

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NEW YORK 12233-1010

In the Matter of
the Application for a Mined Land Reclamation Permit Pursuant to
Article 23 of the Environmental Conservation Law of the State of
New York to Develop and Operate the Meadow View Mine in the Town
of Waterloo, Seneca County, New York,

- by -

Seneca Meadows, Inc.,

Applicant.

DEC Application No. 8-4538-00094-00001

DECISION OF THE COMMISSIONER
AND SEQRA FINDINGS STATEMENT

May 24, 2013

DECISION OF THE COMMISSIONER
AND SEQRA FINDINGS STATEMENT

Seneca Meadows, Inc. (Seneca Meadows or applicant) has proposed to develop and operate a 120.8-acre clay mine (mine) on the north side of State Route 96 between Burgess and Powderly Roads in the Town of Waterloo, Seneca County. The proposed mine, to be called the Meadow View mine, is located on parcels owned by applicant. Over the course of the proposed mine's estimated 11-year operational life, approximately 3.4 million cubic yards of material would be excavated and used primarily for construction and operation of the adjacent Seneca Meadows landfill that applicant owns.

Pursuant to Environmental Conservation Law (ECL) article 23, title 27, the proposed mine requires a Mined Land Reclamation permit from the New York State Department of Environmental Conservation (DEC or Department). Additionally, a State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (GP-0-06-002) is required.

Pursuant to the State Environmental Quality Review Act (SEQRA), Seneca Meadows conducted an environmental review for the proposed mine. The Department, as lead agency, determined that the proposed mine may have a significant adverse environmental impact and issued a positive declaration on July 29, 2009. A public scoping meeting was subsequently held and a final scope issued. A two-volume Draft Environmental Impact Statement (DEIS) was accepted by the Department on September 28, 2011 (see Issues Conference Exhibits 3, 15 and 16), and the application deemed complete in accordance with ECL article 70 and part 621 of title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR).

The matter was referred to the Office of Hearings and Mediation Services and assigned to Administrative Law Judge (ALJ) Edward Buhrmaster. After public notice was duly issued, a legislative hearing and issues conference were held. Participating in the issues conference, in addition to Department staff and applicant, were Concerned Citizens of Seneca County (CCSC), Dixie Lemmon, Richard Westfall, and Gary Westfall (hereinafter, petitioners).

In the Rulings of the Administrative Law Judge on Issues and Party Status dated March 26, 2012 (issues ruling), ALJ

Buhrmaster determined that, with respect to air quality impacts, "an issue exists as to whether a sufficient analysis of fine particulate matter [PM] has been performed, consistent with DEC policy" (Issues Ruling, at 28)(PM air quality impact issue). The ALJ determined that no other issues would be subject to adjudication. Additionally, the ALJ ruled that the petitions of CCSC, Dixie Lemmon, and Richard Westfall be granted and consolidated under the name of CCSC for all future proceedings in this matter because Ms. Lemmon and Mr. Westfall, who are members of CCSC, "offer the same input and viewpoint as the group itself" (Issues Ruling, at 83).

CCSC filed an appeal from the issues ruling (appeal) in which it argued that, in addition to the PM air quality impact issue, several other issues should be adjudicated, including, among others, impacts on water supplies, traffic impacts, adequacy of the mine reclamation plan, and environmental justice considerations. In an interim decision, I affirmed the ALJ's issues ruling and rejected the issues raised on appeal (see Interim Decision of the Commissioner, October 26, 2012).

Hearings on the PM air quality impact issue were held on June 6, 7 and 8, 2012. The ALJ prepared the attached hearing report dated September 6, 2012 (hearing report) in which he concluded that Seneca Meadows' application should be approved (see Hearing Report, at 58-59).

Based upon my review of the record, I conclude that Seneca Meadows has met its burden of demonstrating that its project, as conditioned by the draft permit (see Issues Conference Exhibit 7 as modified by Department staff's letter dated December 6, 2011 and my interim decision, at 15-16), will be in compliance with all applicable laws and regulations administered by the Department. Accordingly, I hereby adopt the ALJ's hearing report as my decision in this matter, subject to my comments below.

DISCUSSION

- Standard of Review

In the adjudicatory hearing, an applicant has the burden of proof to demonstrate that its proposal will be in compliance with all applicable laws and regulations administered by the Department (see 6 NYCRR 624.9 [b][1]). Where factual matters are involved, an applicant must sustain its burden by a

preponderance of the record evidence (see 6 NYCRR 624.9[c]). Based on this record, applicant has met its burden in this proceeding.

- PM Air Quality Impact Issue

The hearing report addresses in detail the contentions raised by CCSC and the evidence proffered. The key hearing issue is whether particulate matter emissions may be so great that additional assessment and modeling of PM-2.5 impacts is necessary under DEC Commissioner Policy No. 33 (CP-33), "Assessing and Mitigating Impacts of Fine Particulate Matter Emissions" (see Hearing Report, at 16). As the record demonstrates, no additional analysis is required given the overall conservatism of the air emissions inventory that was conducted as part of the project application. As discussed by the ALJ, the emissions inventory prepared by applicant provides a reliable basis to conclude that primary PM-10 emissions from the project would not equal or exceed fifteen (15) tons per year and, therefore, the project's PM-2.5 impacts would be insignificant, pursuant to CP-33.

The emissions inventory is comprehensive in terms of its consideration of PM-10 sources and conservative in its assessment of PM-10 emissions (see, e.g., Hearing Report, at 40-45). In that regard, applicant's conservative estimate of 10.7 tons per year for project-related PM-10 overstates emissions attributable to uncontrolled wind erosion and excavator use (see, e.g., Hearing Report, at 32-34, 58). Furthermore, the emissions inventory does not take into account the graveling of much of the unpaved road surface within the mine site, which will further reduce emissions from travel on that surface (see Hearing Report, at 15 [Finding of Fact 28]; DEIS Volume I [Issues Conference Exhibit 15], at 1.4.4).

The ALJ held that the application of a ninety (90) per cent PM-10 control efficiency for water sprayed on unpaved surfaces was reasonable and was correctly applied in the modeling and studies (see Hearing Report, at 20-25), and I concur. As the ALJ notes, the applicant's suppression/control plan (see DEIS Appendix I) calls for increasing the frequency of water application if visible evidence of fugitive dust is observed (see, e.g., Hearing Report, at 25; see also Adjudicatory Hearing Exhibit 1-C [Table B.2-3][Typical Collection Efficiencies of Various Particulate Control Devices]; Adjudicatory Hearing Exhibit 1, Direct Testimony of Gregory E. Muleski, Ph.D., at 7-9).

The record also supports the appropriateness of applicant's using the same value for calculating emissions associated with excavation of overburden, site development, traveling within the active mining area, loading and unloading soil from stockpiles, and traveling on secondary haul roads to and from the stockpiles (see, e.g., Hearing Report, at 40-41).

In the course of the proceeding, CCSC proposed several revisions to the draft permit. These included requirements for preparing annualized PM-10 estimates (with PM-2.5 modeling), taking of wind measurements and stopping operations during days with high winds, undertaking a complete reassessment of the emissions inventory upon any changes or deviation in the mine's operation or the delivery of its material, developing a formal written procedure for dust emissions and obtaining approval of that procedure from the Department, providing a definitive list of its dust suppressants (with an understanding that any additional ones proposed must be approved by the Department), providing additional information relating to soil, and monitoring all roadways in the emissions inventory for a minimum of sixty (60) days, with the results being reported to all parties to ensure the accuracy of the emissions estimates.

The ALJ evaluated each of CCSC's proposed revisions to the permit and determined that the conditions were unnecessary or unwarranted (see Hearing Report, at 53-58). Based upon my review of the record, I concur with the ALJ's determination.

- SEQRA

As noted, the Department is serving as lead agency for the proposed mine project, for which an environmental impact statement is required. By memorandum dated November 8, 2012, ALJ Buhrmaster stated that he was holding the hearing record open for receipt of the lead agency's response to all substantive comments on the DEIS as required by SEQRA (see 6 NYCRR 617.9 [b][8]).

Under cover of a February 2013 letter, Department staff submitted a response to comments (response to comments), at which time the hearing record closed (see letter dated February 19, 2013 from ALJ Buhrmaster to the parties in this proceeding). As staff noted, public comment on the DEIS consisted of comments received both during the combined written public comment period on the DEIS and permit application on the proposed mine, and at the combined legislative hearing on the DEIS and permit

application (see Response to Comments, at 1). A copy of the response to comments is attached to this decision.

The response to comments includes, in part, comments on matters that were not the subject of consideration during the part 624 permit application proceeding (that is, visual impacts and wetland impacts)(see Response to Comments, at 1-4). With respect to matters that were addressed in the part 624 proceeding, the response to comments cites to relevant portions of the hearing record, including the issues ruling, and, as appropriate, to the interim decision where I addressed those issues that CCSC appealed (see Response to Comments, at 4-6). As noted, in my interim decision I affirmed the ALJ's issues ruling and rejected the issues that CCSC raised on appeal. With respect to the adjudicated PM air quality impact issue, the hearing record and the ALJ's hearing report constitute the response to comments.¹

In this part 624 proceeding, the final environmental impact statement consists of the DEIS, the response to comments, the ALJ's issues ruling and hearing report, and my interim decision (see 6 NYCRR 624.13[c]).

In accordance with the requirements of SEQRA and the decision-making and findings requirements set forth at 6 NYCRR 617.11, I have given consideration to the final environmental impact statement for the proposed 120.8 acre mine in the Town of Waterloo. I have considered the relevant environmental impacts of the project, including, among others, visual impacts including viewsheds, wetland impacts, water resource impacts, community character issues, local land use, noise impacts, traffic impacts (including those relating to the Burgess Road crossing), tourism impacts, and property value considerations, as well as the public need and benefits of the project.

As discussed in the environmental impact statement, the soils from the mine will be used for the Seneca Meadows landfill and related Seneca Meadows projects (see Issues Conference Exhibit 15, DEIS Volume 1, at §1.6 & Appendix H, at §3.3). Soil is used at the landfill for cover and structural fill, and as part of the liner system. One of the significant benefits of the project will be to eliminate the existing need to import certain types of soils from permitted mines further to the west,

¹By e-mails dated November 16, 2012 and January 1, 2013, CCSC requested an opportunity to comment on the response to comments that Department staff prepared prior to that document's inclusion in the record. Such opportunity to comment is not required and otherwise is not necessary.

thereby reducing the impact of dust, noise, greenhouse gas emissions and road damage associated with the transport of soil to the landfill from a greater distance. The mine would also be a cost-effective alternative to the current practice of purchasing and transporting soils for use at the landfill.

Furthermore, I have reviewed the facts and conclusions as disclosed in the final environmental impact statement, and have weighed and balanced relevant environmental impacts with social, economic and other considerations.

I note, in particular, that the proposed permit for the mine contains numerous requirements to avoid or minimize adverse environmental impacts, including provisions relating to dust control, groundwater, stripping and stockpiling of soils, road cleaning, fueling of equipment, and operational activities, among others (see Exhibit 7 to the Issues Conference). This is in addition to the substantial mitigation and protective measures set forth in the environmental impact statement and in related documents (see, e.g., Visual Resources Study [Issues Conference Exhibit 16, DEIS Volume II, Appendix K]; Community Noise Assessment [Issues Conference Exhibit 15, DEIS Volume I, Appendix J]; and the Mined Land Use Reclamation Plan and Stormwater Pollution Prevention Plan [Issues Conference Exhibit 14][detailing, among other matters, reclamation and measures to control air, noise, water and visual impacts]).

Based on the final environmental impact statement and the record of this proceeding, I hereby certify that the requirements of SEQRA and 6 NYCRR part 617 have been met, and I further certify that, consistent with social, economic and other essential considerations from among the reasonable alternatives available, the action being approved is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable, and that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to the decision those mitigative measures that were identified as practicable.

Upon issuance of this decision, agencies and the public shall be afforded with an opportunity to consider the final environmental impact statement consistent with the requirements of 6 NYCRR 617.11(a). Accordingly, this decision will not be effective until ten (10) calendar days from the date that Department staff publishes the notice of completion of the final environmental impact statement in the Environmental Notice Bulletin (see 6 NYCRR 617.12[c]) and satisfies the applicable

filing and distribution requirements in 6 NYCRR 617.12(b), whereupon Department staff shall issue the requested permits, as conditioned (see Issues Conference Exhibit 7 and further modified by Department staff's letter dated December 6, 2011 and my interim decision), to applicant.

CONCLUSION

I hereby remand this matter to Department staff and authorize staff to take all necessary actions to issue the permits requested for the proposed mine project, consistent with this decision and the requirements of SEQRA.

New York State Department of
Environmental Conservation

By: _____/s/_____
Joseph J. Martens,
Commissioner

Attachment (Response to Comments)

Dated: May 24, 2013
Albany, New York

New York State Department of Environmental Conservation

Office of General Counsel, Region 8

6274 East Avon-Lima Road, Avon, NY 14414

Phone: (585) 226-5363 • Fax: (585) 226-9485

Website: www.dec.ny.gov



Joc Martens
Commissioner

2013

February 13, 2012

Edward Buhrmaster, Esq.
NYS Department of Environmental Conservation
Office of Hearings and Mediation Services
625 Broadway - 1st Floor
Albany, New York 12233-1550

BY E-MAIL AND U.S. MAIL

Dear ALJ Buhrmaster:

Re: DEPARTMENT STAFF RESPONSE TO COMMENTS
Seneca Meadows, Inc. (Meadow View Mine)
DEC Project No. 8-4538-00094/0001

In accordance with your memorandum dated November 8, 2012, attached is Department Staff's response to the substantive public comments on the draft Environmental Impact Statement, except those comments pertaining to the issue adjudicated.

Sincerely,

Lisa Perla Schwartz
Assistant Regional Attorney

Enc.

cc with enclosure: Leland Henry (2)
Karen Rothfuss
Scott Turner, Esq.

RESPONSE TO COMMENTS

SENECA MEADOWS, INC. MEADOW VIEW MINE

Town of Waterloo, Seneca County, New York
DEC 8-4538-00094/00001 MLR 80837

Public comment on the Draft Environmental Impact Statement (dEIS) consisted of comments received during the combined written public comment period on the dEIS and permit application, and at the combined legislative hearing on the dEIS and permit application.

During the public comment period, numerous letters and emails were received. At the legislative hearing, 24 individuals also provided verbal comments for the administrative law judge's (ALJ's) consideration. The following provides an evaluation of comments that were not the subject of the ALJ's consideration during the permit application proceeding. For topics that the ALJ evaluated during the adjudicatory hearing, references to the relevant portions of the hearing record are provided below.

DISCUSSION OF COMMENTS:

Visual Impacts: Visual impact was the 6th issue raised by Concerned Citizens of Seneca County (CCSC) in its petition for party status regarding Seneca Meadow, Inc.'s application for the proposed Meadow View Mine. CCSC withdrew this item from the ALJ's consideration for adjudication at the November 16, 2011 Issues Conference (Issues Conference Transcript, pages 335-337). The concern about visual impacts was also raised, without significant supporting documentation, in several citizen letters (form letters, L. Henry, D. Houghton, J. Chauncey, and B. Guthrie) and at the legislative hearing (L. Henry, G. Silver). In its petition for party status, CCSC asserted that the applicant's visual analysis was deficient and that the dEIS failed to include the visual models necessary to assess how the proposed berms would mitigate visual impacts. CCSC claimed three areas of deficiency including: the failure to include a narrative in the visual study, failure to model each mining phase, and the failure of the dEIS to discuss visual impacts before they are mitigated. The letters noted above included general references to "changes in the landscape" or "scenic changes", and night-time mining vehicle light issues.

Visual analysis and potential impacts and proposed mitigation are discussed in Appendix K, Visual Resources Study; Section 2.5 of the dEIS; and Section 5.4, Screening and Visual Impacts Control, the Mined Land Use Plan. The analysis provided by the applicant is consistent with NYS DEC Program Policy (DEP-00-2), Assessing and Mitigating Visual Impacts. There are no aesthetic resources of statewide significance as defined by the previously-mentioned visual policy within the project viewshed. Residences within the viewshed consist of one residence on Powderly Road (west of the site); nine residences along Burgess Road (east of the site); and 20 residences along North Road (south of the site). Earthen berms along the eastern, western and southern perimeters of the excavation will provide visual and acoustic screening of mining operations from adjacent residences. Six-foot tall berms constructed with 2H:1V side slopes will be seeded with grasses and enhanced landscaping will be provided along the berms in proximity to adjacent residences on the north side of North Road (dEIS, Appendix K, page 1). Computer-generated visual simulations of the project are provided in Appendix K. The visual simulations considered views into the mine

from the east (Burgess Road), the west (Powderly Road) and the south (North Road) and the corresponding influence of the berms on views from those areas. The images were developed by creating a 3D computer model of the existing landscape, the proposed mine, screening berms, and terrain. The modeling (refer to Appendix K for additional detail and simulation photographs) confirmed that limited views of stockpile areas and mining equipment operating at existing grade will occur along a portion of Powderly Road. The screening berms will effectively block all views of mining activity occurring below grade (dEIS, Figures A2-B and A2-D in Appendix A of Appendix K). Similarly, limited views of stockpile areas and mining equipment operating at existing grade will occur along a portion of North Road. Further east along North Road, a subtle rise in topography substantially screens views of below-grade mining operations, as well as at-grade stockpiles and equipment storage and operations from those portions of North Road. Additional screening will be provided by the construction of the berm during Phase 1. The screening berms will effectively block all views of mining activity occurring below grade (dEIS, Figures A3-B and A3-D in Appendix A of Appendix K). A shallow topographic rise along a portion of Burgess Road will substantially screen views of below grade mining operations, as well as at-grade stockpiles and equipment storage and operations from those portions of Burgess Road near North Road. Further north along Burgess Road, an existing intervening woodlot and hedgerow vegetation provides supplemental screening (dEIS Figures A6-B and A6-D in Appendix A of Appendix K). Additional screening will be provided by the construction of the berm during Phase 1.

The Lemmon residence and the NYS Office for People with Developmental Disabilities (OPWDD) group home are the closest residences to the mining operation and ground level views from those homes to the mine will be substantially screened by the 6-ft high berm. Landscape planting will also be offered to those adjacent property owners to further enhance visual screening from ground level vantage points. At-grade stockpiles, equipment storage and mining operations may be visible above the proposed berm and through intervening landscape planting until they grow sufficiently to fully obstruct views (dEIS, Figures A7-B, A7-D, A8-B, A8-D, A9-B and A9-D in Appendix A of Appendix K).

Mitigation measures designed to minimize visual impact that have been incorporated in project design include:

- a. A six foot tall vegetated earthen berm constructed around much of the perimeter of the excavation area will provide visual and noise screening of mining operations from nearby residents and passing motorists along Burgess Road (east), Powderly Road (west), and North Road (south).
- b. Substantial landscape planting will be offered as an option for the Lemmon and OPWDD properties to supplement the screening provided by the six foot high berm. Property owner input will be encouraged and will identify the location and varieties of landscape plantings to be used.
- c. Existing onsite vegetation will be preserved to the maximum extent practicable. For example, the existing hedgerow along Burgess Road will be preserved until mining phase IV to help screen below and at grade operations during mining phases I-III.
- d. The project as originally proposed has been modified to eliminate a substantial

13 February 2013

- excavation area to the east of the Lemmon residence that would have blocked the property owner's view to the east and south and been visible from North Road and Burgess Road.
- e. Stockpiles will be immediately vegetated with grasses to minimize visual contrast with the surrounding meadows and background woodlots. When the stockpiles can be seen from adjacent roads, they will be limited in height to twenty feet and contoured to blend into the natural topography.
 - f. Site excavation and associated lighting will not operate past 7:00 PM. During good weather in the winter, project lighting (vehicle lights and limited use of mobile lighting towers) will be directed into the excavation and away from adjacent residences.

Based on the above evaluation and mitigation measures, Department staff has concluded that the project will not result in a significant visual impact on the aesthetic resources of the area, nor will it permanently or significantly impact local residents.

Wetland Impacts: Wetland mitigation was the 18th issue raised by CCSC in its petition for party status in Seneca Meadow Inc.'s application. CCSC withdrew this item from the ALJ's consideration for adjudication at the November 16, 2011 Issues Conference (Issues Conference Transcript, pages 335-337.) The concern was also raised, without significant supporting documentation, in several citizen letters (form letters, E. Creilly, B. Warren) and at the legislative hearing (B. Warren, Exhibit C, CCSC Comments). In its petition for party status, CCSC noted that a brief mention was made in the dEIS regarding wetland mitigation downstream along Black Brook. CCSC was concerned that the mitigation was not discussed and the mitigation was described as wetland enhancements. CCSC questioned who was doing the project and if the mitigation was a requirement of this project.

Wetland mitigation and the Black Brook realignment and enhancement project (Dove Farm wetland mitigation project) was a requirement of the last permitted expansion of the Seneca Meadows Landfill in October 2006 and has no relationship to this project. Staff's primary concern was whether the discharge from the dewatering of the Meadow View Mine, and any alteration of stormwater discharge from the site, would impact the downstream wetland mitigation project.

The stormwater plan and the potential for impacts from offsite discharges are discussed in the Mine Land Use Plan/Stormwater Pollution Prevention Plan (SWPPP) and the dEIS, Section 2.2.2 Surface Water, and in the SWPPP Appendix I, Stormwater Calculations. The stormwater management system for the Meadow View Mine is designed to provide long-term erosion protection of cover soils, convey stormwater, contain sediment, temporarily store runoff and reduce peak runoff rates prior to discharge offering a high degree of protection for Black Brook and the downstream wetland mitigation project. Control facilities are integral to mining project development and are designed to attenuate increased runoff from the 1-year, 10-year and 100-year design storms. Although post-development flow rates are less than predevelopment flow rates, the overall volume of water is not significantly changed (see Table 1, below).

Table 1. Pre vs. Post Development flow rates into Black Brook from the project site (data from Appendix I).

Storm Event	South Pond		North Pond	
	Pre-Development	Post-Development	Pre-Development	Post-Development
100 year	143.5 cfs	0.8 cfs	60.02 cfs	1.53 cfs
10 year	96.9 cfs	0.3 cfs	53.27 cfs	0.73 cfs
1 year	41.4 cfs	0.1 cfs	9.6 cfs	0.08 cfs

The peak discharge will be less than existing conditions during all design storm events and during all phases of mining activity. Staff have determined that the stormwater facilities as described will reduce the potential for impact of this mining operation on Black Brook and the associated downstream wetland mitigation projects.

The dEIS also describes a number of small onsite wetlands, but wetland investigation of the site did not identify any regulated NYS wetlands. The wetlands are described in Section 2.2.3 Wetlands of the dEIS and in Appendix F Wetland Delineations for the Dendis & Pagano parcels (March 2006). These determinations were verified by DEC and US Army Corps of Engineers (US ACE) biologists during a site visit on May 27, 2008 and in a September 26, 2008 letter from the US ACE (dEIS Appendix C, Pertinent Correspondence) that included a Jurisdiction Determination based on the delineation (Appendix F) and a site visit. The survey found that of the 8 ponds and 5 wetlands, two ponds (A & B) and two wetlands (49 & 50) were jurisdictional (as was Black Brook) under Section 404 of the Clean Water Act. These wetland areas and Black Brook were avoided during the project design phase. The wetlands and ponds avoided are located on northwest side of the project site and are on the opposite side of a drainage divide from the mine excavation. Additionally, site studies determined that these wetlands are underlain by a layer of low permeability soil, generally on the order of 20-30 feet thick, that traps surface water, thus creating the wetlands, and that this soil layer will reduce the potential for impacts from mine dewatering. Staff agrees that site design and the SWPPP avoids and minimizes the potential for impacts on wetlands and jurisdictional waterways.

Failure to fully Evaluate Impacts on Water Supplies: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 10-28. This issue was appealed and reaffirmed in the Commissioner's Interim Decision on Seneca Meadows, Inc., October 26, 2012, on pages 11-16.

Air Quality Impacts: This issue was considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 28-39. The issue of fine particulate matter was found to be adjudicable, and an adjudicatory hearing was held.

Community Character: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages

13 February 2013

39-45.

Traffic Impacts Related to Burgess Road Crossing: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 45-52. This issue was appealed and reaffirmed in the Commissioner's Interim Decision on Seneca Meadows, Inc., October 26, 2012, on pages 7-9.

Noise Impacts: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 52-60.

Public Need and Benefits: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 60-63.

Consistency with State Solid Waste Management Policy and Planning, and Impacts on Other Solid Waste Management Facilities: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 63-66.

Breach of Obligation to Town under Community Benefits: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 66-67.

Failure to Mention All Required Permits: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 67-69.

Impacts on Property Values: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 69-72.

Failure to Address Alternative Project Locations: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 73-75.

Impact on Tourism-Related Commerce: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 75-76.

13 February 2013

Absence of Approved Local Solid Waste Management Plan: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 76-77.

Project Segmentation under SEQRA: This issue was fully considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 77-78.

Adequacy of Reclamation Plan: This issue was considered in the Rulings of the Administrative Law Judge on Issues and Party Status on Seneca Meadows, Inc., March 26, 2012, on pages 79-80. This issue was appealed and reaffirmed in the Commissioner's Interim Decision on Seneca Meadows, Inc., October 26, 2012, on pages 9-11.

Environmental Justice: This issue was first raised on appeal to the Commissioner. The issue was fully considered in the Commissioner's Interim Decision on Seneca Meadows, Inc., October 26, 2012, on pages 6 and 7.

No other public comments requiring a Department response were received during the review of the dEIS.

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NY 12233-1550

In the Matter

- of -

the Application of SENECA MEADOWS, INC., for a
Mined Land Reclamation Permit to develop and operate
the Meadow View Mine in the Town of Waterloo,
Seneca County

DEC Application No. 8-4538-00094-00001

HEARING REPORT

- by -

_____/s/_____
Edward Buhrmaster
Administrative Law Judge

September 6, 2012

PROCEEDINGS

Background and Brief Project Description

Seneca Meadows, Inc. ("Seneca Meadows") has submitted an application to develop and operate a new 120.8-acre clay mine, to be called the Meadow View mine, on the north side of State Route 96 between Burgess and Powderly Roads in the Town of Waterloo, Seneca County. If permitted, the mine would be constructed on parcels owned by Seneca Meadows totaling 252.8 acres.

Over the course of the mine's operational life, estimated to be 11 years, approximately 3.4 million cubic yards of material would be excavated and used primarily for construction and operation of the adjacent Seneca Meadows landfill. Because mining would occur below the local water table, the excavation would be dewatered with an ultimate discharge to Black Brook or its tributaries. No on-site processing of excavated materials, and no on-site vehicle maintenance or service activities are proposed. Final excavation would include the replacement of stockpiled topsoil and the creation of stabilized, revegetated open space and two large ponds.

Permit Requested

To develop and operate the mine, Seneca Meadows has applied to the New York State Department of Environmental Conservation ("DEC") for a Mined Land Reclamation permit pursuant to Environmental Conservation Law ("ECL") Article 23, Title 27.

State Environmental Quality Review Act ("SEQRA") Evaluation

As lead agency under SEQRA, DEC determined that the project may have a significant adverse impact and issued a Positive Declaration on July 29, 2009. A public scoping meeting was held on August 19, 2009, and a final scope was issued on October 26, 2009. A two-volume Draft Environmental Impact Statement ("DEIS"), prepared for Seneca Meadows under the direction of Cornerstone Engineering in Rochester, was accepted by DEC Staff on September 28, 2011, after its revision in June 2011.

Notice of Complete Application

On September 28, 2011, DEC Staff deemed the application complete in accordance with ECL Article 70 (Uniform Procedures) and Part 621 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York ("6 NYCRR").

Legislative Hearing

As announced in a notice issued by DEC's Office of Hearings and Mediation Services ("OHMS"), I conducted a legislative hearing on October 26, 2011, at the Holiday Inn in Waterloo. Consistent with 6 NYCRR 624.4(a), the legislative hearing was held to take unsworn statements on the permit application, the DEIS, and a draft permit that had been prepared by DEC Staff. Written comments on these items were also received up until November 7, 2011.

Issues Conference

Also as announced in the OHMS notice, I conducted an issues conference on November 16, 2011, at the Holiday Inn in Waterloo. Consistent with 6 NYCRR 624.4(b), the issues conference was held to determine party status for any person or organization that had petitioned for it, and to narrow and define those issues that would require adjudication as part of DEC's decision making on the permit application.

Seneca Meadows and DEC Staff were represented at the issues conference, as were four petitioners: Concerned Citizens of Seneca County ("Concerned Citizens"), a project opponent; Dixie Lemmon and Richard Westfall, members of Concerned Citizens who own property adjacent to the project site; and Gary Westfall, another project opponent who is now Waterloo town supervisor.

The conference went forward initially with a discussion of the application and draft permit. DEC Staff said that, in its view, the project would meet applicable standards under the terms of its draft permit, and that it was proposing no issues for adjudication. Seneca Meadows concurred that it had met the

statutory and regulatory criteria that would allow issuance of the draft permit, which it said it was prepared to accept. Following the issues conference, DEC Staff proposed additional permit conditions, all of which were acceptable to Seneca Meadows. These conditions addressed final reclamation grades and groundwater sampling protocols.

Because there were no disputes between Seneca Meadows and DEC Staff concerning the draft permit, and because DEC Staff offered no basis for permit denial, the issues conference discussion focused primarily on whether any of the issues proposed by the petitioners were substantive and significant. While there were four separate petitioners, the petition filed by Concerned Citizens encompassed all the issues proposed by the others; therefore, it provided the framework for the discussion of issues at the conference and, subsequently, in my rulings on issues and party status.

Rulings on Issues and Party Status

On March 26, 2012, I issued my rulings on issues and party status. In those 86-page rulings, I identified one issue, about project-related fine particulate emissions, for adjudication, and granted party status on that issue to Concerned Citizens, Dixie Lemmon and Richard Westfall. Ms. Lemmon and Mr. Westfall, as members of Concerned Citizens, were ordered consolidated with the group itself for the purpose of future proceedings. The petition of Gary Westfall was denied.

Appeal of Issues Ruling

By papers dated April 14, 2012, Concerned Citizens appealed my determination not to adjudicate certain issues it had proposed in its petition. No appeals were filed in relation to my ruling to adjudicate the issue concerning fine particulate emissions, or in relation to my rulings on party status.

The Adjudicatory Hearing

Adjudication of the issue about fine particulate emissions occurred on June 6, 7 and 8, 2012, at the Holiday Inn in

Waterloo. The hearing was held on the basis of pre-filed direct testimony of witnesses for Seneca Meadows, DEC Staff and Concerned Citizens, as well as live rebuttal testimony.

Appearances for Parties

Seneca Meadows was represented at the adjudicatory hearing by Scott M. Turner and Amy L. Reichhart, Esqs., of Nixon Peabody, LLP, in Rochester.

DEC Staff was represented by Lisa Schwartz, Esq., an assistant attorney with DEC's Region 8 office in Avon.

Concerned Citizens was represented by its president, Glen Silver.

Witnesses for the Parties

The following witnesses testified for the parties during the course of the hearing:

For Seneca Meadows:

Dr. Gregory E. Muleski, principal and general manager of SACI, LLC of Kansas City, Missouri, an independent consulting firm providing expert review on mining-related air quality issues such as fugitive emissions, ambient air quality, and control techniques; and

Robert A. Holmes, P.E., of Cornerstone Environmental Group, LLC, in Rochester, the senior project manager for the Meadow View mine project.

For DEC Staff:

Thomas L. Marriott, P.E., DEC's Region 8 air pollution control engineer, employed by DEC's Division of Air Resources in Avon.

For Concerned Citizens:

Dr. Cynthia L. Hsu, a research associate in Cornell University's Department of Entomology, with an office at the New York State Agricultural Experiment Station in Geneva.

The Hearing Record

The hearing record includes the transcript of testimony received on June 6, 7 and 8, 2012, as well as various documentary exhibits. The hearing exhibits are identified in a list attached to this hearing report. The exhibits include pre-filed direct testimony for Dr. Muleski (Exhibit No. 1), Mr. Marriott (Exhibit No. 7) and Dr. Hsu (Exhibit No. 10). On the motion of Seneca Meadows, I struck a portion of Dr. Hsu's testimony after concluding that it went beyond the issues being considered.

The adjudicatory hearing record builds on the record of the issues conference. The following application documents, received at the issues conference, are relevant to the issues discussed in this report:

Issues Conference Exhibit No. 14, the mined land use reclamation plan ("mining plan") prepared by Cornerstone Engineering, which describes the project; and

Issues Conference Exhibit No. 15, the first volume of the DEIS, which includes a discussion of particulate matter impacts and proposed mitigation measures (at pages 2-27 to 2-30). This exhibit also includes an air emissions inventory (Appendix H) developed by Conestoga-Rovers & Associates ("CRA") to determine potential particulate matter emissions one may anticipate from activities at the proposed mine site, and a plan for dust suppression and control (Appendix I).

Also relevant to the hearing issues are:

Issues Conference Exhibit No. 7, a draft mined land reclamation permit prepared by DEC Staff, which includes a condition (No. 7) addressing dust control;

Issues Conference Exhibit No. 8, Concerned Citizens' petition for party status, which includes, as Exhibit B, a letter of Dr. Hsu addressing particulate matter emissions; and

Issues Conference Exhibit No. 18, DEC Commissioner's Policy No. 33 ("CP-33"), "Assessing and Mitigating Impacts of Fine Particulate Matter Emissions," compliance with which is at issue.

Closing Statements

Two rounds of written post-hearing briefs were allowed in this matter: a first round, due July 13, 2012, in which the parties were requested to summarize what was demonstrated at the hearing; and a second round, due July 23, 2012, in which they were allowed the opportunity to respond to each other's initial brief. Timely submittals were made by all parties. With receipt of the parties' reply briefs on July 23, 2012, the adjudicatory hearing record closed.

Transcript Corrections

I authorized the parties to include proposed corrections to the adjudicatory hearing transcript with the first round of post-hearing briefs. Each party submitted proposed corrections, as to which there were no objections. I proposed additional corrections in a list I provided to the parties on August 15, 2012. There were no objections to my corrections either. The parties' and my corrections have been adopted and written into the hearing transcript.

Overview of Issue for Adjudication

As noted in my rulings on issues and party status, the issue for adjudication concerns assessment and mitigation of impacts of fine particulate matter (also known as PM-2.5) emissions, consistent with CP-33. Issued on December 29, 2003, CP-33 provides direction to DEC Staff for evaluating the impacts of fine particulate matter emissions from proposed facilities that require one or more permits from DEC, and specifically,

provides a mechanism for complying with the provisions of SEQRA as it relates to the impact of such emissions.

As discussed in CP-33, particulate matter is a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles (liquids or solids) over a wide range of sizes. For regulatory purposes, particulate matter has been classified in terms of the particle's aerodynamic diameter. PM-2.5 is particulate matter with an aerodynamic diameter of 2.5 microns or less, and PM-10 includes all particulate matter with an aerodynamic diameter of 10 microns or less. Thus, PM-2.5 is, by definition, a subset of PM-10. In general, the term "fine particulate matter" is used to describe PM-2.5, while "coarse particulate matter" describes particulate matter with an aerodynamic diameter of greater than 2.5 microns and equal to or less than 10 microns. (CP-33, page 2.)

CP-33 notes that elevated levels of PM-2.5 in the atmosphere have been linked to serious health conditions in humans. Exposure to PM-2.5 has been closely associated with increased hospital admissions and emergency room visits for heart and lung disease; increased incidence of respiratory disease, including asthma; decreased lung function; and premature death. Sensitive groups that appear to be at greatest risk of such effects include the elderly, individuals with existing cardiopulmonary disease, and children. (CP-33, page 2.)

PM-2.5 can be emitted as a primary pollutant directly from stationary (i.e., fixed site or non-moving) sources as well as mobile sources such as motor vehicles, engines and equipment that can be moved from one place to another. Sources of primary PM-2.5 include, among others, unpaved roads and stationary and mobile sources that burn fossil fuels. PM-2.5 may also form in the ambient air, a process called secondary formation, from or as a direct result of the emission of PM-2.5 precursors from stationary and mobile sources. (CP-33, pages 2 and 3.)

CP-33 requires that permit applicants quantify emissions of PM-10 from a proposed project and assume that all measured or estimated PM-10 emissions are PM-2.5. If primary PM-10

emissions from the project do not equal or exceed 15 tons per year, then the PM-2.5 impacts from the project are deemed insignificant under SEQRA and no further assessment is required. If, however, there is an annual potential to emit PM-10 of 15 tons or more, the policy requires modeling analyses of PM-2.5 impacts for both stationary and mobile sources attributable to the project consistent with DEC's existing practice for PM-10 modeling. The results of the air quality impact analyses must include a reasonably accurate measure of the project's expected contribution to annual and 24-hour ambient air concentrations in the area where the project is proposed to be built. In addition, DEC Staff may require that community-wide impacts be provided using isopleths showing expected concentrations at various distances modeled from the source. (CP-33, pages 3 and 4.)

At the issues conference, an issue was raised whether potential project-related emissions would equal or exceed the 15 ton per year PM-10 threshold and therefore require additional assessment of PM-2.5 impacts, consistent with CP-33. According to the DEIS, emissions of PM-10 (and therefore, PM-10 and PM-2.5) are predicted to be less than 15 tons per year by approximately 4.3 tons, and therefore, in accordance with CP-33, are insignificant, requiring no further assessment. (DEIS, page 2-29.) However, Dr. Hsu, in her letter attached to Concerned Citizens' petition, said that emissions would easily exceed the 15 ton per year threshold upon correction of an error she perceived in the underlying particulate matter emission calculations. (These calculations, performed by CRA, are in Tables 6 and 7 of the emissions inventory, DEIS Appendix H.)

As noted in my issues ruling, examination of the hearing issue must consider the reasonableness of Seneca Meadows' particulate emissions calculations, as well as the alleged conservatism of its analysis. One aspect of this issue concerns the control efficiency of water spray for dust that would be generated from traffic on unpaved roads in the mine area. Another aspect concerns whether a reasonably accurate measure of the PM-2.5 fraction of dust generated from unpaved roads is available, because if it is, CP-33 allows DEC, in its reasonable

discretion, to assess potential impacts using that fraction.
(CP-33, page 3.)

Finally, there are issues as to whether any sources were omitted in Seneca Meadows' particulate matter emissions inventory, whether there are errors in the calculations presented in the inventory, whether the equations used in the inventory to estimate total emissions are potentially unreliable, and whether emissions are understated to a degree that would warrant additional assessment of PM-2.5 impacts.

POSITIONS OF THE PARTIES

Position of Seneca Meadows and DEC Staff

Primary PM-10 emissions from the project would not equal or exceed 15 tons per year. The emissions inventory in DEIS Appendix H is comprehensive, and the inventory's particulate matter emission calculations are reasonable and, in fact, conservative. In particular, it is appropriate, when calculating such emissions, to apply a 90 percent control efficiency for water used to mitigate impacts from fugitive dust.

Consistent with CP-33, the project's PM-2.5 impacts may be deemed insignificant under SEQRA, and no further assessment of such impacts is required. Therefore, DEC Staff's current draft Mined Land Reclamation permit should be issued at this time.

Position of Concerned Citizens

The proposed project exceeds the 15 ton per year threshold for PM-10. Seneca Meadows failed to demonstrate the reliability and conservatism of its particulate matter emission calculations. Its emissions inventory does not use appropriate values, and does not account for error margins associated with the emissions equations that were used. The inventory does not provide a comprehensive list of possible particulate matter emission sources. The 90 percent control efficiency associated with water spray is overestimated and not conservative.

CP-33 requires an applicant to calculate PM-10, and the 15 ton per year threshold should not be applied to just the PM-2.5 fraction. Also, a conservative interpretation of CP-33 would recognize that the 15 ton per year threshold should decrease in accordance with a reduction in the 24-hour PM-2.5 standard set by the US Environmental Protection Agency ("EPA").

Determinations as to whether or on what terms a permit may be issued cannot be made on the existing record. DEC should order modeling analysis of PM-2.5 impacts, in accordance with CP-33. This analysis should specifically take into account 24-hour exposure to PM-2.5 and the health impacts associated with such exposure, consistent with federal regulations and case precedent.

The administrative law judge improperly struck portions of Dr. Hsu's pre-filed testimony concerning the importance, from a public health perspective, of 24-hour PM-2.5 estimates. Also, the ALJ improperly admitted exhibits concerning dust control at the Seneca Meadows landfill, which were offered to demonstrate Seneca Meadows' successful implementation of the same control measures planned for the mine site.

Should it be determined that a Mined Land Reclamation permit is to be issued at this time, various changes to its conditions are warranted.

FINDINGS OF FACT

1. Seneca Meadows proposes to develop and operate the Meadow View mine on 120.8 acres of a 252.8-acre parcel area on the north side of State Route 96 between Burgess and Powderly roads in the Town of Waterloo, Seneca County. The 120.8-acre affected area includes the mine excavation footprint, consisting of approximately 82 acres, as well as related appurtenances such as berms, haul roads, and drainage structures. (Mining plan, Issues Conference Exhibit No. 14, page 3-1.)

2. The excavation of soil is anticipated to occur in phases over an 11-year period, with reclamation within one year

after excavation is completed. The surface mine would be excavated to a depth of about 46 feet below the existing grade. Two ponds would be created in the excavated area, and other disturbed areas would be re-vegetated as stabilized land. (Mining plan, page 3-1.)

3. Construction at the site would include the installation of screening berms, topsoil stockpiles, internal haul roads, and drainage channels. These appurtenances would provide buffers to the mine, offer topsoil storage for property reclamation, and open a pathway for soil removal. They would also allow for the controlled discharge of stormwater from the ponds to drainage swales north of the site. (Mining plan, page 3-1.)

4. The unconsolidated surface deposits would be excavated primarily for use at the adjacent Seneca Meadows landfill, though a small portion of the deposits would be used for other purposes, particularly reclamation of other sites controlled by Seneca Meadows. (Mining plan, page 3-1.)

5. The main haul road carrying all the deposits from the mined area would be located on the east side of the site. It would pass through undeveloped property along Burgess Road, cross Burgess Road at a proposed four-way stop, and then pass through undeveloped property between Burgess Road and the landfill. (Mining plan, page 3-1.)

6. Construction and operation of the Meadow View mine is expected to emit particulate matter from various activities, including the moving and handling of soil by heavy equipment. (DEIS, page 2-27.)

7. Operational vehicles and soil hauling trucks would also generate particulate matter emissions from travel on both paved and unpaved roads at the mine site. Such emissions would be generated as particulate matter is stirred up by vehicle tires on the road surfaces. (DEIS, page 2-27.)

8. Finally, particulate matter emissions would be generated by equipment and wind erosion associated with the on-site stockpiling of soils. (DEIS, pages 2-27 and 2-28.)

9. Adequate topsoil would be stockpiled at the mine site to allow for its reclamation, and soils could also be stockpiled on-site for drying. (Mining plan, page 3-1.)

10. During construction season (May through October), soils would typically be taken from the mine site directly to the Seneca Meadows landfill. Soils from the mine site might also be transported to, and used at, other Seneca Meadows projects. (DEIS, page 2-28.)

11. In the mining area, heavy equipment pieces such as excavators, loaders and dozers would be used to excavate the soils and load the haul trucks. (DEIS, page 2-28.)

12. Activities in the soil stockpile area would be similar to those occurring in the area of active mining. Such activities would include truck loading by loaders and dozers, and truck unloading. (DEIS, page 2-29.)

13. Vehicle and equipment traffic over unpaved roads would generate particulate matter emissions not only from the resuspension of road surface material, but also from exhaust and brake and tire wear. (DEIS, page 2-29.)

14. As part of its application, Seneca Meadows has developed a dust/suppression control plan (DEIS Appendix I) to ensure that fugitive dust suppression techniques would be implemented during construction and operation of the mine. The plan is designed to reduce the potential for airborne dust, prevent visible dust emissions, prevent public nuisance, and provide a healthy work environment. (DEIS Appendix I, page 1-1.)

15. While public access and entrance roads to the mining site would be paved, there would be unpaved roads within the site itself. (DEIS Appendix I, page 2-1.)

16. To control dust on paved and unpaved roadways and surfaces, Seneca Meadows plans to apply water by truck, regularly clean paved roads by street sweeper, enforce access

road speed limits, and enforce vehicle speeds within active construction areas. (DEIS Appendix I, page 3-1.)

17. To control dust from soil excavation and stockpiling, Seneca Meadows intends to employ the following mitigation measures:

Phased development to minimize the size of unvegetated or operational areas;

Watering using one dedicated water truck, and more as necessary;

Enforced speed limits within active construction areas and at the Burgess Road crossing between the mine site and the landfill;

Prompt stabilization and revegetation of disturbed areas; and

Stabilization and vegetation of soil stockpile areas that would not be accessed regularly, if feasible. (DEIS Appendix I, page 3-1.)

18. These mitigation measures would also be implemented in relation to site development activities, which include construction of roads and berms, and the construction of stormwater structures. Initial construction of site improvements can generate dust as a result of soil handling and equipment traffic until such areas are stabilized. (DEIS Appendix I, pages 2-1, 2-2 and 3-1.)

19. At the completion of mining activities, all unstabilized areas would be top soiled, and vegetative cover would be established. Areas below the aquatic bench that would eventually be covered with water would be stabilized, and a temporary vegetative cover would be established. Other disturbed areas above the aquatic bench would be reclaimed by placing topsoil and establishing permanent vegetative cover. Soil stockpiles and internal access roads would be removed, and routine traffic and other operations would be eliminated. (DEIS Appendix I, page 3-2.)

20. Seneca Meadows anticipates that site reclamation would be completed within one year after completion of grading operations to allow establishment of permanent vegetative cover

and the filling of ponds with water. (DEIS Appendix I, page 3-2.)

21. With the refilling of areas below the water table upon the completion of mining, the potential for dust from those areas would be eliminated. (DEIS, page 2-30.)

22. PM-10 emissions may be calculated on the basis of EPA-published emission factors and emission factor equations presented in the "Compilation of Air Pollutant Emission Factors," also known as AP-42. AP-42 is used in many emission calculations and is appropriate for calculating fugitive dust emissions from the mining project. (Marriott pre-filed testimony, pages 1 and 2.)

23. Because approximately 80 percent of uncontrolled project emissions would be from travel on unpaved surfaces, dust control of those surfaces is especially important, and the control factor applied to this activity will most impact the total estimate for yearly emissions. (Muleski pre-filed testimony, page 7. See also Marriott pre-filed testimony, page 3, confirming the 80 percent calculation.)

24. When an observer first notices dust from tires on a watered (or otherwise controlled) road, the control factor at that time is typically at least 80 percent. At "zero time" (i.e., immediately after water application), the road is wet, and there is 100 percent control of dust. Assuming a linear decay in control efficiency, the average control from time zero to the time dust is observed is at least 90 percent. (Muleski pre-filed testimony, page 8.)

25. Furthermore, water binds particles together. PM-10 and smaller particles have high surface area/mass ratios. This means that PM-10 and smaller particles are more effectively bound to the road surface, and to each other, than are particles in the coarser size ranges of total suspended particulate ("TSP"). Thus, when visible dust is first observed, the dust consists primarily of particles larger than PM-10. In other words, PM-10 and smaller particles are controlled to a higher level than the observed dust, thus more effectively than 90

percent. (Muleski pre-filed testimony, page 8; and Marriott pre-filed testimony, pages 3 and 4. See also Muleski, 6/8/12 transcript, pages 20 and 21.)

26. Watering controls alone can be close to 100 percent effective on unpaved roads when appropriate moisture levels are maintained. (Muleski pre-filed testimony, page 8, interpreting Figure 13.2.2-2, "Watering control effectiveness for unpaved travel surfaces," in AP-42 Section 13.2.2, Adjudicatory Hearing Exhibit No. 1-B.)

27. Limiting travel speed and cleaning paved surfaces, of which there would be 450 feet where the mine site haul crosses Burgess Road, can provide dust control beyond that from watering. (Muleski pre-filed testimony, page 9; see also Holmes, 6/7/12 transcript, pages 154, 156 and 162, confirming that there will be 450 feet of heavy-duty pavement constituting an apron west of Burgess Road. On Adjudicatory Hearing Exhibit No. 15, the phase I site plan, the apron is highlighted in blue and the graveled access road to which it connects is highlighted in red. Cross-sections of the heavy-duty pavement apron and the graveled access road appear in the road construction details, Adjudicatory Hearing Exhibit No. 16.)

28. Finally, graveling of internal haul roads, as intended by Seneca Meadows, would cover the road surface with a material that has a lower silt content than the ground surface on which the road would be built, which would also help control dust. (Muleski pre-filed testimony, page 9; see also DEIS Section 1.4.4 (pages 1-7 and 1-8) addressing both the graveling of a 30-foot-wide road to the main excavation areas, and the construction of all internal haul roads with aggregate.)

29. Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers in diameter) in the road surface materials. Covering the road surface with a material that has a lower silt content, such as covering a dirt road with gravel, constitutes a surface improvement that provides a relatively permanent form of dust control, unlike watering, which requires periodic

retreatment. (AP-42 Section 13.2.2, Exhibit No. 1-B, pages 1 and 10.)

30. Unlike emissions from a stack, in which particles pass through a control device before entering the air, open fugitive emission sources, such as those for this project, generate dust over a broad range of particle sizes, with PM-2.5 representing a small subset of PM-10. Because little data for PM-2.5 generation exists for most sources, the emissions inventory prepared by CRA estimated project-related PM-10 emissions and, to be conservative, assumed these emissions to equal PM-2.5 emissions. (Emissions inventory, DEIS Appendix H, page 4-1.)

31. However, as shown in Table 13.2.2-2 of AP-42 Section 13.2.2 (Adjudicatory Hearing Exhibit No. 1-B), the PM-2.5/PM-10 ratio for particulate matter from unpaved industrial roads is 0.10 (0.15 pounds per vehicle mile traveled ("lb/VMT") divided by 1.5 lb/VMT), which suggests that the estimate of these emissions in Table 6 of the emissions inventory (5.04 tons per year) is conservative by a factor of 10. (Muleski pre-filed testimony, page 18.)

DISCUSSION

As noted above, the key hearing issue is whether particulate matter emissions may be so great that additional assessment and modeling of PM-2.5 impacts is necessary under CP-33. I find that such additional analysis is not required, given the overall conservatism of the air emissions inventory that was conducted as part of the project application.

The inventory (DEIS Appendix H) was developed by CRA to determine potential greenhouse gas and particulate matter emissions attributable to activities that would be conducted at the proposed mine location. While no one from CRA testified at the adjudicatory hearing, Dr. Muleski was retained by Seneca Meadows to review the inventory in relation to particulate matter emissions, there being no issue about greenhouse gas impacts. In particular, he looked at two considerations highlighted in my issues ruling: (1) the conservatism of the PM-

10 estimate, and (2) the reasonableness of CRA's application of a 90 percent control efficiency for water spray on unpaved roads, a major factor in that estimate.

Overall, I find Dr. Muleski's testimony to be convincing in all respects. A Ph.D. in engineering science and mathematics from the University of Notre Dame, he presented a detailed evaluation of CRA's particulate matter inventory and a thorough response to the testimony of Dr. Hsu, which was offered on behalf of Concerned Citizens. Furthermore, in key respects, Dr. Muleski's testimony was corroborated by Mr. Marriott, DEC Staff's expert witness.

DEC's Region 8 air pollution control engineer since 1978, Mr. Marriott agreed with Dr. Muleski's justification for CRA's use of a 90 percent control efficiency for PM-10 from unpaved roads. Mr. Marriott also agreed with Dr. Muleski's explanation that PM-10 and smaller particles, due to their high surface area/mass ratios, are more effectively bound than the coarser-sized portion of total suspended particulate, and are therefore controlled to a higher level than dust that one can observe. Finally, Mr. Marriott agreed with Dr. Muleski's opinion that, for dust from unpaved roads, one can reasonably estimate a fraction of PM-10 that constitutes PM-2.5, which can be used to gauge the conservatism of the PM-10 emissions inventory (as Dr. Muleski did) or to assess PM-2.5 impacts (as Mr. Marriott did, consistent with CP-33).

Witness Qualifications

As is demonstrated by his pre-filed testimony (Adjudicatory Hearing Exhibit No. 1, pages 1 to 4), Dr. Muleski is well-qualified to testify on the issues in this hearing. Prior to forming his own consulting firm this year, Dr. Muleski was employed for 30 years by the Midwest Research Institute ("MRI"), now MRI Global, in Kansas City, including 20 years as a principal environmental engineer. MRI is an independent, not-for-profit organization that performs contract research for government and industry, including, in the environmental area, EPA as well as state, regional and municipal government agencies. Two of MRI's areas of environmental expertise are the

monitoring and assessment of open source emissions and, more particularly, the measurement and control of "fugitive dust" - - meaning airborne particulates produced by heavy wind or disturbance of the ground surface from agriculture, mining operations, heavy construction, or use of roadways.

MRI has assisted EPA in the development of fugitive dust emission factors and inventories, and has prepared several EPA guidance documents that describe how to apply the fugitive dust emission factors and how to develop effective dust control plans. In addition, MRI has provided quality assurance assistance to EPA by reviewing fugitive dust inventories, test plans and other documents prepared by other organizations as well as by observing fugitive dust testing programs conducted by others.

At MRI, Dr. Muleski specialized in the field evaluation of fugitive emissions, ambient air quality, and control techniques for open pollutant emission sources for government and industrial clients, while also conducting dispersion modeling of traditional and nontraditional sources. He has conducted more than 1,000 field tests, including the characterization of the performance of different control strategies applied to open dust sources. During his tenure at MRI, he wrote extensively on the results of MRI's fugitive dust field work and other fugitive dust analyses, as evidenced by the publications listed in his resume (Adjudicatory Hearing Exhibit No. 1-A).

Among the field studies he has conducted, Dr. Muleski has served as crew chief of a multi-year program to characterize dust concentrations and particle size distributions for "brownout" clouds caused by helicopters, led a multi-year field evaluation of surface coal mine emission factors and dispersion modeling for EPA, and participated in the development of a PM-10 emissions inventory from landfills in the Chicago area, also for EPA. Dr. Muleski has also participated in the revision of several sections of EPA's AP-42 document, which, in relation to fugitive dust, was referenced as authoritative by all parties' experts. In particular, he was involved in a thorough reexamination of AP-42's paved road, unpaved road and construction activity emission factor empirical models.

Dr. Muleski's role in the development of AP-42's fugitive dust chapters was highlighted by Mr. Marriott, DEC Staff's witness, whose resume was received as Adjudicatory Hearing Exhibit No. 7-A. Upon review of Dr. Muleski's pre-filed testimony, Mr. Marriott said he found Dr. Muleski "highly qualified as an expert in fugitive dust emissions based primarily on his experience and education," adding that he doubted there are other people more qualified on this subject. (Marriott pre-filed testimony, Adjudicatory Hearing Exhibit No. 7, page 3.)

While well-qualified herself as a soil scientist, Dr. Hsu, Concerned Citizens' expert witness, lacks the same type, length and depth of expertise that Dr. Muleski has on the issues central to this hearing. As she wrote in her letter attached to Concerned Citizens' petition for party status, Dr. Hsu has "an above average understanding of soils and soil properties, and an understanding of the movement of airborne particles in the atmosphere," which is derived from academic training in soil science. With a Ph.D. in Entomology received in 2007 from the University of Minnesota, Dr. Hsu works as a research associate in Cornell University's entomology department, with an office at the New York State Agricultural Experiment Station in Geneva. Dr. Hsu's primary research interest concerns insect dispersal and spatial statistics/spatial pattern analyses. Also, as an entomologist, she has some background in issues such as pesticide drift, transport of pheromones released into the air by insects, pheromone plume structure, and the dispersal of small insects by the wind. (Dr. Hsu's resume was received as Adjudicatory Hearing Exhibit No. 10-A.)

In her pre-filed testimony, Dr. Hsu indicated she is familiar with the statistical methods that were used to develop the particulate matter emissions equations referenced in her testimony. She also testified that, as a scientist, she is trained to critically analyze data and assess whether stated results are actually substantiated. (6/7/12 transcript, page 115.) On the other hand, Dr. Hsu also admitted she does not specialize in particulate matter, fluid dynamics, mining or geology. (Hsu letter, Exhibit B, attached to Concerned Citizens'

petition, Issues Conference Exhibit No. 8.) At the hearing, she acknowledged she has never observed an active clay mine (6/7/12 transcript, page 105), nor has she ever prepared an emissions inventory for any industrial operation (6/7/12 transcript, page 108).

At the hearing, Seneca Meadows had Dr. Hsu admit she is a member of the Finger Lakes Zero Waste Coalition, an opponent of its landfill, apparently to suggest bias on her part. (6/7/12 transcript, pages 108 and 109.) Dr. Hsu countered that she became involved in this matter because there are a number of people, many of them vulnerable to particulate matter impacts, who would be affected by this project, and because, as a soil scientist, she thought she could provide useful information. (6/7/12 transcript, pages 111 to 113.) I find that Dr. Hsu is a competent witness and motivated by sincere concerns about this project, even though I also find such concerns have been successfully allayed by Seneca Meadows and DEC Staff.

For its part, Concerned Citizens had Dr. Muleski admit that he was being paid on an hourly rate for services at the hearing (6/6/12 transcript, pages 64 and 65), in contrast to Dr. Hsu, who said she was not being paid for providing testimony (6/7/12 transcript, pages 113 and 114). I do not find that Dr. Muleski's testimony was influenced by any money he has received. It is common for expert consultants to be paid for their efforts; the pay is not based on the testimony they provide, but on the expertise they bring to the table and the insight they can provide during a project's evaluation.

Control Efficiency for Water Spray

A key consideration in this hearing is the control efficiency to be assigned to water spray on unpaved roads in the mining area, since travel on such roads contributes so heavily to total PM-10 emissions. To address the benefit of watering systems on unpaved roads, CRA's emissions inventory assigned a control efficiency of 90 percent, which it derived from Table B.2-3 of Appendix B.2 of AP-42. (Appendix B.2 was received as Adjudicatory Hearing Exhibit No. 1-C, and the table appears on pages 20 and 21 of that document.) AP-42 has an alternate

equation that can account for local precipitation; however, since road watering would not occur during precipitation events, the 90 percent control efficiency was deemed sufficient.

Assignment of a 90 percent control efficiency had the effect of reducing by a factor of 10 what the emissions inventory said would be about 50 tons per year of PM-10 generated by the unpaved roads in an uncontrolled state. According to Table 6 of the emissions inventory, unpaved roads in the mining area would generate 5.04 tons per year of controlled PM-10: 3.33 tons during the six-month construction season (May through October) and 1.71 tons during the six-month off-construction season (November through April).

In her letter attached to Concerned Citizens' petition, Dr. Hsu questioned whether Table B.2-3 had been applied correctly. As she noted, the table indicates "typical collection efficiencies of various particulate control devices" as percentages. The type of collector identified as "AIRS Code 061 - Dust suppression by water sprays" has a documented 90 percent collection efficiency; however, that efficiency applies to particles 6 to 10 microns in size. There is also a 65 percent collection efficiency for particles 2.5 to 6 microns in size, and a 40 percent collection efficiency for particles smaller than 2.5 microns in size.

Given that this would be a clay mine, and pointing out that clay has a particle size of less than 2 microns, Dr. Hsu concluded that proper application of Table B.2-3 would suggest a 40 percent control efficiency, markedly less than the 90 percent control efficiency assigned by CRA. She argued that if a 40 percent control efficiency were assigned and all else remained the same in CRA's analysis, then the mining operations would produce an estimated 43 tons per year of controlled PM-10, well above the 15 ton per year threshold. Even if a 65 percent control efficiency were used, she added, the mining operations would produce 26.9 tons of controlled PM-10 per year.

As Dr. Hsu noted, CRA provided no justification for applying a control efficiency of 90 percent, appropriate for particulate matter between 6 and 10 microns in size, to clay

dust that she said would be 2 microns or smaller in size. Nor did Seneca Meadows call any representative of CRA to testify at the adjudicatory hearing.

In his pre-filed testimony, Dr. Muleski said that CRA's emissions inventory's use of a 90 percent control factor was reasonable, and that adherence to the dust suppression/control plan (DEIS Appendix I) would produce at least 90 percent control for unpaved travel surfaces.

As he explained, when an observer first notices dust from tires on a watered (or otherwise controlled) road, the control factor at that time is typically at least 80 percent. At "zero time" (i.e., immediately after water application), the road is wet, and there is 100 percent control of dust. Assuming a linear decay in control efficiency, the average control from time zero to the time dust is observed would be at least 90 percent.

Dr. Muleski said that PM-10 and smaller particles, due to their high surface area/mass ratios, are more effectively bound to the road surface by water than are particles in the coarser size ranges of total suspended particulate. Thus, he added, when visible dust is first observed, the dust primarily consists of particles larger than PM-10. In other words, PM-10 and smaller particles are controlled to a higher level than the observed dust, thus more effectively than the 90 percent assumed by CRA in its emissions inventory.

Dr. Muleski used Figure 13.2.2-2 from Section 13.2.2 (Unpaved Roads) of AP-42 (Adjudicatory Hearing Exhibit No. 1-B) to illustrate his point that watering controls can be close to 100 percent effective on unpaved roads when appropriate moisture ratios are maintained by repeated watering. As explained in Section 13.2.2, watering increases the moisture content, which conglomerates particles and reduces their likelihood to become suspended when vehicles pass over the surface. The control efficiency depends on how fast the road dries after water is added. This in turn depends on (a) the amount of water added during each application; (b) the period of time between applications; (c) the weight, speed and number of vehicles

traveling over the watered road during the period between applications; and (d) meteorological conditions (temperature, wind speed, cloud cover, etc.) that affect evaporation during that period.

According to the accompanying text, Figure 13.2.2-2 presents a simple bilinear relationship between the instantaneous control efficiency due to watering and the resulting increase in surface moisture. The moisture ratio "M" (i.e., the x-axis in Figure 13.2.2-2) is found by dividing the surface moisture content of the watered road by the surface moisture content of the uncontrolled road. As Dr. Muleski explained, the maximum control efficiency shown in the figure is 95 percent, which is the value at a moisture ratio of 5, where the road is thoroughly wet. As the watered road surface dries, both the moisture ratio and the predicted instantaneous control efficiency (the y-axis in the figure) decrease. The figure shows that between the uncontrolled moisture content and a value twice as large, a small increase in moisture content results in a large increase in control efficiency. Beyond that, the control efficiency grows slowly with increased moisture content.

Dr. Muleski testified that Figure 13.2.2-2, from a section of AP-42 that addresses fugitive dust sources, is more directly relevant to the emissions inventory for this project than is Table B.2-3 in AP-42 Appendix B, which CRA referenced for its 90 percent control efficiency. In fact, no witness testified that it would be appropriate to use Table B.2-3 in the manner it was employed by CRA in the emissions inventory. Dr. Muleski discounted the table, noting that, by its terms, it relates to the "collection efficiencies" of particulate control devices, including some which incorporate water sprays. In its closing brief, Seneca Meadows points out that the title of the section (B.2.3) in which the table appears references "controlled processes," and the section's introductory paragraph discusses "control devices" and "collection efficiencies," which are not terms associated with control of fugitive dust, or used in that context in AP-42.

Mr. Marriott said he could not recall any use of Table B.2-3 prior to its employment by CRA in the emissions inventory for

the Meadow View mine. (6/7/12 transcript, page 53.) Nor was the table a factor in his testimony that Dr. Muleski was justified in applying a 90 percent control efficiency for water spray on unpaved roads.

Even Dr. Hsu did not say that Table B.2-3 was appropriate to use in the emissions inventory. When I asked her whether use of the table was appropriate, she responded, "I haven't seen enough of these to know what would be an appropriate table." (6/8/12 transcript, page 93.) She said that she used the table because it was used by CRA, adding that "[i]f you are using that table, my opinion is that you should estimate the collection efficiency based on the particle sizes as they're shown on that table." (6/8/12 transcript, page 94.)

In summary, I find no basis to rely on Table B.2-3 on the issue of determining a control efficiency for water spray on unpaved roads. Rather, the 90 percent control efficiency, as used in the emissions inventory, is adequately supported by Dr. Muleski's testimony, based on his considerable field experience and interpretation of Figure 13.2.2-2.

In its closing brief, Concerned Citizens argues that a 90 percent PM-10 control efficiency associated with water sprays is overestimated and not conservative, and that, based on the data in the hearing record, a conservative estimate would fall between 40 and 80 percent. Concerned Citizens also maintains that there is not enough data in the hearing record to determine a specific control efficiency using Figure 13.2.2-2.

Neither Dr. Muleski nor Mr. Marriott agreed with these assessments, and I reject them as well. In his rebuttal testimony, Dr. Muleski discussed his very first unpaved road field testing experience, from June of 1982. He said that upon noticing dust coming up off a vehicle tire on a previously treated road, testing performed at that point demonstrated that total particulate was controlled at 93 percent, while PM-10 was controlled at a higher fraction, in the range of 97 to 98 percent. (6/8/12 transcript, page 20.) According to Dr. Muleski, once you see dust, you tend to underestimate the control efficiency that is achievable or available, because "you

can't preferentially see the finer fractions," which are more effectively controlled by watering. (6/18/12 transcript, page 21.)

Dr. Muleski's 30 years of field observations and testing lead him reasonably to conclude that effective dust control may be maintained by rewatering when visible dust first appears, to keep the moisture ratio in the 3 to 5 range. In fact, the dust control plan is to apply water, then increase the frequency of water application as needed if visible evidence of fugitive dust is observed by Seneca Meadows or any of its subcontractor personnel during working hours. (See Dust suppression/control plan, DEIS Appendix I, page 3-1.) The plan also anticipates the use of non-water dust suppressants approved by DEC, but no such suppressants are specified in the plan, and none were brought up at the hearing.

In her pre-filed testimony (at page 21), Dr. Hsu cited the Western Regional Air Partnership ("WRAP") Fugitive Dust Handbook (Adjudicatory Hearing Exhibit No. 6) to argue that a control efficiency of 90 percent could not be assured on the basis of water sprays. The WRAP handbook includes an executive summary with a table showing the published PM-10 control efficiencies for various measures undertaken in different settings. These include a control efficiency of 10 to 74 percent for the application of water on unpaved roads, a control efficiency of 10 to 74 percent for the watering of unpaved surfaces at construction/demolition sites, and a control efficiency of 50 to 90 percent for wet suppression at a materials handling site.

As both Dr. Muleski and Mr. Marriott explained, these values are not applicable to this project. According to Dr. Muleski, the values in the WRAP handbook are based largely, if not necessarily exclusively, on a single application of water, and the testing of that application until it essentially decays back to an uncontrolled state, to establish a worst case decay rate under certain conditions. These values do not apply to the Meadow View mine, at which additional waterings would occur frequently throughout the day. (Muleski, 6/8/12 transcript, pages 19 and 20, and 62 to 70.)

Mr. Marriott also said there are two reasons he would not apply the control efficiencies in the WRAP document. First, he said, they were developed from information from western parts of the United States, where soils are different and dust problems are more common. In addition, he said he believed the unpaved roads tested for purposes of the WRAP handbook were actually unimproved dirt roads, unlike the unpaved roads at the Meadow View mine site, which would be improved. (6/7/12 transcript, pages 56 and 57. See also Section 4.4 of the mining plan, Issues Conference Exhibit No. 14, which addresses the construction of internal haul roads with aggregate.)

Even Dr. Hsu conceded in her pre-filed testimony that the values in the WRAP table might not be applicable in New York State, which is not part of the WRAP region. In its closing brief, Concerned Citizens effectively abandoned its reliance on the WRAP table, and restricted its assessment to field tests described in an MRI report, written by Dr. Muleski, that provided emission factor documentation for AP-42 Section 13.2.2. These field tests were not brought up at the hearing, though the MRI report was received (as Adjudicatory Hearing Exhibit No. 5) during Dr. Muleski's cross-examination, in relation to the use of stepwise multiple linear regression to develop a predictive emission factor equation for particulate emissions from unpaved roads. (Adjudicatory Hearing Exhibit No. 5, page 4-17; 6/6/12 transcript, pages 185 to 203.)

In its closing brief (pages 29 to 31), Concerned Citizens selects five of the reported field tests, all conducted by MRI, to argue that water rarely provides more than 80 percent control of PM-10, and that a more conservative estimate would be in a range between 40 and 80 percent. Because the tests are only summarized in the report and were not raised at the hearing, either as part of Concerned Citizens' direct case or as part of the cross-examination of Dr. Muleski, each one's relevance to this project is difficult to discern. On the other hand, Seneca Meadows says in its reply brief it is apparent from the summaries that two of them involved a one-time application of water, and one of these two (at page 4-10 of Adjudicatory Hearing Exhibit No. 5) shows water decreasing emissions by 95 percent for all particles one half-hour after application, which

Seneca Meadows says is consistent with Dr. Muleski's testimony. In this same test, control efficiencies gauged 4.4 hours after the water application were 55 percent for total particulate, but 61.1 percent for PM-2.5, which supports Dr. Muleski's contention that PM-2.5 is more effectively controlled.

Fractionalization of PM-10

In its application of CP-33, DEC requires permit applicants to quantify emissions of PM-10 from their proposed projects and assume that all measured or estimated PM-10 emissions are PM-2.5. However, where an applicant demonstrates that a reasonably accurate measure of the PM-2.5 fraction of a source's particulate matter emissions is available, DEC Staff may, in its reasonable discretion, assess potential impacts using the PM-2.5 fraction.

Dr. Muleski explained that when dealing with emissions from a stack, particles pass through a control device and, in that case, PM-2.5 emissions may be nearly equal to PM-10, there being few particles between 2.5 and 10 microns in aerodynamic diameter. On the other hand, he added that open fugitive sources, such as those at issue here, generate dust over a broad range of particle sizes, with PM-2.5 representing a small subset of PM-10. For example, for particulate matter from unpaved industrial roads, he said the PM-2.5/PM-10 ratio may be established as 0.10.

Mr. Marriott confirmed that when CP-33 was issued, in 2003, PM-2.5 emissions were difficult to measure directly from emission sources, and therefore the default assumption, for the sake of conservatism, was that PM-2.5 was the same as PM-10. With today's knowledge, however, he said that PM-2.5/PM-10 particle size ratios have been established.

Mr. Marriott performed an exercise (documented in Adjudicatory Hearing Exhibit No. 7-D) in which he applied current PM-2.5/PM-10 ratios to the uncontrolled PM-10 in Tables 6 and 7 of the emissions inventory, then applied a 40 percent control efficiency for water spray (from Table B.2-3, for particles up to 2.5 microns in size) in each place where the

emissions inventory assumed a 90 percent control efficiency. The ratios Mr. Marriott applied were taken from Table 1 of a 2006 background document (received as Adjudicatory Hearing Exhibit No. 7-C) for revisions to fine fraction ratios used in AP-42 fugitive dust emission factors, prepared by MRI for the Western Regional Air Partnership (WRAP). (In that table, the ratio is 0.15 for unpaved roads, 0.25 for paved roads, and 0.314 for aggregate handling and storage piles.)

As a result of his exercise (documented in Adjudicatory Hearing Exhibit No. 7-D), Mr. Marriott determined that the project would generate 6.623 tons per year of PM-2.5, well below the 15 ton per year threshold in CP-33. (6/7/12 transcript, page 20.) If the control efficiency is changed from 40 percent to 90 percent and the same PM-2.5/PM-10 ratios are applied, the tons per year of PM-2.5 drop even more, to 2.088. (Marriott pre-filed testimony, pages 2 and 3.)

Mr. Marriott said that the PM-2.5/PM-10 ratios in the table he used provide a reasonably accurate measure of the PM-2.5 fraction of fugitive dust from the sources identified in the emissions inventory. Concerned Citizens questioned whether Mr. Marriott misapplied the table, particularly as to wind erosion sources, but Mr. Marriott said that even with the changes suggested by Concerned Citizens, his PM-2.5 estimates would have been raised only slightly. (See discussion at pages 38 to 41 of the 6/7/12 transcript.) On the other hand, because the PM-2.5/PM-10 ratios proposed in the table are less than the current ones, using the proposed ratios would have lowered Mr. Marriott's PM-2.5 estimates. (For instance, while the current ratio for unpaved roads is 0.15, the proposed ratio is 0.1, the ratio cited by Dr. Muleski.)

Mr. Marriott said he performed his exercise using the 40 percent control efficiency for the sake of conservatism, because it was proposed by Dr. Hsu and not because he thinks it is correct. (6/7/12 transcript, page 22.) In fact, in his pre-filed testimony (at page 4), Mr. Marriott said that Dr. Muleski provided ample justification for use of the 90 percent control efficiency that was applied in the emissions inventory.

Dr. Hsu settled on a 40 percent control efficiency because, in Table B.2.3, it applies for particles up to 2.5 microns in size, a range that encompasses clay particles, which, for soil classification purposes, are less than 2 microns in size. As Dr. Muleski explained, the method that soil scientists use to determine whether a soil is a particular type is a wet separation method that uses a liquid to de-agglomerate particles using settling velocity to determine sand, silt, and clay fractions. This, he stressed, is not the method on which to base conclusions about the aerodynamic particle diameters produced by disturbance of soils by mechanical activity. (Muleski pre-filed testimony, page 10.) Mr. Marriott, himself a former soils engineer, agreed with Dr. Muleski, providing with his testimony a soils manual excerpt showing how the wet separation method (referred to as hydrometer analysis) is conducted. (Marriott pre-filed testimony, page 4; the manual excerpt was received as Adjudicatory Hearing Exhibit No. 7-B.)

In her pre-filed testimony, Dr. Hsu noted recent research (documented in articles received as Adjudicatory Hearing Exhibits No. 10-B, 10-C and 10-D) that is investigating the relationship between soil textures, as defined by soil scientists, and PM-10 emission potentials. (Hsu pre-filed testimony, Exhibit No. 10, pages 25 and 26.) Dr. Muleski discounted this research because it is inconclusive (in particular, Exhibit No. 10-C reports findings that "contrast strongly" with those in Exhibit No. 10-B) and, more important, because the research is based on laboratory tests attempting to resuspend dust from soil materials, rather than field tests. (6/8/12 transcript, page 23 and 24.) Dr. Muleski said there was no consistent trend among the articles and no consistent method in how dust was generated in the testing. (6/8/12 transcript, page 51.) He pointed out that the AP-42 emission factors are based on field tests involving, for instance, "actual vehicles traveling on actual roads under actual field conditions of watering, no watering, all that sort of thing," and concluded that "for the purposes of estimating emissions from, you know, unpaved roads, material handling, all the sort of things that are the fugitive dust sources of concern here, I would rely on AP-42 which in itself relies on actual field test results and not a simulation." (6/8/12 transcript, pages 23 and 24.)

As Dr. Muleski explained, the AP-42 equations used to determine emission factors for fugitive dust focus on the surface material from which dust originates, rather than how soil layers underlying the surface might be characterized by soil scientists as clay, silt or sand. Dry sieving, the sampling and analysis method in AP-42, keeps clumps or clusters of particles intact as they exist in the environment rather than de-agglomerating them in a liquid in a laboratory as does the wet method that soil scientists use to characterize a soil type. (Muleski pre-filed testimony, page 11.)

According to Dr. Muleski, years of study of fugitive dust fractionalization have demonstrated that the disturbance of loose surface material produces particulate matter over a broad range of aerodynamic particle diameters. Furthermore, Dr. Muleski emphasized that while the project is a clay mine, the vast majority of the unpaved haul roads will be at ground level, whose soils are silts, not clay. Finally, he pointed out that the haul roads would be graveled, as discussed in DEIS Section 1.4.4, with aggregate of a lower silt content (in the dry sieving sense) than the silts (in the soil classification sense) on which the haul roads would be laid. (Muleski pre-filed testimony, pages 11 and 12.)

Turning back to Mr. Marriott's exercise, Concerned Citizens did not dispute whether, as a practical matter, one can reliably determine the PM-2.5 fraction of any or all of this project's particulate matter emissions. Nor did it dispute the information in the table relied on for this purpose by DEC Staff. This is important, because if one can reliably gauge impacts based on the PM-2.5 fraction, it negates any concern that the emission inventory's PM-10 estimate may be grossly overstated due to error margins associated with the AP-42 equations.

In its closing argument, Concerned Citizens maintains that, by its terms, CP-33 requires an applicant to calculate total PM-10, and not just the PM-2.5 fraction. Dr. Hsu said that the 15 ton per year threshold relates specifically to an estimate of

PM-10, and that applying that threshold to a PM-2.5 fraction is not consistent with CP-33.

Dr. Hsu bases her argument on footnote 9 of CP-33, which appears in relation to the following statement: "If primary PM-10 emissions from the project do not equal or exceed 15 tons per year, then the PM-2.5 impacts from the project shall be deemed insignificant and no further assessment shall be required under this policy."

The footnote reads as follows: "15 tons per year is the existing de minimis threshold for PM-10 in attainment areas, as well as the Significant Source Project threshold in non-attainment areas (6 NYCRR Subpart 231-2, Section 231-2.13). This threshold relates to PM-10 emissions and not PM-2.5 emissions even in cases where the Department determines that PM-2.5 emissions are specifically quantifiable and could be lower."

I read the footnote as indicating the derivation of the 15 ton per year threshold in CP-33. However, I do not read it as altering the specific allowance, written in the body of the policy itself, that: "Where an applicant demonstrates that a reasonably accurate measure of the PM-2.5 fraction of a source's particulate matter emissions is available, Department staff may, in its reasonable discretion, assess potential impacts using the PM-2.5 fraction." In other words, Staff may, in an appropriate circumstance, substitute the PM-2.5 fraction of PM-10 when determining whether the 15 ton per year threshold is met. This is consistent with the purpose of the policy, which is to provide guidance on the assessment of PM-2.5 (fine particulate matter) impacts, not impacts of PM-10.

As DEC Staff argues, Dr. Hsu's interpretation of the footnote would render meaningless the clear statement in CP-33 allowing for use of PM-2.5 fractions, and it is unreasonable to read the policy in the way she proposes. In fact, as Staff points out, the meaning of footnote 9 is clear on its face. The first sentence states that 15 tons per year - the threshold set out in CP-33 - is also a threshold for other purposes in 6 NYCRR Subpart 231-2. The second sentence then clarifies that "[t]his

threshold" - the 6 NYCRR Subpart 231-2 threshold - relates to PM-10 emissions and not to PM-2.5 emissions.

Dr. Muleski's Review of Emissions Inventory

Based on his review of CRA's emissions inventory, Dr. Muleski concluded that its approach to calculating the project's PM-10 emissions was appropriate and that the estimate of 10.7 tons per year for project-related PM-10, in Table 6 of the inventory, was reasonable and, indeed, conservative. (Muleski pre-filed testimony, page 13.) In fact, Dr. Muleski said the estimate could be reduced significantly further in two respects.

First, Dr. Muleski said that the estimate of uncontrolled wind erosion from open areas and soil stockpiles (about 8 tons per year) is at least an order of magnitude too high, and that a better annual uncontrolled value would be 0.8 tons per year, which would result in a controlled value of 0.08 tons per year (versus 0.84 tons per year in CRA's inventory). Dr. Muleski said that the wind erosion approach taken by CRA (from Section 13.2.5 of AP-42, Adjudicatory Hearing Exhibit No. 10-G) was never intended for use in this type of inventory. According to Dr. Muleski, almost all the underlying data for this section are for coal piles and other dry materials, whereas clay, clay/dirt mix, and other cover materials are simply too wet to be eroded by the wind, which he discovered when collecting material samples for landfill PM-10 inventories for EPA Region 5 in the late 1980s. (Muleski pre-filed testimony, page 15.)

Second, Dr. Muleski said that the estimate of excavator emissions should be closer to 0.12 tons per year than the 2.4 tons per year in the emissions inventory. As he explained, although both bulldozers and excavators are tracked vehicles, bulldozers move steadily while excavators remain stationary for long periods. For this reason, excavator dust emissions are conservatively high because the bulldozer emission factor assumes continuous movement over the travel surface when, in fact, excavators do not move in this fashion. Based on his observations at similar sites, Dr. Muleski said that large excavators with wide swing radiuses only travel over the surface approximately 5 percent of the time. (Muleski pre-filed

testimony, pages 16 and 17; and 6/6/12 transcript, pages 45 and 46.)

The only area in which Dr. Muleski said that CRA's inventory might have understated emissions - - and then only by three tenths of a ton - - was in relation to traffic along paved roads. (Muleski pre-filed testimony, pages 14 to 16; and 6/6/12 transcript, pages 38 to 45.) More particularly, Dr. Muleski said that CRA's value for uncontrolled paved road silt loading was too low, and that a higher value would raise the emissions estimate for this project component. However, he added that, overall, the inventory contains enough conservatism to make this of little consequence. (Muleski pre-filed testimony, page 16; and 6/6/12 transcript, pages 140 to 145.)

To illustrate the conservatism of the emissions inventory, Seneca Meadows attached to its closing brief a copy of Table 6 of the emissions inventory, on which Dr. Muleski's proposed adjustments are handwritten. These adjustments reduce CRA's calculated PM-10 emissions (10.7 tons per year) to 7.98 tons per year.

At pages 13 and 14 of his pre-filed testimony, Dr. Muleski noted that the emissions inventory utilized the appropriate fugitive dust predictive equations presented in AP-42, including the unpaved road equation (Equation 1a in Section 13.2.2, Adjudicatory Hearing Exhibit No. 1-B), the paved road equation (Equation 1 in Section 13.2.1, Adjudicatory Hearing Exhibit No. 4), the material handling equation (Equation 1 in Section 13.2.4, Adjudicatory Hearing Exhibit No. 10-F), the dozer equation (from Table 13.2.3-1 in Adjudicatory Hearing Exhibit No. 2 and Table 11.9-1 in Adjudicatory Hearing Exhibit No. 3), and the wind erosion approach (from Section 13.2.5, Adjudicatory Hearing Exhibit No. 10-G). He said that he ensured that the emissions inventory used the version of each AP-42 factor that was current at the time the inventory was done, and that use of these factors is standard practice in preparing emission inventories as well as consistent with the activities planned for this site.

Because of error margins associated with the AP-42 equations, Concerned Citizens says that CRA's emissions inventory cannot be considered reliable or conservative. I disagree. First, as Mr. Marriott testified, AP-42 is used in many emission calculations and what he would use for the fugitive dust emission calculations for this project. (Marriott pre-filed testimony, pages 1 and 2.) Second, errors may occur in both directions; therefore, emissions are as likely to be overstated as understated. Third, with the use of conservative input parameters for the equations, the risk of understatement is greatly reduced. As Dr. Muleski explained, "If you have a higher silt value in the equation [for emissions from unpaved roads], then that hedges your bet and moves you back into even more confidence that you're not underestimating the emissions." (6/6/12 transcript, page 203.)

Dr. Muleski acknowledged that emissions cannot be calculated precisely, and that each equation has an "R-squared" value, which measures the "goodness of its fit," meaning the ability of the equation to explain variability in data. (6/6/12 transcript, pages 191 and 192.) However, he added that this value provides an error rate for a single data point at one particular moment in time, and that when using a long-term average (which accounts for daily variations), the rate of potential error is significantly reduced, providing greater confidence in the emissions estimate. (6/6/12 transcript, pages 198 to 203.) In summary, the equations provide a best estimate of emissions, which can be applied in relation to the 15 ton per year threshold in CP-33.

Comprehensiveness of Emissions Inventory

Based on her review of the mining plan, Dr. Hsu said in her pre-filed testimony (at page 9) that Table 6 of the emissions inventory did not include particulate matter emissions associated with particular activities that could be expected to generate such emissions. In particular, she said that the inventory omitted emissions associated with stripping topsoil, constructing temporary haul roads, constructing the paved road at the intersection with Burgess Road, and constructing screening berms and channels. Furthermore, she said the

inventory omitted vehicle emissions for travel on unpaved roads, particulate matter emissions associated with potential spillage and mud/dirt trackout from the unpaved haul road to Burgess Road, and particulate matter emissions associated with the transport of soil in uncovered haul trucks. (See discussion at pages 9 to 18 of Dr. Hsu's pre-filed testimony.)

Dr. Hsu's assertions about the comprehensiveness of the emissions inventory were effectively rebutted by Dr. Muleski and Mr. Holmes, an engineer and senior project manager for Cornerstone Engineering, which was retained by Seneca Meadows to participate in developing the Seneca Meadows mine application. Mr. Holmes explained that in the preparation of the emissions inventory, he and an employee from CRA went through the planned activities for the mine from initial development through closure, including site preparation, mining, and off-season offloading from stockpiles. (6/7/12 transcript, pages 143 to 146.)

Mr. Holmes testified that it was understood that the primary activity would be approximately six months of mining per year, where soils are excavated and loaded directly into dump trucks for delivery to the landfill. While this is the preferred mining method, Mr. Holmes acknowledged it is possible that as the mine develops soils, they may be excavated faster than they can be loaded onto the trucks, in which case materials would be stockpiled and delivered to the landfill at a later date. (6/7/12 transcript, page 146.)

According to Mr. Holmes, it was recognized in preparation of the emissions inventory that site development activity such as berm construction, topsoil stripping, road construction, and drainage feature construction would need to occur before mining begins and periodically throughout the site's development. However, other than initial site development, Mr. Holmes said that exactly which activities would occur in a given year would depend on the availability of soil and required equipment, which would vary from year to year as mining progresses. (6/7/12 transcript, page 147.)

To develop a conservative estimate of annual emissions, the following activities were each assumed to occur during the inventory year: six months of mining and direct loading, the preferred mode of operation; six months of loading from the soil stockpile, even though this activity would occur less frequently, or not at all, during any given year; and six months of site development, which was considered not in relation to specific activities, but in relation to the equipment that would be employed for that purpose. (Holmes, 6/7/12 transcript, pages 147 to 149.)

In other words, 18 months of activity were assumed to occur over a 12-month period, which, as Mr. Holmes explained, is a conservative feature of the emissions inventory.

Under cross-examination, Dr. Muleski agreed that the stripping of topsoil and vegetation, the placement of erosion and sediment control measures, construction of haul roads, the excavation of sediment basins and the installation of outfall structures all require the use of equipment and therefore have the potential to generate PM-10 emissions. (6/6/12 transcript, pages 88 to 90, page 94.) Addressing the comprehensiveness of the emissions inventory, Dr. Muleski said it "includes all the equipment that's going to be used on the mine site. And so in that sense it's more equipment based than individual activity based. So, yes, I think it's complete but not by individual construction activity." (6/6/12 transcript, page 94.)

Dr. Muleski then added, "It's the amount of activity regardless of the intention of it" that affects PM-10 emissions, agreeing with my restatement of his testimony that it is what you are doing (a physical process), not why you are doing it, that matters. (6/6/12 transcript, pages 95 and 96.)

Table 6 of the emissions inventory, which constitutes the PM-10 calculations for the mining project, includes specific reference to a 345 excavator and a D6 dozer as equipment used for site development, excavation and soil stockpiling. Concerned Citizens inquired about the use of a large scraper to remove topsoil, citing a practice employed in coal mining. (See page 1 of AP-42 Section 11.9, Western Surface Coal Mining,

received as Adjudicatory Hearing Exhibit No. 3.) However, Dr. Muleski responded that the removal of topsoil was accounted for under dozing, since a scraper is not included in the table. (6/6/12 transcript, pages 97 and 98.) Mr. Holmes later confirmed that a scraper would not be used in either construction or mining operations at this site. (6/7/12 transcript, page 157.) He added that a dozer and excavator would be used to remove trees, and that a dozer would be used to compact the subgrade of the roads. (6/7/12 transcript, page 169.)

According to Concerned Citizens, the emissions inventory provides estimates for "site development" that are calculated using an AP-42 equation for the bulldozing of overburden, and this equation (in Table 11.9-1 of Adjudicatory Hearing Exhibit No. 3) is not appropriate for the stripping of topsoil, which it says is a different material, the excavation of which would not generate the same emissions. I find no support for this argument in the record. Also, as DEC Staff points out, topsoil is a component of the overburden, according to ECL 23-2705(10), which defines overburden as "all of the earth, vegetation, and other materials which lie above or alongside a mineral deposit."

Dr. Muleski noted that, to avoid trackout onto Burgess Road, the onsite haul road would be paved for several hundred feet prior to the Burgess Road intersection, and daily sweeping of the pavement, as proposed in the application, would be effective in preventing a buildup of soil. Also, he noted that trucks would be crossing Burgess Road to the landfill, not turning onto Burgess Road, thereby minimizing the potential for spillage. (6/6/12 transcript, pages 148 to 152.)

Mr. Holmes confirmed that even the trucks destined for locations other than the landfill would cross Burgess Road to be weighed on the landfill's scales. (6/7/12 transcript, page 158.) These trucks, which would travel over public roads after leaving the landfill site, would be covered as required by NYS Department of Transportation regulation.

Mr. Holmes discounted the potential for soils spilling from trucks, noting that the deposits have a high average moisture

content and that excavation would occur below the water table, where the soils are saturated. (6/7/12 transcript, pages 158 and 159.) Finally, special condition No. 13 of Staff's draft permit requires that all public roads intersecting mine access roads be kept free of any spilled and/or tracked material.

In its closing brief, Concerned Citizens claims that the silt content (or silt loading) values in Table 6 for emissions from paved roads are not justified, since they do not account for mud/dirt trackout from the unpaved haul roads or the contribution of fugitive dust from uncovered haul trucks. According to AP-42, at industrial sites, surface loading is replenished by spillage of material and trackout from unpaved roads and staging areas. (AP-42 Section 13.2.1, Paved Roads, Adjudicatory Hearing Exhibit No. 4, page 1.) For that reason, Concerned Citizens says that the paved road estimate for PM-10 emissions must "account for the fact that all of the trucks will be constantly tracking fresh dirt at all times from the mining site to the paved haul road and Burgess Road." I disagree, since trackout and spillage are not anticipated, and would not be tolerated under DEC's permit.

Furthermore, Concerned Citizens argues that the silt loading values should incorporate adjustments for any applications of antiskid abrasives for snow/ice control, as recommended by AP-42. However, there is no evidence that Seneca Meadows intends to use such abrasives, or even that they would be necessary for the large, slow-moving vehicles that would travel along the roads.

The emissions inventory acknowledges that vehicles routinely used at the landfill and those used during construction also emit particulate matter as a result of engine combustion while running. However, separate calculations for engine combustion emissions were not performed because the AP-42 equations used to estimate particulate matter from vehicle/equipment traffic over unpaved roads implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear, as well as resuspended road surface material. (Emissions Inventory, DEIS Appendix H, Section 4.4.) As Dr. Muleski explained, Table 6 used an equation for estimating

emissions for vehicles traveling on unpaved surfaces at industrial sites. (See equation 1a on page 4 of Adjudicatory Hearing Exhibit No. 1-B.) That equation subtracts nothing from it in terms of tire wear or brake wear, and is based on all emissions sampled on the side of the road, whereas equation 1b, immediately below it, subtracts out emissions for vehicle brake and tire wear, as well as exhaust. (Equation 1b is used to estimate emissions for vehicles traveling on publicly accessible roads, dominated by light duty vehicles.) (Muleski, 6/6/12 transcript, pages 166 to 169.)

According to the emissions inventory, emissions from vehicles in the form of exhaust, brake wear, and tire wear, in addition to emissions from resuspended road material, are included in the AP-42 emission factor equation used for unpaved roads since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust. That field testing data, the inventory points out, was collected based on 1980s equipment; under the federal Clean Air Act, there have since been significant measures to regulate and subsequently force manufacturers to reduce engine combustion emissions. According to the inventory, vehicle emissions standards were to be reduced further by June 2010, and Seneca Meadows committed to using ultra low sulfur diesel by April 2010, which is important to the extent that sulfur concentration contributes to particulate matter emissions.

Challenging the equipment-based nature of the emissions inventory, Concerned Citizens called Dr. Muleski's attention to language in AP-42 strongly recommending that when emissions are to be estimated for a particular construction site, the construction process should be broken down into component operations, each involving traffic and material movements. (AP-42 Section 13.2.3, Adjudicatory Hearing Exhibit No. 2, at page 2.) Dr. Muleski agreed with this approach when the construction site is the only thing for which emissions are being estimated, noting accompanying language that dust emissions from heavy construction may have a substantial temporary impact on local air quality, and that these emissions often vary substantially from day to day, depending on the level of activity, the

specific operations, and the prevailing meteorological conditions. (Adjudicatory Hearing Exhibit No. 2, page 1.)

On the other hand, Dr. Muleski said such an approach need not be taken when performing a long-term average emissions estimate, where the construction is related to a mining activity that is estimated to last 11 years. (Muleski, 6/6/12 transcript, page 76.) Because, for the purpose of CP-33, Seneca Meadows was obliged to estimate emissions on an annual basis, and because site development accounts for such a small portion of overall emissions, I find that the approach taken by CRA was reasonable, and that a detailed breakdown by construction activity was not required.

Conservatism of Emissions Inventory

The graveling of unpaved haul roads, coupled with anticipated reductions in vehicle emissions, suggests some conservatism in the emissions inventory. As Mr. Holmes explained, 85 percent of the unpaved roads at the mining site would be graveled, the exception being the portion within the cell being excavated. (6/7/12 transcript, pages 154, 166 and 167.) This graveling would consist of geotextile placed atop the subgrade, topped by 24 inches of large crushed stone, and then a surface course of two to four inches of type 2 crushed stone. (A cross-section is highlighted in red on Adjudicatory Hearing Exhibit No. 16, which shows road construction details.) The geotextile would stabilize and strengthen the pavement section, reducing the need for road maintenance. Also, it would serve as a separation fabric preventing the intrusion of the subgrade soils. (Holmes, 6/7/12 transcript, pages 154 to 156.)

Dr. Muleski explained that the emissions inventory used a silt content of 6.4 percent for unpaved surfaces, which is a mean silt content percentage for disposal routes at municipal solid waste landfills, as indicated in Table 13.2.2-1 in AP-42 Section 13.2.2 (Adjudicatory Hearing Exhibit No. 1-B). (6/6/12 transcript, page 56.) He said the 6.4 number represents an average over "improved and not terribly improved" unpaved roads at landfill sites in southeast Chicago (6/6/12 transcript, page 170), and that the mine's haul roads would be far better

constructed for the vast majority of their length, thus supporting a silt content at the low end of the range in that table, closer to 2 or 3 percent. (6/6/12 transcript, pages 55, 170 and 183.) This supports the conservatism of the emissions inventory, to the extent lower silt content translates into fewer emissions from unpaved roads.

In its closing brief (at page 33), Concerned Citizens says it is not challenging the value of 6.4 percent silt that CRA used to calculate PM-10 emissions from travel over the 0.7-mile primary unpaved haul road that would be graveled. However, it adds it was neither conservative nor appropriate to use that same value for calculating emissions associated with excavation of overburden, site development, traveling within the active mining area, loading and unloading soil from stockpiles, and traveling on secondary haul roads to and from the stockpiles.

Concerned Citizens maintains that there are more appropriate values that should have been used, including those derived from soil boring data included in Appendix E of the mining plan (Issues Conference Exhibit No. 14). As DEC Staff points out in its reply brief, no evidence exists to support this contention. Confronted with the soil boring data, Dr. Muleski said it should not be used to calculate emissions from what are essentially industrial roads traveled by heavy trucks. Also, he said that when measuring silt for emissions analysis, one samples from the road surface, and not at depth, as a boring does. (6/6/12 transcript, pages 176 to 184.) Finally, he said that in light of the conservative nature of the emissions inventory, an on-site soil sampling program was not necessary to estimate project emissions. (6/8/12 transcript, pages 21 and 22.)

As Seneca Meadows argues, there are a number of acceptable site-specific reductions that could have been reflected in the emissions inventory, but were not, in the interests of conservatism. Dr. Muleski testified that the inventory's estimates for emissions from mining site preparation and soil stockpiling assumed no control efficiency for water that would be applied at any time visible dust is observed. (6/8/12 transcript, pages 7, 8 and 73.) Additionally, the inventory

used a moisture content percentage of 11 percent, derived from AP-42, rather than the moisture contents for seven samples taken on-site, which ranged from 10.4 to 26.6 percent, according to a laboratory report included in Appendix E of the mining plan (Issues Conference Exhibit No. 14). Had the inventory used a moisture content derived from the average of these samples, the total emissions estimate would have been lower. (Muleski, 6/8/12 transcript, pages 7 to 10, 25, 53 and 54.) Finally, for annual emissions, AP-42 allows one to account for wet days due to precipitation and snow cover, yet no such credit was taken in the emissions inventory, which also demonstrates its conservatism. (Muleski, 6/8/12 transcript, page 8.)

In her pre-filed testimony (Exhibit No. 10, pages 16 and 17), Dr. Hsu expressed concern about PM-10 generated from the erosion of stockpiled topsoil, some of which would be used for site reclamation after mining is completed. According to Mr. Holmes, the topsoil stockpiled on site for purposes of reclamation would be fully vegetated. Also, for the period before the vegetative cover is fully established, water would be applied at any time that visible dust is present. (Holmes, 6/7/12 transcript, page 161.) Mr. Holmes said that inactive portions of stockpiles would be vegetated, while portions seeing activity would not, since there would not be enough time for the vegetation to establish itself. (6/7/12 transcript, page 163.)

The dust suppression/control plan (DEIS Appendix I, Section 3.3) states there will be "stabilization and vegetation of soil stockpile areas (if feasible) that won't be accessed regularly." When I asked under what circumstances stabilization and vegetation would not be feasible, Mr. Holmes said they were very limited, having to do with frozen conditions where vegetation would not grow, or where it would be unsafe for traffic. (6/7/12 transcript, pages 163 and 164.)

In her pre-filed testimony (at page 16), Dr. Hsu expressed concern whether the height-to-base ratio of any of the soil stockpiles would exceed 0.2, noting a statement in AP-42 Section 13.2.5 (Exhibit No. 10-G, at page 5) that "[i]f the pile significantly penetrates the surface wind layer (i.e., with a height-to-base ratio exceeding 0.2), it is necessary to divide

the pile area into subareas representing different degrees of exposure to wind." Addressing this concern, Mr. Holmes said that he had calculated the height-to-base ratio for stockpiles that he anticipated would be used at the mine site, and that in no event was it greater than 0.2. (6/7/12 transcript, pages 160 and 161.) Dr. Muleski then said that he had gone back and applied the 0.2 subarea calculations that are recommended by AP-42 and found that they lowered the emission estimate by 86 percent, because these calculations limit the amount of area that is subject to the full wind speed. (6/8/12 transcript, pages 9, 10 and 25.)

In CRA's Table 6, wind erosion accounts for less than one ton per year of the 10.7 tons per year of controlled PM-10. Open air wind erosion is 0.52 tons per year, and wind erosion from soil stockpiles is 0.32 tons per year, both after a 90 percent control efficiency is applied. As noted above, Dr. Muleski says both numbers are greatly overstated, because wet clay is not susceptible to erosion in the first place. (Muleski pre-filed testimony, page 15.)

Open area wind erosion is listed under the heading of mining, an activity that was estimated to occur during only six months of the year. However, as Mr. Holmes explained, the wind erosion estimate of 0.52 tons is a full-year estimate, calculated on the basis of an average of 18.5 acres being open at any one time. (6/7/12 transcript, page 173.)

Estimating Total Project Emissions

In its closing statement, Concerned Citizens alleges that the PM-10 emissions in Tables 6 and 7 of the emissions inventory should be combined for the purpose of impact analysis. Seneca Meadows replies that Table 6, standing alone, accounts for all the PM-10 emissions expected to be generated within the boundaries of the mine site.

According to Dr. Muleski, Table 7 was created merely to reflect the emissions generated on unpaved roads at the mine site by trucks bearing soils that may be destined for non-landfill projects many miles away. (6/6/12 transcript, pages 162

and 163.) For this purpose, Table 7 assumes that, over the project's 11-year life span, there would be 836 trucks making 1,672 trips along 0.7 miles of unpaved road between the mine and the landfill, from whence the trucks would get onto Route 414, entering the highway network. The remainder of the trip to the non-landfill project sites (Avery and Bostwick) is not included in Table 7 on the understanding that once the trucks reach the public roads, they are no longer part of the mining project. (Holmes, 6/7/12 transcript, page 184.)

In 2010, when the emissions inventory was prepared, the Avery and Bostwick sites were known to require, for reclamation purposes, on the order of 16,720 tons of topsoil. (DEIS Appendix H, Section 3.3.) What they would require once the topsoil becomes available cannot be determined now, so Table 7 represents a projection based on an assessment made when the table was developed.

In its reply brief, Seneca Meadows asserts that Table 6 accounts for the transport of all mined material to the landfill, including the soil that might go to Avery and Bostwick. Otherwise, it argues, the emissions inventory would have taken the obvious step of adding 0.14 tons per year from Table 7 to Table 6's 10.7 tons per year, which was used to determine compliance with CP-33.

Similarly, DEC Staff maintains that adding Table 7's emissions to those in Table 6 would have the effect of double-counting them, since they are already included in Table 6. DEC Staff argues it would be incorrect to do so, although Staff's witness, Mr. Marriott, did combine the emissions from Tables 6 and 7 as part of his calculations documented in Exhibit No. 7-D. (6/7/12 transcript, pages 20 and 21.)

According to Concerned Citizens, the omission of PM-10 estimates associated with off-site travel on paved public roads to Avery and Bostwick is another example of why the total PM-10 estimate for this project is not conservative. However, as DEC Staff argues, it is reasonable not to include off-site emissions on the paved roads to Avery and Bostwick in the PM-10 calculation under CP-33, because these emissions would not occur

at the mine site. As Staff maintains, the plain language of CP-33 does not require calculation of off-site emissions; it requires the calculation of emissions from the project itself, meaning the mining operation.

Concerned Citizens argues that omitting particulate matter emissions associated with off-site travel on paved public roads to Avery and Bostwick constitutes improper segmentation, in violation of SEQRA. I disagree. As Seneca Meadows argues, such emissions would be generated even if this project is not permitted, in which case the soils for Avery and Bostwick would come from elsewhere.

Concerned Citizens also argues that the emissions inventory improperly omits particulate emissions associated with refining excavated material for use at the Seneca Meadows landfill. In fact, while the landfill's liner and capping systems require soils meeting certain specifications, the application is clear that no on-site processing of excavated materials is proposed. As DEC Staff points out, soils intended for use at the landfill would be loaded directly onto trucks for delivery.

Dust Control at Seneca Meadows Landfill

To augment its argument that effective dust control is achievable, Seneca Meadows used the example of its adjacent landfill. As a DEC-permitted solid waste management facility, the landfill is subject to an operating requirement that dust be "effectively controlled so that it does not constitute a nuisance or hazard to health, safety, or property. The facility owner or operator must undertake any and all measures as required by [DEC] to maintain and control dust at and emanating from the facility." (See 6 NYCRR 360-1.14(k).)

Seneca Meadows offered, and I received as Adjudicatory Hearing Exhibit No. 18, a compilation of its DEC landfill inspection reports from 2011 in which there is any mention, good or bad, about dust control. The reports contain frequent references to roads and working face access being satisfactorily maintained, paved roads being broom-cleaned, and water trucks as well as a truck tire wash facility being utilized. Also, there

are a few references to the haul road up the bump-out, and traffic routes in the bump-out, being dusty. (See reports for 5/5/11, 5/9/11, and 5/11/11.) One report (for 5/12/11) indicates that the roads were dry and dusty, but that water trucks were out watering the site, keeping most of the dust knocked down.

In addition, Seneca Meadows offered, and I received as Adjudicatory Hearing Exhibit No. 17, a series of photographs depicting dust control measures at the landfill, including tire cleaning operations, trucks spraying water onto roads and areas of active operations, broom sweeping of paved roads, and the graveling of haul roads. According to the emissions inventory (DEIS Appendix H, Section 4.1), road dust would be controlled in part by a facility to wash truck tires prior to leaving the mine site and/or landfill; however, Dr. Muleski did not credit tire cleaning in his assessment of the inventory or, more particularly, its 90 percent dust control factor. (6/8/12 transcript, page 72.)

In its post-hearing brief, Concerned Citizens objects to Exhibits No. 17 and 18 as irrelevant to the mining project, arguing that maintaining them "places an unnecessary burden" on the record. I disagree. As DEC Staff argues, Seneca Meadows sufficiently demonstrated the relevance of both exhibits to support its claim that it has the personnel, equipment and experience to implement a successful dust control program at a site next to the proposed mine. Operation of the landfill and the mine would be interconnected, and the photographs provide a helpful illustration of how dust control is currently maintained, even if they do not directly address the conservatism of the emissions inventory. At any rate, Concerned Citizens did not object to receipt of Exhibits No. 17 and 18 when they were offered. In effect, any objection it had was waived at that time, and its objection now is untimely.

In its post-hearing brief, Concerned Citizens also questions how effective emission control can be achieved with one water truck patrolling a large site, and no detailed procedure addressing when to water, how much to water, and how often to water.

In relation to equipment, the emissions inventory assumes there would be one water truck traveling over the paved and unpaved roads between the mine and the landfill, making one trip over each road per hour, and one street sweeper traveling on the paved roads between the mine and the landfill, also making one trip per hour. On the other hand, the dust control plan envisions that it may be necessary in some circumstances to use more than one truck (DEIS Appendix I, Section 3.2), as does the mining plan. (See Section 5.1 of the plan.)

At the hearing, Concerned Citizens questioned how one water truck could control dust from a number of trucks moving down a road simultaneously. As Dr. Muleski explained, the control is achieved by the repetition of watering on a schedule that depends on how quickly the road dries out, which is affected by traffic rate, the number of prior applications, the volume of water put down per unit area, temperature, relative humidity, and cloud cover, among other factors. (6/6/12 transcript, page 215.)

Dr. Muleski sensibly cautioned against a standardized procedure for water application, noting that "if you have a requirement that you have to put down this much water every, you know, half-hour or something like that, and you don't take into consideration the ambient conditions and moisture from precipitation, things like that, you'll end up with mud on the road which will exacerbate your track-out problem." (6/6/12 transcript, page 216.)

Dr. Muleski added that it can be counterproductive to be strict about how much water will be applied, and how often, noting that, on the basis of the inspection reports for the adjacent landfill, Seneca Meadows has established that it knows how to address dust problems.

Interpretation of CP-33

In its closing brief, Concerned Citizens proposes various interpretations of CP-33 and objects to my ruling at the hearing on June 7, 2012, to strike portions of Dr. Hsu's pre-filed

testimony that relate to its claims. At the hearing, Seneca Meadows objected to Section 6 of Dr. Hsu's pre-filed testimony (on pages 23 and 24), arguing that it related to the health effects of PM-2.5, which was not part of the issue I had identified. DEC Staff agreed with the objection, and I granted it, striking that section of the testimony as well as a statement in Section 8, constituting Dr. Hsu's concluding remarks, which repeated a claim that the known health effects of short-term exposure to PM-2.5 are significant. (See discussion at pages 80 to 90 of the 6/7/12 transcript.)

In its closing brief, Concerned Citizens argues that I should interpret and apply CP-33 consistently with Matter of Uprose et al., v. Power Authority of State of New York, 285 A.D.2d 603, 729 N.Y.S.2d 42 (2d Dep't 2001). As explained by Dr. Hsu, in Uprose, the Appellate Division found that the New York Power Authority ("NYPA") erred in issuing a negative declaration by failing to take adequate account of potential hazards arising from particulate matter in the air. The Court ruled that in light of what it called "the undisputed potential adverse health effects" that can result from PM-2.5 emissions, NYPA failed to take the "hard look" required under SEQRA for this area of environmental concern, which had been raised in reference to a power generation project.

In my ruling, I struck Dr. Hsu's explanation of Uprose as in the nature of legal argument rather than testimony. I also noted that in Uprose, NYPA had issued a negative declaration under SEQRA, whereas in this matter, DEC, as lead agency, issued a positive declaration, triggering development of an environmental impact statement in which PM-2.5 emissions have been considered. This review has been conducted pursuant to CP-33, the methodology of which DEC has deemed consistent with SEQRA and a correct interpretation of SEQRA's mandates, providing guidance on the project-specific assessment of PM-2.5 impacts and detailing when mitigation of such impacts may be necessary. (See CP-33 summary, at the top of the document.) In effect, by applying CP-33, DEC is acting consistently with what the court directed NYPA to do in Uprose: take a "hard look" at PM-2.5 emissions.

In my ruling, I also struck Dr. Hsu's testimony about the health impacts of short-term, high-dose exposure to PM-2.5, and the alleged need to estimate maximum exposures not only on an annual basis, but on a 24-hour basis. I did so because the health effects of PM-2.5 are already acknowledged in CP-33, which states that "exposure to PM-2.5 has been closely associated with increased hospital admissions and emergency room visits for heart and lung disease, increased incidence of respiratory disease, including asthma, decreased lung function and premature death," especially among the elderly, individuals with existing cardiopulmonary disease, and children.

For projects with an annual potential to emit PM-10 of 15 tons or more, CP-33 mandates modeling analyses of PM-2.5 air quality impacts, the results of which must include a reasonably accurate measure of the project's expected contribution to annual and 24-hour ambient air concentrations in the area where the project is proposed to be built, both in micrograms per cubic meter and as a fraction of the annual and 24-hour National Ambient Air Quality Standards ("NAAQS"). In other words, the additional analyses that Concerned Citizens want performed are only required under CP-33 if the 15 ton per year PM-10 threshold would be exceeded, something this hearing is to determine.

In its closing brief, Concerned Citizens maintains that, to protect public health, a conservative interpretation of CP-33 would recognize that the 15 ton per year PM-10 threshold should decrease in accordance with changes in federal regulations, particularly a reduction in EPA's 24-hour PM-2.5 NAAQS from 65 micrograms per cubic meter, in place when CP-33 was issued in 2003, to 35 micrograms per cubic meter in 2006. Whether the threshold should be reduced, as Concerned Citizens proposed, is a matter outside the scope of this hearing, which is limited to applying the policy DEC has in place for the assessment of PM-2.5 impacts. That policy, in terms of the 15 ton per year threshold, is very clear, and Concerned Citizens' argument is not about interpreting the policy, but actually revising it, which is the Commissioner's prerogative, not mine. As Seneca Meadows argues, the requirements of CP-33 against which this application should be judged are those that exist today, and my

role is not to determine whether the policy is appropriate or whether DEC should be taking some other course.

As a separate point, Concerned Citizens argues that CP-33 is outdated in light of the "evolving state of science" regarding direct PM-2.5 impacts, which has been coupled with a subsequent reduction in EPA's 24-hour PM-2.5 NAAQS and, more recently, a proposed reduction in its annual PM-2.5 NAAQS. Again, this is for the Commissioner to consider; however, within the context of this hearing, CP-33 should be applied as written.

Finally, Concerned Citizens asserts that CP-33, as a mere guidance document, does not have the force of law, and should be disregarded to the extent that it limits environmental impact assessment and mitigation, which it says is contrary to SEQRA. In fact, CP-33, by its own terms, is how DEC applies SEQRA in assessing and mitigating impacts of fine particulate matter emissions. In the policy itself, the Commissioner has determined explicitly that CP-33 is consistent with SEQRA and represents a correct interpretation of its mandates.

Concerned Citizens points out that, in its positive declaration, DEC determined that the Meadow View mine may have a significant effect on the environment, and highlighted increased dust as a potential adverse impact supporting its determination. Because of this, Concerned Citizens argues that this impact requires mitigation to the maximum extent practicable. Actually, with the mitigation already embodied in the DEIS, dust impacts should not be significant. Therefore, consistent with CP-33, additional assessment and mitigation is not necessary, though, for the protection of public health, Seneca Meadows must ensure compliance with its plan for dust suppression and control.

To advance its claims, Concerned Citizens argues that I should reopen the record and admit the portion of Dr. Hsu's testimony that I previously struck. I find no reason to do so, and reaffirm my prior ruling.

Dr. Hsu's Rebuttal Testimony

As a rebuttal witness, Dr. Hsu returned to the stand with calculations (shown in Adjudicatory Hearing Exhibit No. 19) that she said demonstrate that the project would exceed the 15 ton per year PM-10 threshold. These calculations were based on adjustments of those performed earlier in the proceeding by Mr. Marriott, which are shown in Adjudicatory Hearing Exhibit No. 7-D.

Dr. Hsu applied the same table that Mr. Marriott had used for current PM-2.5/PM-10 ratios (Table 1 in Exhibit No. 7-C), but in a different manner for emissions related to open area and stockpile erosion, as well as emissions related to use of the excavator and dozer for mining activity. (6/8/12 transcript, pages 85 to 88.) This had the effect of raising the PM-2.5 (or fine particulate) fraction for each emissions source, and reducing the fraction of particles between 2.5 and 10 microns in size (also known as coarse particulate).

More important, where particles would be controlled by water spray, Dr. Hsu then applied a 40 percent control efficiency for the fine particulate, as derived for the collector type "dust suppression by water sprays" in Table B.2-3. She also applied a 90 percent control efficiency for the coarse particulate, which she said was conservative because the table sets a collection efficiency of only 65 percent for particles between 2.5 and 6 microns in size. (6/8/12 transcript, pages 89 to 91.)

Summing the fine and coarse particulate components for each category and then adding the categories together, Dr. Hsu calculated 16.9 tons per year of PM-10 would be emitted. (6/8/12 transcript, page 91.) This is the basis of Concerned Citizens' assertion, in its closing brief, that the project exceeds the 15 ton per year threshold in CP-33.

There are several major problems with this analysis, as Seneca Meadows points out in its reply brief. Dr. Hsu's assumption that water application would control the coarse particulate component more effectively than the PM-2.5 component

is contradicted by empirical evidence from field testing of the control effectiveness of water applications on fugitive dust. As Dr. Muleski testified, fine particulate is controlled to a higher level than the 90 percent assumed for PM-10 because of the smaller particles' higher surface-to-mass ratio, and field testing of the control effectiveness for different fractions of particulate matter (including testing documented in Exhibit No. 5) bears this out.

Dr. Hsu's assumption of 40 percent control for PM-2.5 is derived from Table B.2-3, which concerns collection efficiencies for process source control devices, not water applications for the management of fugitive dust. As the hearing record bears out, Table B.2-3 was cited inappropriately in the emissions inventory, and should not be relied on to establish a control efficiency for water spray. Even Dr. Hsu could not confirm that Table B.2-3 would be appropriate to use for this purpose; she said she used the table only because CRA had used it. (6/8/12 transcript, pages 92 and 93. See also Note "h" in Table 6 of the emissions inventory, which states: "Control efficiencies for paved and unpaved roads (and surfaces treated as unpaved roads) were referenced from Table B.2-3 of Appendix B of AP-42.") Dr. Hsu added that she would not have known to select a 40 percent control efficiency without going to the table (6/8/12 transcript, page 107), which indicates she has no independent basis to rely on it.

Even assuming that Exhibit No. 19 has some evidentiary value, Concerned Citizens cannot contend that it demonstrates that the CP-33 threshold would be exceeded. As Seneca Meadows points out, CP-33 provides the framework for assessing the impacts of PM-2.5 emissions, not PM-10 emissions. Accordingly, if the PM-2.5 fraction of a project's PM-10 emissions is available and DEC exercises its discretion to assess impacts using that fraction, then the only appropriate comparison is between the PM-2.5 fraction and the 15 ton per year threshold. Even adopting her exhibit as correct, Dr. Hsu's PM-2.5 fraction is 8.297 tons per year, as comprised of her estimate for total controlled PM-2.5 emissions of 7.281 tons per year and the seven PM-2.5 emissions estimates to which no control factor was applied.

To calculate the fine particulate fraction of PM-10, and then add back in the coarse particulate fraction, stands the whole concept that underpins CP-33 on its head, as Seneca Meadows points out. Quoting from its reply brief:

"If, in the absence of a PM-2.5 value, CP-33 directs that all PM-10 must be assumed to be PM-2.5 (which is then compared to the 15 tons per year threshold), then when one has an actual PM-2.5 value, the comparison is likewise to the 15 tons per year threshold. This is the only logical interpretation of CP-33."

In her rebuttal testimony, Dr. Hsu also voiced concern that the emissions inventory is based on average truck traffic, rather than peak hour traffic that one might expect at the Burgess Road crossing. (6/8/12 testimony, page 100.) According to Mr. Marriott, there could be as many as 84 truck crossings at Burgess Road during a peak hour; however, an average number of truck trips (108 per day) was assumed when estimating particulate from unpaved roads. (6/7/12 testimony, pages 62 to 65.)

According to Dr. Hsu, when you take emissions associated with peak hour traffic "and you average them out over the course of a year, you lose the impact of the intensity," which is important because the health risks associated with PM-10 are linked to 24-hour exposure. (6/8/12 transcript, pages 100 and 101.)

However, pursuant to CP-33, PM-10 is calculated on an annual basis to determine whether PM-2.5 impacts are significant. As Mr. Marriott explained, "We're going for tons per year of emissions, so you're looking at a longer period of time. That peak number would not be representative of what would happen in a year's time." (6/7/12 transcript, page 65.)

Permit Revisions Proposed by Concerned Citizens

As I discussed with the parties, one potential outcome of this hearing is a determination that project-related PM-2.5 impacts are insignificant under SEQRA, in which case a permit

may be issued at this time. DEC Staff's current draft permit (Issues Conference Exhibit No. 7) contains one condition (No. 7) addressing dust control directly. It reads as follows: "Water or other approved dust palliatives must be applied to haulageways and other parts of the mine, as often as necessary, to prevent visible dust from leaving the mine property." As part of their initial closing briefs, the parties were given an opportunity to offer any changes to the draft permit that they would propose in relation to PM-2.5 impacts, should it be determined that additional analysis is not required.

Neither Seneca Meadows nor DEC Staff proposed any changes to the draft permit. Concerned Citizens proposed a number of additions, and Seneca Meadows and DEC Staff responded to these additions in their reply briefs. I agree with Seneca Meadows and DEC Staff that the additions proposed by Concerned Citizens are unwarranted.

- Annualized PM-10 Estimates, With PM-2.5 Modeling

According to Concerned Citizens, any final permit should require estimates of total PM-10 for each of the 11 years of the project, as well as assessment of the PM-2.5 fraction based on modeling. I disagree. According to the emissions inventory, PM-10 emissions for the proposed project were estimated based on routine operations for a typical year of mining operation. (DEIS Appendix H, Section 4.0.) As Mr. Holmes explained, the emissions from unpaved roads, which dominate the total emissions estimates, were calculated on the basis of the longest projected haul road distance (0.7 miles), which is associated with Phase I mining development. (6/7/12 transcript, pages 153 and 154.)

Generally speaking, excavation would start in the far western portion of the site and proceed to the east, so the haul road would be the longest at the beginning of the project. (Muleski, 6/6/12 transcript, pages 116 and 117.) The use of the longest haul route in Table 6 reflects the conservatism of the emissions inventory, as Dr. Muleski explained. On the basis of the inventory, PM-2.5 impacts may be deemed insignificant under CP-33, and there is no basis for additional estimates or modeling. Including the requirements proposed by Concerned

Citizens would frustrate the purpose of the hearing and constitute an end run around CP-33, as Seneca Meadows argues.

- Wind Restriction

According to Concerned Citizens, the final permit should require that wind measurements be taken and operations stopped during days with high winds. I disagree. The dust control plan acknowledges that windy or dry weather conditions have the potential to exaggerate the blowing of dust during excavation and truck loading. Nevertheless, the excavated material is expected to have a high moisture content, which would inhibit emission generation. Also, Concerned Citizens has not proposed a wind speed that would warrant the curtailment of operations, and the record is not developed on this point. Finally, in the absence of a definition of "high winds," such a requirement is too vague to enforce, as Seneca Meadows points out.

- Inventory Reassessment

Concerned Citizens says the permit should require a complete reassessment of the emissions inventory, with appropriate notice to all parties in this proceeding, upon any changes or deviation in the mine's operation or the delivery of its material. I disagree. Permit conditions No. 1 and 2 already require that Seneca Meadows conduct its activities in strict conformance with its approved plans, and not deviate or depart from them without DEC approval of an alteration or modification of those plans. Consistent with draft permit condition No. 3, Seneca Meadows must submit a separate written application for any proposed permit modification, and such application must include any forms or supplemental information that DEC requires. Should Seneca Meadows seek a modification of the permit, it would be up to DEC Staff to determine whether any proposed change warrants a reassessment of PM-2.5 impacts.

- Dust Monitoring

To ensure the conservatism of the emissions estimates, Concerned Citizens says that Seneca Meadows should be required to develop a formal written procedure for dust emissions and

secure approval of that procedure from DEC. Such a procedure, it claims, should include installation of dust monitors at "intensity work sites" and maintenance of publicly accessible records for what is monitored.

I find no basis for monitoring in the absence of evidence that watering would not adequately control dust in areas of concentrated activity. I accept Dr. Muleski's conclusion, based on his expertise and work experience, that adherence to Seneca Meadows' dust control plan would effectively control dust, making monitoring unnecessary. In any event, DEC Staff retains the discretion to require dust monitoring and conduct such monitoring itself, to ensure compliance with applicable regulations and the terms of its permit. The mining plan (Issues Conference Exhibit No. 14, Section 5.1) confirms that Seneca Meadows will make available to the public a hot line phone number to address potential nuisance items. Also, the public may contact DEC Staff directly with its concerns.

- Dust Suppressants

According to Concerned Citizens, Seneca Meadows should be required to provide a definitive list of its dust suppressants, with an understanding that if any additional ones are proposed, they must be approved by DEC, with public notice.

Such a list is unnecessary. While there are dust suppressants other than water, use of such suppressants would require DEC approval under terms of both the mining plan (Issues Conference Exhibit No. 14, Section 5.1) and the dust suppression/control plan included as Appendix I in the DEIS (Issues Conference Exhibit No. 15). Asked by me about non-water dust suppressants, Mr. Holmes said none had been identified by Seneca Meadows. (6/7/12 transcript, page 157.) Furthermore, when I asked Dr. Muleski whether his analysis assumed the use of any dust suppressants other than water, he responded, "My analysis is based solely on water." (6/6/12 transcript, page 51.)

In its closing brief, Concerned Citizens maintains that chemical dust suppressants can affect particulate matter

emissions and can invalidate the use of AP-42 emission equations when estimating particulate matter emissions for unpaved roads. This claim was not raised at the hearing, nor was attention then called to the AP-42 documentation (in Adjudicatory Hearing Exhibits No. 1-B and 5) that Concerned Citizens now says substantiates it. On that basis, the claim should be disregarded, though DEC Staff may wish to review the documentation should the use of chemical dust suppressants be proposed in the future.

- Soil Information

According to Concerned Citizens, Seneca Meadows should be required to provide accurate estimates of the amount of topsoil stored on the site each year, the amount of soil that will be stockpiled onsite for drying, and the amount of soil that will be stockpiled for use at the landfill.

No basis was provided for such a requirement, and I can find none myself. According to the dust control plan, soil stockpiles that would not be accessed regularly must be stabilized and vegetated, if feasible, to control dust. Also, the mining plan indicates that while stockpiles used for the staging of soils may be required, these soils would be stabilized and vegetated in accordance with erosion controls outlined therein. Wind erosion from soil stockpiles was considered to be a minor source of PM-10 in the emissions inventory that was conducted.

- Monitoring of Line Sources

Finally, Concerned Citizens says the permit should require monitoring of all "line sources" (i.e., roadways) in the emissions inventory for a minimum of 60 days, with the results being reported to all parties to ensure the accuracy of the emissions estimates.

Such a procedure is not necessary, since the hearing itself was to ensure the accuracy of the emissions estimates. I find that on the basis of the testimony of Dr. Muleski and Mr. Marriott, the estimates in the emissions inventory are

sufficiently reliable and, in fact, conservative to ensure compliance with CP-33. As Dr. Muleski explained, watering of unpaved roads to control fugitive dust should be especially effective with regard to PM-2.5.

CONCLUSIONS

1. The emissions inventory prepared by CRA (DEIS Appendix H) provides a reliable basis to conclude that primary PM-10 emissions from the project would not equal or exceed 15 tons per year and, therefore, that the project's PM-2.5 impacts would be insignificant, pursuant to CP-33.

2. The emissions inventory is comprehensive in terms of its consideration of PM-10 sources and, on balance, conservative in its assessment of PM-10 emissions. The emissions inventory significantly overstates emissions attributable to wind erosion and excavator use, and somewhat overstates emissions from vehicles. The emissions inventory does not account for graveling of 85 percent of the unpaved road surface within the mine site, which would significantly reduce emissions from travel on that surface. Finally, the emissions inventory assumes 18 months of activities being conducted in a 12-month period. These and other conservatisms, as discussed in this report, provide strong assurance that PM-10 emissions would be substantially less than CRA's estimate of 10.7 tons per year.

3. The emissions inventory's assumption of a 90 percent PM-10 control efficiency for water sprayed on unpaved surfaces, a key factor in its estimate of fugitive dust, is reasonable, based on the testimony of Dr. Muleski, but not on the basis of Table B.2-3 of AP-42 Appendix B.2, which was cited by CRA. Effective dust control may be achieved by adherence to the suppression/control plan (DEIS Appendix I), which calls for increasing the frequency of water application if visible evidence of fugitive dust is observed.

4. Reasonably accurate measures of the PM-2.5 fractions of the project's particulate matter emissions are available, and DEC may, in its reasonable discretion, assess potential impacts

using those fractions. Applying PM-2.5/PM-10 ratios for fugitive dust that would be generated by unpaved roads, a key source of project emissions, tends to confirm that the PM-2.5 impacts would not be significant.

RECOMMENDATION

Seneca Meadows' application should be approved at this time, consistent with the terms of DEC's current draft permit, without further assessment of PM-2.5 impacts.

ADJUDICATORY HEARING EXHIBIT LIST

SENECA MEADOWS, INC. (MEADOW VIEW MINE)

DEC Application No. 8-4538-00094-00001

1. Pre-filed direct testimony of Dr. Gregory E. Muleski (18 pages) (received in evidence)
- 1-A. Resume of Dr. Gregory E. Muleski (14 pages)
- 1-B. AP-42, Section 13.2.2 (Unpaved Roads) (11/06) (18 pages)
- 1-C. AP-42, Appendix B.2 (Generalized Particle Size Distributions) (9/90, reformatted 1/95) (22 pages)
2. AP-42, Section 13.2.3 (Heavy Construction Operations) (1/95) (7 pages)
3. AP-42, Section 11.9 (Western Surface Coal Mining) (10/98) (14 pages)
4. AP-42, Section 13.2.1 (Paved Roads) (1/11) (15 pages)
5. Emission Factor Documentation for AP-42 Section 13.2.2 (Unpaved Roads) (9/98)
6. WRAP Fugitive Dust Handbook (9/7/06)
7. Pre-filed direct testimony of Thomas L. Marriott, P.E. (4 pages)
- 7-A. Resume of Thomas Marriott (2 pages)
- 7-B. Soils Manual for the Purposes of Asphalt Pavement Structures (Asphalt Institute) (pages 46 and 47)
- 7-C. Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors (Midwest Research Institute) (2/1/06, finalized 11/1/06)
- 7-D. Thomas Marriott's PM-2.5 calculations (2 pages)
8. Revisions to National Ambient Air Quality Standards ("NAAQS") for Particulate Matter, from Federal Register (71 FR 61144) (10/17/06) (for identification only)
9. Table of Historical Particulate Matter NAAQS (from EPA website) (2 pages) (for identification only)
10. Pre-filed direct testimony of Dr. Cynthia L. Hsu (37 pages)
- 10-A. Resume of Dr. Cynthia L. Hsu
- 10-B. Carvacho, O.F., L.L. Ashbaugh, M.S. Brown, and R.G. Flocchini, "Relationship Between San Joaquin Valley Soil Texture and PM-10 Emission Potential Using the UC Davis Dust Resuspension Test Chamber." Transactions of the American Society of Agricultural Engineers Volume 44(6): 1603 - 1608. (2001)

- 10-C.Madden, N.M., R.J. Southard and J.P. Mitchell, "Soil water and particle size distribution influence laboratory-generated PM-10." Atmospheric Environment 44: 745 - 752. (2010)
- 10-D.Aimar, Silvia B., M.J. Mendez, R. Funk and D.E. Buscshiazzo, "Soil properties related to potential particulate matter emissions (PM-10) of sandy soils." Aeolian Research 3: 437 - 443. (2012)
- 10-E.Introduction to AP-42 (1/95) (10 pages)
- 10-F.AP-42, Section 13.2.4 (Aggregate Handling and Storage Piles) (11/06) (6 pages)
- 10-G.AP-42, Section 13.2.5 (Industrial Wind Erosion) (11/06) (15 pages)
11. Statement of Dr. Cynthia Hsu at 10/26/11 legislative hearing on Seneca Meadows' Meadow View Mine project (from pages 79 - 92 of hearing transcript) (for identification only)
12. Letter of Dr. Cynthia Hsu to Glen Silver, dated November 2, 2011 (Exhibit B to Issue Conference Exhibit No. 8, petition for party status filed by Concerned Citizens of Seneca County) (for identification only)
13. "Welcome" page of Finger Lakes Zero Waste Coalition website (for identification only)
14. Resume of Robert A. Holmes, P.E., of Cornerstone Environmental Group, LLC, senior project engineer for Seneca Meadows' Meadow View Mine project (4 pages)
15. Sheet No. C101, Phase I Site Plan for Seneca Meadows' Meadow View Mine, prepared by Cornerstone Engineering
16. Sheet No. C109, Road Construction Details for Seneca Meadows' Meadow View Mine, prepared by Cornerstone Engineering
17. Photographs of dust control operations at Seneca Meadows Landfill
18. NYS Department of Environmental Conservation Part 360 inspection reports for Seneca Meadows Landfill (1/6/11 - 12/29/11)
19. Dr. Cynthia Hsu's PM-10 calculations