New York State Department of Environmental Conservation
Division of Environmental Remediation
Office of the Director, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 • **Fax:** (518) 402-9020
Website: www.dec.ny.gov

Joe Martens
Commissioner

April 24, 2013

Mary Anne Coogan, Supervisor
Town of Camillus
4600 West Genesee Street
Syracuse, New York 13219

Dear Supervisor Coogan:

As requested, the New York State Department of Environmental Conservation (DEC) has reviewed the April 8, 2013 Minnich and Scotto Inc. (M&S) report entitled "Air Contaminant Exposure to Residents of the Town of Camillus from Honeywell's Sediment Treatment and Containment Facility" ("the Report"). Listening and responding to the Town's input on the Onondaga Lake dredging project remains an important priority for DEC's Onondaga Lake team. Protecting public health and maintaining diligent air monitoring and controls will continue with strict oversight of the project. The review of the Report was given top priority by the DEC and included coordination with environmental experts, engineers, and scientists within our agency, the Environmental Protection Agency, the New York State Department of Health (DOH) and consultants retained by DEC. Based on this review, and as more fully discussed below, DEC finds that the Report is based on flawed assumptions and inaccurate information. Most importantly, the Report's allegations that the project is not protective of community health are neither supported by the available data nor reflective of the project as currently operated.

I. The Report does not incorporate the significant air quality monitoring data collected during the 2012 dredging operations, and instead, relies on a predictive model.

While modeling is often used to predict potential air emissions during the design and permitting of planned air emission sources, the best way to determine emissions from an existing facility is to actually measure them. An extensive air monitoring system has been in operation at the site since before dredging commenced in 2012. Data has been, and is being, collected at multiple monitor locations continuously during dredging. To date, the actual and extensive air monitoring data demonstrate that the project has always been below the conservative levels established to protect the surrounding community as provided in the Community Health and Safety Plan [1] and the measures incorporated into the project to protect public health have been effective. The M&S conclusions are based on modeling, which are predictions, not actual measurements, and are not consistent with data generated since the project started. The actual generated data show that the project continues to meet the protective levels established in the Community Health and Safety Plan, in contrast to the Report's predicted levels.[2]

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1 **The Community Health and Safety Plan (CHASP)** describes the protective measures that will be taken to protect the community during the dredging project. In March 2012, DEC released a fact sheet summarizing the CHASP and made the draft plan available to the public for review and comment. The CHASP was finalized in May 2012 and included an air monitoring system around the perimeter of the SCA that measures for volatile organic compounds (VOCs), dust, mercury, and sulfides. Both short-term and long-term conservative monitor criteria were established and action levels were developed to protect the public. The CHASP is available at: http://www.dec.ny.gov/docs/regions_pdf/chaspfin.pdf
PID Air monitoring data is available to the public at http://www.lakecleanup.com/health-and-safety/air-monitoring/

2 **Protective Air Monitoring Action Levels** – In designing the air monitoring program, air quality criteria were developed through (1) identifying compounds with the potential to volatize during the process, and (2) establishing a monitoring program to ensure short-term and long-term protectiveness to the public. Conservative limits were established by EPA, DEC and DOH. Long-term levels were developed through the EPA's HHRA (assuming exposure for 24 hours a day, 350 days a year). Short-term exposure limits are based on DEC's established, peer-reviewed guideline values protective of 1-hour acute exposure. Although these levels are protective if met within the community, DEC conservatively required that these levels be met at the perimeter of the site. Perimeter limits were set at three short-term thresholds with action required for each level:

a. Investigative Level – Evaluate reading with background, identify source
b. Control Level – Apply controls/countermeasures
c. Work Perimeter Limit – Restrict/stop the source's operations and reassess work

To date, detected perimeter short-term levels have not reached the Investigative Level. The Report does not dispute the fact that the perimeter actions level were set at protective levels.

II. The Report's criticism of the existing air monitoring system is unfounded.

Although the Report seems largely predicated on purported deficiencies with the existing air monitoring system, the Report fails to substantiate the alleged deficiencies. The alleged deficiencies are addressed below following a description of the air monitoring program at the SCA.

Monitoring for volatile organic compounds (VOCs) is performed at eight real-time air monitoring stations surrounding the entire perimeter of the Sediment Consolidation Area (SCA) site. The VOC data are collected on a continuous basis with the use of Photoionization Detectors (PIDs). Results are available real-time to project managers and made available to the public via a website. The results are compared to the short-term air quality criteria that were established for this project.

Monitoring for individual VOC species (i.e., speciated VOCs) is also performed at four perimeter monitoring stations around the SCA. Samples are collected using summa canisters over 24-hour periods every six days. The samples are sent to a laboratory for analysis, and the results are compared, on an annual basis, to the long-term air quality criteria.

PID instruments are widely-accepted field instruments for collection of real-time data. Their reliability and effectiveness has been consistently proven at remediation sites across New York State. The PIDs used for the project have minimum detection levels ("MDLs") below the conservative site-specific short-term health and safety criteria. Protective levels are in the parts per million (ppm) range, and the MDL for the PID is approximately 0.1 ppm. Although PIDs do not identify individual compounds, total VOC threshold action levels were established taking into account protective levels for each contaminant of concern. While the total VOC data collected to date demonstrate that there have been no exceedances of action levels, people can often smell odors at much lower levels than those which would require action per the Community Health and Safety Plan. Therefore, additional work is ongoing to further address odors.

Speciated data collected every six days at the site via summa canisters, and other samples collected both onsite and offsite, demonstrate that the M&S predictions for individual compounds are unsubstantiated. These canisters are a widely-accepted means of collecting compound-specific data with very low MDLs. The Report alleges that collection of naphthalene in these canisters has a "low bias", apparently because the authors claim compounds like naphthalene attach to the canisters and are not fully available for analysis. Independent certified laboratories today utilize quality control procedures to assure the accuracy of naphthalene TO-15 data. Although past practices may have limited the use of such canisters, today's laboratory practices and further research support use of the canisters to collect accurate data. DEC specifically researched this issue and spoke to our own chemists who have experience with this issue, including the nationally certified lab being used for this project, who verified that current testing protocol eliminates this concern.

The Report also alleges that air emissions "can, and do pass between stations undetected." From its inception, the design of the project's air monitoring system was established to maximize effectiveness. Eight monitoring stations surround the entire SCA perimeter and were strategically located based on extensive site-specific meteorological data. Additional hand-held PID readings taken on site, at the perimeter and in the community, have never indicated that emissions passing between the stations are reaching the community at levels which are not protective.

The Report asserts that EPA's Method TO-16 is M&S's preferred method of monitoring at this site. As promised, DEC and other experts have spoken with M&S about this method and done further research to determine its effectiveness. Other than as an experimental use of a short duration at one remediation site, DEC is not aware of any use of this methodology for remediation projects in New York. Furthermore, Method TO-16 measures an average of contaminant levels across an extended path. The Method would therefore underestimate maximum contaminant concentrations at any specific point. This underestimation, when compared to the established site-specific protective levels, could well prevent identification of point concentrations at or near protective levels. In addition, the use of this Method as proposed by M&S would again rely on predictive modeling (rather than actual data) to extrapolate concentrations in the surrounding community.

III. The Report's authors utilize inaccurate data and assumptions, inflating predicted contaminant levels.

A. The Report improperly characterizes the volume and contaminant mass of the sediment to be sent to the SCA.

M&S utilized sediment data from Remedial Investigation [RI] work (1992 to 2002) as documented in the 2004 Feasibility Study. The Report does not consider the additional site-specific data collected in multiple pre-design investigations and project design changes that have been developed since the ROD was issued in July 2005. A significant change to the project after the 2005 ROD was the decision to isolate the most highly contaminated sediments behind the extended barrier wall. This not only removed a highly contaminated portion of the material from the dredge material to be shipped to the SCA, but would tend to reduce the average contaminant concentration of the material that would ultimately be sent there for treatment and disposal. The additional data and these design changes significantly reduced the quantity of sediment that will be shipped to the SCA from 2.650 million cubic yards to 2.0 million cubic yards. M&S offers the following estimated mass values for the three named VOCs: for benzene (12,131 kg), naphthalene (379,463 kg) and 1,4 dichlorobenzene (57,833 kg). However, taking into account the reduction in the volume and the high concentrations of the material left in place, based on the most current and accurate data, NYSDEC estimates the contaminant mass for these three VOCs in the dredged sediment will have the following values: benzene (3,127 kg), [approximately 74% less than estimated by the M&S Report], naphthalene (92,692 kg) [approximately 75% less than M&S], and 1,4-dichlorobenzene (27,919 kg) [approximately 51% less than M&S]. By not considering current data and design specifications, M&S overestimates dredge volume, contaminant mass and, therefore, emissions from the project.

B. The Report grossly overestimates the potential volatilization from the sediments.

The M&S Report (Table 5-3) indicates that the volatilization loss of the three contaminants [naphthalene; 1,4-dichlorobenzene; and benzene] ranges from 79.7 to 82.9% based on Tables 9 through 14 of the Wind Tunnel Testing report (June 2008) prepared by Service Engineering Group as part of the remedial design work. Estimates from the Wind Tunnel Testing report are not relevant to the final design and current operations of the sediment processing area, since the wind tunnel testing was designed to evaluate potential emissions from the open basin disposal/dewatering approach that was included in the July 2005 Record of Decision, but was later eliminated in favor of dewatering using geotubes. Again, the Report fails to recognize that significant design changes were made to the project after the issuance of the 2005 ROD, specifically the change from open lagoon dewatering to the use of geotubes. One of the primary reasons for incorporating geotubes into the project was to reduce emissions and the Report fails to recognize this significant improvement.

Potential emissions from the geotube dewatering approach, including filtrate holding basins were estimated by Honeywell consultants during remedial design. It should be noted that these estimates did not consider the emissions controls that are currently in place for these potential sources. For naphthalene, these estimates were 3,521 gm/day from geotubes (filling, inter-tube streams, cascading water, gravel flow, and perimeter channel flow) without geotube covers and other engineering controls, and 396 gm/day from holding ponds without a cover. Honeywell consultants also estimated emissions from the debris screens and water treatment plant assuming 90% removal of emissions using vapor controls. For naphthalene, these two additional sources were estimated to be approximately 1,209 gm/day, for a total of 5,126 gm/day including the estimated emissions from the geotubes and basins (without controls). Assuming 952 operating days as was used by M&S (see page 5-4 of the M&S report), an upper estimate of the mass of naphthalene released over 5 years would be 4,880 kg, which is significantly lower than M&S volatilized mass estimate (314,575 kg). Similarly, estimates for 1,4-dichlorobenzene (1,826 kg) and benzene (3,485 kg) are also significantly lower than M&S volatilized mass estimates (47,886 kg and 9,668 kg, respectively). Based on these estimates which more accurately reflect actual SCA operations, the estimated emissions over 5 years and annual emissions of these contaminants of concern are much less than the 10 tons/yr Hazardous Air Pollutants (HAP) threshold cited in M&S Table 5-5 (even without engineering controls factored in).

The following table compares projected emissions:

Total Projected Emissions (kg)

Contaminant	M&S	DEC
naphthalene	314,575	4,880
1,4-dichlorobenzene	47,886	1,826
benzene	9,668	3,485

IV. The Report's criticism that EPA's risk assessment used flawed methods is unfounded.

At our request, EPA has provided the following response: In 2010, at the request of the community and elected officials, the EPA undertook an additional Human Health Risk Assessment (HHRA), specifically designed to look at the potential impacts from the SCA to the surrounding community[3]. With respect to the June 2010 Supplemental Human Health Risk Assessment (HHRA), the M&S report is critical of how air contaminant concentrations in the residential areas, which were used to evaluate potential risks to people residing in the vicinity of the SCA, were developed. Specifically, the report finds fault with deriving offsite air estimates based on modeled dispersion of air contaminants assumed to be at the "safe level" criteria established for the work zone perimeter, in lieu of modeling facility emission rates to obtain residential area air contaminant concentrations. The Report also states that control measures should have been implemented prior to the start of operations with the implication that criteria were exceeded. EPA disagrees with these assertions for the reasons stated below.

First EPA notes, the M&S report offers no evidence that air criteria established for the project were exceeded other than its own projected air emission rates and residential air contaminant concentrations. An important omission in the report is that it does not discuss the fact that both short- and long-term monitoring results indicate that, to date, the SCA work perimeter air criteria have not been exceeded.[4] In addition, the emission rates used in the M&S report for its projections are based on a questionable assumption regarding the application of one set of test results reported in a wind tunnel study conducted in 2008. Specifically, the M&S report provided no information to support the use of measured volatile losses for an actively mixed slurry (10% solids) in the 2008 study to represent chemical emission rates from the geotubes. At the time of the 2008 study, both operation of the SCA as a large gravity settling lagoon as well as dewatering with geotubes were under consideration as methods to dewater the dredged material piped from the lake to the SCA. The 2008 study was conducted to verify previous wind tunnel test results, to evaluate potential emissions and odors from exposed sediment at the SCA over a long period of time, and to evaluate potential mitigation techniques to control air emissions and odors from ponded and exposed sediments. The study's stated objectives did not include quantifying emissions specific to the use of geotubes. It is important to note too that, based on information and experience with geotubes at other sites and applications, emissions and odors from geotubes would be less than what would be expected if a large settling lagoon were used for dewatering. This is one of the primary reasons geotubes were incorporated into the advanced design.

Secondly, facility emission rates were not used in the Supplemental HHRA to model air concentrations in the residential areas due to the complexities in estimating emission rates resulting from the use of geotubes. A methodology for estimating volatile emissions from geotubes, which were believed to be

the principal source of volatile emissions from the SCA, was nevertheless developed by consultants prior to the release of the Supplemental HHRA. The methodology included developing estimates for the five

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3 **Human Health Risk Assessment (HHRA)** – In response to a request from the community and elected officials, EPA completed a supplemental Human Health Risk Assessment (HHRA) in June 2012 to identify any potential risks posed by sediment management and dewatering activities planned for Wastebed 13, the Sediment Consolidation Area (SCA) for disposal of dredged sediments. The June HRRA supplemented a 2002 Baseline HHRA for the project. The EPA conducted a public meeting on July 8, 2012 to explain the supplemental HHRA and accepted public questions and comments on the document. In August 2012 a summary Frequently Asked Questions (FAQs) document was prepared to answer all public questions regarding the HHRA. The HHRA and related documents are posted on EPA's website at: http://www.epa.gov/region2/superfund/npl/onondagalake/docs.html

4 Twelve months of data is necessary to evaluate compliance with the long-term air quality criteria; however, the data collected to date can be considered to determine progress towards meeting compliance.

main flow components associated with geotubes. The components included, (1) water weeping from the surface of each tube as it is being filled, (2) water coalescing into streams between adjacent tubes, (3) cascading of the streams off the tube ends to the gravel bed or to other tubes, (4) streamflow through the gravel bed to the sumps, and (5) streamflow along the perimeter channel to a drain leading to the wastewater treatment plant. Subsequent to this submission and after the Supplemental HHRA was completed, separate emission estimates were developed for the SCA holding ponds, debris screens and wastewater treatment plant. The combined estimated emission rates from all of these sources would result in lower modeled air contaminant concentrations in the community than offsite air concentrations derived from the work zone perimeter criteria as was done in the Supplemental HHRA. This provides an additional line of evidence that the approach taken by EPA in the Supplemental HHRA was conservative (*i.e.*, health-protective). It is also an indication that the methodology for estimating emission rates and offsite air concentrations taken in the M&S report, which resulted in much higher rates and concentrations than the approach taken by Honeywell's consultants, is likely to result in a gross overestimate of air impacts from SCA operations.

Thirdly, the approach taken by EPA in the Supplemental HHRA assumed that all 27 potential volatile contaminants identified either in wind tunnel tests or in sediment samples collected from the lake would be simultaneously present and be at the maximum allowable concentrations at an exposure frequency of 350 days/year for the assumed five-year duration of the project. It is highly unlikely that every volatile chemical would be simultaneously present and be at the maximum allowable concentrations at the SCA perimeter for any extended period, especially since air monitoring is being conducted during operations and the results are being regularly evaluated to assess compliance with the air criteria established for the project. Furthermore, if monitored air concentrations indicate a trend towards chemicals reaching the work perimeter criteria for a sustained period of time, site operations can be modified to reduce these concentrations. As noted above, the short- and long-term SCA work perimeter criteria have thus far not been exceeded, with most contaminants detected at levels well below criteria. This provides further confirmation that the use of the SCA work perimeter air criteria to derive offsite air contaminant concentrations for use in the Supplemental HHRA was a conservative approach.

V. The Report incorrectly claims that emissions exceed the major source threshold which would elicit regulation pursuant to National Emission Standards for Hazardous Air Pollutants [NESHAP] under the Clean Air Act.

As discussed above, emissions estimates from the sediment processing area (even without accounting for engineering controls) would be much less that the 10 tons/yr NESHAP threshold cited in M&S Table 5-5. In addition, applicable federal regulations [40CFR63.7881(b)(2)] state that site remediation performed under the authority of the Comprehensive Environmental Response Compensation and Liability Act [CERCLA] as a remedial action is not subject to NESHAPs program. The reason for this exemption is that remedial activities performed under the strict requirements of CERCLA are considered at least as protective, if not more, than emission control standards developed under the NESHAP program. CERCLA's site-specific ROD decision and design process extensively evaluates the contamination and remedial processes at each individual site; provides public involvement; and includes an evaluation of site-specific impacts of the remedial alternatives to air, soil, surface water and groundwater, as appropriate. In short, the CERCLA process involves an equal, or more comprehensive review of site-specific impacts than would be conducted under NESHAP, if applicable.

VI. Conclusion

Review of the Report suggests that the authors do not fully understand or appreciate the very significant and comprehensive investigations, scientific studies, and engineering analyses conducted in relation to the design, construction and operations of the Onondaga Lake dredging project. The Report is based on flawed assumptions and inaccurate information. Most importantly, the Report's allegations that the project is not protective of community health are neither supported by the available data, nor reflective of the project as currently operated. The Report incorrectly predicts that exceedances of protective public health guidelines will occur, when actual measurements have shown no such exceedances, refuting the authors' predictive methodology.

Based upon years of data collection and design, including air quality monitoring data collected during the first year of dredging, DEC, DOH, and EPA are confident that the project is protective of the community.

If you desire further documentation supporting the conclusions in the letter, or you have any questions, please do not hesitate to contact Ken Lynch or myself. We just received an addendum to the Report today and will provide comments, as appropriate, once our review is completed.

Sincerely,

Robert W. Schick, P.E.
Director
Division of Environmental Conservation

ec:

Adela Salame-Alfie, DOH
Krista Anders, DOH
Robert Nunes, EPA
Ken Lynch, DEC
Mike Ryan, DEC