0.06	0.17	0.011	0.011	0.0004	0.020	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Sideboom (CAT 583T Pipelayer)	347	X		6	10	2270002081	37,700	0	536.26	0.95	2.24	0.14	0.14	0.0031	0.18	0.01	0.59	4562.39	8.12	19.09	1.169	1.169	0.0261	1.524	0.105	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Bending Machine	175	X		6	10	2270002081	3,900	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	238.05	0.20	0.59	0.038	0.038	0.0013	0.071	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	1,560	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	16.32	0.01	0.09	0.001	0.001	0.0001	0.004	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Chain Saw	10	X		6	10	2270002081	7,540	0	594.37	4.49	4.32	0.35	0.35	0.0040	0.56	0.01	0.59	29.15	0.22	0.21	0.017	0.017	0.0002	0.027	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
<b>Nonroad Industrial Equipment</b>																																	
Bobcat with sweeper attachment	70	X		6	2	2270003040	572	364	589.79	1.16	3.25	0.14	0.14	0.0033	0.18	0.01	0.43	11.19	0.02	0.06	0.003	0.003	0.0001	0.003	0.000	7.12	0.01	0.04	0.002	0.002	0.0000	0.002	0.000
Bobcat with brush hog attachment	70	X		6	2	2270003040	312	0	589.79	1.16	3.25	0.14	0.14	0.0033	0.18	0.01	0.43	6.11	0.01	0.03	0.001	0.001	0.0000	0.002	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
<b>Nonroad Commercial Equipment</b>																																	
Pumps	15	X		6	6	2270006010	13,416	1,092	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	56.16	0.23	0.44	0.034	0.034	0.0004	0.046	0.001	4.57	0.02	0.04	0.003	0.003	0.0000	0.004	0.000
Air compressors	275	X		6	10	2270006015	18,200	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	1257.68	2.09	7.29	0.463	0.463	0.0075	0.659	0.029	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Welders	55	X		6	9	2270006025	19,422	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	268.43	0.45	1.56	0.099	0.099	0.0016	0.141	0.006	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Pressure washers	5	X		6	4	2270006030	2,392	728	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	3.01	0.00	0.02	0.001	0.001	0.0000	0.002	0.000	0.91	0.00	0.01	0.000	0.000	0.0000	0.000	0.000
Hydro power units	200	X		6	10	2270006035	520	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	26.13	0.04	0.15	0.010	0.010	0.0002	0.014	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
<b>On-road construction vehicles</b>																																	
							Number of Vehicle Miles Traveled		MOVES Emission Factors (g/VMT)									2020 Emission Totals (Tons)							2021 Emission Totals (Tons)								
							2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP
Light duty gasoline vehicles (< 6,000 lb GVW)	150		X	6	2		46,800	1,560	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		22.55	0.21	0.02	0.004	0.001	0.0002	0.006	0.003	0.75	0.01	0.00	0.000	0.000	0.0000	0.000	0.000
Heavy duty gasoline vehicles (>6,000 lb GVW)	300		X	6	2		393,120	39,000	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		189.43	1.75	0.13	0.032	0.006	0.0013	0.050	0.022	18.79	0.17	0.01	0.003	0.001	0.0001	0.005	0.002
Light duty diesel vehicles (< 6,000 lb GVW)	150	X		6	2																												

Table 9-A6

H-650 Pipeline Construction Equipment Air Emissions - Alamance County

MVP Southgate Project  
H-650 Pipeline, Alamance, NC

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)							2021 Emission Totals (Tons)													
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs					
<b>Nonroad construction equipment</b>																																						
Light plants	15	X		2	4	2270002027	2,149	277	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	9.00	0.04	0.07	0.005	0.005	0.0001	0.007	0.000	1.16	0.00	0.01	0.001	0.001	0.0000	0.001	0.000	0.001	0.000	0.001	0.000	
Bore rigs	250	X		6	10	2270002033	2,080	0	530.27	0.68	2.86	0.15	0.15	0.0031	0.24	0.01	0.43	130.70	0.17	0.70	0.036	0.036	0.0008	0.060	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000
HDD Reaming/Pullback Rig	875	X		6	10	2270002033	2,080	0	530.03	1.09	4.71	0.18	0.18	0.0031	0.32	0.01	0.43	457.24	0.94	4.06	0.157	0.157	0.0027	0.272	0.011	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000
HDD Assist Reaming/Pilot Hole Rig	440	X		6	10	2270002033	2,080	0	530.35	0.88	3.08	0.14	0.14	0.0031	0.22	0.01	0.43	230.06	0.38	1.33	0.060	0.060	0.0014	0.094	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000
Excavators (CAT 345C)	325	X		6	10	2270002036	71,240	3,640	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	8076.65	5.70	15.00	0.819	0.819	0.0417	2.101	0.185	412.68	0.29	0.77	0.042	0.042	0.0021	0.107	0.009	0.000	0.0000	0.000	0.0000	0.000
Excavators (JD 350G LC)	271	X		6	10	2270002036	8,060	0	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	761.97	0.24	0.75	0.030	0.030	0.0037	0.191	0.017	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000
Excavators (CAT 320DL)	148	X		6	10	2270002036	71,240	3,900	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	3678.05	1.56	3.83	0.244	0.244	0.0182	0.935	0.084	201.35	0.09	0.21	0.013	0.013	0.0010	0.051	0.005	0.000	0.0000	0.000	0.0000	0.000
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	8	2270002051	6,656	1,456	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	717.48	0.26	0.70	0.028	0.028	0.0035	0.179	0.016	156.95	0.06	0.15	0.006	0.006	0.0008	0.039	0.004	0.000	0.0000	0.000	0.0000	0.000
Water Truck	175	X		6	10	2270002051	4,160	1,560	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	253.97	0.06	0.15	0.005	0.005	0.0012	0.063	0.006	95.24	0.02	0.06	0.002	0.002	0.0005	0.023	0.002	0.000	0.0000	0.000	0.0000	0.000
Utility Truck	100	X		6	10	2270002051	10,140	2,080	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	353.74	0.10	0.22	0.008	0.008	0.0017	0.087	0.008	72.56	0.02	0.04	0.002	0.002	0.0004	0.018	0.002	0.000	0.0000	0.000	0.0000	0.000
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	6	2270002066	1,560	0	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	32.51	0.09	0.14	0.018	0.018	0.0002	0.023	0.001	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000		
Dozers (CAT D6K)	125	X		6	10	2270002069	49,920	4,160	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	2176.73	1.15	2.92	0.207	0.207	0.0109	0.571	0.050	181.39	0.10	0.24	0.017	0.017	0.0009	0.048	0.004	0.000	0.0000	0.000	0.0000	0.000
Dozers (CAT D7E)	235	X		6	10	2270002069	49,400	3,900	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	4049.71	1.54	5.08	0.220	0.220	0.0201	1.039	0.093	319.71	0.12	0.40	0.017	0.017	0.0016	0.082	0.007	0.000	0.0000	0.000	0.0000	0.000
Off-highway tractors (John Deere 6115D)	115	X		6	6	2270002051	1,404	468	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	56.33	0.02	0.03	0.001	0.001	0.0003	0.014	0.001	18.78	0.01	0.01	0.000	0.000	0.0001	0.005	0.000	0.000	0.0000	0.000	0.0000	
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	3,120	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	269.88	0.23	0.67	0.043	0.043	0.0014	0.081	0.006	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Feller Buncher (CAT 553C)	173	X		6	10	2270002081	260	0	536.28	0.61	1.44	0.14	0.14	0.0029	0.17	0.01	0.59	15.69	0.02	0.04	0.004	0.004	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	780	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	49.51	0.04	0.12	0.008	0.008	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Chipper (Bandit 1850)	250	X		6	10	2270002081	780	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	68.01	0.06	0.17	0.011	0.011	0.0004	0.020	0.002	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Sideboom (CAT 583T Pipelayer)	347	X		6	10	2270002081	37,700	0	536.26	0.95	2.24	0.14	0.14	0.0031	0.18	0.01	0.59	4562.39	8.12	19.09	1.169	1.169	0.0261	1.524	0.105	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	0.000
Bending Machine	175	X		6	10	2270002081	3,900	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	238.05	0.20	0.59	0.038	0.038	0.0013	0.071	0.005	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	1,560	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	16.32	0.01	0.09	0.001	0.001	0.0001	0.004	0.000	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Chain Saw	10	X		6	10	2270002081	7,540	0	594.37	4.49	4.32	0.35	0.35	0.0040	0.56	0.01	0.59	29.15	0.22	0.21	0.017	0.017	0.0002	0.027	0.001	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
<b>Nonroad Industrial Equipment</b>																																						
Bobcat with sweeper attachment	70	X		6	2	2270003040	572	364	589.79	1.16	3.25	0.14	0.14	0.0033	0.18	0.01	0.43	11.19	0.02	0.06	0.003	0.003	0.0001	0.003	0.000	7.12	0.01	0.04	0.002	0.002	0.0000	0.002	0.000	0.0000	0.000	0.0000	0.000	
Bobcat with brush hog attachment	70	X		6	2	2270003040	312	0	589.79	1.16	3.25	0.14	0.14	0.0033	0.18	0.01	0.43	6.11	0.01	0.03	0.001	0.001	0.0000	0.002	0.000	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
<b>Nonroad Commercial Equipment</b>																																						
Pumps	15	X		6	6	2270006010	13,416	1,092	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	56.16	0.23	0.44	0.034	0.034	0.0004	0.046	0.001	4.57	0.02	0.04	0.003	0.003	0.0000	0.004	0.000	0.0000	0.000	0.0000	0.000	
Air compressors	275	X		6	10	2270006015	18,200	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	1257.68	2.09	7.29	0.463	0.463	0.0075	0.659	0.029	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Welders	55	X		6	9	2270006025	19,422	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	268.43	0.45	1.56	0.099	0.099	0.0016	0.141	0.006	0.00	0.00	0.00	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Pressure washers	5	X		6	4	2270006030	2,392	728	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	3.01	0.00	0.02	0.001	0.001	0.0000	0.002	0.000	0.91	0.00	0.01	0.000	0.0000	0.000	0.0000	0.000	0.0000	0.000	0.000	0.000	
Hydro power units	200	X		6	10	2270006035	520	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	26.13	0.04	0.15	0.010																	

Table 9-A7

Lambert Compressor Station Construction Equipment Air Emissions - Pittsylvania County

MVP Southgate Project  
Lambert Compressor Station, Pittsylvania County, VA

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)								2021 Emission Totals (Tons)							
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs
<b>Nonroad construction equipment</b>																																	
Pavers (CAT AP655D Track Asphalt Paver)	174	X		6	10	2270002003	1,040	260	536.36	0.38	0.91	0.08	0.08	0.0028	0.15	0.01	0.59	63.12	0.04	0.11	0.009	0.009	0.0003	0.017	0.001	15.78	0.01	0.03	0.002	0.002	0.0001	0.004	0.000
Small handheld, walk-behind, or single person sized tampers or rammers (BoMag 8500 compactor)	19	X		6	10	2270002006	9,360	3,120	588.51	4.46	4.45	0.38	0.38	0.0040	0.58	0.01	0.43	49.61	0.38	0.38	0.032	0.032	0.0003	0.049	0.001	16.54	0.13	0.13	0.011	0.011	0.0001	0.016	0.000
Light plants	15	X		6	10	2270002027	14,560	3,120	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	60.96	0.24	0.46	0.036	0.036	0.0004	0.047	0.001	13.06	0.05	0.10	0.008	0.008	0.0001	0.010	0.000
Excavators (CAT 345C)	325	X		6	10	2270002036	7,280	2,860	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	825.35	0.58	1.53	0.084	0.084	0.0043	0.215	0.019	324.24	0.23	0.60	0.033	0.033	0.0017	0.084	0.007
Excavators (JD 350G LC)	271	X		6	10	2270002036	3,900	1,560	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	368.70	0.12	0.36	0.014	0.014	0.0018	0.093	0.008	147.48	0.05	0.15	0.006	0.006	0.0007	0.037	0.003
Excavators (CAT 320DL)	148	X		6	10	2270002036	2,860	1,560	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	147.66	0.06	0.15	0.010	0.010	0.0007	0.038	0.003	80.54	0.03	0.08	0.005	0.005	0.0004	0.020	0.002
Concrete or stone industrial saws	10	X		6	10	2270002039	4,680	520	594.37	4.50	4.32	0.36	0.36	0.0040	0.56	0.01	0.59	18.09	0.14	0.13	0.011	0.011	0.0001	0.017	0.000	2.01	0.02	0.01	0.001	0.001	0.0000	0.002	0.000
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	10	2270002051	7,800	3,640	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	840.80	0.31	0.82	0.033	0.033	0.0041	0.210	0.019	392.37	0.14	0.38	0.015	0.015	0.0019	0.098	0.009
Water Truck	175	X		6	10	2270002051	3,640	1,560	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	222.22	0.05	0.13	0.004	0.004	0.0011	0.055	0.005	95.24	0.02	0.06	0.002	0.002	0.0005	0.023	0.002
Utility Truck	100	X		6	6	2270002051	3,432	1,248	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	119.73	0.03	0.07	0.003	0.003	0.0006	0.030	0.003	43.54	0.01	0.03	0.001	0.001	0.0002	0.011	0.001
Rough terrain forklifts (CASE 588H)	78	X		6	10	2270002057	6,760	1,560	595.59	1.46	1.48	0.18	0.18	0.0032	0.18	0.01	0.59	204.24	0.50	0.51	0.063	0.063	0.0011	0.061	0.004	47.13	0.12	0.12	0.015	0.015	0.0003	0.014	0.001
Rubber tire front loaders (CAT 972K)	288	X		6	6	2270002060	1,716	936	536.36	0.30	0.95	0.05	0.05	0.0027	0.15	0.01	0.59	172.39	0.10	0.30	0.016	0.016	0.0009	0.047	0.004	94.03	0.05	0.17	0.009	0.009	0.0005	0.026	0.002
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	8	2270002066	2,288	1,248	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	47.68	0.13	0.21	0.026	0.026	0.0003	0.034	0.001	26.01	0.07	0.11	0.014	0.014	0.0002	0.018	0.001
Dozers (CAT D6K)	125	X		6	10	2270002069	5,720	3,120	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	249.42	0.13	0.33	0.024	0.024	0.0013	0.065	0.006	136.05	0.07	0.18	0.013	0.013	0.0007	0.036	0.003
Dozers (CAT D7E)	235	X		6	6	2270002069	312	0	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	25.58	0.01	0.03	0.001	0.001	0.0001	0.007	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Loaders (Tracked - CAT 953D)	148	X		6	6	2270002072	5,928	1,872	624.59	2.33	3.58	0.44	0.44	0.0037	0.61	0.01	0.21	126.85	0.47	0.73	0.089	0.089	0.0008	0.124	0.002	40.06	0.15	0.23	0.028	0.028	0.0002	0.039	0.001
Off- highway tractors (John Deere 6115D)	115	X		6	10	2270002051	1,560	1,560	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	62.58	0.02	0.04	0.001	0.001	0.0003	0.015	0.001	62.58	0.02	0.04	0.001	0.001	0.0003	0.015	0.001
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	1,560	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	134.94	0.11	0.34	0.022	0.022	0.0007	0.040	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	1,560	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	99.03	0.08	0.25	0.016	0.016	0.0005	0.030	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Chipper (Bandit 1850)	250	X		6	10	2270002081	1,560	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	136.03	0.11	0.34	0.022	0.022	0.0007	0.041	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	1,560	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	16.32	0.01	0.09	0.001	0.001	0.0001	0.004	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Chain Saw	10		X	6	10	2265002081	3,120	0	1046.69	278.54	1.97	0.11	0.11	0.0191	4.90	0.23	0.48	17.28	4.60	0.03	0.002	0.002	0.0003	0.081	0.004	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
<b>Nonroad Industrial Equipment</b>																																	
Aerial Lifts	49	X		6	10	2270003010	24,960	2,600	692.66	4.22	4.79	0.63	0.63	0.0042	1.05	0.01	0.21	196.10	1.19	1.36	0.179	0.179	0.0012	0.296	0.003	20.43	0.12	0.14	0.019	0.019	0.0001	0.031	0.000
Self-propelled sweeping and scrubbing vehicles	70	X		6	5	2270003030	1,560	650	589.89	0.74	3.08	0.08	0.08	0.0031	0.15	0.01	0.43	30.53	0.04	0.16	0.004	0.004	0.0002	0.008	0.001	12.72	0.02	0.07	0.002	0.002	0.0001	0.003	0.000
Hydraulic Crane	268	X		6	10	2270002045	5,200	260	530.57	0.22	1.02	0.04	0.04	0.0027	0.15	0.01	0.43	350.47	0.14	0.67	0.027	0.027	0.0018	0.097	0.008	17.52	0.01	0.03	0.001	0.001	0.0001	0.005	0.000
Marooka	250	X		6	6	2270002069	2,496	312	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	217.68	0.08	0.27	0.012	0.012	0.0011	0.056	0.005	27.21	0.01	0.03	0.001	0.001	0.0001	0.007	0.001
<b>Nonroad Commercial Equipment</b>																																	
Generator set (specify kW)	94	X		6	10	2270006005	17,160	7,800	589.21	1.80	3.24	0.31	0.31	0.0035	0.36	0.01	0.43	450.48	1.38	2.48	0.238	0.238	0.0027	0.278	0.009	204.77	0.63	1.13	0.108	0.108	0.0012	0.126	0.004
Pumps	15	X		6	5	2270006010	9,620	780	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	40.27	0.17	0.31	0.025	0.025	0.0003	0.033	0.001	3.27	0.01	0.03	0.002	0.002	0.0000	0.003	0.000
Air compressors	275	X		6	10	2270006015	7,280	520	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	503.07	0.84	2.92	0.185	0.185	0.0030	0.264	0.012	35.93	0.06	0.21	0.013	0.013	0.0002	0.019	0.001
Welders	55	X		6	10	2270006025	17,160	3,120	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	237.16	0.39	1.37	0.087	0.087	0.0014	0.124	0.006	43.12	0.07	0.25	0.016	0.016	0.0003	0.023	0.001
Pressure washers	5	X		6	5	2270006030	2,340	1,040	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	2.94	0.00	0.02	0.001	0.001	0.0000	0.002	0.000	1.31	0.00	0.01	0.000	0.000	0.0000	0.001	0.000
Hydro power units	200	X		6	10	2270006035	3,120	520	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	156.80	0.26	0.91	0.058	0.058	0.0009	0.082	0.004	26.13	0.04	0.15	0.010	0.010	0.0002	0.014	0.001
<b>On-road construction vehicles</b>																																	
							Number of Vehicle Miles																										

**Table 9-A8  
Russell Compressor Station - Construction Equipment Air Emissions - Rockingham County**

MVP Southgate Project  
Russell Compressor Station, Rockingham, NC

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)							2021 Emission Totals (Tons)								
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs
<b>Nonroad construction equipment</b>																																	
Pavers (CAT AP655D Track Asphalt Paver)	174	X		6	10	2270002003	1,040	260	536.36	0.38	0.91	0.08	0.08	0.0028	0.15	0.01	0.59	63.12	0.04	0.11	0.009	0.009	0.0003	0.017	0.001	15.78	0.01	0.03	0.002	0.002	0.0001	0.004	0.000
Small handheld, walk-behind, or single person sized tampers or rammers (BoMag 8500 compactor)	19	X		6	10	2270002006	9,360	3,120	588.51	4.46	4.45	0.38	0.38	0.0040	0.58	0.01	0.43	49.61	0.38	0.38	0.032	0.032	0.0003	0.049	0.001	16.54	0.13	0.13	0.011	0.011	0.0001	0.016	0.000
Light plants	15	X		6	10	2270002027	12,480	3,120	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	52.25	0.21	0.40	0.031	0.031	0.0004	0.040	0.001	13.06	0.05	0.10	0.008	0.008	0.0001	0.010	0.000
Excavators (CAT 345C)	325	X		6	10	2270002036	6,240	2,340	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	707.44	0.50	1.31	0.072	0.072	0.0037	0.184	0.016	265.29	0.19	0.49	0.027	0.027	0.0014	0.069	0.006
Excavators (JD 350G LC)	271	X		6	10	2270002036	2,860	1,560	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	270.38	0.08	0.27	0.011	0.011	0.0013	0.068	0.006	147.48	0.05	0.15	0.006	0.006	0.0007	0.037	0.003
Excavators (CAT 320DL)	148	X		6	10	2270002036	2,860	1,560	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	147.66	0.06	0.15	0.010	0.010	0.0007	0.038	0.003	80.54	0.03	0.08	0.005	0.005	0.0004	0.020	0.002
Concrete or stone industrial saws	10	X		6	10	2270002039	4,680	520	594.37	4.50	4.32	0.36	0.36	0.0040	0.56	0.01	0.59	18.09	0.14	0.13	0.011	0.011	0.0001	0.017	0.000	2.01	0.02	0.01	0.001	0.001	0.0000	0.002	0.000
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	10	2270002051	5,980	3,120	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	644.61	0.23	0.63	0.025	0.025	0.0032	0.161	0.015	336.32	0.12	0.33	0.013	0.013	0.0016	0.084	0.008
Water Truck	175	X		6	10	2270002051	3,640	1,560	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	222.22	0.05	0.13	0.004	0.004	0.0011	0.055	0.005	95.24	0.02	0.06	0.002	0.002	0.0005	0.023	0.002
Utility Truck	100	X		6	6	2270002051	3,432	1,248	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	119.73	0.03	0.07	0.003	0.003	0.0006	0.030	0.003	43.54	0.01	0.03	0.001	0.001	0.0002	0.011	0.001
Rough terrain forklifts (CASE 588H)	78	X		6	10	2270002057	6,760	1,560	595.59	1.46	1.48	0.18	0.18	0.0032	0.18	0.01	0.59	204.24	0.50	0.51	0.063	0.063	0.0011	0.061	0.004	47.13	0.12	0.12	0.015	0.015	0.0003	0.014	0.001
Rubber tire front loaders (CAT 972K)	288	X		6	6	2270002060	1,716	936	536.36	0.30	0.95	0.05	0.05	0.0027	0.15	0.01	0.59	172.39	0.10	0.30	0.016	0.016	0.0009	0.047	0.004	94.03	0.05	0.17	0.009	0.009	0.0005	0.026	0.002
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	8	2270002066	2,288	1,248	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	47.68	0.13	0.21	0.026	0.026	0.0003	0.034	0.001	26.01	0.07	0.11	0.014	0.014	0.0002	0.018	0.001
Dozers (CAT D6K)	125	X		6	10	2270002069	3,900	4,940	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	170.06	0.09	0.23	0.016	0.016	0.0009	0.045	0.004	215.41	0.11	0.29	0.020	0.020	0.0011	0.057	0.005
Dozers (CAT D7E)	235	X		6	6	2270002069	312	0	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	25.58	0.01	0.03	0.001	0.001	0.0001	0.007	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Loaders (Tracked - CAT 953D)	148	X		6	6	2270002072	3,432	1,560	624.59	2.33	3.58	0.44	0.44	0.0037	0.61	0.01	0.21	73.44	0.27	0.42	0.052	0.052	0.0004	0.072	0.001	33.38	0.12	0.19	0.024	0.024	0.0002	0.033	0.001
Off-highway tractors (John Deere 6115D)	115	X		6	10	2270002051	1,560	1,560	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	62.58	0.02	0.04	0.001	0.001	0.0003	0.015	0.001	62.58	0.02	0.04	0.001	0.001	0.0003	0.015	0.001
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	1,560	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	134.94	0.11	0.34	0.022	0.022	0.0007	0.040	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	1,560	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	99.03	0.08	0.25	0.016	0.016	0.0005	0.030	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Chipper (Bandit 1850)	250	X		6	10	2270002081	1,560	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	136.03	0.11	0.34	0.022	0.022	0.0007	0.041	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	1,560	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	16.32	0.01	0.09	0.001	0.001	0.0001	0.004	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
Chain Saw	10		X	6	10	2265002081	3,120	0	1046.69	278.54	1.97	0.11	0.11	0.0191	4.90	0.23	0.48	17.28	4.60	0.03	0.002	0.002	0.0003	0.081	0.004	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000
<b>Nonroad Industrial Equipment</b>																																	
Aerial Lifts	49	X		6	10	2270003010	20,280	2,080	692.66	4.22	4.79	0.63	0.63	0.0042	1.05	0.01	0.21	159.33	0.97	1.10	0.145	0.145	0.0010	0.241	0.003	16.34	0.10	0.11	0.015	0.015	0.0001	0.025	0.000
Self-propelled sweeping and scrubbing vehicles	70	X		6	5	2270003030	1,560	650	589.89	0.74	3.08	0.08	0.08	0.0031	0.15	0.01	0.43	30.53	0.04	0.16	0.004	0.004	0.0002	0.008	0.001	12.72	0.02	0.07	0.002	0.002	0.0001	0.003	0.000
Hydraulic Crane	268	X		6	10	2270002045	4,160	260	530.57	0.22	1.02	0.04	0.04	0.0027	0.15	0.01	0.43	280.37	0.11	0.54	0.022	0.022	0.0014	0.078	0.006	17.52	0.01	0.03	0.001	0.001	0.0001	0.005	0.000
Marooka	250	X		6	6	2270002069	1,716	312	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	149.65	0.06	0.19	0.008	0.008	0.0007	0.038	0.003	27.21	0.01	0.03	0.001	0.001	0.0001	0.007	0.001
<b>Nonroad Commercial Equipment</b>																																	
Generator set (specify kW)	94	X		6	10	2270006005	14,560	6,760	589.21	1.80	3.24	0.31	0.31	0.0035	0.36	0.01	0.43	382.23	1.17	2.10	0.202	0.202	0.0023	0.236	0.008	177.46	0.54	0.98	0.094	0.094	0.0011	0.109	0.004
Pumps	15	X		6	5	2270006010	9,620	780	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	40.27	0.17	0.31	0.025	0.025	0.0003	0.033	0.001	3.27	0.01	0.03	0.002	0.002	0.0000	0.003	0.000
Air compressors	275	X		6	10	2270006015	6,240	520	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	431.21	0.72	2.50	0.159	0.159	0.0026	0.226	0.010	35.93	0.06	0.21	0.013	0.013	0.0002	0.019	0.001
Welders	55	X		6	10	2270006025	15,600	2,080	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	215.60	0.36	1.25	0.079	0.079	0.0013	0.113	0.005	28.75	0.05	0.17	0.011	0.011	0.0002	0.015	0.001
Pressure washers	5	X		6	5	2270006030	2,340	1,040	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	2.94	0.00	0.02	0.001	0.001	0.0000	0.002	0.000	1.31	0.00	0.01	0.000	0.000	0.0000	0.001	0.000
Hydro power units	200	X		6	10	2270006035	3,120	520	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	156.80	0.26	0.91	0.058	0.058	0.0009	0.082	0.004	26.13	0.04	0.15	0.010	0.010	0.0002	0.014	0.001
<b>On-road construction vehicles</b>																																	
							Number of Vehicle Miles Traveled		MOVES Emission Factors (g/VMT)																								

**Table 9-A9**  
**Lambert Interconnect Construction Equipment Air Emissions - Pittsylvania County**

MVP Southgate Project  
Lambert Interconnect, Pittsylvania County, VA

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)								2021 Emission Totals (Tons)													
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs						
		<b>Nonroad construction equipment</b>																																					
Small handheld, walk-behind, or single person sized tampers or rammers (BoMag 8500 compactor)	19	X		6	10	2270002006	2,080	0	588.51	4.46	4.45	0.38	0.38	0.0040	0.58	0.01	0.43	11.02	0.08	0.08	0.007	0.007	0.0001	0.011	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000		
Light plants	15	X		6	10	2270002027	3,640	0	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	15.24	0.06	0.12	0.009	0.009	0.0001	0.012	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Excavators (CAT 345C)	325	X		6	10	2270002036	2,080	0	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	235.81	0.17	0.44	0.024	0.024	0.0012	0.061	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Excavators (JD 350G LC)	271	X		6	10	2270002036	1,040	0	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	98.32	0.03	0.10	0.004	0.004	0.0005	0.025	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Excavators (CAT 320DL)	148	X		6	10	2270002036	260	0	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	13.42	0.01	0.01	0.001	0.001	0.0001	0.003	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Concrete or stone industrial saws	10	X		6	10	2270002039	780	0	594.37	4.50	4.32	0.36	0.36	0.0040	0.56	0.01	0.59	3.02	0.02	0.02	0.002	0.002	0.0000	0.003	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	10	2270002051	1,040	0	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	112.11	0.04	0.11	0.004	0.004	0.0005	0.028	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Water Truck	175	X		6	10	2270002051	1,300	0	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	79.36	0.02	0.05	0.002	0.002	0.0004	0.020	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Utility Truck	100	X		6	6	2270002051	1,560	0	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	54.42	0.02	0.03	0.001	0.001	0.0003	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Rough terrain forklifts (CASE 588H)	78	X		6	10	2270002057	1,300	0	595.59	1.46	1.48	0.18	0.18	0.0032	0.18	0.01	0.59	39.28	0.10	0.10	0.012	0.012	0.0002	0.012	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Rubber tire front loaders (CAT 972K)	288	X		6	6	2270002060	468	0	536.36	0.30	0.95	0.05	0.05	0.0027	0.15	0.01	0.59	47.02	0.03	0.08	0.004	0.004	0.0002	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	8	2270002066	1,040	0	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	21.67	0.06	0.10	0.012	0.012	0.0001	0.015	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	
Dozers (CAT D6K)	125	X		6	10	2270002069	1,300	0	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	56.69	0.03	0.08	0.005	0.005	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Loaders (Tracked - CAT 953D)	148	X		6	6	2270002072	780	0	624.59	2.33	3.58	0.44	0.44	0.0037	0.61	0.01	0.21	16.69	0.06	0.10	0.012	0.012	0.0001	0.016	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Off-highway tractors (John Deere 6115D)	115	X		6	10	2270002051	520	0	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	20.86	0.01	0.01	0.000	0.000	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	520	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	44.98	0.04	0.11	0.007	0.007	0.0002	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	260	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	16.50	0.01	0.04	0.003	0.003	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Chipper (Bandit 1850)	250	X		6	10	2270002081	260	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	22.67	0.02	0.06	0.004	0.004	0.0001	0.007	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	260	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	2.72	0.00	0.01	0.000	0.000	0.0000	0.001	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Chain Saw	10		X	6	10	2265002081	520	0	1046.69	278.54	1.97	0.11	0.11	0.0191	4.90	0.23	0.48	2.88	0.77	0.01	0.000	0.000	0.0001	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
<b>Nonroad Industrial Equipment</b>																																							
Aerial Lifts	49	X		6	10	2270003010	1,300	0	692.66	4.22	4.79	0.63	0.63	0.0042	1.05	0.01	0.21	10.21	0.06	0.07	0.009	0.009	0.0001	0.015	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	
Self-propelled sweeping and scrubbing vehicles	70	X		6	5	2270003030	650	0	589.89	0.74	3.08	0.08	0.08	0.0031	0.15	0.01	0.43	12.72	0.02	0.07	0.002	0.002	0.0001	0.003	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	
Hydraulic Crane	268	X		6	10	2270002045	780	0	530.57	0.22	1.02	0.04	0.04	0.0027	0.15	0.01	0.43	52.57	0.02	0.10	0.004	0.004	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Marooka	250	X		6	6	2270002069	780	0	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	68.02	0.03	0.09	0.004	0.004	0.0003	0.017	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
<b>Nonroad Commercial Equipment</b>																																							
Pumps	15	X		6	5	2270006010	2,080	0	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	8.71	0.04	0.07	0.005	0.005	0.0001	0.007	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	
Air compressors	275	X		6	10	2270006015	3,120	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	215.60	0.36	1.25	0.079	0.079	0.0013	0.113	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Welders	55	X		6	10	2270006025	2,340	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	32.34	0.05	0.19	0.012	0.012	0.0002	0.017	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000
Pressure washers	5	X		6	5	2270006030	520	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	0.65	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.0000	0.000	0.000</			

Table 9-A10

LN 3600 and T-15 Dan River Interconnect Construction Equipment Air Emissions - Rockingham County

MVP Southgate Project  
LN 3600 and T-15 Dan River Interconnects, Rockingham County, NC

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)							2021 Emission Totals (Tons)									
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	
<b>Nonroad construction equipment</b>																																		
Small handheld, walk-behind, or single person sized tampers or rammers (BoMag 8500 compactor)	19	X		6	10	2270002006	4,160	0	588.51	4.46	4.45	0.38	0.38	0.0040	0.58	0.01	0.43	22.05	0.17	0.17	0.014	0.014	0.0001	0.022	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Light plants	15	X		6	10	2270002027	7,280	0	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	30.48	0.12	0.23	0.018	0.018	0.0002	0.023	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Excavators (CAT 345C)	325	X		6	10	2270002036	4,160	0	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	471.63	0.33	0.88	0.048	0.048	0.0024	0.123	0.011	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Excavators (JD 350G LC)	271	X		6	10	2270002036	2,080	0	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	196.64	0.06	0.19	0.008	0.008	0.0010	0.049	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Excavators (CAT 320DL)	148	X		6	10	2270002036	520	0	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	26.85	0.01	0.03	0.002	0.002	0.0001	0.007	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Concrete or stone industrial saws	10	X		6	10	2270002039	1,560	0	594.37	4.50	4.32	0.36	0.36	0.0040	0.56	0.01	0.59	6.03	0.05	0.04	0.004	0.004	0.0000	0.006	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	10	2270002051	2,080	0	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	224.21	0.08	0.22	0.009	0.009	0.0011	0.056	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Water Truck	175	X		6	10	2270002051	2,600	0	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	158.73	0.04	0.10	0.003	0.003	0.0008	0.039	0.004	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Utility Truck	100	X		6	6	2270002051	3,120	0	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	108.84	0.03	0.07	0.002	0.002	0.0005	0.027	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Rough terrain forklifts (CASE 588H)	78	X		6	10	2270002057	2,600	0	595.59	1.46	1.48	0.18	0.18	0.0032	0.18	0.01	0.59	78.55	0.19	0.19	0.024	0.024	0.0004	0.023	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Rubber tire front loaders (CAT 972K)	288	X		6	6	2270002060	936	0	536.36	0.30	0.95	0.05	0.05	0.0027	0.15	0.01	0.59	94.03	0.05	0.17	0.009	0.009	0.0005	0.026	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	8	2270002066	2,080	0	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	43.34	0.11	0.19	0.024	0.024	0.0003	0.031	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Dozers (CAT D6K)	125	X		6	10	2270002069	2,600	0	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	113.37	0.06	0.15	0.011	0.011	0.0006	0.030	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Loaders (Tracked - CAT 953D)	148	X		6	6	2270002072	1,560	0	624.59	2.33	3.58	0.44	0.44	0.0037	0.61	0.01	0.21	33.38	0.12	0.19	0.024	0.024	0.0002	0.033	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Off-highway tractors (John Deere 6115D)	115	X		6	10	2270002051	1,040	0	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	41.72	0.01	0.03	0.001	0.001	0.0002	0.010	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	1,040	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	89.96	0.08	0.22	0.014	0.014	0.0005	0.027	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	520	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	33.01	0.03	0.08	0.005	0.005	0.0002	0.010	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Chipper (Bandit 1850)	250	X		6	10	2270002081	520	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	45.34	0.04	0.11	0.007	0.007	0.0002	0.014	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	520	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	5.44	0.00	0.03	0.000	0.000	0.0000	0.001	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Chain Saw	10		X	6	10	2265002081	1,040	0	1046.69	278.54	1.97	0.11	0.11	0.0191	4.90	0.23	0.48	5.76	1.53	0.01	0.001	0.001	0.0001	0.027	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
<b>Nonroad Industrial Equipment</b>																																		
Aerial Lifts	49	X		6	10	2270003010	2,600	0	692.66	4.22	4.79	0.63	0.63	0.0042	1.05	0.01	0.21	20.43	0.12	0.14	0.019	0.019	0.0001	0.031	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Self-propelled sweeping and scrubbing vehicles	70	X		6	5	2270003030	1,300	0	589.89	0.74	3.08	0.08	0.08	0.0031	0.15	0.01	0.43	25.44	0.03	0.13	0.003	0.003	0.0001	0.006	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Hydraulic Crane	268	X		6	10	2270002045	1,560	0	530.57	0.22	1.02	0.04	0.04	0.0027	0.15	0.01	0.43	105.14	0.04	0.20	0.008	0.008	0.0005	0.029	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Marooka	250	X		6	6	2270002069	1,560	0	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	136.05	0.05	0.17	0.007	0.007	0.0007	0.035	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
<b>Nonroad Commercial Equipment</b>																																		
Pumps	15	X		6	5	2270006010	4,160	0	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	17.42	0.07	0.14	0.011	0.011	0.0001	0.014	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Air compressors	275	X		6	10	2270006015	6,240	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	431.21	0.72	2.50	0.159	0.159	0.0026	0.226	0.010	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Welders	55	X		6	10	2270006025	4,680	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	64.68	0.11	0.37	0.024	0.024	0.0004	0.034	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Pressure washers	5	X		6	5	2270006030	1,040	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	1.31	0.00	0.01	0.000	0.000	0.0000	0.001	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
Hydro power units	200	X		6	10	2270006035	2,080	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	104.53	0.17	0.61	0.038	0.038	0.0006	0.055	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000
<b>On-road construction vehicles</b>																																		
							Number of Vehicle Miles Traveled		MOVES Emission Factors (g/VMT)								2020 Emission Totals (Tons)							2021 Emission Totals (Tons)										
Light duty gasoline vehicles (< 6,000 lb GVW)	150		X	6	10		312,000	0	437.15	4.03	0.29	0.07	0.07	0.0029	0.12	0.05		150.34	1.39	0.10	0.026	0.005	0.0010	0.040	0.017	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Heavy duty gasoline vehicles (>6,000 lb GVW)	300		X	6	5		195,000	0	437.15	4.03	0.29	0.07	0.07	0.0029	0.12	0.05		93.96	0.87	0.06	0.016	0.003	0.0006	0.025	0.011	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	
Light duty diesel vehicles (< 6,000 lb GVW)	150		X	6	10		351,000	0	2007.61	1.54	5.67	0.60	0.30	0.0176	0.59	0.08		776.75	0.60	2.20	0.232	0.117												

Table 9-A11

T-21 Haw River Interconnect Construction Equipment Air Emissions - Alamance County

MVP Southgate Project  
T-21 Haw River Interconnect, Alamance County, NC

On-site Road and Nonroad Construction Equipment	Equipment Engine HP	Fuel		Schedule		SCC	Number of Operating Hours		NONROAD2008a Emission Factor (g/hp-hr)								Engine Load Factor	2020 Emission Totals (Tons)							2021 Emission Totals (Tons)															
		Diesel	Gasoline	days/week	hours/day		2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP		CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAPs							
<b>Nonroad construction equipment</b>																																								
Small handheld, walk-behind, or single person sized tampers or rammers (BoMag 8500 compactor)	19	X		6	10	2270002006	2,080	0	588.51	4.46	4.45	0.38	0.38	0.0040	0.58	0.01	0.43	11.02	0.08	0.08	0.007	0.007	0.0001	0.011	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Light plants	15	X		6	10	2270002027	3,640	0	588.92	2.36	4.48	0.35	0.35	0.0040	0.45	0.01	0.43	15.24	0.06	0.12	0.009	0.009	0.0001	0.012	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Excavators (CAT 345C)	325	X		6	10	2270002036	2,080	0	536.38	0.38	1.00	0.05	0.05	0.0028	0.14	0.01	0.59	235.81	0.17	0.44	0.024	0.024	0.0012	0.061	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Excavators (JD 350G LC)	271	X		6	10	2270002036	1,040	0	536.40	0.17	0.53	0.02	0.02	0.0026	0.13	0.01	0.59	98.32	0.03	0.10	0.004	0.004	0.0005	0.025	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Excavators (CAT 320DL)	148	X		6	10	2270002036	260	0	536.39	0.23	0.56	0.04	0.04	0.0027	0.14	0.01	0.59	13.42	0.01	0.01	0.001	0.001	0.0001	0.003	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Concrete or stone industrial saws	10	X		6	10	2270002039	780	0	594.37	4.50	4.32	0.36	0.36	0.0040	0.56	0.01	0.59	3.02	0.02	0.02	0.002	0.002	0.0000	0.003	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Off-highway trucks -1-2.5 ton trucks (CAT 725)	309	X		6	10	2270002051	1,040	0	536.40	0.20	0.52	0.02	0.02	0.0026	0.13	0.01	0.59	112.11	0.04	0.11	0.004	0.004	0.0005	0.028	0.003	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Water Truck	175	X		6	10	2270002051	1,300	0	536.41	0.12	0.32	0.01	0.01	0.0026	0.13	0.01	0.59	79.36	0.02	0.05	0.002	0.002	0.0004	0.020	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Utility Truck	100	X		6	6	2270002051	1,560	0	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	54.42	0.02	0.03	0.001	0.001	0.0003	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Rough terrain forklifts (CASE 588H)	78	X		6	10	2270002057	1,300	0	595.59	1.46	1.48	0.18	0.18	0.0032	0.18	0.01	0.59	39.28	0.10	0.10	0.012	0.012	0.0002	0.012	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Rubber tire front loaders (CAT 972K)	288	X		6	6	2270002060	468	0	536.36	0.30	0.95	0.05	0.05	0.0027	0.15	0.01	0.59	47.02	0.03	0.08	0.004	0.004	0.0002	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Tractors, loaders, and backhoes (CAT 450F)	144	X		6	8	2270002066	1,040	0	625.13	1.65	2.76	0.34	0.34	0.0036	0.44	0.01	0.21	21.67	0.06	0.10	0.012	0.012	0.0001	0.015	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Dozers (CAT D6K)	125	X		6	10	2270002069	1,300	0	536.38	0.28	0.72	0.05	0.05	0.0027	0.14	0.01	0.59	56.69	0.03	0.08	0.005	0.005	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Loaders (Tracked - CAT 953D)	148	X		6	6	2270002072	780	0	624.59	2.33	3.58	0.44	0.44	0.0037	0.61	0.01	0.21	16.69	0.06	0.10	0.012	0.012	0.0001	0.016	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Off-highway tractors (John Deere 6115D)	115	X		6	10	2270002051	520	0	536.41	0.15	0.33	0.01	0.01	0.0026	0.13	0.01	0.59	20.86	0.01	0.01	0.000	0.000	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Rock Drill Machine (JOHN HENRY drill on CAT320DL)	248	X		6	10	2270002081	520	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	44.98	0.04	0.11	0.007	0.007	0.0002	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Logging Skidder (CAT 525C)	182	X		6	10	2270002081	260	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	16.50	0.01	0.04	0.003	0.003	0.0001	0.005	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Chipper (Bandit 1850)	250	X		6	10	2270002081	260	0	536.32	0.45	1.33	0.09	0.09	0.0029	0.16	0.01	0.59	22.67	0.02	0.06	0.004	0.004	0.0001	0.007	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Stump Grinder (Vermeer SC252)	27	X		6	10	2270002081	260	0	595.69	0.38	3.16	0.04	0.04	0.0030	0.15	0.01	0.59	2.72	0.00	0.01	0.000	0.000	0.0000	0.001	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Chain Saw	10	X	X	6	10	2265002081	520	0	1046.69	278.54	1.97	0.11	0.11	0.0191	4.90	0.23	0.48	2.88	0.77	0.01	0.000	0.000	0.0001	0.013	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
<b>Nonroad Industrial Equipment</b>																																								
Aerial Lifts	49	X		6	10	2270003010	1,300	0	692.66	4.22	4.79	0.63	0.63	0.0042	1.05	0.01	0.21	10.21	0.06	0.07	0.009	0.009	0.0001	0.015	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Self-propelled sweeping and scrubbing vehicles	70	X		6	5	2270003030	650	0	589.89	0.74	3.08	0.08	0.08	0.0031	0.15	0.01	0.43	12.72	0.02	0.07	0.002	0.002	0.0001	0.003	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Hydraulic Crane	268	X		6	10	2270002045	780	0	530.57	0.22	1.02	0.04	0.04	0.0027	0.15	0.01	0.43	52.57	0.02	0.10	0.004	0.004	0.0003	0.015	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Marooka	250	X		6	6	2270002069	780	0	536.39	0.20	0.67	0.03	0.03	0.0027	0.14	0.01	0.59	68.02	0.03	0.09	0.004	0.004	0.0003	0.017	0.002	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
<b>Nonroad Commercial Equipment</b>																																								
Pumps	15	X		6	5	2270006010	2,080	0	588.81	2.43	4.59	0.36	0.36	0.0040	0.49	0.01	0.43	8.71	0.04	0.07	0.005	0.005	0.0001	0.007	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Air compressors	275	X		6	10	2270006015	3,120	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	215.60	0.36	1.25	0.079	0.079	0.0013	0.113	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Welders	55	X		6	10	2270006025	2,340	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	32.34	0.05	0.19	0.012	0.012	0.0002	0.017	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Pressure washers	5	X		6	5	2270006030	520	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	0.65	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
Hydro power units	200	X		6	10	2270006035	1,040	0	530.15	0.88	3.07	0.20	0.20	0.0031	0.28	0.01	0.43	52.27	0.09	0.30	0.019	0.019	0.0003	0.027	0.001	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							
<b>On-road construction vehicles</b>																																								
							Number of Vehicle Miles Traveled		MOVES Emission Factors (g/VMT)								2020 Emission Totals (Tons)							2021 Emission Totals (Tons)																
							2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP
Light duty gasoline vehicles (< 6,000 lb GVW)	150		X	6	10		156,000	0	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		75.17	0.69	0.05	0.013	0.002	0.0005	0.020	0.009	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000			
Heavy duty gasoline vehicles (>6,000 lb GVW)	300		X	6	5		97,500	0	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		46.98	0.43	0.03	0.008	0.001	0.0003	0.012	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000			
Light duty diesel vehicles (< 6,000 lb GVW)	150	X		6	10		175,500	0	2007.61	1.54	5.67	0.60	0.30	0.0176	0.59	0.08		388.38	0.30	1.10	0.116	0.059	0.0034	0.114	0.016	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000			
Heavy duty diesel vehicles (>6,000 lb GVW)	300	X		6	5		48,750	0	2007.61	1.54	5.67	0.60	0.30	0.0176	0.59	0.08		107.88	0.08	0.30	0.032	0.016	0.0009	0.032	0.005	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000			
<b>Deliveries / Removals</b>																																								
							Number of Vehicle Miles Traveled		MOVES Emission Factors (g/VMT)								2020 Emission Totals (Tons)							2021 Emission Totals (Tons)																
							2020	2021	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP	CO2	CO	NOx	PM10	PM25	SO2	VOC	HAP
Heavy duty gasoline vehicles (>6,000 lb GVW)				50			1,250	0	437.15	4.03	0.29	0.07	0.01	0.0029	0.12	0.05		0.60	0.01	0.00	0.000	0.000	0.0000	0.000	0.000	0.00	0.00	0.00	0.000	0.000	0.0000	0.000	0.000							