

## **Powertech Dewey-Burdock Project Emissions Inventory**

### **July 2012 Changes and Commitments**

#### Changes Affecting Combustion Emissions

1. The combustion emissions tabulated in ER\_RAI Table AQ1.1 did not account for equipment load factors (i.e., by default they assumed 100% duty at maximum horsepower). This is unrealistic and has been corrected to apply load factors ranging from 25% to 59%, depending on the equipment and application. Most construction equipment was assigned a 40% load factor, typical of the construction and mining industries. Drills were assigned 59% to account for more continuous and intensive use (EPA, Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling--Compression-Ignition, April 2004), and utility vehicles often idled or operated at relatively low speeds were assigned 25%.
2. The combustion emissions tabulated in ER\_RAI Table AQ1.1 used very low emission factors for diesel-powered equipment, mistakenly based on standards set by EPA for heavy-duty highway engines. These factors have been corrected to reflect off-road Tier 3 engine emission standards for construction and support equipment. Emission standards for drill rig engines have been corrected to Tier 1 standards. These corrections apply to NO<sub>x</sub>, CO, and PM<sub>10</sub> for all diesel engines, with the addition of THC (total hydrocarbons) for Tier 1 engines. EPA's AP-42 guidance was used for the remaining pollutants. PM<sub>2.5</sub> has been characterized as 97% of PM<sub>10</sub> (EPA, Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling--Compression-Ignition, April 2004).
3. The choice of Tier 1 engines to estimate drill rig emissions is based on the uncertain availability of Tier 2 rigs among drilling contractors in the region. On the other hand, Powertech has determined that lowering drill rig engine horsepower from 550 to 300 hp is feasible. This change will more than offset the difference between Tier 1 and Tier 2 emission levels (lowering total NO<sub>x</sub> emissions by 12 tons/year).
4. Powertech is prepared to commit to Tier 1 (or higher) drill rig engines and Tier 3 (or higher) construction equipment engines, consistent with the changes outlined above.
5. The combustion emissions tabulated in ER\_RAI Table AQ1.1 did not include the drilling rig dedicated to deep disposal wells. Engine emissions from this rig have been added to the construction tailpipe emission inventory.

#### Changes Affecting Fugitive PM<sub>10</sub> Emissions

1. The silt content used in previous fugitive dust calculations (ER\_RAI Table AQ9.1) for unpaved roads was 32.1%. This is unrealistically high and probably due to a transposition of units (from a silt loading of 32.1 g/m<sup>2</sup> to a silt content of 32.1%). The silt content has been corrected to 8.5%, typical of western surface mines and unpaved industrial roads. EPA's AP-42 document, Table 13.2.2-1, shows average silt content of 8.4% for western surface mine pit haul roads and 8.5% for construction sites.
2. The fugitive emission calculations in ER\_RAI Table AQ9.1 did not account for wind erosion on disturbed acres. This source is significant and has been added to the current revision.

3. The fugitive emission calculations in ER\_RAI Table AQ9.1 did not account for water spray as a means of road dust control, despite the commitment in the response to ER RAI AQ-7 to routinely apply water to roads and construction areas. The current revision credits water spray for 50% control of all fugitive emissions generated from unpaved roads. This conservative factor is specified by the Wyoming Department of Environmental Quality, Air Quality Division, in its regulation of surface coal mines. EPA's AP-42 document, Figure 13.2.2-2, indicates control efficiencies of up to 95% from spraying water on roads. The graph shows that doubling the road surface moisture content achieves 75% control. Various Environmental Impact Studies conducted by the U.S. Bureau of Land Management and the U.S. Bureau of Reclamation also cite 50% reduction in fugitive dust emissions by watering road surfaces.
4. The fugitive emission calculations in ER\_RAI Table AQ9.1 did not include the drilling rig dedicated to deep disposal wells. This source of fugitive emissions is extremely small, but has been added to the current version for completeness.
5. The fugitive emission calculations in ER\_RAI Table AQ9.1 assumed 113 passenger vehicles during the construction phase, 60 during the operations phase, and 15 each for the restoration and decommissioning phases. The construction and restoration traffic counts are unreasonably high, based on manpower and support personnel projections. For the construction phase, the number of passenger vehicles has been revised downward to 57 vehicles per day. For the restoration phase, the number of passenger vehicles has been revised downward to 6 vehicles per day. It should be noted that calculation of fugitive emissions from passenger vehicles (and delivery truck traffic) includes public unpaved roads as well as project roads.
6. Estimation of light-duty trucks (pickups) was also revised to conform more closely with the construction and operation plan.
7. Fugitive emissions from public roads are now shown separately from on-site fugitive emissions.

| Basis For Equipment Tailpipe Emissions | Vehicle Parameters |             |          | Emission Factors (lb/hp-hr) |                 |         |                 |                 |                  |                   |               | Total Equipment Hours per Year by Phase |                               |           |                     |                  |
|--|--------------------|-------------|----------|-----------------------------|-----------------|---------|-----------------|-----------------|------------------|-------------------|---------------|---|-------------------------------|-----------|---------------------|------------------|
|  | Horse-power        | Load Factor | Fuel     | THC                         | NO <sub>x</sub> | CO      | SO <sub>2</sub> | CO <sub>2</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> | Formaldehydes | Construction Facilities/ Well Fields    | Construction Well Fields Only | Operation | Aquifer Restoration | Decom-missioning |
| Scraper                                | 462                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 1,299                                   |                               |           |                     | 2,601            |
| Bulldozer                              | 410                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 433                                     |                               |           |                     | 867              |
| Compactor                              | 315                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 433                                     |                               |           |                     | 867              |
| Motor Grader                           | 297                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 1,196                                   | 763                           | 416       |                     | 867              |
| Water Truck (1,500 gal)                | 325                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 15,600                                  | 13,520                        | 1,040     |                     | 867              |
| Fueling Truck                          | 325                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 130                                     |                               |           |                     | 520              |
| Heavy Duty Diesel Truck                | 325                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 2,080                                   | 520                           | 520       |                     | 1,388            |
| Logging Truck                          | 325                | 25%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 8,320                                   | 8,320                         | 2,080     |                     |                  |
| Electrical Pole Truck                  | 325                | 25%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 3,466                                   | 3,466                         |           |                     |                  |
| Truck Mounted Drill Rig, Tier 1        | 300                | 59%         | Diesel   | 0.00214                     | 0.01512         | 0.01873 | 0.00205         | 1.15000         | 0.00089          | 0.00086           | 0.00046       | 33,800                                  | 33,800                        |           |                     |                  |
| Deep Well Drill Rig, Tier 1            | 425                | 59%         | Diesel   | 0.00214                     | 0.01512         | 0.01873 | 0.00205         | 1.15000         | 0.00089          | 0.00086           | 0.00046       | 300                                     | 75                            |           |                     |                  |
| Trackhoe                               | 268                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 3,120                                   | 3,120                         |           |                     | 1,300            |
| Backhoe                                | 93                 | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       | 5,200                                   | 5,200                         |           |                     | 1,300            |
| Loader                                 | 351                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       |   |                               |           |                     | 650              |
| Tractor                                | 530                | 40%         | Diesel   | 0.00247                     | 0.03100         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       |   |                               | 160       |                     | 650              |
| Resin-hauling Semi Truck               | 430                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       |   |                               | 1,040     |                     |                  |
| Pump Pulling Truck                     | 325                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       |   |                               | 6,240     |                     | 2,130            |
| Product Transport Truck                | 430                | 40%         | Diesel   | 0.00247                     | 0.00661         | 0.00573 | 0.00205         | 1.15000         | 0.00033          | 0.00032           | 0.00046       |   |                               | 208       |                     |                  |
| Crane                                  | 516                | 25%         | Diesel   | 0.00247                     | 0.03100         | 0.00668 | 0.00205         | 1.15000         | 0.00220          | 0.00213           | 0.00046       | 694                                     |                               |           |                     | 693              |
| Forklift                               | 100                | 25%         | Diesel   | 0.00247                     | 0.03100         | 0.00668 | 0.00205         | 1.15000         | 0.00220          | 0.00213           | 0.00046       | 9,360                                   | 7,280                         | 2,132     |                     | 2,079            |
| Manlift                                | 50                 | 25%         | Diesel   | 0.00247                     | 0.03100         | 0.00668 | 0.00205         | 1.15000         | 0.00220          | 0.00213           | 0.00046       | 4,160                                   |                               | 208       |                     | 2,772            |
| Cementer                               | 90                 | 59%         | LPG      | 0.00009                     | 0.00118         | 0.00068 | 0.00000         | 1.13636         | 0.00006          | 0.00006           | 0.00000       | 8,320                                   | 8,320                         |           |                     | 2,130            |
| Welding Equipment                      | 47                 | 40%         | LPG      | 0.00009                     | 0.00118         | 0.00068 | 0.00000         | 1.13636         | 0.00006          | 0.00006           | 0.00000       | 9,880                                   |                               |           |                     |                  |
| HDPE Fusion Equipment                  | 83                 | 40%         | LPG      | 0.00009                     | 0.00118         | 0.00068 | 0.00000         | 1.13636         | 0.00006          | 0.00006           | 0.00000       | 6,240                                   |                               |           |                     |                  |
| Light Duty Pickup                      | 265                | 25%         | Gasoline | 0.02200                     | 0.01100         | 0.00696 | 0.00059         | 1.08000         | 0.00072          | 0.00070           | 0.00049       | 10,000                                  | 6,500                         | 18,736    | 2,912               | 4,000            |
| Light Duty Passenger Vehicle           | 150                | 25%         | Gasoline | 0.02200                     | 0.01100         | 0.00696 | 0.00059         | 1.08000         | 0.00072          | 0.00070           | 0.00049       | 9,263                                   | 6,825                         | 9,750     | 975                 | 2,438            |

## Emission Factor Sources:

1. EPA, AP-42 Table 3.3-1, Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines (THC, SO<sub>2</sub>, CO<sub>2</sub>, Aldehydes)
2. EPA, Exhaust and Crankcase Emission Factors for Non-Road Engine Modeling - Compression Ignition, April 2004 (PM<sub>2.5</sub>)
3. EPA, Control of Emissions of Air Pollution from Non-Road Diesel Engines; Final Rule, Subpart 89.112, October 1998 (all Tiers: NO<sub>x</sub>, CO, PM<sub>10</sub>; THC for Tier 1)
4. EPA, AP-42 Table 1.5-1, Emission Factors for LPG Combustion

| DEWEY-BURDOCK PROJECT PHASE SCHEDULE  |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| Phase/Year                            | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 |
| Construction - Facilities/Well Fields |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
| Construction - Well Fields Only       |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
| Operation                             |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
| Aquifer Restoration                   |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
| Decommissioning                       |        |        |        |        |        |        |        |        |        |         |         |         |         |         |

| SUMMARY OF DEWEY-BURDOCK PROJECT MOBILE EQUIPMENT EMISSIONS |        |        |        |        |        |        |        |        |        |         |         |         |         |         |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| Pollutant   | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 |
| THC   | 23.4   | 38.0   | 38.0   | 40.5   | 40.5   | 40.5   | 47.0   | 47.0   | 28.6   | 9.0     | 6.5     | 6.5     | 6.5     | 6.5     |
| NO <sub>x</sub>   | 71.9   | 78.5   | 78.5   | 79.7   | 79.7   | 79.7   | 92.4   | 92.4   | 29.0   | 13.9    | 12.7    | 12.7    | 12.7    | 12.7    |
| CO  | 74.1   | 79.1   | 79.1   | 79.9   | 79.9   | 79.9   | 87.2   | 87.2   | 18.1   | 8.1     | 7.3     | 7.3     | 7.3     | 7.3     |
| SO <sub>2</sub>   | 11.3   | 12.1   | 12.1   | 12.1   | 12.1   | 12.1   | 14.4   | 14.4   | 4.3    | 2.3     | 2.2     | 2.2     | 2.2     | 2.2     |
| CO <sub>2</sub>   | 7,196  | 7,884  | 7,884  | 8,008  | 8,008  | 8,008  | 9,453  | 9,453  | 3,320  | 1,568   | 1,444   | 1,444   | 1,444   | 1,444   |
| PM <sub>10</sub>  | 4.2    | 4.6    | 4.6    | 4.7    | 4.7    | 4.7    | 5.3    | 5.3    | 1.6    | 0.7     | 0.6     | 0.6     | 0.6     | 0.6     |
| PM <sub>2.5</sub>   | 4.1    | 4.4    | 4.4    | 4.5    | 4.5    | 4.5    | 5.1    | 5.1    | 1.6    | 0.7     | 0.6     | 0.6     | 0.6     | 0.6     |
| Formaldehyde  | 2.7    | 3.1    | 3.1    | 3.2    | 3.2    | 3.2    | 3.8    | 3.8    | 1.4    | 0.6     | 0.6     | 0.6     | 0.6     | 0.6     |

| MOBILE EQUIPMENT THC EMISSIONS PER YEAR |              |              |              |              |              |              |              |              |              |             |             |             |             |             |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
|   | Year 1       | Year 2       | Year 3       | Year 4       | Year 5       | Year 6       | Year 7       | Year 8       | Year 9       | Year 10     | Year 11     | Year 12     | Year 13     | Year 14     |
| Scraper                                 | 0.30         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.59         | 0.59         | 0.59         | 0.59        | 0.59        | 0.59        | 0.59        | 0.59        |
| Bulldozer                               | 0.09         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.18         | 0.18         | 0.18         | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        |
| Compactor                               | 0.07         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.13         | 0.13         | 0.13         | 0.13        | 0.13        | 0.13        | 0.13        | 0.13        |
| Motor Grader                            | 0.18         | 0.17         | 0.17         | 0.17         | 0.17         | 0.17         | 0.30         | 0.30         | 0.19         | 0.13        | 0.13        | 0.13        | 0.13        | 0.13        |
| Water Truck (1,500 gal)                 | 2.50         | 2.34         | 2.34         | 2.34         | 2.34         | 2.34         | 2.48         | 2.48         | 0.31         | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        |
| Fueling Truck                           | 0.02         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.08         | 0.08         | 0.08         | 0.08        | 0.08        | 0.08        | 0.08        | 0.08        |
| Heavy Duty Diesel Truck                 | 0.33         | 0.17         | 0.17         | 0.17         | 0.17         | 0.17         | 0.39         | 0.39         | 0.31         | 0.22        | 0.22        | 0.22        | 0.22        | 0.22        |
| Logging Truck                           | 0.83         | 1.04         | 1.04         | 1.04         | 1.04         | 1.04         | 1.04         | 1.04         | 0.21         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Electrical Pole Truck                   | 0.35         | 0.35         | 0.35         | 0.35         | 0.35         | 0.35         | 0.35         | 0.35         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Truck Mounted Drill Rig, Tier 1         | 6.39         | 6.39         | 6.39         | 6.39         | 6.39         | 6.39         | 6.39         | 6.39         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Deep Well Drill Rig, Tier 1             | 0.08         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Trackhoe                                | 0.41         | 0.41         | 0.41         | 0.41         | 0.41         | 0.41         | 0.59         | 0.59         | 0.17         | 0.17        | 0.17        | 0.17        | 0.17        | 0.17        |
| Backhoe                                 | 0.24         | 0.24         | 0.24         | 0.24         | 0.24         | 0.24         | 0.30         | 0.30         | 0.06         | 0.06        | 0.06        | 0.06        | 0.06        | 0.06        |
| Loader                                  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.11         | 0.11         | 0.11         | 0.11        | 0.11        | 0.11        | 0.11        | 0.11        |
| Tractor                                 | 0.00         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.21         | 0.21         | 0.21         | 0.17        | 0.17        | 0.17        | 0.17        | 0.17        |
| Resin-hauling Semi Truck                | 0.00         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Pump Pulling Truck                      | 0.00         | 1.00         | 1.00         | 1.00         | 1.00         | 1.00         | 1.34         | 1.34         | 1.34         | 0.34        | 0.34        | 0.34        | 0.34        | 0.34        |
| Product Transport Truck                 | 0.00         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Crane                                   | 0.11         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.11         | 0.11         | 0.11         | 0.11        | 0.11        | 0.11        | 0.11        | 0.11        |
| Forklift                                | 0.29         | 0.29         | 0.29         | 0.29         | 0.29         | 0.29         | 0.35         | 0.35         | 0.13         | 0.06        | 0.06        | 0.06        | 0.06        | 0.06        |
| Manlift                                 | 0.06         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.05         | 0.05         | 0.05         | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        |
| Cementer                                | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.03         | 0.03         | 0.01         | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        |
| Welding Equipment                       | 0.01         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| HDPE Fusion Equipment                   | 0.01         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Light Duty Pickup                       | 7.29         | 18.39        | 18.39        | 20.51        | 20.51        | 20.51        | 23.43        | 23.43        | 18.69        | 5.04        | 2.92        | 2.92        | 2.92        | 2.92        |
| Light Duty Passenger Vehicle            | 3.82         | 6.84         | 6.84         | 7.24         | 7.24         | 7.24         | 8.24         | 8.24         | 5.43         | 1.41        | 1.01        | 1.01        | 1.01        | 1.01        |
| <b>TOTAL</b>                            | <b>23.40</b> | <b>37.98</b> | <b>37.98</b> | <b>40.51</b> | <b>40.51</b> | <b>40.51</b> | <b>46.98</b> | <b>46.98</b> | <b>28.57</b> | <b>9.00</b> | <b>6.48</b> | <b>6.48</b> | <b>6.48</b> | <b>6.48</b> |

| MOBILE EQUIPMENT NO <sub>x</sub> EMISSIONS PER YEAR |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|   | Year 1       | Year 2       | Year 3       | Year 4       | Year 5       | Year 6       | Year 7       | Year 8       | Year 9       | Year 10      | Year 11      | Year 12      | Year 13      | Year 14      |
| Scraper   | 0.79         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 1.59         | 1.59         | 1.59         | 1.59         | 1.59         | 1.59         | 1.59         | 1.59         |
| Bulldozer   | 0.23         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.47         | 0.47         | 0.47         | 0.47         | 0.47         | 0.47         | 0.47         | 0.47         |
| Compactor   | 0.18         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.36         | 0.36         | 0.36         | 0.36         | 0.36         | 0.36         | 0.36         | 0.36         |
| Motor Grader  | 0.47         | 0.46         | 0.46         | 0.46         | 0.46         | 0.46         | 0.80         | 0.80         | 0.50         | 0.34         | 0.34         | 0.34         | 0.34         | 0.34         |
| Water Truck (1,500 gal)                             | 6.70         | 6.25         | 6.25         | 6.25         | 6.25         | 6.25         | 6.63         | 6.63         | 0.82         | 0.37         | 0.37         | 0.37         | 0.37         | 0.37         |
| Fueling Truck                                       | 0.06         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         | 0.22         |
| Heavy Duty Diesel Truck                             | 0.89         | 0.45         | 0.45         | 0.45         | 0.45         | 0.45         | 1.04         | 1.04         | 0.82         | 0.60         | 0.60         | 0.60         | 0.60         | 0.60         |
| Logging Truck                                       | 2.23         | 2.79         | 2.79         | 2.79         | 2.79         | 2.79         | 2.79         | 2.79         | 0.56         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Electrical Pole Truck                               | 0.93         | 0.93         | 0.93         | 0.93         | 0.93         | 0.93         | 0.93         | 0.93         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Truck Mounted Drill Rig, Tier 1                     | 45.22        | 45.22        | 45.22        | 45.22        | 45.22        | 45.22        | 45.22        | 45.22        | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Deep Well Drill Rig, Tier 1                         | 0.57         | 0.14         | 0.14         | 0.14         | 0.14         | 0.14         | 0.14         | 0.14         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Trackhoe  | 1.11         | 1.11         | 1.11         | 1.11         | 1.11         | 1.11         | 1.57         | 1.57         | 0.46         | 0.46         | 0.46         | 0.46         | 0.46         | 0.46         |
| Backhoe   | 0.64         | 0.64         | 0.64         | 0.64         | 0.64         | 0.64         | 0.80         | 0.80         | 0.16         | 0.16         | 0.16         | 0.16         | 0.16         | 0.16         |
| Loader  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.30         | 0.30         | 0.30         | 0.30         | 0.30         | 0.30         | 0.30         | 0.30         |
| Tractor   | 0.00         | 0.53         | 0.53         | 0.53         | 0.53         | 0.53         | 2.66         | 2.66         | 2.66         | 2.14         | 2.14         | 2.14         | 2.14         | 2.14         |
| Resin-hauling Semi Truck                            | 0.00         | 0.59         | 0.59         | 0.59         | 0.59         | 0.59         | 0.59         | 0.59         | 0.59         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Pump Pulling Truck                                  | 0.00         | 2.68         | 2.68         | 2.68         | 2.68         | 2.68         | 3.60         | 3.60         | 3.60         | 0.91         | 0.91         | 0.91         | 0.91         | 0.91         |
| Product Transport Truck                             | 0.00         | 0.12         | 0.12         | 0.12         | 0.12         | 0.12         | 0.12         | 0.12         | 0.12         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Crane   | 1.39         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 1.39         | 1.39         | 1.39         | 1.39         | 1.39         | 1.39         | 1.39         | 1.39         |
| Forklift  | 3.63         | 3.65         | 3.65         | 3.65         | 3.65         | 3.65         | 4.45         | 4.45         | 1.63         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         |
| Manlift   | 0.81         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.58         | 0.58         | 0.58         | 0.54         | 0.54         | 0.54         | 0.54         | 0.54         |
| Cementer  | 0.26         | 0.26         | 0.26         | 0.26         | 0.26         | 0.26         | 0.33         | 0.33         | 0.07         | 0.07         | 0.07         | 0.07         | 0.07         | 0.07         |
| Welding Equipment                                   | 0.11         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| HDPE Fusion Equipment                               | 0.12         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Light Duty Pickup                                   | 3.64         | 9.20         | 9.20         | 10.26        | 10.26        | 10.26        | 11.71        | 11.71        | 9.35         | 2.52         | 1.46         | 1.46         | 1.46         | 1.46         |
| Light Duty Passenger Vehicle                        | 1.91         | 3.42         | 3.42         | 3.62         | 3.62         | 3.62         | 4.12         | 4.12         | 2.71         | 0.70         | 0.50         | 0.50         | 0.50         | 0.50         |
| <b>TOTAL</b>  | <b>71.89</b> | <b>78.47</b> | <b>78.47</b> | <b>79.73</b> | <b>79.73</b> | <b>79.73</b> | <b>92.41</b> | <b>92.41</b> | <b>28.95</b> | <b>13.94</b> | <b>12.68</b> | <b>12.68</b> | <b>12.68</b> | <b>12.68</b> |

| MOBILE EQUIPMENT CO EMISSIONS PER YEAR |              |              |              |              |              |              |              |              |              |             |             |             |             |             |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
|  | Year 1       | Year 2       | Year 3       | Year 4       | Year 5       | Year 6       | Year 7       | Year 8       | Year 9       | Year 10     | Year 11     | Year 12     | Year 13     | Year 14     |
| Scraper                                | 0.69         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 1.38         | 1.38         | 1.38         | 1.38        | 1.38        | 1.38        | 1.38        | 1.38        |
| Bulldozer                              | 0.20         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.41         | 0.41         | 0.41         | 0.41        | 0.41        | 0.41        | 0.41        | 0.41        |
| Compactor                              | 0.16         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.31         | 0.31         | 0.31         | 0.31        | 0.31        | 0.31        | 0.31        | 0.31        |
| Motor Grader                           | 0.41         | 0.40         | 0.40         | 0.40         | 0.40         | 0.40         | 0.70         | 0.70         | 0.44         | 0.29        | 0.29        | 0.29        | 0.29        | 0.29        |
| Water Truck (1,500 gal)                | 5.81         | 5.42         | 5.42         | 5.42         | 5.42         | 5.42         | 5.74         | 5.74         | 0.71         | 0.32        | 0.32        | 0.32        | 0.32        | 0.32        |
| Fueling Truck                          | 0.05         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.19         | 0.19         | 0.19         | 0.19        | 0.19        | 0.19        | 0.19        | 0.19        |
| Heavy Duty Diesel Truck                | 0.77         | 0.39         | 0.39         | 0.39         | 0.39         | 0.39         | 0.90         | 0.90         | 0.71         | 0.52        | 0.52        | 0.52        | 0.52        | 0.52        |
| Logging Truck                          | 1.94         | 2.42         | 2.42         | 2.42         | 2.42         | 2.42         | 2.42         | 2.42         | 0.48         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Electrical Pole Truck                  | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.81         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Truck Mounted Drill Rig, Tier 1        | 56.03        | 56.03        | 56.03        | 56.03        | 56.03        | 56.03        | 56.03        | 56.03        | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Deep Well Drill Rig, Tier 1            | 0.70         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Trackhoe                               | 0.96         | 0.96         | 0.96         | 0.96         | 0.96         | 0.96         | 1.36         | 1.36         | 0.40         | 0.40        | 0.40        | 0.40        | 0.40        | 0.40        |
| Backhoe                                | 0.55         | 0.55         | 0.55         | 0.55         | 0.55         | 0.55         | 0.69         | 0.69         | 0.14         | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        |
| Loader                                 | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.26         | 0.26         | 0.26         | 0.26        | 0.26        | 0.26        | 0.26        | 0.26        |
| Tractor                                | 0.00         | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.49         | 0.49         | 0.49         | 0.39        | 0.39        | 0.39        | 0.39        | 0.39        |
| Resin-hauling Semi Truck               | 0.00         | 0.51         | 0.51         | 0.51         | 0.51         | 0.51         | 0.51         | 0.51         | 0.51         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Pump Pulling Truck                     | 0.00         | 2.32         | 2.32         | 2.32         | 2.32         | 2.32         | 3.12         | 3.12         | 3.12         | 0.79        | 0.79        | 0.79        | 0.79        | 0.79        |
| Product Transport Truck                | 0.00         | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Crane                                  | 0.30         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.30         | 0.30         | 0.30         | 0.30        | 0.30        | 0.30        | 0.30        | 0.30        |
| Forklift                               | 0.78         | 0.79         | 0.79         | 0.79         | 0.79         | 0.79         | 0.96         | 0.96         | 0.35         | 0.17        | 0.17        | 0.17        | 0.17        | 0.17        |
| Manlift                                | 0.17         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.12         | 0.12         | 0.12         | 0.12        | 0.12        | 0.12        | 0.12        | 0.12        |
| Cementer                               | 0.15         | 0.15         | 0.15         | 0.15         | 0.15         | 0.15         | 0.19         | 0.19         | 0.04         | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        |
| Welding Equipment                      | 0.06         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| HDPE Fusion Equipment                  | 0.07         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Light Duty Pickup                      | 2.31         | 5.82         | 5.82         | 6.49         | 6.49         | 6.49         | 7.41         | 7.41         | 5.91         | 1.59        | 0.92        | 0.92        | 0.92        | 0.92        |
| Light Duty Passenger Vehicle           | 1.21         | 2.16         | 2.16         | 2.29         | 2.29         | 2.29         | 2.61         | 2.61         | 1.72         | 0.45        | 0.32        | 0.32        | 0.32        | 0.32        |
| <b>TOTAL</b>                           | <b>74.13</b> | <b>79.12</b> | <b>79.12</b> | <b>79.91</b> | <b>79.91</b> | <b>79.91</b> | <b>87.19</b> | <b>87.19</b> | <b>18.10</b> | <b>8.08</b> | <b>7.28</b> | <b>7.28</b> | <b>7.28</b> | <b>7.28</b> |

| MOBILE EQUIPMENT SO <sub>2</sub> EMISSIONS PER YEAR |              |              |              |              |              |              |              |              |             |             |             |             |             |             |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
|   | Year 1       | Year 2       | Year 3       | Year 4       | Year 5       | Year 6       | Year 7       | Year 8       | Year 9      | Year 10     | Year 11     | Year 12     | Year 13     | Year 14     |
| Scraper   | 0.25         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.49         | 0.49         | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        | 0.49        |
| Bulldozer   | 0.07         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.15         | 0.15         | 0.15        | 0.15        | 0.15        | 0.15        | 0.15        | 0.15        |
| Compactor   | 0.06         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.11         | 0.11         | 0.11        | 0.11        | 0.11        | 0.11        | 0.11        | 0.11        |
| Motor Grader  | 0.15         | 0.14         | 0.14         | 0.14         | 0.14         | 0.14         | 0.25         | 0.25         | 0.16        | 0.11        | 0.11        | 0.11        | 0.11        | 0.11        |
| Water Truck (1,500 gal)                             | 2.08         | 1.94         | 1.94         | 1.94         | 1.94         | 1.94         | 2.06         | 2.06         | 0.25        | 0.12        | 0.12        | 0.12        | 0.12        | 0.12        |
| Fueling Truck                                       | 0.02         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.07         | 0.07         | 0.07        | 0.07        | 0.07        | 0.07        | 0.07        | 0.07        |
| Heavy Duty Diesel Truck                             | 0.28         | 0.14         | 0.14         | 0.14         | 0.14         | 0.14         | 0.32         | 0.32         | 0.25        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        |
| Logging Truck                                       | 0.69         | 0.87         | 0.87         | 0.87         | 0.87         | 0.87         | 0.87         | 0.87         | 0.17        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Electrical Pole Truck                               | 0.29         | 0.29         | 0.29         | 0.29         | 0.29         | 0.29         | 0.29         | 0.29         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Truck Mounted Drill Rig, Tier 1                     | 6.13         | 6.13         | 6.13         | 6.13         | 6.13         | 6.13         | 6.13         | 6.13         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Deep Well Drill Rig, Tier 1                         | 0.08         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Trackhoe  | 0.34         | 0.34         | 0.34         | 0.34         | 0.34         | 0.34         | 0.49         | 0.49         | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        |
| Backhoe   | 0.20         | 0.20         | 0.20         | 0.20         | 0.20         | 0.20         | 0.25         | 0.25         | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        |
| Loader  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.09         | 0.09         | 0.09        | 0.09        | 0.09        | 0.09        | 0.09        | 0.09        |
| Tractor   | 0.00         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.18         | 0.18         | 0.18        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        |
| Resin-hauling Semi Truck                            | 0.00         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18         | 0.18        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Pump Pulling Truck                                  | 0.00         | 0.83         | 0.83         | 0.83         | 0.83         | 0.83         | 1.12         | 1.12         | 1.12        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        |
| Product Transport Truck                             | 0.00         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Crane   | 0.09         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.09         | 0.09         | 0.09        | 0.09        | 0.09        | 0.09        | 0.09        | 0.09        |
| Forklift  | 0.24         | 0.24         | 0.24         | 0.24         | 0.24         | 0.24         | 0.29         | 0.29         | 0.11        | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        |
| Manlift   | 0.05         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.04         | 0.04         | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        |
| Cementer  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Welding Equipment                                   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| HDPE Fusion Equipment                               | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Light Duty Pickup                                   | 0.20         | 0.49         | 0.49         | 0.55         | 0.55         | 0.55         | 0.63         | 0.63         | 0.50        | 0.14        | 0.08        | 0.08        | 0.08        | 0.08        |
| Light Duty Passenger Vehicle                        | 0.10         | 0.18         | 0.18         | 0.19         | 0.19         | 0.19         | 0.22         | 0.22         | 0.15        | 0.04        | 0.03        | 0.03        | 0.03        | 0.03        |
| <b>TOTAL</b>  | <b>11.31</b> | <b>12.08</b> | <b>12.08</b> | <b>12.15</b> | <b>12.15</b> | <b>12.15</b> | <b>14.37</b> | <b>14.37</b> | <b>4.34</b> | <b>2.29</b> | <b>2.22</b> | <b>2.22</b> | <b>2.22</b> | <b>2.22</b> |

| MOBILE EQUIPMENT PM <sub>10</sub> EMISSIONS PER YEAR |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|  | Year 1      | Year 2      | Year 3      | Year 4      | Year 5      | Year 6      | Year 7      | Year 8      | Year 9      | Year 10     | Year 11     | Year 12     | Year 13     | Year 14     |
| Scraper  | 0.04        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.08        | 0.08        | 0.08        | 0.08        | 0.08        | 0.08        | 0.08        | 0.08        |
| Bulldozer  | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Compactor  | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Motor Grader   | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.04        | 0.04        | 0.03        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Water Truck (1,500 gal)                              | 0.34        | 0.31        | 0.31        | 0.31        | 0.31        | 0.31        | 0.33        | 0.33        | 0.04        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Fueling Truck  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        |
| Heavy Duty Diesel Truck                              | 0.04        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.05        | 0.05        | 0.04        | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        |
| Logging Truck  | 0.11        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.03        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Electrical Pole Truck                                | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Truck Mounted Drill Rig, Tier 1                      | 2.65        | 2.65        | 2.65        | 2.65        | 2.65        | 2.65        | 2.65        | 2.65        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Deep Well Drill Rig, Tier 1                          | 0.03        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Trackhoe   | 0.06        | 0.06        | 0.06        | 0.06        | 0.06        | 0.06        | 0.08        | 0.08        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Backhoe  | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        | 0.04        | 0.04        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        |
| Loader   | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Tractor  | 0.00        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.03        | 0.03        | 0.03        | 0.02        | 0.02        | 0.02        | 0.02        | 0.02        |
| Resin-hauling Semi Truck                             | 0.00        | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        | 0.03        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Pump Pulling Truck                                   | 0.00        | 0.13        | 0.13        | 0.13        | 0.13        | 0.13        | 0.18        | 0.18        | 0.18        | 0.05        | 0.05        | 0.05        | 0.05        | 0.05        |
| Product Transport Truck                              | 0.00        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Crane  | 0.10        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.10        | 0.10        | 0.10        | 0.10        | 0.10        | 0.10        | 0.10        | 0.10        |
| Forklift   | 0.26        | 0.26        | 0.26        | 0.26        | 0.26        | 0.26        | 0.32        | 0.32        | 0.12        | 0.06        | 0.06        | 0.06        | 0.06        | 0.06        |
| Manlift  | 0.06        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        | 0.04        |
| Cementer   | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.02        | 0.02        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Welding Equipment                                    | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| HDPE Fusion Equipment                                | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Light Duty Pickup                                    | 0.24        | 0.60        | 0.60        | 0.67        | 0.67        | 0.67        | 0.77        | 0.77        | 0.61        | 0.17        | 0.10        | 0.10        | 0.10        | 0.10        |
| Light Duty Passenger Vehicle                         | 0.13        | 0.22        | 0.22        | 0.24        | 0.24        | 0.24        | 0.27        | 0.27        | 0.18        | 0.05        | 0.03        | 0.03        | 0.03        | 0.03        |
| <b>TOTAL</b>   | <b>4.20</b> | <b>4.57</b> | <b>4.57</b> | <b>4.65</b> | <b>4.65</b> | <b>4.65</b> | <b>5.29</b> | <b>5.29</b> | <b>1.61</b> | <b>0.72</b> | <b>0.64</b> | <b>0.64</b> | <b>0.64</b> | <b>0.64</b> |

| MOBILE EQUIPMENT CO <sub>2</sub> EMISSIONS PER YEAR |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|   | Year 1       | Year 2       | Year 3       | Year 4       | Year 5       | Year 6       | Year 7       | Year 8       | Year 9       | Year 10      | Year 11      | Year 12      | Year 13      | Year 14      |
| Scraper   | 138          | 0            | 0            | 0            | 0            | 0            | 276          | 276          | 276          | 276          | 276          | 276          | 276          | 276          |
| Bulldozer   | 41           | 0            | 0            | 0            | 0            | 0            | 82           | 82           | 82           | 82           | 82           | 82           | 82           | 82           |
| Compactor   | 31           | 0            | 0            | 0            | 0            | 0            | 63           | 63           | 63           | 63           | 63           | 63           | 63           | 63           |
| Motor Grader  | 82           | 81           | 81           | 81           | 81           | 81           | 140          | 140          | 88           | 59           | 59           | 59           | 59           | 59           |
| Water Truck (1,500 gal)                             | 1,166        | 1,088        | 1,088        | 1,088        | 1,088        | 1,088        | 1,153        | 1,153        | 143          | 65           | 65           | 65           | 65           | 65           |
| Fueling Truck                                       | 10           | 0            | 0            | 0            | 0            | 0            | 39           | 39           | 39           | 39           | 39           | 39           | 39           | 39           |
| Heavy Duty Diesel Truck                             | 155          | 78           | 78           | 78           | 78           | 78           | 181          | 181          | 143          | 104          | 104          | 104          | 104          | 104          |
| Logging Truck                                       | 389          | 486          | 486          | 486          | 486          | 486          | 486          | 486          | 97           | 0            | 0            | 0            | 0            | 0            |
| Electrical Pole Truck                               | 162          | 162          | 162          | 162          | 162          | 162          | 162          | 162          | 0            | 0            | 0            | 0            | 0            | 0            |
| Truck Mounted Drill Rig, Tier 1                     | 3,440        | 3,440        | 3,440        | 3,440        | 3,440        | 3,440        | 3,440        | 3,440        | 0            | 0            | 0            | 0            | 0            | 0            |
| Deep Well Drill Rig, Tier 1                         | 43           | 11           | 11           | 11           | 11           | 11           | 11           | 11           | 0            | 0            | 0            | 0            | 0            | 0            |
| Trackhoe  | 192          | 192          | 192          | 192          | 192          | 192          | 272          | 272          | 80           | 80           | 80           | 80           | 80           | 80           |
| Backhoe   | 111          | 111          | 111          | 111          | 111          | 111          | 139          | 139          | 28           | 28           | 28           | 28           | 28           | 28           |
| Loader  | 0            | 0            | 0            | 0            | 0            | 0            | 52           | 52           | 52           | 52           | 52           | 52           | 52           | 52           |
| Tractor   | 0            | 20           | 20           | 20           | 20           | 20           | 99           | 99           | 99           | 79           | 79           | 79           | 79           | 79           |
| Resin-hauling Semi Truck                            | 0            | 103          | 103          | 103          | 103          | 103          | 103          | 103          | 103          | 0            | 0            | 0            | 0            | 0            |
| Pump Pulling Truck                                  | 0            | 466          | 466          | 466          | 466          | 466          | 626          | 626          | 626          | 159          | 159          | 159          | 159          | 159          |
| Product Transport Truck                             | 0            | 21           | 21           | 21           | 21           | 21           | 21           | 21           | 21           | 0            | 0            | 0            | 0            | 0            |
| Crane   | 51           | 0            | 0            | 0            | 0            | 0            | 51           | 51           | 51           | 51           | 51           | 51           | 51           | 51           |
| Forklift  | 135          | 135          | 135          | 135          | 135          | 135          | 165          | 165          | 61           | 30           | 30           | 30           | 30           | 30           |
| Manlift   | 30           | 1            | 1            | 1            | 1            | 1            | 21           | 21           | 21           | 20           | 20           | 20           | 20           | 20           |
| Cementer  | 251          | 251          | 251          | 251          | 251          | 251          | 315          | 315          | 64           | 64           | 64           | 64           | 64           | 64           |
| Welding Equipment                                   | 106          | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            |
| HDPE Fusion Equipment                               | 118          | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            |
| Light Duty Pickup                                   | 358          | 903          | 903          | 1,007        | 1,007        | 1,007        | 1,150        | 1,150        | 918          | 247          | 143          | 143          | 143          | 143          |
| Light Duty Passenger Vehicle                        | 188          | 336          | 336          | 355          | 355          | 355          | 405          | 405          | 267          | 69           | 49           | 49           | 49           | 49           |
| <b>TOTAL</b>  | <b>7,196</b> | <b>7,884</b> | <b>7,884</b> | <b>8,008</b> | <b>8,008</b> | <b>8,008</b> | <b>9,453</b> | <b>9,453</b> | <b>3,320</b> | <b>1,568</b> | <b>1,444</b> | <b>1,444</b> | <b>1,444</b> | <b>1,444</b> |

| <b>MOBILE EQUIPMENT FORMALDEHYDE EMISSIONS PER YEAR</b> |               |               |               |               |               |               |               |               |               |                |                |                |                |                |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|
|   | <b>Year 1</b> | <b>Year 2</b> | <b>Year 3</b> | <b>Year 4</b> | <b>Year 5</b> | <b>Year 6</b> | <b>Year 7</b> | <b>Year 8</b> | <b>Year 9</b> | <b>Year 10</b> | <b>Year 11</b> | <b>Year 12</b> | <b>Year 13</b> | <b>Year 14</b> |
| Scraper   | 0.06          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.11          | 0.11          | 0.11          | 0.11           | 0.11           | 0.11           | 0.11           | 0.11           |
| Bulldozer   | 0.02          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.03          | 0.03          | 0.03          | 0.03           | 0.03           | 0.03           | 0.03           | 0.03           |
| Compactor   | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.03          | 0.03          | 0.03          | 0.03           | 0.03           | 0.03           | 0.03           | 0.03           |
| Motor Grader  | 0.03          | 0.03          | 0.03          | 0.03          | 0.03          | 0.03          | 0.06          | 0.06          | 0.04          | 0.02           | 0.02           | 0.02           | 0.02           | 0.02           |
| Water Truck (1,500 gal)                                 | 0.47          | 0.44          | 0.44          | 0.44          | 0.44          | 0.44          | 0.46          | 0.46          | 0.06          | 0.03           | 0.03           | 0.03           | 0.03           | 0.03           |
| Fueling Truck   | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.02          | 0.02          | 0.02          | 0.02           | 0.02           | 0.02           | 0.02           | 0.02           |
| Heavy Duty Diesel Truck                                 | 0.06          | 0.03          | 0.03          | 0.03          | 0.03          | 0.03          | 0.07          | 0.07          | 0.06          | 0.04           | 0.04           | 0.04           | 0.04           | 0.04           |
| Logging Truck   | 0.16          | 0.20          | 0.20          | 0.20          | 0.20          | 0.20          | 0.20          | 0.20          | 0.04          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Electrical Pole Truck                                   | 0.07          | 0.07          | 0.07          | 0.07          | 0.07          | 0.07          | 0.07          | 0.07          | 0.00          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Truck Mounted Drill Rig, Tier 1                         | 1.38          | 1.38          | 1.38          | 1.38          | 1.38          | 1.38          | 1.38          | 1.38          | 0.00          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Deep Well Drill Rig, Tier 1                             | 0.02          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Trackhoe  | 0.08          | 0.08          | 0.08          | 0.08          | 0.08          | 0.08          | 0.11          | 0.11          | 0.03          | 0.03           | 0.03           | 0.03           | 0.03           | 0.03           |
| Backhoe   | 0.04          | 0.04          | 0.04          | 0.04          | 0.04          | 0.04          | 0.06          | 0.06          | 0.01          | 0.01           | 0.01           | 0.01           | 0.01           | 0.01           |
| Loader  | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.02          | 0.02          | 0.02          | 0.02           | 0.02           | 0.02           | 0.02           | 0.02           |
| Tractor   | 0.00          | 0.01          | 0.01          | 0.01          | 0.01          | 0.01          | 0.04          | 0.04          | 0.04          | 0.03           | 0.03           | 0.03           | 0.03           | 0.03           |
| Resin-hauling Semi Truck                                | 0.00          | 0.04          | 0.04          | 0.04          | 0.04          | 0.04          | 0.04          | 0.04          | 0.04          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Pump Pulling Truck                                      | 0.00          | 0.19          | 0.19          | 0.19          | 0.19          | 0.19          | 0.25          | 0.25          | 0.25          | 0.06           | 0.06           | 0.06           | 0.06           | 0.06           |
| Product Transport Truck                                 | 0.00          | 0.01          | 0.01          | 0.01          | 0.01          | 0.01          | 0.01          | 0.01          | 0.01          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Crane   | 0.02          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.02          | 0.02          | 0.02          | 0.02           | 0.02           | 0.02           | 0.02           | 0.02           |
| Forklift  | 0.05          | 0.05          | 0.05          | 0.05          | 0.05          | 0.05          | 0.07          | 0.07          | 0.02          | 0.01           | 0.01           | 0.01           | 0.01           | 0.01           |
| Manlift   | 0.01          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.01          | 0.01          | 0.01          | 0.01           | 0.01           | 0.01           | 0.01           | 0.01           |
| Cementer  | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Welding Equipment                                       | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| HDPE Fusion Equipment                                   | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Light Duty Pickup                                       | 0.16          | 0.41          | 0.41          | 0.45          | 0.45          | 0.45          | 0.52          | 0.52          | 0.41          | 0.11           | 0.06           | 0.06           | 0.06           | 0.06           |
| Light Duty Passenger Vehicle                            | 0.08          | 0.15          | 0.15          | 0.16          | 0.16          | 0.16          | 0.18          | 0.18          | 0.12          | 0.03           | 0.02           | 0.02           | 0.02           | 0.02           |
| <b>TOTAL</b>  | <b>2.73</b>   | <b>3.13</b>   | <b>3.13</b>   | <b>3.19</b>   | <b>3.19</b>   | <b>3.19</b>   | <b>3.75</b>   | <b>3.75</b>   | <b>1.37</b>   | <b>0.62</b>    | <b>0.56</b>    | <b>0.56</b>    | <b>0.56</b>    | <b>0.56</b>    |

| SCHEDULE |             | ON-SITE FUGITIVE EMISSIONS<br>(INCLUDING WIND EROSION) |                   | OFF-SITE FUGITIVE EMISSIONS |                   |
|----------|-------------|--|-------------------|-----------------------------|-------------------|
| Year     | Phases      | PM <sub>10</sub>                                       | PM <sub>2.5</sub> | PM <sub>10</sub>            | PM <sub>2.5</sub> |
| 1        | CF          | 352  | 40                | 176                         | 18                |
| 2        | CW, O       | 455  | 50                | 146                         | 19                |
| 3        | CW, O       | 456  | 50                | 146                         | 19                |
| 4        | CW, O, R    | 469  | 52                | 159                         | 21                |
| 5        | CW, O, R    | 469  | 52                | 238                         | 29                |
| 6        | CW, O, R    | 470  | 52                | 238                         | 28                |
| 7        | CW, O, R, D | 564  | 61                | 305                         | 35                |
| 8        | CW, O, R, D | 562  | 61                | 305                         | 35                |
| 9        | O, R, D     | 308  | 35                | 212                         | 26                |
| 10       | R, D        | 137  | 18                | 80                          | 12                |
| 11       | D           | 124  | 17                | 67                          | 11                |
| 12       | D           | 124  | 17                | 67                          | 11                |
| 13       | D           | 124  | 17                | 67                          | 7                 |
| 14       | D           | 124  | 17                | 67                          | 7                 |

CF = Construction - Facilities/Well Fields

CW = Construction - Well Fields Only

O = Operation

R = Aquifer Restoration

D = Decommissioning

| Equipment Item  | Quantity | Hours | Speed (mph) | Weight (tons) | lb/VMT | VMT     | lb/hr | Control Efficiency | PM <sub>10</sub> tons/yr | Emission Factor Reference |
|---|----------|-------|-------------|---------------|--------|---------|-------|--------------------|--------------------------|---------------------------|
| Scraper   | 3        | 433   | 15          | 30            | 3.10   | 19,485  |       | 50%                | 15.10                    | AP-42 Section 13.2.2      |
| Bulldozer   | 1        | 433   |             |               |        |         | 0.70  | 0%                 | 0.15                     | AP-42 Table 11.9-1        |
| Compactor   | 1        | 433   | 5           | 5             | 1.38   | 2,165   |       | 50%                | 0.75                     | AP-42 Section 13.2.2      |
| Motor Grader  | 1        | 1,196 | 10          |               | 3.06   | 11,960  |       | 50%                | 9.15                     | AP-42 Table 11.9-1        |
| Water Truck (1,500 gal)                                     | 15       | 1,040 | 15          | 16            | 2.34   | 234,000 |       | 50%                | 136.65                   | AP-42 Section 13.2.2      |
| Fueling Truck   | 1        | 130   | 15          | 10            | 1.89   | 1,950   |       | 50%                | 0.92                     | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 2        | 260   | 15          | 20            | 2.58   | 7,800   |       | 50%                | 5.04                     | AP-42 Section 13.2.2      |
| Logging Truck   | 4        | 2,080 | 15          | 10            | 1.89   | 124,800 |       | 50%                | 58.99                    | AP-42 Section 13.2.2      |
| Electrical Pole Truck                                       | 2        | 1,733 | 15          | 10            | 1.89   | 51,990  |       | 50%                | 24.57                    | AP-42 Section 13.2.2      |
| Truck Mounted Drill Rig <sup>1</sup>                        | 13       | 2,600 | 20          |               |        |         | 0.07  | 0%                 | 1.10                     | AP-42 Table 11.9-4        |
| Deep Well Drill Rig <sup>1</sup>                            | 1        | 300   | 75          |               |        |         | 0.02  | 0%                 | 0.00                     | AP-42 Table 11.9-4        |
| Trackhoe <sup>3</sup>                                       | 1        | 3,120 |             |               |        |         | 1.66  | 0%                 | 2.59                     | AP-42 Table 11.9-4        |
| Backhoe <sup>3</sup>  | 1        | 5,200 |             |               |        |         | 1.33  | 0%                 | 3.46                     | AP-42 Table 11.9-4        |
| Forklift  | 4        | 2,340 | 5           | 1             | 0.67   | 46,800  |       | 50%                | 7.85                     | AP-42 Section 13.2.2      |
| Manlift   | 4        | 1,040 | 2           | 10            | 1.89   | 8,320   |       | 50%                | 3.93                     | AP-42 Section 13.2.2      |
| Light Duty Pickup (on-site use)                             | 5        | 2,000 | 15          | 3             | 1.10   | 150,000 |       | 50%                | 41.24                    | AP-42 Section 13.2.2      |
| On-site Passenger Vehicle <sup>2</sup>                      | 57       | 4     | 25          | 250           | 0.63   | 57,000  |       | 50%                | 9.03                     | AP-42 Section 13.2.2      |
| <b>TOTAL ON-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b>  |          |       |             |               |        |         |       |                    | <b>320.53</b>            |                           |
| Off-site Passenger Vehicle <sup>2</sup>                     | 57       | 22    | 40          | 250           | 0.80   | 313,500 |       | 0%                 | 125.70                   | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 2        | 780   | 25          | 20            | 2.58   | 39,000  |       | 0%                 | 50.36                    | AP-42 Section 13.2.2      |
| <b>TOTAL OFF-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b> |          |       |             |               |        |         |       |                    | <b>176.06</b>            |                           |

**Constants for PM<sub>10</sub> Calculations**

|                                   |         |
|-----------------------------------|---------|
| AP-42 Industrial Unpaved Roads: k | 1.5     |
| AP-42 Industrial Unpaved Roads: a | 0.9     |
| AP-42 Industrial Unpaved Roads: b | 0.45    |
| AP-42 Public Unpaved Roads: k     | 1.8     |
| AP-42 Public Unpaved Roads: a     | 1       |
| AP-42 Public Unpaved Roads: c     | 0.2     |
| AP-42 Public Unpaved Roads: d     | 0.5     |
| AP-42 Public Unpaved Roads: C     | 0.00047 |
| Average silt content (%): s       | 8.5     |
| Average moisture content (%): M   | 10.4    |

**Notes:**

1. For drill rigs, "Speed" column = average hours per hole
2. For passenger vehicles, "Hours" column = round-trip miles, "Weight" column = trips/yr
3. For trackhoe and backhoe, assumed 1.56 and 1.25-cy buckets and specific gravity of 1.6
4. Where separate factors were not given, PM<sub>10</sub> was assumed to be 30% of TSP  
(AP-42 Section 13.2.2, at 12% silt,  $K_{PM10}/K_{TSP} = 1.5/4.9 = 0.306$ )

| Equipment Item  | Quantity | Hours | Speed (mph) | Weight (tons) | lb/VMT | VMT     | lb/hr | Control Efficiency | PM <sub>10</sub> tons/yr | Emission Factor Reference |
|---|----------|-------|-------------|---------------|--------|---------|-------|--------------------|--------------------------|---------------------------|
| Motor Grader  | 1        | 347   | 10          |               | 3.06   | 3,470   |       | 50%                | 2.65                     | AP-42 Table 11.9-1        |
| Water Truck (1,500 gal)                                     | 13       | 1,040 | 15          | 16            | 2.34   | 202,800 |       | 50%                | 118.43                   | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 1        | 133   | 15          | 20            | 2.58   | 1,995   |       | 50%                | 1.29                     | AP-42 Section 13.2.2      |
| Logging Truck   | 4        | 2,080 | 15          | 10            | 1.89   | 124,800 |       | 50%                | 58.99                    | AP-42 Section 13.2.2      |
| Electrical Pole Truck                                       | 2        | 1,733 | 15          | 10            | 1.89   | 51,990  |       | 50%                | 24.57                    | AP-42 Section 13.2.2      |
| Truck Mounted Drill Rig <sup>1</sup>                        | 13       | 2,600 | 20          |               |        |         | 0.07  | 0%                 | 1.10                     | AP-42 Table 11.9-4        |
| Deep Well Drill Rig <sup>1</sup>                            | 1        | 75    | 75          |               |        |         | 0.02  | 0%                 | 0.00                     | AP-42 Table 11.9-4        |
| Trackhoe <sup>3</sup>                                       | 1        | 3,120 |             |               |        |         | 1.66  | 0%                 | 2.59                     | AP-42 Table 11.9-4        |
| Backhoe <sup>3</sup>  | 2        | 2,600 |             |               |        |         | 1.33  | 0%                 | 3.46                     | AP-42 Table 11.9-4        |
| Forklift  | 4        | 1,820 | 5           | 1             | 0.67   | 36,400  |       | 50%                | 6.10                     | AP-42 Section 13.2.2      |
| Light Duty Pickup (on-site use)                             | 13       | 500   | 15          | 3             | 1.10   | 97,500  |       | 50%                | 26.81                    | AP-42 Section 13.2.2      |
| On-site Passenger Vehicle <sup>2</sup>                      | 42       | 4     | 25          | 250           | 0.63   | 42,000  |       | 50%                | 6.66                     | AP-42 Section 13.2.2      |
| <b>TOTAL ON-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b>  |          |       |             |               |        |         |       |                    | <b>252.66</b>            |                           |
| Off-site Passenger Vehicle <sup>2</sup>                     | 42       | 22    | 40          | 250           | 0.80   | 231,000 |       | 0%                 | 92.62                    | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 1        | 387   | 25          | 20            | 2.58   | 9,675   |       | 0%                 | 12.49                    | AP-42 Section 13.2.2      |
| <b>TOTAL OFF-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b> |          |       |             |               |        |         |       |                    | <b>105.11</b>            |                           |

**Constants for PM<sub>10</sub> Calculations**

|                                   |         |
|-----------------------------------|---------|
| AP-42 Industrial Unpaved Roads: k | 1.5     |
| AP-42 Industrial Unpaved Roads: a | 0.9     |
| AP-42 Industrial Unpaved Roads: b | 0.45    |
| AP-42 Public Unpaved Roads: k     | 1.8     |
| AP-42 Public Unpaved Roads: a     | 1       |
| AP-42 Public Unpaved Roads: c     | 0.2     |
| AP-42 Public Unpaved Roads: d     | 0.5     |
| AP-42 Public Unpaved Roads: C     | 0.00047 |
| Average silt content (%): s       | 8.5     |
| Average moisture content (%): M   | 10.4    |

**Notes:**

1. For drill rigs, "Speed" column = average hours per hole
2. For passenger vehicles, "Hours" column = round-trip miles, "Weight" column = trips/yr
3. For trackhoe and backhoe, assumed 1.56 and 1.25-cy buckets and specific gravity of 1.6
4. Where separate factors were not given, PM<sub>10</sub> was assumed to be 30% of TSP  
(AP-42 Section 13.2.2, at 12% silt,  $K_{PM10}/K_{TSP} = 1.5/4.9 = 0.306$ )

| Equipment Item  | Quantity | Hours | Speed (mph) | Weight (tons) | lb/VMT | VMT     | lb/hr | Control Efficiency | PM <sub>10</sub> tons/yr | Emission Factor Reference |
|---|----------|-------|-------------|---------------|--------|---------|-------|--------------------|--------------------------|---------------------------|
| Motor Grader  | 1        | 416   | 10          |               | 3.06   | 4,160   |       | 50%                | 3.18                     | AP-42 Table 11.9-1        |
| Logging Truck   | 1        | 2,080 | 15          | 10            | 1.89   | 31,200  |       | 50%                | 14.75                    | AP-42 Section 13.2.2      |
| Resin-hauling Semi Truck                                    | 1        | 1,040 | 15          | 20            | 2.58   | 15,600  |       | 50%                | 10.07                    | AP-42 Section 13.2.2      |
| Water Truck (1,500 gal)                                     | 1        | 1,040 | 15          | 16            | 2.34   | 15,600  |       | 50%                | 9.11                     | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 1        | 133   | 15          | 20            | 2.58   | 1,995   |       | 50%                | 1.29                     | AP-42 Section 13.2.2      |
| Pump Pulling Truck  | 4        | 1,560 | 15          | 10            | 1.89   | 93,600  |       | 50%                | 44.24                    | AP-42 Table 11.9-4        |
| Forklift  | 1        | 2,132 | 5           | 1             | 0.67   | 10,660  |       | 50%                | 1.79                     | AP-42 Section 13.2.2      |
| Manlift   | 1        | 208   | 2           | 10            | 1.89   | 416     |       | 50%                | 0.20                     | AP-42 Section 13.2.2      |
| Product Transport Truck                                     | 1        | 27    | 15          | 40            | 0.49   | 405     |       | 0%                 | 0.10                     | AP-42 Section 13.2.2      |
| Light Duty Pickup (on-site use)                             | 12       | 1,561 | 15          | 3             | 1.10   | 281,040 |       | 50%                | 77.27                    | AP-42 Section 13.2.2      |
| On-site Passenger Vehicle <sup>1</sup>                      | 60       | 4     | 25          | 250           | 0.63   | 60,000  |       | 50%                | 9.51                     | AP-42 Section 13.2.2      |
| <b>TOTAL ON-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b>  |          |       |             |               |        |         |       |                    | <b>171.50</b>            |                           |
| Off-site Passenger Vehicle <sup>1</sup>                     | 60       | 22    | 40          | 250           | 0.80   | 330,000 |       | 0%                 | 132.31                   | AP-42 Section 13.2.2      |
| Product Transport Truck                                     | 1        | 181   | 25          | 40            | 0.63   | 4,525   |       | 0%                 | 1.43                     | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 1        | 387   | 25          | 20            | 2.58   | 9,675   |       | 0%                 | 12.49                    | AP-42 Section 13.2.2      |
| <b>TOTAL OFF-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b> |          |       |             |               |        |         |       |                    | <b>146.24</b>            |                           |

**Constants for PM<sub>10</sub> Calculations**

|                                   |         |
|-----------------------------------|---------|
| AP-42 Industrial Unpaved Roads: k | 1.5     |
| AP-42 Industrial Unpaved Roads: a | 0.9     |
| AP-42 Industrial Unpaved Roads: b | 0.45    |
| AP-42 Public Unpaved Roads: k     | 1.8     |
| AP-42 Public Unpaved Roads: a     | 1       |
| AP-42 Public Unpaved Roads: c     | 0.2     |
| AP-42 Public Unpaved Roads: d     | 0.5     |
| AP-42 Public Unpaved Roads: C     | 0.00047 |
| Average silt content (%): s       | 8.5     |
| Average moisture content (%): M   | 10.4    |

**Notes:**

1. For passenger vehicles, "Hours" column = round-trip miles, "Weight" column = trips/yr

| Equipment Item  | Quantity | Hours | Speed (mph) | Weight (tons) | lb/VMT | VMT    | lb/hr | Control Efficiency | PM <sub>10</sub> tons/yr | Emission Factor Reference |
|---|----------|-------|-------------|---------------|--------|--------|-------|--------------------|--------------------------|---------------------------|
| Light Duty Pickup (on-site use)                             | 1        | 2,912 | 15          | 3             | 1.10   | 43,680 |       | 50%                | 12.01                    | AP-42 Section 13.2.2      |
| On-site Passenger Vehicle <sup>1</sup>                      | 6        | 4     | 25          | 250           | 0.63   | 6,000  |       | 50%                | 0.95                     | AP-42 Section 13.2.2      |
| <b>TOTAL ON-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b>  |          |       |             |               |        |        |       |                    | <b>12.96</b>             |                           |
| Off-site Passenger Vehicle <sup>1</sup>                     | 6        | 22    | 40          | 250           | 0.80   | 33,000 |       |                    | 13.23                    | AP-42 Section 13.2.2      |
| <b>TOTAL OFF-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b> |          |       |             |               |        |        |       |                    | <b>13.23</b>             |                           |

**Constants for PM<sub>10</sub> Calculations**

|                                   |         |
|-----------------------------------|---------|
| AP-42 Industrial Unpaved Roads: k | 1.5     |
| AP-42 Industrial Unpaved Roads: a | 0.9     |
| AP-42 Industrial Unpaved Roads: b | 0.45    |
| AP-42 Public Unpaved Roads: k     | 1.8     |
| AP-42 Public Unpaved Roads: a     | 1       |
| AP-42 Public Unpaved Roads: c     | 0.2     |
| AP-42 Public Unpaved Roads: d     | 0.5     |
| AP-42 Public Unpaved Roads: C     | 0.00047 |
| Average silt content (%): s       | 8.5     |
| Average moisture content (%): M   | 10.4    |

**Notes:**

1. For passenger vehicles, "Hours" column = round-trip miles, "Weight" column = trips/yr

| Equipment Item  | Quantity | Hours | Speed (mph) | Weight (tons) | lb/VMT | VMT    | lb/hr | Control Efficiency | PM <sub>10</sub> tons/yr | Emission Factor Reference |
|---|----------|-------|-------------|---------------|--------|--------|-------|--------------------|--------------------------|---------------------------|
| Scraper   | 3        | 867   | 15          | 30            | 3.10   | 39,015 |       | 50%                | 30.23                    | AP-42 Section 13.2.2      |
| Bulldozer   | 1        | 867   |             |               |        |        | 0.70  | 0%                 | 0.00                     | AP-42 Table 11.9-1        |
| Compactor   | 1        | 867   | 5           | 5             | 1.38   | 4,335  |       | 50%                | 1.50                     | AP-42 Section 13.2.2      |
| Motor Grader  | 1        | 867   | 10          |               | 3.06   | 8,670  | 30.60 | 50%                | 6.63                     | AP-42 Table 11.9-1        |
| Water Truck (1,500 gal)                                     | 1        | 867   | 15          | 16            | 2.34   | 13,005 |       | 50%                | 7.59                     | AP-42 Section 13.2.2      |
| Fueling Truck   | 1        | 520   | 15          | 10            | 1.89   | 7,800  |       | 50%                | 3.69                     | AP-42 Section 13.2.2      |
| Loader  | 1        | 650   |             |               |        |        | 17.76 | 0%                 | 0.00                     | AP-42 Table 11.9-4        |
| Heavy Duty Diesel Truck                                     | 4        | 87    | 15          | 20            | 2.58   | 5,205  |       | 50%                | 3.36                     | AP-42 Section 13.2.2      |
| Pump Pulling Truck  | 1        | 2,130 | 15          | 10            | 1.89   | 31,950 |       | 50%                | 15.10                    | AP-42 Table 11.9-4        |
| Trackhoe <sup>2</sup>                                       | 2        | 650   |             |               |        |        | 1.66  | 0%                 | 0.00                     | AP-42 Table 11.9-4        |
| Backhoe <sup>2</sup>  | 2        | 650   |             |               |        |        | 1.33  | 0%                 | 0.00                     | AP-42 Table 11.9-4        |
| Forklift  | 3        | 693   | 5           | 1             | 0.67   | 10,395 |       | 50%                | 1.74                     | AP-42 Section 13.2.2      |
| Manlift   | 4        | 693   | 2           | 10            | 1.89   | 5,544  |       | 50%                | 2.62                     | AP-42 Section 13.2.2      |
| Tractor   | 1        | 650   | 5           | 5             | 1.38   | 3,250  |       | 0%                 | 2.25                     | AP-42 Section 13.2.2      |
| Light Duty Pickup (on-site use)                             | 2        | 2,000 | 15          | 3             | 1.10   | 60,000 |       | 50%                | 16.50                    | AP-42 Section 13.2.2      |
| On-site Passenger Vehicle <sup>1</sup>                      | 15       | 4     | 25          | 250           | 0.63   | 15,000 |       | 50%                | 2.38                     | AP-42 Section 13.2.2      |
| <b>TOTAL ON-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b>  |          |       |             |               |        |        |       |                    | <b>93.59</b>             |                           |
| Off-site Passenger Vehicle <sup>1</sup>                     | 15       | 22    | 40          | 250           | 0.80   | 82,500 |       | 0%                 | 33.08                    | AP-42 Section 13.2.2      |
| Heavy Duty Diesel Truck                                     | 4        | 260   | 25          | 20            | 2.58   | 26,025 |       | 0%                 | 33.61                    | AP-42 Section 13.2.2      |
| <b>TOTAL OFF-SITE PM<sub>10</sub> EMISSIONS (TONS/YEAR)</b> |          |       |             |               |        |        |       |                    | <b>66.68</b>             |                           |

**Constants for PM<sub>10</sub> Calculations**

|                                   |         |
|-----------------------------------|---------|
| AP-42 Industrial Unpaved Roads: k | 1.5     |
| AP-42 Industrial Unpaved Roads: a | 0.9     |
| AP-42 Industrial Unpaved Roads: b | 0.45    |
| AP-42 Public Unpaved Roads: k     | 1.8     |
| AP-42 Public Unpaved Roads: a     | 1       |
| AP-42 Public Unpaved Roads: c     | 0.2     |
| AP-42 Public Unpaved Roads: d     | 0.5     |
| AP-42 Public Unpaved Roads: C     | 0.00047 |
| Average silt content (%): s       | 8.5     |
| Average moisture content (%): M   | 10.4    |

**Notes:**

1. For passenger vehicles, "Hours" column = round-trip miles, "Weight" column = trips/yr
2. For trackhoe and backhoe, assumed 1.56 and 1.25-cy buckets and specific gravity of 1.6
3. Where separate factors were not given, PM<sub>10</sub> was assumed to be 30% of TSP  
(AP-42 Section 13.2.2, at 12% silt,  $K_{PM10}/K_{TSP} = 1.5/4.9 = 0.306$ )

| Wind Erosion Emissions                | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 |
|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| Disturbed Acreage                     | 273    | 272    | 275    | 279    | 282    | 285    | 288    | 272    | 265    | 265     | 264     | 263     | 263     | 263     |
| TSP Emission Factor (tons/yr/acre)    | 0.38   | 0.38   | 0.38   | 0.38   | 0.38   | 0.38   | 0.38   | 0.38   | 0.38   | 0.38    | 0.38    | 0.38    | 0.38    | 0.38    |
| PM <sub>10</sub> Emissions (tons/yr)  | 31.1   | 31.0   | 31.4   | 31.8   | 32.2   | 32.5   | 32.8   | 31.0   | 30.2   | 30.2    | 30.1    | 30.0    | 30.0    | 30.0    |
| PM <sub>2.5</sub> Emissions (tons/yr) | 4.7    | 4.6    | 4.7    | 4.8    | 4.8    | 4.9    | 4.9    | 4.7    | 4.5    | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     |

Source: AP-42 Table 11.9-4