Florida Department of Environmental Protection

Memorandum

TO: Christopher Kirts, P.E.
Air Program Administrator
FDEP-NED

FROM: Emerson C. Raulerson, P.E.
Solid Waste Supervisor
FDEP-NED

DATE: June 21, 2007

SUBJECT: Review of the Site Certification Application for Taylor Energy Center
Power Plant Site Application No. PA07-50
Taylor County, Florida

The Solid Waste Section has reviewed the above-referenced document prepared by Environmental Consulting & Technology, Inc. (ECT) and Sargent & Lundy, LLC (dated May 2007) on behalf of Taylor Energy Center. The application indicates that some wastes (e.g., bottom and fly ash, and flue gas desulfurization system waste) will be stored onsite in three double-lined byproduct storage units that will have both leachate collection and leak detection layers. Construction material will be disposed onsite in a construction debris disposal area, while other wastes will be disposed at an offsite landfill. The submittal does not provide detailed data or design information, but does indicate a number of rule requirements that will be met for the byproduct storage areas. However, it does not provide any details regarding the design, construction or operation of the construction debris disposal area. The following information is requested:

1. Please indicate that prior to acceptance of waste in any of the proposed landfill/byproduct storage areas (including the construction debris disposal area), a detailed design of each will be provided to the Department for approval.

2. Please indicate that the requirements of FAC 62-701.340(4)(a) regarding the ability of the site to structurally support the facility will be met and note that, based on information submitted with the groundwater monitoring portion of the application, the site appears to be very karst. Detailed information will therefore be needed to demonstrate how this issue will be addressed.

3. Please indicate that the requirements of FAC 62-701.340(4)(b) regarding the placement of solid waste disposal units within the 100-year flood plain will be met.

4. Please indicate that all the requirements of FAC 62-701.400(3)(a) regarding landfill liner requirments will be met.

5. Please indicate that all the requirements of FAC 62-701.400(3)(d) regarding standards for geosynthetic components will be met.

6. Please indicate that all the requirements of FAC 62-701.400(3)(f) regarding standards for soil components will be met.

7. Please indicate that all the requirements of FAC 62-701.400(4)(a)&(b) regarding leachate collection and removal systems will be met.

8. Please indicate that all the requirements of FAC 62-701.400(6) regarding leachate surface impoundments will be met.

9. Please indicate that the requirements of FAC 62-701.410(2) regarding the geotechnical investigation requirements will be met.

10. Please indicate that all the requirements of FAC 62-701.620 regarding the long term care of closed facilities will be met.

11. Please indicate that the requirements of FAC 62-701.630 regarding the financial assurance of closure and long term care cost will be met.

12. Please compile a list of <u>all</u> wastes and/or byproducts that may be placed into the byproduct storage areas, indicate whether they are hazardous, and if not, provide documentation supporting that assertion.

13. Information was not found regarding the requirements that would be met for the onsite construction debris disposal area. Please address including, but not limited to, the groundwater monitoring requirements.

The following items relate to the groundwater/hydrogeological issues in relation to the handling of solid waste.

14. Prior to the acceptance of any waste in the proposed landfills, the facility shall provide for Department review, in conjunction with any requested additional information, and obtain Department approval of a revised groundwater monitoring plan to address potential discharges from the landfills. The groundwater monitoring plan shall be of sufficient detail to show how the landfills will be monitored and to provide technical justification for the monitoring locations, parameters and frequency. The facility shall conduct initial sampling prior to the acceptance of waste in accordance with the approved groundwater monitoring program.

It is suggested that in the near future an in person meeting be scheduled with the applicant and their environmental consultant(s) to discuss the large number of issues associated with the onsite landfills. In order to keep the meeting focused and timely, I further suggest limiting the meeting to the Solid Waste Section concerns.

15. The groundwater monitoring plan shall also comply with the portions of 62-522 and 62-701 listed herein.

62-522.600 (3) Monitoring Plan Contents. Using part or all of the information listed from (a) through (m) below, the installation owner shall provide the Department with a plan containing findings and recommendations for ground water monitoring derived from site-specific information. Pursuant to Chapters 492 and 471, F.S., the ground water monitoring plan shall be signed and sealed by the professional geologist or professional engineer who prepared or approved it. The plan shall show the locations of the proposed background and downgradient monitor wells, construction details of the monitor wells, and a water sampling and chemical analysis protocol. The plan shall indicate how to determine background or natural background (where available) quality of the ground water in the vicinity of the site and any deviations in the quality of the receiving ground water in the downgradient monitor wells. The Department shall evaluate the adequacy of the plan upon submittal; however, the applicant should arrange a preapplication meeting with the Department to resolve the needed information at an early stage. The following information is generally required for detailed assessment of the most complex plans unless otherwise specified in other Department rules. Less complex cases will need less information:
(a) Hydrogeological, physical and chemical data for the site, such as:
1. Direction and rate of ground water flow, background ground water quality (all field verified), and natural background ground water quality where available;
2. Porosity, horizontal and vertical permeability for the aquifer(s);
3. The depth to, and lithology of, the first confining bed(s);
4. Vertical permeability, thickness, and extent of any confining beds;
5. Topography, soil information and surface water drainage systems surrounding the site;
6. Fracture trace analysis;
7. Geophysical methods such as ground penetrating radar surveys;
(b) Waste disposal rate and frequency, chemical composition, method of discharge, pond volume, spray-field dimension, or other applicable site specific information;
(c) Toxicity of waste;
(d) Present and anticipated discharge volume and seepage rate to the receiving ground water; and physical, chemical, and microbiological characteristics of the leachate;
(e) Disposal system water balance;
(f) Present and reasonably expected future pollution sources located within one mile radius of the site;
(g) Inventory depth, construction details, and cones of depression of water supply wells or wellfields and monitor wells located within one mile radius of the site or potentially affected by the discharge;
(h) Site specific economic and feasibility considerations;
(i) Chronological information on water levels in the monitor wells and water quality data on water supplies collected from the water supply and monitor wells;
(j) Type and number of waste disposal facilities within the installation;
(k) Chronological information on surface water flows and water quality upstream and downstream from the site;
(l) Construction and operation details of disposal facilities;
(m) History of construction and land development in the vicinity of the site.
(4) Plan Approval. Within 90 days of the date of the Department's receipt of a completed monitoring plan from existing installations described in (2)(b) above, or at the time of permit issuance or denial, whichever is appropriate, the Department shall
either approve or deny the monitoring plan.

62-522.600 (6) Location of Monitoring Wells to Detect Migration of Contaminants. Unless the installation owner can demonstrate that detection can be obtained by a methodology other than the use of monitoring wells, wells shall be located as follows:

(a) One upgradient well located as close as possible to the site, without being affected by that site's discharge, to determine the background, or natural background quality where available, of the ground water (background well);
(b) One well at the edge of the zone of discharge downgradient from the site (compliance well);
(c) One well downgradient from the site and within the zone of discharge designed to detect the chemical, physical, and microbiological (if applicable) characteristics of the discharge plume (intermediate well); and;
(d) Such other wells as are dictated by the complexity of the hydrogeology of the site, the magnitude and direction of the plume or the likelihood of threat to the public health, to ensure adequate and reliable monitoring data in generally accepted engineering or hydrogeological practice.

62-701.410 (1) Hydrogeological investigation and site report. The hydrogeological investigation and site report required by Rule 62-701.330(3), F.A.C., shall be site specific, shall be conducted by or under the supervision of a professional geologist or
professional engineer with experience in hydrogeologic investigations, and shall:
(a) Define the landfill site geology and hydrology and its relationship to the local and regional hydrogeologic patterns including:
1. Direction and rate of ground water and surface water flow, including seasonal variations;
2. Background quality of ground water and surface water;
3. Any on site hydraulic connections between aquifers;
4. For all confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill, the porosity or effective porosity, horizontal and vertical permeabilities, and the depth to and lithology of the layers and aquifers; and
5. Topography, soil types and characteristics, and surface water drainage systems of the site and surrounding the site.
(b) Include an inventory of all the public and private water wells within a one-mile radius of the proposed landfill site. The inventory shall include, where available:
1. The approximate elevation of the top of the well casing and the depth of each well;
2. The name of the owner, the age and usage of each well, and the estimated daily pumpage; and
3. The stratigraphic unit screened, well construction technique, and static water levels of each well.
(c) Identify and locate any existing contaminated areas on the landfill site.
(d) Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas, and locations of all wells serving community water supplies within 1000 feet of the waste storage and disposal areas, to demonstrate compliance with Rule 62-701.300(2)(b) and (h), F.A.C.
(2) Geotechnical site investigation. The geotechnical site investigation required by Rule 62-701.330(3), F.A.C., shall be conducted by or under the supervision of a professional engineer with experience in geotechnical engineering. Prior to any construction on the landfill site, the engineer shall define the engineering properties of the site that are necessary for the design, construction, and support of the landfill and all installations of the facility and shall:
(a) Explore and describe subsurface conditions including soil stratigraphy and ground water table conditions;
(b) Explore and address the presence of muck, previously filled areas, soft ground, lineaments, and sinkholes;
(c) Evaluate and address fault areas, seismic impact zones, and unstable areas as described in 40 C.F.R. 258.13, 258.14 and 258.15;
(d) Include estimates of the average and maximum high ground water table across the site; and
(e) Include a foundation analysis to determine the ability of the foundation to support the loads and stresses imposed by the landfill. It may include geotechnical measures necessary to modify the foundation to accommodate the imposed loads and stresses.
The foundation shall be analyzed for short-term, end of construction, and long-term stability and settlement conditions. Considering the existing or proposed subgrade conditions and the landfill geometry, analysis shall include:
1. Foundation bearing capacity;
2. Subgrade settlements, both total and differential; and
3. Subgrade slope stability.
(3) Report. The geotechnical site investigation report shall describe the site subsurface conditions and shall include, at a minimum, the methods used in the investigation, all soil boring logs and laboratory results, analytical calculations, cross sections, interpretations and conclusions.

(4) Report verification. The site reports and supporting information, including detailed description of the methods, calculations, and interpretations used, shall be signed and sealed by the professional engineer or geologist.

62-701.510 (2) Water quality monitoring plan and system.
(a) The permit applicant shall provide to the Department a water quality monitoring plan for the landfill that describes the proposed ground water, surface water, and leachate monitoring systems. The plan shall be based on the hydrogeological investigation required in Rule 62-701.410, F.A.C., and be prepared by, or under the supervision of, a professional geologist or professional engineer with experience in hydrogeologic investigations. The plan shall be signed and sealed by the professional geologist or professional engineer.
(b) The water quality monitoring system shall be installed and consist of: a sufficient number of ground water wells installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer, as well as other aquifers reasonably expected to be affected by the landfill; surface water monitoring points installed at locations to yield samples of surface water that may be affected by the landfill; and leachate monitoring points to yield representative leachate samples. All sampling and analysis activities shall be performed in accordance with Chapter 62-160, F.A.C.
(c) The water quality monitoring plan shall comply with the provisions of Rule 62-522.600(3), F.A.C. The applicant shall specify sampling locations and frequency in the water quality monitoring plan, and shall provide justification for these locations and frequencies based upon site conditions.
(3) Ground water monitoring.
(a) Two or more detection wells shall be located within the zone of discharge hydraulically downgradient from the solid waste disposal unit, to detect leachate releases. These wells shall be located no more than 50 feet from the edge of the solid waste disposal unit, unless site specific conditions make such placement impractical. These wells shall be capable of monitoring each solid waste disposal unit as it is operated. However, in accordance with Section 403.704(14), F.S., only one detection well is required at Class II landfills unless it is affirmatively demonstrated by the Department that a significant change in the initial quality of the water has occurred in the detection well which adversely affects the beneficial uses of the water.
(b) Multiple downgradient compliance wells shall be located at or immediately adjacent to the compliance line of the zone of discharge, if required in subsection (7) of this section. If site-specific conditions require installation of compliance wells within the zone of discharge, then a confirmed exceedance of a ground water standard above background at such wells will be considered a violation of that standard.
(c) A sufficient number of background wells installed as part of the site hydrogeological investigation required in Rule 62-701.410, F.A.C., shall be maintained throughout the design life of the landfill to provide information on background water quality.
(d) Monitoring wells.
1. The location of each well, in degrees, minutes and seconds of latitude and longitude, and the elevation of the top of the well casing to the nearest .01 foot, National Geodetic Vertical Datum (NGVD 1929), shall be determined by a registered Florida land surveyor.
2. An identification number shall be assigned by the Department to each monitoring well in accordance with the Department's Water Assurance Compliance System computer file. The identification number shall be used on all water quality monitoring reports.
3. Well spacing shall be spaced no greater than 500 feet apart across the downgradient direction of ground water flow, and no greater than 1500 feet apart across the upgradient direction of ground water flow, in the uppermost aquifer within the zone of discharge, unless site specific conditions support the use of alternate well spacing. Conditions to be considered include, but are not limited to, ground water flow directions and rates, estimated longitudinal and transverse dispersivity rates, proximity to or presence of sensitive environments and ground water users, nature of the wastes, method of disposal, and the proposed design and size of the facility.
4. Well screens shall be located to readily detect representative ground water conditions within the saturated thickness of the uppermost aquifer within the zone of discharge. Well screens shall not act as conduits through confining layers between water bearing strata. The annular space (the space between the borehole and well casing) above the sampling depth shall be sealed to prevent contamination of samples and ground water. Wells monitoring the unconfined water table shall be screened so that the water table can be sampled at all times. The applicant shall provide technical justification for the actual screen length chosen.
5. Any monitoring wells which are abandoned or which will be covered due to lateral expansions of a landfill or the construction of new solid waste disposal units shall be plugged as necessary so that they do

not act as a conduit for any leachate release to the ground water. The Department shall be notified in writing before any monitoring wells are abandoned or plugged.
6. Detection sensors capable of detecting changes in ground water that may indicate leachate releases, linked to a data recorder, may be used to augment detection wells or may be used as an alternative to detection wells, upon demonstration of their effectiveness to the Department.
(4) Surface water monitoring.
(a) All surface water bodies that may be affected by a contaminant release from the facility shall be monitored, except bodies of water contained completely within the property boundaries of the disposal site which do not discharge from the site to surface waters. In bodies of standing water, one or more representative monitoring points shall be located as close as practical to the facility. For flowing water bodies, a sufficient number of upgradient and downgradient locations shall be used to allow the effect of the landfill to be measured.
(b) Discharges from detention ponds for storm water shall be sampled at the point of discharge to waters of the state or from the property, whichever is closer to the detention pond.
(c) The details concerning the sampling locations and the analysis requirements shall be specified in the water quality monitoring plan. Each monitoring location shall be marked and its position shall be determined by a registered Florida land surveyor in degrees, minutes and seconds of latitude and longitude.

62-701.510 (6) Initial and routine sampling frequency and requirements. Except as otherwise specified in a Department permit or order or in subsection (7) of this section, frequency of sampling and analysis shall comply with the following. However, the owner or operator of a solid waste disposal unit may request a permit modification from the appropriate District Office of the Department to delete specific monitoring parameters or field parameters from routine analyses of detection or compliance wells and surface water. The Department will grant such modification upon a demonstration that these parameters are not reasonably expected to be in or derived from the waste contained in the unit.
(a) Demonstration to delete parameters. A demonstration to delete monitoring parameters may include an evaluation of:
1. The concentration or contrast between monitoring parameters in leachate and in background water quality; and
2. The types, quantities and concentrations of constituents in the wastes, and their degradation products, managed at the facility;
(b) Initial background water quality.
1. Initial background water quality for a proposed landfill shall be determined by analysis of at least one water sample taken from each well that was installed, and each surface water monitoring location that was established, during the site hydrogeological investigation. The water quality information shall be submitted to the Department as part of the supporting information for the permit application.
2. Sampling and analysis for initial background ground water quality shall be for the parameters listed in paragraphs (8)(a) and (8)(d) of this section.
3. Sampling and analysis for initial background surface water quality shall be for the parameters listed in paragraph (8)(b) of this section.

62-701.510 (d) Routine monitoring well sampling. All detection wells, and a representative sample of background wells, shall be sampled and analyzed for the ground water parameters listed in paragraph (8)(a) of this section, in accordance with the water quality monitoring plan. For lined landfills, this shall be done at least semi-annually. The owner or operator of a solid waste disposal unit may request a permit condition or modification from the appropriate District Office of the Department to use an alternate monitoring frequency for background wells. The Department will approve such condition or modification upon a demonstration that the alternate frequency is appropriate based upon site specific lithology of the aquifer and unsaturated zone, hydraulic conductivity of the aquifer and unsaturated zone, ground water flow rates, minimum distance of travel and the fate and transport of parameters detected.
(e) Routine surface water sampling. Surface waters shall be sampled and analyzed semi-annually for the parameters listed in paragraph (8)(b) of this section, in accordance with the water quality monitoring plan.
(7) Evaluation monitoring, prevention measures and corrective action.
(a) Evaluation monitoring. If monitoring parameters are detected in detection wells in concentrations which are significantly above background water quality, or which are at levels above the Department's water quality standards or criteria specified in Chapter 62-520, F.A.C., the permittee may resample the wells within 30 days after the sampling data is received, to confirm the data. Should the permittee choose not to resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility. If the data is confirmed, or if the permittee chooses not to resample, the permittee

shall notify the Department in writing within 14 days of this finding. Upon notification by the Department, the permittee shall initiate evaluation monitoring as follows:
1. Routine monitoring of all monitoring wells, surface water monitoring locations and leachate sampling locations shall continue according to the requirements of subsection (6) of this section.
2. Within 90 days of initiating evaluation monitoring and annually thereafter, the permittee shall sample and analyze a representative sample of the background wells and all affected detection wells for the parameters listed in paragraph (8)(d) of this section. Any new parameters detected and confirmed in the affected downgradient wells shall be added to the routine ground water monitoring parameter lists required in subsection (6) of this section for the affected wells.
3. Within 90 days of initiating evaluation monitoring, the permittee shall install and sample compliance monitoring wells at the compliance line of the zone of discharge and downgradient from the affected detection monitoring wells. These wells shall be installed according to the requirements of paragraph (3)(d) of this section, and samples from these wells and the affected detection wells shall be analyzed quarterly for the parameters listed in paragraphs (8)(a) and (d) of this section.
4. Within 180 days of initiating evaluation monitoring, the permittee shall submit a contamination evaluation plan to the appropriate Department District Office. This plan shall be designed to delineate the extent and cause of the contamination, in order to predict the likelihood that Department water quality standards will be violated outside the zone of discharge, and to evaluate methods to prevent any such violations. After the Department and the permittee agree that the plan is so designed, the permittee shall implement this plan and submit a contamination evaluation report in accordance with the plan. All reasonable efforts shall be made by the permittee to prevent further degradation of water quality from the landfill activities.
5. The owner or operator of a solid waste disposal unit may request a modification from the appropriate District Office of the Department to use an alternate monitoring frequency, for repeated sampling during evaluation monitoring. The Department will grant such modification upon a demonstration that the alternate frequency is appropriate based upon site specific lithology of the aquifer and unsaturated zone, hydraulic conductivity of the aquifer and unsaturated zone, ground water flow rates, minimum distance of travel and the fate and transport of parameters detected.
6. The owner or operator of a solid waste disposal unit may request a permit modification from the appropriate District Office of the Department to delete specific monitoring parameters or field parameters from evaluation analyses of detection or compliance wells. The Department will grant such modification upon a demonstration that these parameters are not reasonably expected to be in or derived from the waste contained in the unit.
7. The permittee shall not discontinue evaluation monitoring, and return to routine monitoring only, until authorized to do so by the Department. The Department shall make this determination based upon the results of the contamination evaluation report and other relevant water quality data.
(b) Prevention measures and corrective actions.
1. If the contamination evaluation report indicates that water quality standards are likely to be violated outside the zone of discharge, the permittee shall, within 90 days, submit a prevention measures plan to the Department. Upon approval, the permittee shall initiate prevention measures to prevent such violations.
2. If any contaminants are detected and confirmed in compliance wells in concentrations which exceed both background levels and Department water quality standards or criteria, or are detected and confirmed in detection wells in concentrations which are above Department water quality minimum criteria, the permittee shall notify the Department within 14 days of this finding and shall initiate corrective actions. Evaluation monitoring shall continue according to the requirements of paragraph (7)(a) of this section.

62-701.510 (9) Water quality monitoring reporting.
(a) The landfill owner or operator shall report all water quality and leachate monitoring results to the Department semi-annually, unless a different monitoring frequency is specified in the permit. Water quality data contained in the report may be submitted to the Department electronically, and may be used in place of written copies of the data, if approved by the Department in the permit. The Department shall approve such submittals if the permittee specifies in the operation plan a method of electronic submittals which is compatible with the Department's information systems. The operator of the landfill shall notify the Department at least 14 days before the sampling is scheduled to occur so that the Department may collect split samples. The report shall include at least the following:
1. The facility name and identification number, sample collection dates, and analysis dates;
2. All analytical results, including all peaks even if below maximum contaminant levels;
3. Identification number and designation of all surface water and ground water monitoring points;
4. Applicable water quality standards;
5. Quality assurance, quality control notations;

6. Method detection limits;
7. STORET code numbers for all parameters;
8. Water levels recorded prior to evaluating wells or sample collection. Elevation reference shall include the top of the well casing and land surface at each well site at a precision of plus or minus 0.01 foot (NGVD); and
(9) Water quality monitoring reporting.
(a) The landfill owner or operator shall report all water quality and leachate monitoring results to the Department semi-annually, unless a different monitoring frequency is specified in the permit. Water quality data contained in the report may be submitted to the Department electronically, and may be used in place of written copies of the data, if approved by the Department in the permit. The Department shall approve such submittals if the permittee specifies in the operation plan a method of electronic submittals which is compatible with the Department's information systems. The operator of the landfill shall notify the Department at least 14 days before the sampling is scheduled to occur so that the Department may collect split samples. The report shall include at least the following:
1. The facility name and identification number, sample collection dates, and analysis dates;
2. All analytical results, including all peaks even if below maximum contaminant levels;
3. Identification number and designation of all surface water and ground water monitoring points;
4. Applicable water quality standards;
5. Quality assurance, quality control notations;
6. Method detection limits;
7. STORET code numbers for all parameters;
8. Water levels recorded prior to evaluating wells or sample collection. Elevation reference shall include the top of the well casing and land surface at each well site at a precision of plus or minus 0.01 foot (NGVD); and
9. An updated ground water table contour map signed and sealed by a professional geologist or professional engineer with experience in hydrogeologic investigations, with contours at no greater than one-foot intervals unless site-specific conditions dictate otherwise, which indicates ground water elevations and flow direction; and
10. A summary of any water quality standards or criteria that are exceeded.

(b) A technical report, signed and sealed by a professional geologist or professional engineer with experience in hydrogeologic investigations, shall be submitted to the Department every two years, and shall be updated at the time of permit renewal. The report shall summarize and interpret the water quality and leachate monitoring results and water level measurements collected during the past two years. The report shall contain, at a minimum, the following:
1. Tabular displays of any data which shows that a monitoring parameter has been detected, and graphical displays of any leachate key indicator parameters detected (such as pH, specific conductance, TDS, TOC, sulfate, chloride, sodium and iron), including hydrographes for all monitor wells;
2. Trend analyses of any monitoring parameters consistently detected;
3. Comparisons among shallow, middle, and deep zone wells;
4. Comparisons between background water quality and the water quality in detection and compliance wells;
5. Correlations between related parameters such as total dissolved solids and specific conductance;
6. Discussion of erratic and/or poorly correlated data;
7. An interpretation of the ground water contour maps, including an evaluation of ground water flow rates; and
8. An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.
(c) All field and laboratory records specified in Rules 62-160.600-.630, F.A.C., shall be made available to the Department and be retained for the design period of the landfill.

General concerns:

16. The proposed site is in an active karst terrain with at least three documented sinkholes. The proposed site is also in an active well field with a significant cone of depression which may exacerbate subsidence ranging from undesirable to catastrophic. The Reconnaissance Geophysical Investigation of Karst Conditions report further identifies numerous limestone cutters, raveled soils, a probable

karst lineament of large size and three sinkholes, including one in the vicinity of the soil boring SB-7.

17. A paleosink is likely in the vicinity of the soil boring SB-7 where no limestone was encountered down to a depth of 102 feet below land surface. This specific area underlies the proposed location for the bottom ash byproduct storage area and the associated leachate pond. Additional geophysical investigation has been recommended and is warranted for the site as a whole. Specific and detailed geophysical investigations are necessary for all four (includes the construction and demolition landfill) landfills due to the nature of the material to be stored, the increased loading pressures and the known site geologic hazards.

18. Guidance Concentration Target Levels (GCTLs), including both primary and secondary standards for various metals and gross alpha were exceeded in numerous groundwater samples. Excessively turbid samples are reasoned to cause these exceedances. Proper well redevelopment should be undertaken and adherence to the DEP Technical Document entitled "Determining Representative Ground Water Samples, Filtered or Unfiltered" should be undertaken in all future sampling. Until representative groundwater samples have been established, background conditions for groundwater cannot be set. Therefore, several assumptions/statements within the SCA regarding the validity of groundwater monitoring cannot be not assumed.

Specific concerns and requests for additional information.

19. Please identify the location and distance from the proposed site of the two, ten acre ponds referenced by Ardaman and Associates where 72 new sinkholes formed during construction. Please provide any information available as to the type and success of any sinkhole mitigation and any ongoing problems at the referenced ponds.

20. Please provide the rational for the screen interval placement into a "clay aquitard" on the deeper monitoring wells and what type of additional hydrogeological characterization is proposed.

21. Please provide the analytical laboratory data sheets for all soil and groundwater environment samples. Only tabulated data was provided.

22. The tabulated groundwater data indicates that several chemicals, including but not limited to chromium and cyanide were misidentified as "no standard established" or NSE. Toxic equivalency factors for MW-2 were not established. Please revise tables as necessary.

23. The analytical detection limits for hexavalent chromium in groundwater were greater that the GCTLs in several samples. Please explain.

24. Please provide construction and operation details for the construction and demolition landfill and include an appropriate groundwater monitoring plan. Please include the proposed management of any deleterious materials and the management of any treated wood.

25. Please provide details for leachate disposal.

26. Please provide the rational for proposing the Zone of Discharge to include the entire extent (to the base) of the Floridan aquifer instead of the surficial aquifer.

27. Please provide a current, site scaled potentiometric surface map for the Floridan aquifer.

28. Please provide the rational for proposing a limited parameter sampling list in the Monitoring Plan that omits many of the routine parameters that were included in the SCA.

29. Please provide a complete chemical analysis of all proposed fuel types, additives, scrubber materials and catalysts to be used at TEC including the combustion ash(s) of each and that will potentially be disposed of in any the landfills.

30. Please provide a complete chemical analysis of all other materials that will potentially be disposed of in any the landfills including but not limited to chemicals in the make up water clarifier, scale inhibitors, ZLD pre-treatment clarified solids and ZLD crystallizer solids

31. Page 5, section A in the groundwater monitoring plan references a "...ZOD that will not cause violations of applicable groundwater standards in the present and future water supplies." The response indicates "...the resulting groundwater quality would not likely be detrimental..." but does not address not causing a violation. Please elaborate.

32. Page 9, section C in the groundwater monitoring plan references a statistical approach but does not provide a specific statistical analytical method. Please provide.