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Alexander B. Grannis
Commissioner

October 18, 2009

Mr. John P. McAuliffe, P.E.
Program Director, Syracuse
Honeywell
5000 Brittonfield Parkway, Suite 700
East Syracuse, NY 13057

Re: Onondaga Lake Bottom Subsite Onondaga County, NY
Draft Onondaga Lake Sediment Consolidation Area (SCA) Civil and Geotechnical Initial Design Submittal, Dated August 2009 (734030)

Dear Mr. McAuliffe:

We have received and reviewed the above-referenced document, which was transmitted by your August 13, 2009 letter to my attention, and we have enclosed comments that we generated based on our review of the document. Please provide us with a letter containing responses to our comments, as soon as possible, such that our comments can be appropriately addressed in the SCA Civil & Geotechnical Draft Final Design that is scheduled to be submitted on January 22, 2010. In addition, please distribute the Draft Onondaga Lake Sediment Consolidation Area (SCA) Civil and Geotechnical Initial Design Submittal, including a copy of this letter and the enclosed comments, to the various document repositories as discussed in the governing consent decree.

If you have any questions relating to our enclosed comments, or would like to set up a meeting to discuss the enclosed comments, please contact me 518-402-9676.

Sincerely,

Timothy J. Larson, P.E.
Project Manager

Encl.

cc: T. Milch, Esq, - Arnold & Porter - w/encl.

ec: J. Gregg – NYSDEC
R. Nunes - USEPA, NYC
J. Davis - NYSDOL, Albany
M. Sergott - NYSDOH, Troy
J. Heath, Esq.
T. Joyal
L. Speer
H. Kuhl
G. Jamieson, HETF/Onondaga Nation

Comments on the "Draft Onondaga Lake Sediment Consolidation Area (SCA) Civil and Geotechnical Initial Design Submittal" by Parsons and Geosyntec Consultants for Honeywell, August 2009

Note: With the realization that the SCA IDS will not be revised and resubmitted for review the following comments should be responded to and addressed, as appropriate, in future design submittals.

Specific Comments

Typically, paragraph numbering corresponds to complete paragraphs on a page, and begins with the first full paragraph on a page. Paragraph numbering typically includes the last paragraph on a page, even if that paragraph continues onto the next page. Unless otherwise noted, bullets are considered part of the paragraph introducing them.

Section 1

1.1 Page 1-4, Paragraph 1, Section 1.2. This paragraph discusses the RAOs and PRGs contained in the ROD and then goes on to state, "The specific objectives related to the SCA design include the following…" Since the "specific objectives" differ from the RAOs or PRGs contained in the ROD the sentence should have stated, "Honeywell's specific objectives related to the SCA design include the following…"

1.2 Page 1-4, Paragraph 1, Bullet 4, Section 1.2. The text discusses "value engineering and constructability in the design process." This approach needs to be discussed with NYSDEC and USEPA before a determination can be made with respect to the applicability of this approach to the SCA design process.

1.3 Page 1-5, Paragraph 1, Bullets, Section 1.3. The text of the bullets are three of the four items noted in the SCA section of the Consent Decree Statement of Work. The fourth item (copied below), which is also related to the SCA, should also have been included.

> *"NAPL Collection and Offsite Treatment and/or Disposal*-- Dredged material that may contain NAPLs shall pass through an oil/water separator. NAPLs that collect on the water surface within the oil/water separator, or that are otherwise collected, will be separated and collected for offsite treatment and/or disposal. In addition, the SCA liner and leachate collection system shall be designed and operated to collect for offsite treatment and/or disposal any NAPL present in the SCA leachate."

1.4 Page 1-5, Paragraph 1, Section 1.3. The first bullet refers to an impermeable liner based on the specific reference of the term "impermeable" in the ROD and governing consent decree. While it is understood that no geomembranes are completely impervious it was the intent of the ROD and consent decree to imply the best available technology would be

used to contain contaminants within the SCA. In light of this fact the text in future design documents should refer to a "composite liner."

1.5 Page 1-6, Paragraphs 1 and 2, Section 1.4. These two paragraphs discuss "obtaining concurrence with NYSDEC and USEPA" and "agency review" but fail to discuss the fact NYSDEC and USEPA's role in the design process is more than one of "concurrence" or "review". The text should have stated that NYSDEC and USEPA will ultimately need to approve the remedial design before it can proceed to the construction phase.

1.6 Table 1.1. The Phase IV Pre-Design Investigation (PDI) Work Plan (June 2008) is listed. This work plan does not include any work at the SCA. As was done with the Phase III work, the relevant addenda should have been listed (e.g., liner testing in the Phase IV Addendum 6 Work Plan, March 2009). In addition, the ROD and consent decree should have been listed in this table.

Section 2

2.1 Page 2-1, Paragraph 3, Section 2.1. A new sentence should have been included after the first sentence stating, "These work plans will be reviewed by, and ultimately approved by, NYSDEC and USEPA."

2.2 Page 2-1, Paragraph 4, Section 2.1.1. The third sentence should have begun by stating, "Based on the recommendation by NYSDEC, and…"

2.3 Page 2-3, Paragraph 1, Section 2.1.2. This paragraph states, "Continued community involvement, as discussed in the CPP (NYSDEC, 2009), is a critical component to the successful implementation of these work plans." Honeywell should have described "continued community involvement" in greater detail so that it is clear what is envisioned by Honeywell with respect to community involvement associated with these work plans.

2.4 Page 2-3, Paragraph 3, Section 2.2.1. In the third sentence of this paragraph, "inefficient" should have been "efficient."

Section 3

3.1 Page 3-3, Paragraph 1, Section 3.1. The text here notes that summary reports were submitted to NYSDEC and are awaiting NYSDEC approval. It is not clear what this is referring to as the items in the above bullets are in the "Data Package" (included as Appendix A of this IDS), which has been approved by NYSDEC.

3.2 Page 3-3, Paragraph 2, Section 3.2. The Phase IV Addendum 6 Work Plan was finalized in March 2009. The reference in this section indicates conformance with a draft document (December, 2008). Please revise in future documents as necessary.

3.3 Page 3-3, Paragraph 4, Section 3.2. The discussion of the compatibility testing in future documents should include a discussion of the characteristics of sediments/wastes tested (e.g., high pH, sediments with elevated levels of contaminants, NAPLs).

Section 4

4.1 Page 4-3, Paragraph 1, Section 4.2.1. The text here discusses a visual survey that was completed in spring 2009. In future design documents additional information should be provided to fully describe what was done (e.g., ground elevation at each of the four poles, height of each pole/flag, weather conditions, conditions of trees in vicinity [leaf-on, leaf-off]) and the results (include photos, logs, location map).

4.2 Page 4-3, Paragraph 2, Section 4.2.2. In future design submittals the reference to the Proposed Plan for OU2 of the Geddes Brook/Ninemile Creek site should be replaced with a reference to the ROD for OU2.

4.3 Page 4-4, Section 4.2.5. The overall operational requirements of the SCA and geotextile tube placement process needs to be discussed in more detail in future design documents. These operational details need to be comprehensive such that they detail the day-to-day operational processes associated with: the hydraulic dredge delivery system; the proper filling and sequencing of the geotextile tubes; and other operations associated with monitoring and maintaining proper settlements, and placement of bulky or other materials in the areas of the SCA, as was discussed in our previous meetings.

4.4 Page 4-6, Section 4.3.1.3, General. It is stated that the calculated factors of safety for the two cross sections analyzed were met or exceeded based on the stability models. It should have been noted whether the sections analyzed represent typical or worst-case locations. Also, the text in the second paragraph of this section notes the potential strength gain in the underlying Solvay waste following placement of the geotextile tubes. If this strength gain was included in the modeling, there should have been some discussion as to how this was determined.

4.5 Page 4-8, Paragraph 2, Section 4.3.2.3. It is stated that the maximum tensile strain on the liner system is estimated to be 2.7%, which is less that the maximum allowable of 5%. The text should have noted which case/condition and associated figure in Appendix H presents this maximum value since higher values are shown on some of the figures in Appendix H (e.g., 2.9% on Appendix H Figure 37; note the strain values appear to be the values below the slopes on the figures).

4.6 Page 4-8, Section 4.3.3. Honeywell states that the base liner system is described as having a 24 inch (average) thick drainage layer and Appendix F states that the drainage layer will have a minimum thickness of 1 ft. This is not consistent with our understanding of the thickness of the drainage layer. The 2 ft average thickness was envisioned as addressing the practicality of placing the material and the minimum thickness was believed to be 20 inches in areas where there would be no truck traffic. In areas of truck traffic a 2 ft thick (minimum) drainage layer is believed to be appropriate.

4.7 Page 4-8, Section 4.3.3.1. The design needs to discuss how the composite liner system, related drainage, and leachate collection removal and monitoring system features, will effectively protect groundwater quality at the site in accordance with the provisions of Part 360-2.14(a).

4.8 Page 4-9, Section 4.3.3.1. Honeywell needs to clearly state that the drainage layer design objective is to ensure that hydraulic head in the drainage layer will not exceed 1 foot except during storm events, and should identify under what limited circumstances it is anticipated that the head on the liner will exceed 1 foot, and what steps will be taken to minimize this situation from occurring.

4.9 Page 4-9, Paragraph 2, Section 4.3.3.2. The liquids management system is designed for OPERATIONAL AND post closure conditions, not just post closure conditions.

4.10 Page 4-10, Paragraph 2, Section 4.3.4.2. Honeywell states that Weir Box #6 will be abandoned. Future design documents should include details on how this weir box will be abandoned especially from the standpoint of minimizing it from being considered a potential contaminant pathway.

4.11 Page 4-10, Paragraph 6 (continued on to page 4-11), Section 4.3.4.2. It is stated that non-contact water will be discharged to the existing drainage system and out to the existing SPDES discharge points. Honeywell and NYSDEC should discuss this issue in more detail in order to determine if the construction and/or operation of the SCA would result in any exceedances of these limits or result in exceeding the capacity of the existing drainage system.

4.12 Page 4-11, Paragraph 2, Section 4.3.4.3. The discussion relating to surface water management during SCA operations needs to be expanded upon and discussed in greater details in future design submittals since the related text in the SCA IDS is insufficient to clearly describe what is being proposed.

4.13 Page 4-11, Paragraph 3, Section 4.3.4.4. Since the details of the final cover have not yet been determined, it is premature to discuss surface water runoff associated with the final cover in the SCA IDS.

4.14 Page 4-12, Section 4.3.5. While the Department is in agreement with Honeywell that, if appropriate, the SCA cover may be designed in accordance with the USEPA Alternative Cover Assessment Program (ACAP) and may utilize a soil layer and ecological plant community, however, the Department cannot agree to a 0.5% slope for the final cover until the final design of the cover system is submitted for review.

4.15 Page 4-12, Paragraph 1, Section 4.3.5. Honeywell states that the SCA cover may utilize a soil layer and ecological plant community to reduce precipitation infiltration rates to acceptably low levels. Define acceptably low levels.

4.16 Page 4-14, Section 4.4.1. The phasing of the SCA liner construction will need to be discussed with NYSDEC such that it can be determined that liner construction will take place in a timely manner, including accounting for possible construction-related delays, such that any potential negative impact on dredging can be minimized.

4.17 Page 4-16, Paragraph 1, Section 4.4.4. The volume of dike material needed is given here as 56,400 cy, whereas it's 57,000 cy in Appendix F, Table 1. Please revise, as appropriate.

4.18 Page 4-16, Section 4.4.5. Was the use of rail considered in addition to trucks? If rail was considered and screened out, the text in future design documents should note this.

4.19 Page 4-16, Section 4.4.5. Trucks hauling C&D wastes, for disposal in Wastebed 15, should be allowed to enter the site only at Belle Isle Road entrance.

4.20 Page 4-18, Section 4.4.5. The table should have noted the percentages of vehicles in the average annual daily traffic values that are trucks.

4.21 Figure 4.1. The size of the SCA footprint in this figure is not consistent with the total SCA area shown in the drawings in Appendix E.

Section 5

5.1 A Contingency Plan should be prepared as part of future design submittals which meets the applicable provisions of 6 NYCRR Part 360-2.10. Honeywell should provide detailed discussions in this plan covering the hydraulic material delivery system and aspects of the geotextile tube operations. Also Honeywell shall address adverse settlement in the SCA and discuss/detail how corrective operational procedures would be used to rectify settlements that do not compliment the SCA design objectives.

5.2 Page 5-1, Section 5.2. A Construction Quality Assurance/Construction Quality Control Plan should be submitted that is consistent with the requirements of 6NYCRR Part 360-2.8 and 2.13. Has Honeywell considered constructing a test pad for the low permeable soil layer of the composite liner? Also, has Honeywell considered performing electrical resistivity leak location testing on the liner system once construction is complete? Electrical resistivity leak location testing has been recognized in the geomembrane and waste containment industry as one of best means of ensuring that defects resulting from containment system construction are mitigated.

5.3 Page 5-1, Section 5.3. Geotechnical instrumentation appears limited to monitoring settlement and pore pressure. Consideration should also be given to other instrumentation; e.g., inclinometers to evaluate/monitor slope instability.

Section 7

7.1 Section 7, General. The submission date for the "SCA Civil & Geotechnical Draft Final Design to NYSDEC" of "1/22/10" is acceptable and therefore approved. The basis for the remaining dates will need to be discussed with NYSDEC and USEPA prior to a determination begin made as to the appropriateness of those dates.

7.2 The table specifies "liner construction" for the start and completion of the Phases I, II, and III SCA cells. Since SCA construction also includes other components (e.g., berms, gravel drainage layers, sumps, pumps, monitoring systems), "liner" should not have been included in the description of the various milestones.

Appendix C

C.1 This is Honeywell's initial submission of the compatibility testing results completed pursuant to the Phase IV Addendum 6 work plan. There should have been some introductory text summarizing what was sampled and what is being presented. For example, the JLT Labs letter dated June 29, 2009 states that the compatibility samples used Solvay waste. If correct, it should have been explained that the samples used for the testing were from the in-lake waste deposit (ILWD) consisting of Solvay waste and sediments generally containing the highest levels of contaminants on site as well as NAPL blebs.

Appendix D

D.1 This is Honeywell's initial submission of the direct shear interface testing results. There should have been some introductory text summarizing the testing that was completed (e.g., summary of ASTM method used).

Appendix E

E.1 The final design drawings should be consistent with the provisions of Part 360-1.9(e)(1), unless otherwise approved by the NYSDEC.

E.2 Drawing C-002. The scale on this figure (lower right) is not correct for the size of this figure (11" x 17") and it is believed that the correct scale should have been 1" = 400'.

E.3 Drawing C-002. Although the existing weir boxes are shown, the rest of the existing leachate control system and SPDES discharge points should have been added to this figure since this system is discussed throughout Section 4 as being used for managing non-contact water during construction, operation, closure, and post-closure.

E.4 Drawing C-002. In Note 2, NGVD 88 should have been NAVD 88. Also, Note 3 refers to a field survey to be performed before final design. The components and schedule for this survey should be discussed with NYSDEC.

E.5 Drawing C-003 (and others). The scale on this figure (lower right) is not correct for the size of this figure (11" x 17") and it is believed that the correct scale should have been 1"= 240'.

E.6 Drawing C-003. Note 3 refers to an evaluation of the structural integrity of the existing weir boxes that would likely continue to be used. The integrity evaluation should also include the rest of the existing leachate control system. The components and schedule for this work should be discussed with NYSDEC.

E.7 Drawing C-003. Note 4 on this drawing (and Section 8 on Drawing C-009) indicates that the perimeter berm would be a minimum height of 5 ft above the existing subgrade rather than above the minimum 3-ft thick liner/gravel layers. It is recommended that the minimum berm height of 5 ft be above the liner/gravel layers to allow for additional containment of filtrate and sediment in the event of a geotextile tube failure. Also, the elevations on the berms in some areas (e.g., eastern berm) are less than 5 ft above the existing grade (liner subgrade). Please clarify.

E.8 Drawing C-007, Instrumentation and Monitoring Plan. Large areas in the interiors of Phases I, II, and III have virtually no instrumentation. Additional instrumentation should be provided to measure settlement in these areas and to document that positive drainage is being maintained.

E.9 Drawing C-007, Instrumentation and Monitoring Plan. Settlement of the sumps should be monitored.

E.10 Drawing C-007, Instrumentation and Monitoring Plan. The primary instrumentation appears to be settlement profilers. Only very limited redundancy is provided in the event of a failure of the profiler system. Additional redundancy should be provided and contingencies should be developed in the event of instrumentation failure.

E.11 Drawings C-012 through C-016. Please explain why drawings C-012 through C-014 are based on a capacity of 2.65 million cy, whereas drawings C-015 and C-016 are based on a capacity of 1.9 million cy.

Appendix F

F.1 Figures 5 and 9. The comparison (top) surface in this isopach for the perimeter berm thickness is listed as “Bottom of Liner.” It is believed that the comparison (top) surface for this isopach figure should have been the top of berm. Please revise or clarify.

F.2 Attachment Figures A4 and B4. These figures, which show the proposed top of geotextile tubes grading plan, are not consistent with Drawings C-012 and C-015 in Appendix E. The magnitude of the differences suggests that the figures in Appendix F do not include settlement. This should be confirmed and noted in any future versions of these figures.

Appendix G

G.1 Page 4, Material Properties, Unit Weight. It is unclear why interfaces require assigned unit weights (it is assumed that these are required input for the SLIDE model). It is also unclear why horizontal and vertical interfaces are assigned different unit weights. Please provide a brief explanation/discussion.

G.2 Page 10, Analyzed Cases, Geo-tube Slip Mode. The meaning of the terms "stacks" and "columns" should be clarified, perhaps with a sketch.

G.3 Page 14, Summary and Conclusions. It is indicated that instrumentation to monitor the field consolidation is recommended to monitor strength gain. Additional instrumentation should also be considered; e.g., inclinometers to monitor/verify global stability and/or block stability.

G.4 Page 14, Summary and Conclusions. Future documents related to stability should also summarize the sensitivity of the results to variations in model input parameters (e.g., material properties).

G.5 Figure 2 (and others). This figure, which shows the proposed top of cover grading plan, is not consistent with Drawing C-013 in Appendix E. The magnitude of the differences suggests that this figure does not include settlement. This should be confirmed and noted in any future versions of these figures.

G.6 Table 2. Figures are referenced and provided for the critical cases with the lowest factors of safety (e.g., top 4 stacks, 1 column). For the Slip of Geo-tubes models, figures should have also been provided for the 5 stacks, 1 column case so it can be seen how there is an increase in the factor of safety under the 5 stacks condition compared to 4 stacks. Based on Figure 22, which is for 4 stacks from the top, it appears that the fifth stack would be at the bottom (i.e., in contact with the gravel layer) where the friction angle is greater between the gravel and geotube than between geotube-geotube.

Appendix H

H.1 Page 4, Settlement Computation Model. The Surface Settlement Model (SSM) warrants additional discussion relative to the potential "inaccuracy" of the settlement estimates caused by neglecting stress distribution in the model. Specifically, this model would appear to over-predict settlement to some degree. If so, the impact of this inaccuracy (whether conservative or not conservative) on maintaining positive drainage to the sumps should be evaluated and discussed.

H.2 Page 16, Conclusions, (iii). It is concluded that no slope reversal or local ponding (of the liquid collection layer) is anticipated. Considering the inherent uncertainty in the model and variation in subsurface conditions across the site, this conclusion may be optimistic considering the gentle slopes of the drainage system. It may be more accurate to state that the model predicts no slope reversal or local ponding.

H.3 Page 16, Conclusions, (iv). It is stated that the maximum calculated strain on the liner is 2.7%. Review of the figures cited at the top of this page indicates that the maximum strain is 2.9% (Figure 37).

Appendix I

I.1 The HELP model does not have a complete cap design modeled. Therefore, any results from the submitted HELP model are not necessarily accurate. Once the cap has been decided upon, the SCA should be modeled again.

I.2 Layers 1, 2, 3, 4, 5, 7, and 8 have a material texture number that does not correspond to a texture number for the HELP Model. If those texture numbers are user defined, the input data must be supplied.

I.3 The design speaks of having a final cover that may utilize a soil layer and an ecological plant community. Has Honeywell given any thought to using the SHAW model to model the SCA design? Honeywell is currently working on a cap design for the remainder of Settling Basins 9-15 that will use an ET final cover system and that cap design is being modeled using the SHAW model.

Appendix J

J.1 Table 5. The computed flow value in the last row (10.9 gpm) should be checked. A spot-check of the calculations resulted in a flow of 14.6 gpm.

Appendix K

K.1 As stated previously (see comment relating to Page 4-11, Paragraph 3, Section 4.3.4.4), since the details of the final cover have not yet been determined, it is premature to discuss surface water runoff associated with the final cover in the SCA IDS.

Appendix M

M.1 Geotechnical Instrumentation & Monitoring Plan Outline. Considering the inherent uncertainty of the settlement prediction model, significant effort should be made relative to calibrating the model (Section 2.3). In addition, extensive settlement monitoring should be performed across the site to monitor settlement as geotextile tubes are placed and to verify/document that positive drainage is being maintained. Redundancy should be provided to account for instrument malfunction and/or damage during construction operations.

M.2 Geotechnical Instrumentation & Monitoring Plan Outline. Procedures should be included to describe how the instrumentation data will be used to modify operations in real time to maintain positive drainage and minimize risk of drainage system slope reversal and local

ponding. In addition, procedures should be included to describe how the data will be used to verify slope stability, and, if necessary, enhance slope stability.