Rover Pipeline LLC
Docket No. CP15-93-000

Response to FERC Environmental Information Request
Dated October 7, 2015

1. The filing states that the same equipment would be first used to install Mainline A, and then Mainline B, reducing the duration of use for each piece of equipment. Clarify how the duration would be reduced and ensure that the emission estimates accurately reflect the amount of time required to first install Mainline A and then go back to install Mainline B.

Response:

The statement from the Rover Pipeline Project (Project) September 2015 filing intended to explain that it had previously been assumed that a full suite of construction equipment would be required to build Mainlines A and B, simply by the doubling all equipment for the mileage of each pipeline. In actuality, and per the more detailed information obtained from the contractors, much of the equipment necessary for pipeline construction will only be used once along the sections of dual pipeline. Therefore, the amount of equipment necessary for construction of the dual pipelines is less than it would be if each pipeline was constructed as an individual spread.

The following is a list of the typical pipeline construction procedures as described in Resource Report 1, Section 1.6.1.1, submitted in February 2015, along with an indication of which will occur once along the right-of-way ("one pass") and which will need to be repeated for each pipeline ("two passes").

- Surveying – one pass
- Clearing and grading – one pass
- Trenching – two passes
- Stringing – two passes
- Pipe bending – two passes
- Pipe assembly and welding – two passes
- Non-destructive examination and weld repair – two passes
- Coating field welds, inspection, and repair – two passes
- Pipe lowering – two passes
- Padding and backfilling – two passes
- Hydrostatic testing and final tie-in – two passes
- Cleanup and restoration – one pass

The emissions calculations correctly address the amount of operating hours each crew type and the associated equipment will require to construct the dual pipeline sections, including activities that will only occur once for the spread, and the activities that will occur individually for each pipeline.

2. The filing states that construction emissions for a pipeline would be proportional to the length of pipeline in each county. Clarify how this approach reflects the use of multiple contractors and simultaneous construction of multiple spreads.

Response:

The statement from the September 2015 filing intended to explain that generally speaking, pipeline emissions for each county are proportional to the footage of pipeline to be constructed in that county. To respond to FERC's request in February 2015 for emissions by county, the emissions were summed for the entire Project and were then divided by the mileage in each county, making the emission calculations directly proportionate to the mileage in the county.

However, the revised estimates from September and the current revised estimates in this filing are based on very specific information obtained from the contractors. Variables concerning the type of topography predominant in each spread have been applied to more accurately estimate the potential rate of progress of construction in each area and the actual type of equipment, duration of use, and emission variables specific to the equipment. Please refer to Response 3 below for more information on the topographic variables that would influence the amount, type, and size of equipment, plus the duration of equipment use.

For these studies, it has been assumed that all construction for each county will happen within the same calendar year, whereby it is assumed that all construction in each county would be concurrent, regardless of the spread breaks, which would assume the maximum emission conditions. For instance, part of the Clarington and Majorsville laterals will be constructed in Belmont County. However, each lateral will be constructed by separate contractors. Although the contractors will begin their laterals in other counties and work into Belmont County on their own schedules independently, it is assumed for this study that all construction will occur in Belmont County in the same year, to demonstrate that even in that scenario with maximum emission conditions, the emissions would be under the applicability thresholds.

3. The filing states that Rover assumes construction would proceed at a rate of 6,352 feet installed per day in agricultural areas and 3,750 feet per day in rough or steep topography areas. Identify how this methodology is specifically applied in the construction emission estimates, including the milepost ranges of each pipeline and/or segment that are considered agricultural area or rough/steep topography.

Response:

The pipeline segments and spreads were categorized as being predominantly agricultural, generally hilly, or having steep topography as shown below. It is anticipated that the contractors will be able to make an average progress of 6,352 feet per day in the predominantly agricultural spreads, 4,500 feet per day in the generally hilly spreads, and 3,750 feet per day in the spreads with steep topography. These values were used to determine an anticipated number of days for construction of each spread by dividing the footage for each by the anticipated progress per day for that type of terrain. The resulting number of days were then utilized in the calculations for each spread. This means that regardless of the actual number of days from start to finish for a specific lateral, the equipment by category or crew will operate for those hours to accomplish the work based upon the progression rate. Please refer to the response to FERC Comment 4a, Tables 9A-25 and 9A-26 for additional information.

The type of terrain used for each of the pipeline spreads is summarized below:

- Sherwood Lateral – Steep Topography
- CGT Lateral – Steep Topography
- Seneca Lateral – Generally hilly
- Berne Lateral – Steep Topography
- Clarington Lateral – Steep Topography
- Cadiz Lateral – Steep Topography
- Majorsville Lateral – Steep Topography
- Burgettstown Lateral – Generally hilly
- Mainline Spread 1 – Generally hilly
- Mainline Spread 2 – Generally hilly
- Mainline Spread 3 – Agricultural
- Mainline Spread 4 – Agricultural
- Mainline Spread 5 – Agricultural
- Mainline Spread 6 – Agricultural
- Mainline Spread 7 – Agricultural
- Mainline Spread 8 – Agricultural

4. Provide revised construction emission estimates to conduct a rigorous quality assurance/quality control review of the emission calculations to ensure formulas are correct. Update all construction emission estimates and tables to address all omissions/errors in the filing, including but not limited to the items identified in the comments below.

Table 4-1

a. *Hancock County, West Virginia in the Steubenville-Weirton, Ohio-West Virginia (designated as maintenance for ozone [O_3] and particulate matter [PM] with an aerodynamic diameter less than 2.5 micrometers [$PM_{2.5}$]) was omitted from the table. Include emissions estimates for each county identified as part of a designated nonattainment/maintenance area for comparison to the conformity applicability thresholds.*

*b. Include **all** pollutants that are identified as applicable precursors for $PM_{2.5}$ or O_3 for comparison to the applicable conformity threshold. This should include, but is not limited to: ammonia (NH_3) emissions from Belmont and Stark Counties in Ohio; Hancock County in West Virginia; Washington County in Pennsylvania; and Washtenaw and Livingston Counties in Michigan.*

Response:

a. Hancock County, West Virginia was erroneously omitted from Tables 3-1 and 4-1 and is included in the amended versions below.

TABLE 3-1
Nonattainment and Maintenance Areas Crossed by the Project

Air Quality Control Region	Pollutant/ Status	Applicability Threshold	County, State	Project Components
Steubenville-Weirton-Wheeling Interstate AQCR	O_3 / Maintenance	100 tpy of NO_x or VOC	Belmont Co, OH	Clarington Lateral Majorsville Lateral
			Marshall Co, WV	Majorsville Lateral Majorsville CS Majorsville Receipt MS
			Jefferson Co, OH	Burgettstown Lateral
			Hancock Co, WV	Burgettstown Lateral
	$PM_{2.5}$ / Maintenance	100 tpy of $PM_{2.5}$, SO_2, or NO_x	Belmont Co, OH	Clarington Lateral Majorsville Lateral
			Marshall Co, WV	Majorsville Lateral Majorsville CS Majorsville Receipt MS
			Jefferson Co, OH	Burgettstown Lateral
			Hancock Co, WV	Burgettstown Lateral

TABLE 3-1
Nonattainment and Maintenance Areas Crossed by the Project

Air Quality Control Region	Pollutant/ Status	Applicability Threshold	County, State	Project Components
Steubenville-Weirton-Wheeling Interstate AQCR (cont'd)	PM_{10} / Maintenance	100 tpy of PM_{10}	Jefferson Co, OH	Burgettstown Lateral
			Hancock Co, WV	Burgettstown Lateral
	SO_2 / Nonattainment	100 tpy of SO_2	Jefferson Co, OH	Burgettstown Lateral
			Marshall Co, WV	Majorsville Lateral Majorsville CS Majorsville Receipt MS
			Hancock Co, WV	Burgettstown Lateral
Greater Metropolitan Cleveland Intrastate AQCR	O_3 / Maintenance	100 tpy of NO_x or VOC	Stark Co, OH	Mainlines A & B
	$PM_{2.5}$ / Maintenance	100 tpy of $PM_{2.5}$, SO_2, or NO_x		
Metropolitan Toledo Interstate AQCR	O_3 / Maintenance	100 tpy of NO_x or VOC	Wood Co, OH	Mainlines A & B
Southwest Pennsylvania Intrastate AQCR	O_3 / Marginal Nonattainment (2008)	100 tpy of NO_x or 50 tpy of VOC	Washington Co, PA	Burgettstown Lateral Burgettstown CS Burgettstown Receipt MS
	$PM_{2.5}$ / Nonattainment	100 tpy of $PM_{2.5}$, SO_2, or NO_x		
South Central Michigan Intrastate AQCR	O_3 / Maintenance	100 tpy of NO_x or VOC	Lenawee Co, MI	Market Mainline
			Washtenaw Co, MI	Market Segment Consumer Energy Deliver MS
			Livingston Co, MI	Market Segment Vector Deliver MS
	$PM_{2.5}$ / Maintenance	100 tpy of $PM_{2.5}$, SO_2, or NO_x	Washtenaw Co, MI	Market Segment Consumer Energy Deliver MS
			Livingston Co, MI	Market Segment Vector Deliver MS

TABLE 4-1
Comparison of Emissions Subject to General Conformity Review to Applicability Thresholds

Nonattainment or Maintenance Areas	County, State	Pollutant/	Applicability Threshold (tpy)	Nonexempt Emissions (tpy)
Steubenville-Weirton-Wheeling Interstate AQCR				
Wheeling, WV-OH	Belmont Co, OH Marshall Co, WV	NO_x	100	57.7
		VOC	100	85.8
		$PM_{2.5}$	100	72.4
		SO_2	100	2.1
Steubenville-Weirton, OH-WV	Jefferson Co, OH Hancock Co, WV	NO_x	100	40.4
		VOC	100	46.6
		$PM_{2.5}$	100	35.4
		PM_{10}	100	90.7
		SO_2	100	0.4
Greater Metropolitan Cleveland Intrastate AQCR				
Canton-Massillon, OH	Stark Co, OH	NO_x	100	30.0
		VOC	100	17.1
		$PM_{2.5}$	100	12.8
		SO_2	100	0.3
Metropolitan Toledo Interstate Air Quality Control Region				
Toledo, OH	Wood Co, OH	NO_x	100	9.5
		VOC	100	6.5
Southwest Pennsylvania Intrastate AQCR				
Pittsburgh-Beaver Valley, PA	Washington Co, PA	NO_x	100	23.7
		VOC	50	21.5
		$PM_{2.5}$	100	17.7
		SO_2	100	1.6
South Central Michigan Intrastate AQCR				
Detroit-Ann Arbor, MI	Lenawee Co, MI Washtenaw Co, MI Livingston Co, MI	NO_x	100	20.4
		VOC	100	29.7
		$PM_{2.5}$	100	25.9 [1]
		SO_2	100	0.5

[1] Washtenaw and Livingston only for $PM_{2.5}$

b. The precursors for O_3 (NO_x and volatile organic compounds [VOC]) were identified in Table 4-1 in the September 16, 2015 submittal. There are no additional precursors to O_3 formation.

   NO_x and SO_2 emissions were presented in Table 4-1 for the non-attainment and maintenance areas identified for $PM_{2.5}$ since both compounds are potential precursors for $PM_{2.5}$. The remaining potential precursors for $PM_{2.5}$ are VOCs and NH_3; however, these compounds are not regulated as $PM_{2.5}$ precursors unless a state demonstrates that the compounds are a significant contributor to $PM_{2.5}$ in an area. Based on discussions with the applicable state agencies (Michigan Department of Environmental Quality (MDEQ) 2015; Ohio Environmental Protection Agency (OHEPA) 2015; Pennsylvania Department of Environmental Protection (PADEP) 2015; and West Virginia Department of Environmental Protection (WVDEP) 2015) and review of the State Implementation Plans (SIPs) for $PM_{2.5}$ (MDEQ 2008; OHEPA 2012a and 2012b; PADEP 2014; and WVDEP 2012), VOCs and NH_3 are not determined to be a precursor for $PM_{2.5}$ formation. Each of the four states specified that SO_2 and NO_x are the main precursors of $PM_{2.5}$. The states have included VOC and NH_3 emissions in their emissions inventories (and modeling inventories) but they are not included in the current attainment strategies for $PM_{2.5}$. Copies of telephone conversation memos and the West Virginia SIP that is not readily available online are enclosed in Appendix B.

References:

Michigan Department of Environmental Quality (MDEQ), 2008. "SIP Submittal for Fine Particulate Matter ($PM_{2.5}$)", May 15, 2008. Prepared by Michigan Department of Environmental Quality Air Quality Division. Located at: http://www.michigan.gov/documents/deq/deq-aqd-air-aqe-PM25-SIP-Final-2008_238092_7.pdf.

MDEQ, 2015. Personal communication via telephone with Erica Wolf – SIP Unit, and Mark Mitchell – Permit Section. October 14, 2015.

Ohio Environmental Protection Agency (OHEPA), 2012a. "Redesignation Request and Maintenance Plan for The Canton-Massillon, OH Annual and 24-hour $PM_{2.5}$ Nonattainment Area", June 2012. Prepared by Ohio Environmental Protection Agency Division of Air Pollution Control. Located at: http://www.epa.ohio.gov/portals/27/SIP/Attain/PM2_5_24hr/Canton_PM25_annual_24hr_redesignation-Final.pdf.

OHEPA, 2012b. "Redesignation Request and Maintenance Plan for the Ohio Portion of The Steubenville-Weirton OH-WV Annual PM2.5 Nonattainment Area", April 2012. Prepared by Ohio Environmental Protection Agency Division of Air Pollution Control. Located at:

http://www.epa.ohio.gov/portals/27/SIP/Attain/PM2_5/Steubenville-Weirton_PM25_annual_redesignation_FINAL.pdf.

OHEPA, 2015. Personal communication via telephone with Jenny Van Vlerah, DAPC Implementation Planning. October 9, 2015.

Pennsylvania Department of Environmental Protection (PADEP), 2014. "SIP Revision: Maintenance Plan and Comprehensive Inventory Pittsburgh-Beaver Valley Nonattainment Area 1997 and 2006 Fine Particulate Matter NAAQS", December 2014. Prepared by Pennsylvania Department of Environmental Protection. Located at: http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-105930/01%20-%20Pittsburgh-Beaver%20Valley%20Maintenance%20Plan.pdf.

PADEP, 2015. Personal communication via telephone with Naishadh Bhatt, SIP Department. October 13, 2015.

West Virginia Department of Environmental Protection (WVDEP), 2012. "Redesignation Request and Maintenance Plan for the West Virginia Portion of the Steubenville-Weirton, OH-WV 1997 $PM_{2.5}$ Nonattainment Area", April 2012. Prepared by West Virginia Department of Environmental Protection. Not available on internet. Copy received from WVDEP (attached).

WVDEP, 2015. Personal communication via telephone with Laura Crowder, Assistant Director of Planning. October 8, 2015.

Table 9A-21:

a. *The "Rover Project Total Construction Emissions" row appears to omit emissions from some of the spreads, including but not limited to: Spread 1 & 2, Spread 3, Spread 5 & 6, Berne Lateral, Majorsville Lateral, Sherwood & CGT Lateral, Seneca Lateral, and Clarington & Cadiz Lateral.*

b. The Sherwood & CGT Lateral "Construction Activities Fugitive Dust Emissions" row incorrectly uses PM_{10} and $PM_{2.5}$ emissions from the Seneca Lateral.

Response:

a. Table 9A-21 has been amended and the omissions have been corrected. All spreads are now included in the revised total.

b. Table 9A-21 has been revised to correct the error.

Table 9A-22:

a. *Pipeline length by county for each segment are inconsistent with the lengths presented in the June 10, 2015 and July 10, 2015 supplemental filings. Update table 9A-22 to reflect the correct pipeline length by county for each segment, or provide justifications for any discrepancies. If the pipeline lengths reported in table 9A-22 accurately reflect the proposed Project, then file updated versions of all applicable tables from the June and July 2015 supplemental filings (e.g. tables reflecting land use acreages, etc).*

Response:

Pipeline length has been corrected to accurately reflect the actual length of pipe per county. While there were some corrections that needed to be made, some variation in the length of pipelines may be perceived because of the equations that were used in the June/July filings, which were reflected on the alignment sheets and in the text of the documents.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

a. Provide a detailed explanation and justification of appropriateness for how duration of construction, in days, was derived, including all assumptions and backup information. Specifically, address how the 3.69 mile Berne Lateral could be constructed in 5 days.

Response:

The duration of construction was determined for each spread or pipeline lateral independently as described in the Response to Question 3 above. It is based on anticipated average construction progress for the type of terrain in each spread.

The Berne Lateral was erroneously shown to be 3.69 miles long. It is actually 4.19 miles long (22,145 feet). And it is categorized as having steep terrain, in which the contractors are anticipated to average 3,750 feet per day of construction progress. Using the correct length of 22,145 feet, and dividing by 3,750 feet per day, results in 6 days of construction.

Please note that this 6 days applies to each crew and each piece of equipment anticipated for the Berne Lateral, which are included in the emissions calculations. It is not anticipated that the Berne Lateral will take only 6 days to finish. It is anticipated that each crew (clearing, grading, trenching, etc.) as they travel through the route in a normal construction sequence will take 6 days to finish. Therefore, if you extend this assumption across the various crews, including: clearing, grading, environmental, trenching, stringing, welding, backfilling, and restoration, each crew is allotted 6 days to execute their work. Assuming no overlap of work days, which there would be in most cases, the duration of actual construction could be 48 days, not including weekends, skip areas, weather delays, etc.

While Berne was used as an example here to answer the specific question, the same types of calculations and discussion are true for all the pipeline segments and spreads. Please also note that the quantity of equipment used in the fugitive dust emission calculations per spread represents the total equipment that will be used during the construction of the specific spread. This ensures that all of the fugitive dust emissions from the construction are accounted for.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

b. Emission estimates from all sources of fugitive dust do not appear to be included. Provide a list of all sources of fugitive dust from construction activities, including, but not limited to, material handling, drilling, wind erosion of exposed surfaces, construction equipment and commuter traffic on paved and unpaved roads (re-suspended road surface material, brake and tire wear), and open burning.

Response:

The following sources of fugitive dust from construction activities have been included in the analysis:

- Fugitive Dust from soil disturbance (excavation and back filling) - these emissions are detailed on Table 9A-25a. Please note these emissions also include wind erosion from the construction area.

- Fugitive Dust from movement of construction equipment on the construction site – this is a new element that has been added in response to the FERC comment, and these emissions are detailed on Table 9A-25b.

- Fugitive Dust from Unpaved Roads – these emissions are detailed in Table 9A-26a.

- Fugitive Dust from Paved Roads - this is a new element that has been added in response to the FERC comment, and these emissions are detailed on Table 9A-26b. Note – these emissions are from re-suspended road surface material. Total PM emissions from U.S. Environmental Protection Agency (USEPA) Mobile 6.2 (used to calculate On-Road Tailpipe in Table 9A-29) include brake and tire wear, along with total exhaust PM.

In addition to the sources of fugitive dust from construction activities identified above, emissions from potential Open Burning to clear land for the project have also been included. These emissions are detailed on Table 9A-23.

In addition, these revised calculations use the digitized forested/woodland layer that TRC Solutions, Inc. developed using the 2014 aerial photography flown for the Project, rather than the previous estimated land use assumptions.

The following potential sources of fugitive dust from construction activities have not been included in the analysis:

- Material handling – emissions calculations account for excavation and back-filling (included as Table 9A-25a). There are no other materials being handled that could cause fugitive dust.

- Drilling – for some sections of the pipeline, there will be horizontal directional drilling. However, this activity would generate less fugitive dust compared to trenching. Therefore, calculations are based on 100% trenching for the lengths of the pipeline segments, which represents an over estimation of emissions.

- Wind erosion of exposed surfaces – Wind erosion emissions for the construction area have been included as part of Table 9A-25a. Other exposed soil would be within the excavated trench. It is not expected that an excavation area would be subject to wind erosion emissions.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

c. Ensure that all sources of fugitive dust use the same reference document, or provide justification for the use of a difference reference document for an individual source.

Response:

In this revised submittal, the fugitive dust references have been consolidated for consistency. The basis for the methodologies relies on AP-42 to the extent possible, with AP-42 reference documents, and selected external references used where appropriate and referenced accordingly. Please see the response to FERC Comment 5 below, for additional details.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

d. The South Coast Air Quality Management District Improvement of Specific Emission Factors prepared by Midwest Research Institute is cited as the basis for the windblown dust emission factor. However, this document provides emission factor information for general construction activities. The area-based emission factor of 0.11 tons per acre-month specifically does not include wind erosion or mud/dirt trackout (page ES-3). Use an appropriate methodology to calculate windblown dust.

Response:

The basis for the Emission Factor (EF) for wind erosion from the construction areas is the South Coast Air Quality Management District Improvement of Specific Emission Factors prepared by Midwest Research Institute document. However, the EF is not directly presented in this document, but derived from data included in the document. As part of this study, a number of construction sites were included, and various aspects of their construction activity. For purposes of the Rover calculations, Rover has derived an EF for wind erosion from the data included in Section 5.3 (Estimates of Wind Erosion and Mud/Dirt Trackout) of the reference document. Specifically, the data is included on page 5-7 and in item #5 on page 5-8 of the document.

In this study, PM_{10} emissions were estimated using the WIND model. The inputs and assumptions are described in the document. The document provides a modeled output of 13,500 grams (29.76 pounds), representing PM_{10} emissions from one acre over one month. Converting to a daily emission rate (29.76 pounds/30 day) yields 0.992 pounds per day. And using 43,560 square feet per acre, yields an EF of 2.28×10^{-5}, pounds/day per square foot of surface. This is the EF used in the calculation.

However, for Rover, the total acreage per pipeline spread will not be exposed for the duration of construction. An average amount of time between excavation and backfilling is 4 days. To be conservative, Rover has assumed that each pipeline spread will have exposed material susceptible for wind erosion for a total of fifteen days. The calculation uses the Emission Factor, total footage (acreage), the control efficiency (66% from watering), and a fifteen day exposure duration.

For compressor stations, the total acreage per station will not be exposed to wind erosion, only the portion of the area where construction is taking place. In this case, to be conservative, Rover has assumed that 10% of the station property will have exposed material susceptible for wind erosion, for a total of 90 days during the construction. The calculation uses the EF, ten percent of the total footage (acreage), the control efficiency (66%), and a 90 day exposure duration.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

*e. Include fugitive emissions due to brake and tire wear for vehicle travel on **paved and unpaved roads**, and fugitive dust on paved roads, or identify where this information is included elsewhere in the construction emissions estimates.*

Response:

Fugitive Dust from Paved Roads is a new element that has been added in response to the FERC comment, and these emissions are detailed in Table 9A-26b. Please note that these emissions are from re-suspended road surface material. Total PM emissions from USEPA Mobile 6.2 (used to calculate On-Road Tailpipe in Table 9A-29) include brake and tire wear, along with total exhaust PM.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

f. Include estimates of open burning fugitive emissions in this table, or identify where this information is included elsewhere in the construction emissions estimates. Alternatively, identify if and where Rover commits to not conduct open burning.

Response:

Emissions from potential Open Burning to clear land for the Project are detailed in Table 9A-23.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

5. *Update the footnotes and emission calculations to correctly reflect appropriate particulate matter ratios (particulate matter with an aerodynamic diameter less than 10 micrometers [PM_{10}] Fraction of Total PM/total suspended particulates [TSP] and $PM_{2.5}$ Fraction of PM_{10}) - e.g. the columns labeled "Excavation PM_{10} Emissions" and "Backfilling PM_{10} Emissions" assume that PM_{10} is 59 percent of TSP for unpaved roads, whereas footnote 5 says PM_{10} is assumed to be 100 percent of TSP, and the rows labeled "Construction Activity $PM_{2.5}$ Emissions" and footnote 6 assumes that $PM_{2.5}$ is 10percent of PM_{10}, whereas the cited document South Coast Air Quality Management District Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds states it should be 21.2 percent for unpaved roads. If a source classification code subcategory other than "unpaved road dust" is used for determining the ratio of PM_{10} to Total PM/TSP and $PM_{2.5}$ to PM_{10} from the cited document, then include a justification of the source classification code subcategory selected.*

Response:

Rover has reviewed and updated the assumptions and references used to calculate fugitive emissions. There are two EPA recommended methodologies that Rover relied upon: one for fugitive dust from roads (both unpaved roads and the newly added paved roads emissions estimates), and a second for non-road fugitive emissions (wind erosion, excavation and back filling).

For fugitive dust from roads, Rover has relied upon AP-42 sectors 13.2.1 (Paved Roads), and 13.2.2 (Unpaved Roads). These are well established and reference methodologies that are commonly used to estimate fugitive dust from roadways in construction projects. In general, these factors are based on a PM-2.5/PM-10 ratio of 10%, which is built into the AP-42 calculation equation.

There are numerous historical studies of fugitive emissions that have influenced both AP-42 and other sources of emission factors. Based on these studies, the fugitive dust from roads methodology is not considered appropriate for non-road fugitive dust sources.

For fugitive dust from non-road sources, AP-42 Section 13.2.3, Heavy Construction Operations, is the initial reference. However, this section of AP-42 recommends that a more detailed analysis be conducted to avoid over-estimation of PM-10 emissions and to more accurately reflect actual construction activity. AP-42 13.2.3 refers to AP-42 11.9 (Western Surface Coal Mining) for more specific activity related emission factors.

Rover has used the emission factors in AP-42 11.9, Table 11.9-4 for topsoil removal by scraper and overburden replacement as the best representatives for the Rover construction activity of soil excavation and backfilling. These emission factors are presented in terms of pounds of TSP per

ton of material. PM-10 emissions are calculated as 52% of TSP emissions, based on the AP-42 Reference Document "Revision of Emission Factors for AP-42 Section 11.9 Western Surface Coal Mining", Revised Final Report (Midwest Research Institute 1998).

PM-2.5 emissions are calculated as 15% of PM-10 emissions, based on the recommendation from several fugitive dust emission references. (Midwest Research Institute 1999 and Countess Environmental 2006. Please note this reference cites several EPA reference updates to the same factor).

References:

Midwest Research Institute, 1998. "Revision of Emission Factors for AP-42 Section 11.9 Western Surface Coal Mining", Revised Final Report. Midwest Research Institute, September 1998.

Midwest Research Institute, 1999. "Estimating Particulate Matter Emissions from Construction Operations", Final Report, Midwest Research Institute, September 1999.

Countess Environmental, 2006. "WRAP Fugitive Dust Handbook", September 2006.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

g. The Sherwood & CGT Lateral excavation volume and construction area incorrectly use the Majorsville Lateral pipeline length to calculate excavation volume and construction area.

Response:

Tables 9A-25 and 9A-26 have been revised to reflect the correct Majorsville Lateral pipeline length.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

h. Provide a basis for the average vehicle weights and vehicle miles traveled per day assumptions.

Response:

Average vehicle weights are estimates based on research of typical vehicle weights and rated hauling capacity. For example, a half-ton truck could be a Ford F-150. The curb weight of this vehicle is between 4,150 and 5,236 pounds (2 to 2.6 tons). If it is hauling a half-ton load, the total weight would be 2.5 to 3.1 tons. In this example, Rover has used 4 tons as a standard, to be conservative.

Average vehicle miles traveled per day represent an estimate of the average distance each type of vehicle travels within the construction each day. Estimates per spread or facility have been established by each contractor and then verified by Rover's experience on previous construction projects.

Tables 9A-25 and 9A-26 related to fugitive dust emissions:

i. Based on the AP-42 equation cited, justify the use of an extrapolation to annual average number of days with precipitation for construction durations less than 12 months for PM_{10} and $PM_{2.5}$ fugitive dust emission estimates on unpaved roads, or update the emission estimates to exclude this adjustment.

Response:

As shown in table 9A-25b, the formula for Unpaved Roads from AP-42 is:

E = [k(s/12)a(W/3)b]*[(365-P)/365]

where for this Project:

s = 8.5	surface material silt content (%) [Table 13.2.2-1, Construction sites mean silt content %]
W = 15	tons [Average vehicle weight]a
k = 1.5	lb/VMT [Table 13.2.2-2, for PM10]
k = 0.15	lb/VMT [Table 13.2.2-2, for PM2.5]
a = 0.9	constant [Table 13.2.2-2, for PM10 and PM2.5]
b = 0.45	constant [Table 13.2.2-2, for PM10 and PM2.5]
P = 145	days [Average number of days with > 0.01 inches of precipitation for north OH, Figure 13.2.2-1
E (PM10)= 1.37	lb/VMT
E (PM2.5)= 0.14	lb/VMT

Figure 13.2.2-1 from AP-42 shows the Rover Project is within the contour line 150 days of precipitation over 0.01 inches and crosses the contour line for 140 days within Ohio. Rover used an average of 145 days of precipitation over 0.01 inches as the basis for the formula. The equation subtracts the number of days with precipitation from 365 days and then divides by 365 days, which creates a value for the probability of a wet day for that area. This value would be relevant to any length of time of a construction project for this region, as it is based on a mean per year and is not seasonally dependent.

Table 9A-27 for each construction contractor/spread:

a. Update this table to include the make and specific model (if known) for all equipment (i.e. Caterpillar D7G dozer or Caterpillar D7E dozer, rather than D7 dozer). Update the horsepower used in calculating emissions to be the same for every piece of equipment with the same name across all contractors.

b. Provide a detailed explanation for how construction duration, operating hours, and utilization were derived for pipeline construction of each segment.

Response:

a. Table 9A-27 has been updated to include the make and model of equipment where it is known by the various contractors. The horsepower ratings were provided by our contractors. Please note that not all equipment of the same make and model (such as Caterpillar D7G dozers or pickup trucks) carry the same horsepower, as this can change due to model year and various options. However, the emission estimates were based upon the specific contractor fleets.

b. Pipeline construction duration was determined as explained in the response to FERC Comment 3 above. Operating hours were determined from the pipeline construction durations using the following factors: a typical 8 hour work day of utilization (equipment will not be operating during start up meetings or final daily progress checks and daily shut downs), and experience from previous construction projects to project how much time equipment would be operated during the actual construction duration.

6. For all emissions calculations in the September 16, 2015 supplemental filing, or revised calculations in response to questions above, provide the following:

a. detailed assumptions and justification for all inputs used in the calculations;

b. a citation to the specific page number and/or table number in the reference document for all emission factors used in the calculations. If an adjustment is made to a cited emission factor, provide a description of the methodology used to make that adjustment. If manufacturer data is used as the reference document, provide a copy of the manufacturer data; and

c. sample calculations.

Response:

a. Details on key assumptions and justifications have been added either to this Response to Comments or in footnotes on the appropriate calculation sheets.

b. The responses included in this filing have specific references to tables, documents, or regulations for key references, assumptions and justifications. In addition, such references are included in applicable footnotes within specific tables. The contractors provided the emission data for the equipment and the Rover team checked the data based upon standard equipment data.

c. Sample calculations have been added to tables where they were not previously provided.

7. *If any of emission estimates in a designated nonattainment or maintenance area exceeds the General Conformity applicability thresholds for a calendar year, provide the following information necessary for a Conformity Determination:*

   a. *A revised schedule for construction and in-service for the Project. The schedule should allow sufficient time for FERC staff to prepare and issue a draft and final General Conformity determination as an appendix to the draft and final EIS, respectively for the Project. The schedule should also allow sufficient time for Rover to complete its demonstration of conformance in accordance with Title 40 of the Code of Federal Regulations (CFR) 93.158 prior to construction.*

   b. *Revised estimates of construction emissions based on the revised schedule, broken down by calendar year. Provide all detailed supporting calculations, assumptions, and references. Emission estimates must be consistent 40 CFR 93.159(b).*

   c. *Identify which method under 40 CFR 93.158(a) Rover would follow to demonstrate conformity. Provide all supporting documentation and detailed calculations as necessary (i.e. if purchasing offsets, provide documentation that such offsets are available within the nonattainment/ maintenance region for the time period of the Project; or if an emissions budget exists within the State Implementation Plan, provide documentation of the emissions budget and documentation of the state or local agency's concurrence that the Project can be accommodated through this budget).*

   d. *Provide documentation of consultation with the local and/or state air quality agencies and the U.S. Environmental Protection regarding the method selected for demonstrating conformity, including any comments they provide.*

Response:

None of the updated emission estimates in a designated nonattainment or maintenance area for the Rover Pipeline Project exceeds the General Conformity applicability thresholds for a calendar year (see Table 4-1).