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September 7, 2010

Mr. Richard Mustico
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D
625 Broadway
Albany, NY 12233-7013

Re: **Onondaga Lake Bottom Subsite – Onondaga County, NY**
Consent Decree 89-CV-815
SCA Water Treatment Plant

Dear Mr. Mustico:

Enclosed please find the SCA WTP Draft Design Package #3 (DP#3) for your review and approval. DP #3 is the comprehensive draft design package for the SCA WTP and supersedes DP #1 and DP #2 that were previously submitted for NYSDEC review. DP #1 was submitted for NYSDEC review on March 10, 2010 and included the Civil and Process (P&IDs) designs. DP #2 included the Civil, Architectural, Process/Mechanical and Electrical designs and was submitted to NYSDEC on May 12, 2010.

An executive summary of DP #3 is presented below:

- Updated Civil design
  - Preload and Grading plans
  - Utility plans and profiles including the buried 30" effluent line
  - Access road plan and profile
  - Backwash Pumping Station
- Updated Architectural design
  - Plan and elevations for WTP pre-engineered metal building
- Structural design
  - Foundation plans and sections
  - Floor plans and sections
  - Equipment plan details
- Updated Process/Mechanical design including PFDs and P&IDs
  - The mass balances on PFD-2 and PFD-3, are based on the maximum anticipated concentrations and were used to design the treatment system process. The average concentration for chlorides is shown since the proposed treatment system does not remove chlorides and was only used as an input for materials of construction.
- HVAC design
  - Building plan and schedules
- Plumbing design

- Water piping plan and details
- Drainage piping plan and details

- Updated Electrical design
  - One-line diagrams
  - Grounding plan
  - Lighting plans
  - Power/Control plans
  - Elementaries

O'Brien & Gere understands that Parsons and the NYSDEC met on September 1, 2010 and discussed providing treated water to the screens for cleaning purposes instead of the geotube effluent water. Design for this system will be coordinated between Honeywell, O'Brien & Gere, and Parsons and will be included in future design submittals.

In addition, please find responses to the NYSDEC comments on SCA WTP Draft DP #2 included in your letter dated July 14, 2010.

Comment 1: The Department understands that Design Package No. 3 will include an Executive Summary section.

Response: A summary of DP #3 is included above.

Comment 2: Process Basis of Design (BOD) Memorandum. The memo states that the winter treatment system is being designed to treat a maximum flow of 500 gpm. The calculations should be shown, or if the calculations are contained in another document, then that document should be referenced.

Response: Calculations supporting the winter treatment system design flow of 500 gpm will be included in the Sediment Management Final Design to be submitted by Parsons in January 2011.

Comment 3: PFD-2 and PFD-3, Mass Balance. Columns 1 through 10 do not appear to be applicable to the design and construction of the SCA WTP. The information in the columns is geared more toward Sediment Management Design and the SWPPP addressing operational aspects of the project. Therefore, the Department will not be approving this portion of the mass balance as part of the design for the SCA WTP. However, a comprehensive water balance should be included as part of the Sediment Management Design.

Response: Columns 1 through 10 are geared to the Sediment Management Design. Recycle flows from the WTP are reflected in these Columns. A comprehensive water balance will be included in the Sediment Management Final Design to be submitted by Parsons in January 2011. A note has been added to PFD-2 and PFD-3 that references the Sediment Management Final Design (or a separate memo) for columns 1 through 10.

Comment 4: PFD-2 and PFD-3, Mass Balance. Data were not provided for the level of contaminants in the primary screen underflow and should be. It is understood that this may be part of a separate document, in which case, that document should also be referenced.

Response: Estimated levels of constituents in the primary screen underflow will be included in a separate memo from Parsons, documenting estimated volatile emission rates from the screening operation. These contaminant level estimates, however, do not serve as a basis for design for the sediment management system, or the WTP, and will therefore not be included in a design document.

Comment 5: PFD-2 and PFD-3, Mass Balance. In order to design the SCA WTP, worst case concentrations were used from various sampling investigations conducted as part of the Onondaga Lake design. For example, the worst case concentration for phosphorus was obtained from SMU 1A and was 0.73 mg/L. SMU 6 and SMU 7 had about a third of this concentration, and the other SMUs had no detectable phosphorus present. This should be made clear to the reader. The Department suggests adding this to an executive summary in DP #3 and adding a note to each mass balance sheet (*i.e.*, PFD-2 and PFD-3).

Response: Notes have been added to the mass balances on PFD-2 and PFD-3 regarding the use of maximum concentrations (excluding chlorides).

Comment 6: PFD-2 and PFD-3, Mass Balance, Phosphorus and alum addition. The mass balance does not indicate that any phosphorus will be removed by the addition of alum. Alum will typically remove phosphorus, with a normal ratio of 0.5 to 2 moles of alum per mole of phosphorus.

Honeywell specs a 20% alum solution. For phosphorus precipitation, this equates to using between 0.085 gpm and 0.34 gpm of alum per pound of phosphorus. The mass balance shows that Honeywell anticipates using 0.09 gpm of alum, therefore some phosphorus removal could occur. Honeywell should look at using a more concentrated solution of alum or increasing alum dosage, which would result in more phosphorus removal. Given the large volume of alum that will be required for the life of the project, a more concentrated solution of alum may also be more cost efficient.

It is understood that Onondaga County will not have a phosphorus limit in the industrial user permit, however the County's Metro STP has a stringent effluent phosphorus limit and any reduction in the sources may be beneficial to the County.

Response: It is agreed that some phosphorus removal is anticipated with this treatment process, however, the treatability testing performed does not provide supporting data. A more concentrated solution of alum (48.6 %) is now included in our design.

Comment 7: PFD-2 and PFD-3, Mass Balance. The Multi-Media Filters (MMFs) will filter out particles, including aluminum phosphate. Thus, the MMF backwash will likely be higher in phosphorus. Granular activated carbon (GAC) does not remove phosphorus, except through filtration. As the MMFs precede the GAC, it would be expected that little to no phosphorus will be removed in the GAC units. Therefore, the GAC backwash should have little to no phosphorus present. Instead, the balance shows 2.4 mg/l of phosphorus in the GAC backwash, and 0.76 mg/l of phosphorus in the MMF backwash. Please adjust the tables as appropriate.

Response: A nominal amount (5%) of phosphorous adsorption has been assumed through the GACs. The mass balance tables have been adjusted to eliminate removal of the adsorbed phosphorous in the GAC backwash. As such, the phosphorous concentration in the GAC backwash (0.72 mg/L) is equivalent to the concentration in the Effluent Tank Discharge (Node 26), which is used to backwash the GAC vessels.

Comment 8: PFD-2 and PFD-3, Mass Balance. The term "EQ Basin" should be defined. It is understood that this is part of the SCA and not the water treatment plant. However, it is not clear if this is the SCA or a separate basin between the SCA and the SCA WTP.

Response: The term "EQ Basin" has been revised to "SCA". The design of the SCA is included in the Sediment Management Design by Parsons

Comment 9: PFD-2 and PFD-3, Mass Balance. The mass balance (Column 16) indicates that plant water will be reused as polymer make-up water. It should be noted that bench scale testing will be needed as differences in dredge areas (*e.g.*, chloride levels) may affect the polymer and its ability to form a floc.

Response: The mass balance reflects the use of WTP effluent as polymer make-up water. Provisions for a suitable backup source for polymer make-up water have been included in the SCA WTP and the Sediment Management polymer feed system designs in the event plant water cannot be used. Details pertaining to the design and operation of the polymer addition process fall within the sediment management design. The performance of the polymer will be continuously monitored and evaluated to ensure adequate performance of the geotextile tubes.

Comment 10: Sheet U-1. The storm water line ends without a discharge point in the vicinity of CB-4 (it ends with a temporary cap). While the line extends beyond the scope of the SCA WTP design, a note should be included indicating where the storm water discharge will be (*e.g.*, to a storm water retention basin) or indicating that it will be designed by others.

Response: A note indicating "stormwater piping by others" has been added to Sheet U-1.

Comment 11: Sheets U-2 through U-5. The sheets depict temporary, above-ground effluent piping. The configuration shown in Design Package No. 2 is proposed as part of the storm water conveyance system for construction of the SCA. The configuration is part of the SWPPP, and is not commented on as part of these comments.

The Department understands that the permanent, or operational, location (both vertical and horizontal) of the SCA WTP effluent pipe will be designed and depicted as part of Design Package No. 3.

Response: The SCA WTP effluent pipe plan and profile are included on Sheets U-1 through U-7. At present, Honeywell does not intend to install the effluent pipeline above-grade.

Comment 12: Sheet MD-1. A cross section for the concrete pavement is not depicted on the sheet. Please revise the sheet for Design Package No. 3 to include this cross section.

Response: Concrete pavement will not be used at the SCA WTP. A concrete unloading area, adjacent to the bulk chemical storage tanks, will be used. A cross-section and details are included on Sheet MD-1.

Comment 13: Sheet MD-1. The typical cross sections for asphalt pavement and gravel pavement show a compacted subgrade. The specifications for the compacted subgrade are located in Specification 02226 Trenching, Backfilling and Compacting. As per page C-3 of the Table of Contents, the technical specifications were not included with this submittal. These technical specifications should be included (on CD) in Design Package No. 3.

Response: Technical specifications for all disciplines are included in DP #3.

Comment 14: Sheet MD-3. Sheet MD-3 notes a pump size of 1600 gpm for the backwash pumping station pumps, but the draft basis of design specs them at 1715 gpm. Based on the amount of water needed for backwashing, the 1715 gpm specification appears to be correct. Also, it is understood that the pump curves for the pumps will be supplied in Design Package #3.

Response: The Backwash Pump, PU-1004 shown on Sheet M-9 and I-10, is used to supply backwash water to the multimedia filters and has a capacity of 1715 gpm. The Solids Return Pumps, PU-1101, PU-1102, and PU-1103, are located in the Backwash Pumping Station shown on Sheet MD-3, and have a capacity of 2765 gpm each. Pump curves are included in DP #3.

Comment 15: Sheet MD-4. Approval of the silt fence and turbidity curtain details will be left to the SWPPP.

Response: Agreed.

Comment 16: Sheet M-6. This figure, and others, depicts underground water conveyance piping. The Department understands that underground water conveyance piping within the SCA WTP will be installed in geomembrane-lined and sand-filled trenches. A cross section should depict this in Design Package No. 3. The cross section sheet, or notes to it, should also provide details on leak detection.

Response: Water conveyance piping in the WTP building has been designed to be installed above grade. Buried piping outside the building to the Backwash/Sludge Pumping Station will be dual wall piping with visual leak detection.

Comment 17: Sheet M-7. The pipe coming out of the top of tank T-0701 is labeled as pipe 055. However, that does not appear to be correct as the P&ID drawings indicate that pipe 055 is the 10-inch discharge from pump PU 0703. Please revise as appropriate.

Response: Pipe label has been revised.

Comment 18: Sheet M-10. The piping elevation should be corrected. Sheet A3 shows the eaves of the building at 454 feet, with a floor elevation of 433 feet. Sheet M10 shows piping at 488 feet.

Response: The piping elevation shown on Sheet M-10 has been revised to 448 ft.

Comment 19: Sheets MD-3 and I-11. These sheets do not appear to match. MD-3 is the section plan and details for the backwash pump station, I-11 is the P&ID for the pump station. MD-3 shows a 24-inch HDPE influent line, a 6-inch HDPE influent line, a 12-inch HDPE and an 8-inch HDPE line. The P&ID shows a 6-inch HDPE line for drainage from the MMF and LGAC, a 6-inch PVC sludge line, a 12-inch HDPE Backwash line for the MMF and LGAC, and two unspecified lines: one for filter feed overflow and one for process tank overflows. Please revise as appropriate.

Response: The influent lines to the Backwash/Sludge Pumping Station, as shown on Sheets MD-3 and I-11, have been coordinated and revised.

Comment 20: Sheets I-18 and I-19. Sheet I-18 indicates that the vents from the various water treatment plant units (e.g., clarifiers, pH adjust tanks) discharge to a vapor carbon system depicted on Sheet I-19. Sheet I-19 indicates that a 1,000 pound vapor carbon unit will be installed to treat the process unit vents. It is the Department's understanding that this is an estimated size, and that the final design of the system will be in Design Package No. 3.

An estimation of emissions from the air vent collection system should be provided to determine compliance with the substantive air requirement, which is 6 NYCRR Part 212. The Emission Rate Potential (ERP) (expressed in lbs/hr maximum emission rate prior to control) for each compound emitted from the collection system should be provided. The ERPs will be used to determine the percent control required in accordance with Table 2 in Part 212. For those compounds with ERPs less than the percent control required levels in Part 212, the degree of air cleaning control will be

determined based on the assessment of ambient impacts from the facility.

In addition, the emission estimates for the SCP WTP will be provided in the overall SCA emission evaluation. Design Package No. 3 should incorporate the results of this assessment with respect to the SCA WTP, and should include details regarding any capture and control equipment needed as a result of compliance with Part 212 such as air flow rates, quantity of carbon needed, and all necessary monitoring and maintenance.

Response: The layout and sizing of the VGAC have been included in DP#3. Supporting ERPs and calculations will be included in a separate document submitted by Parsons.

Comment 21: Closure of the SCA WTP should be included as part of the design for closure of the SCA (*e.g.*, an SCA operational area closure plan).

Response: Closure of the SCA WTP will be included as part of the SCA Operational Area Closure Plan.

If you have any other questions, please contact Brian White at (315) 956-6682 or me at (315) 552-9700.

Sincerely,

John P. McAuliffe by CCC

John P. McAuliffe, P.E.
Program Director, Syracuse

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