UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365



August 22, 1994

4FAB/EPS/cmh

Mr. Preston Lewis
Florida Department of Environmental Regulation
Air Permitting Section
Division of Air Resources Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-3000

SUBJ: Distribution of EPA "NOD/ROD" Notice and "NOD/Availability of ROD" Notice to State of Florida; Tampa Electric Company; EPA EIS for Tampa Electric Company Polk Power Station

Dear Mr. Lewis:

Enclosed please find copies of the two EPA notices concerning the EIS Record of Decision (ROD) and NPDES permit Notice of Determination (NOD) for the proposed Tampa Electric Company Polk Power Station. The NOD/ROD notice will not be published but is available to the public from EPA. The NOD/Availability of ROD notice will be published in the legal notices of the Tampa Tribune (Public Notice No. 94FL0162) and Polk County Democrat (Public Notice No. 94FL0163) in the near future (expected on September 1, 1994).

For your information, we have also distributed a copy of these notices to the following within the State of Florida: Mr. Hamilton Oven (FDEP Siting Coordination Section); Mr. Gary Santti (FDEP Southwest District); Ms. Estus Whitfield (Office of the Governor); Ms. Linda Loomis Shelley and Ms. Rosalyn Kilcollins (Department of Community Affairs); Ms. Janice Hatter (Intergovernmental Affairs); Mr. George Percy and Ms. Laura Kammerer (Division of Historical Resources); as well as Mr. Niles Glasgow (SCS State Conservationist). You may wish to internally distribute copies to various other State of Florida personnel.

EPA appreciates the Florida Department of Environmental Protection's comments and coordination on this EIS power plant project.

Sincerely,

Christine M. Hoberg /for

Heinz J. Mueller, Chief
Environmental Policy Section

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

# PUBLIC NOTICE OF NPDES PERMIT DETERMINATION (NOD) AND EIS RECORD OF DECISION (ROD)

Facility Name: Tampa Electric Company, Polk Power Station
Location: Polk County, 9995 SR 37 South, Mulberry, Florida 33860
Permit No.: FL0043869
Permit Effective Date: January 1, 1995
Prior Public Notice No.: 94FL0012; 94FL0016 and 94FL0017
Prior Public Notice Date: February 17, 1994; February 24, 1994
Draft EIS Notice of Availability Date: February 25, 1994
NPDES Permit/EIS Public Hearing Date: March 31, 1994
Final EIS Notice of Availability Date: June 10, 1994
EIS Record of Decision Effective Date: July 14, 1994

## EPA NPDES PERMIT AND EIS DETERMINATIONS

After due consideration of the facts applicable to the above-named power plant facility as they appear in the administrative record and the requirements and policies expressed in the Clean Water Act and appropriate regulations, the EPA Regional Administrator (Region IV) has determined that the National Pollutant Discharge Elimination System (NPDES) permit as amended (since March 31, 1994) should be issued. This action constitutes the U.S. Environmental Protection Agency's (EPA) final permit decision in accordance with Title 40, Code of Federal Regulations (40 CFR), Section 124.15(a). With the issuance of this Notice of Determination (NOD), the Final NPDES permit will become effective on January 1, 1995, provided that no timely request for an evidentiary hearing is received by EPA.

The Environmental Impact Statement (EIS) associated with this NPDES permit was prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, and EPA's responsibilities for NPDES permitting for a new source in Florida. The EPA Regional Administrator has determined that this EIS associated with the NPDES permit is acceptable. This determination considered that environmental impacts have been documented, reasonable mitigation has been proposed for certain important impacts, the NPDES permit as amended (since March 31, 1994) is acceptable for issuance, the opportunity for public comments on the EIS and Draft NPDES permit has been provided, and the nature of the comments on the Final EIS. Therefore, this notice also constitutes the approved EPA Record of Decision (ROD) for the EIS entitled "Tampa Electric Company - Polk Power Station." The EIS ROD was prepared in accordance with 40 CFR Part 6, Subpart D, § 6.400(e).

Due to its length, the present notice is not formally published; however, a separate newspaper notice for the NOD and to announce the public availability of the ROD (as opposed to providing the entire ROD text as was done in the present notice) will be published in the Polk County Democrat and the Tampa Tribune soon after the July 14, 1994 signature date of the present notice. The NOD for this NPDES permit was published pursuant to 40 CFR 124.15; the public availability of the EPA ROD for the EIS was published pursuant to 40 CFR 1506.6(b). That additional notice is entitled "Public Notice of NPDES Permit Determination (NOD) and Availability of EIS Record of Decision (ROD)" and was signed together with the present notice by the EPA Regional Administrator on July 14, 1994. The contents of the NOD is essentially the same in both notices.

REQUEST FOR EVIDENTIARY HEARING FOR NPDES PERMIT

Any interested person may contest this NPDES permitting decision by submitting a timely request for an evidentiary hearing (hearing) pursuant to the procedures at 40 CFR § 124.74. An original and two copies of the request must be submitted to the Regional Hearing Clerk (Ms. Julia P. Mooney: 404/347-1565, x6731) at the EPA Region IV address provided below for Ms. Lena Scott at the end of this notice (see "PUBLIC AVAILABILITY OF THIS NOTICE") within thirty (30) days following the issuance of the NPDES permit. The procedures and requirements for evidentiary hearing requests and appeals to the EPA Regional Administrator are published in 40 CFR Part 124, Subpart E.

If a request for a hearing is received by EPA, following review, a determination will be made and the requester advised of EPA's decision on the request. Until that time, the hearing request will render the permit ineffective pursuant to 40 CFR § 124.15(b). Also, since this facility is a new source (see below), the request will render the facility without an NPDES permit pending final EPA action and the facility may not discharge (unless relief is granted by the Presiding Officer under 40 CFR § 124.60(a)).

For purposes of judicial review under the Clean Water Act, 33 USC § 1251 et seq., final EPA action on a permit does not occur unless and until a party has exhausted its administrative remedies as required by 40 CFR Part 124.

EPA's permit action alternatives were to issue, issue with conditions, or deny an NPDES permit for a new source. EPA's preferred action in the EIS was to issue an NPDES permit with conditions. However, EPA has decided to issue the NPDES permit without conditions because none were necessary beyond those normally contained in an NPDES permit (e.g., effluent limitations, monitoring, reporting). The effective date for the permit is now proposed for January 1, 1995, while the effective date for the EIS ROD contained within this notice is the notice signature date of July 14, 1994.

NEW SOURCE DETERMINATION

EPA's tentative "new source" determination for the NPDES permit was announced in the newspaper by public notice on February 17, 1994 in the Polk County Democrat (Public Notice No. 94FL0012: "Notice of Initial New Source Determination") and by EPA letter to the Tampa Electric Company applicant dated January 11, 1994. This NOD constitutes the formal new source determination by EPA.

RECENT MODIFICATIONS TO THE NPDES PERMIT

The Draft NPDES permit EPA made available at the EPA Joint EIS/NPDES Permit Public Hearing on March 31, 1994 is the same draft permit dated March 31, 1994 that EPA included in Appendix A in the Final EIS. That Draft NPDES permit has been amended since March 31, 1994, primarily to include updated information in the permit regarding design modifications and improvements proposed by Tampa Electric Company and to append related water balance information. The resultant Final NPDES permit will become effective January 1, 1995, provided that no timely request for an evidentiary hearing is received by EPA.

EPA had previously requested certification pursuant to Section 401 of the Clean Water Act from the State of Florida for the Draft NPDES permit dated March 31, 1994. Florida waived Section 401 certification by letter to EPA dated June 21, 1994. The State did not recommend inclusion of any more stringent requirements in the Final NPDES permit during the 401 certification process. Therefore, as indicated above, EPA issues the permit without conditions.

It should be clarified that although the EPA NPDES permit is for point source discharges during plant operation to waters of the United States, this permit also addresses NPDES storm water permitting during plant operation. Also, Tampa Electric Company has already achieved coverage under the EPA NPDES General Permit issued on September 25, 1992, regarding plant construction storm water point source discharges to waters of the United States (i.e., General Permit for "Storm Water Discharges from Construction Sites"). Tampa Electric Company applied for coverage under the General Permit on August 25, 1993.

PUBLIC PARTICIPATION

Opportunity for public participation was provided for both the Draft NPDES permit and the EIS. The Draft EIS was noticed as a Notice of Availability (NOA) in the Federal Register at 59 FR 9211 on February 25, 1994. A brief reference to the fact that the Draft EIS involved an NPDES permit was made in the NOA. The official NEPA 45-day public comment period for the Draft EIS was from February 25, 1994 to April 11, 1994. Numerous copies of the Draft EIS (which included a copy of

the Draft NPDES permit as an appendix) and numerous additional copies of the Draft EIS Executive Summary were mailed to the public and review agencies. On March 31, 1994, during the public comment period, an EPA Joint EIS/NPDES Permit Public Hearing was held in Bartow, Florida. The hearing was announced in newspapers on February 24, 1994, in the Polk County Democrat (Public Notice No. 94FL0016) and the Tampa Tribune (Public Notice No. 94FL0017) and in an EPA "Environmental News" press release dated March 28, 1994, which was available to various Florida media. The official end of the comment period for the Draft NPDES permit and the Draft EIS was announced in these notices as April 11, 1994. Since the end of the comment period for the Draft NPDES permit was the same as for the Draft EIS, the lengths and dates of the comment periods for both the Draft EIS and Draft NPDES permit were essentially the same. An additional EPA Public Notice attached to the inside front cover of the Draft EIS (Volume I) also announced the due date of written comments on the Draft EIS and/or Draft NPDES permit as being April 11, 1994. The EPA contact person for written comments was also the same for both.

In addition to four EPA representatives and associated personnel (third-party contractor and court reporter), 20 people registered at the public hearing. These attendees consisted primarily of DOE and Tampa Electric Company representatives and their contractors, but also included the public. One public speaker provided verbal comments at the public hearing. This speaker represented the Central Florida Development Council and promoted the proposed project.

Nine (9) public comment letters on the Draft EIS and/or Draft NPDES permit were received by EPA, generally within the public comment period. These letters were received from: U.S. Department of Housing and Urban Development (HUD - Atlanta, GA); U.S. Department of Agriculture (Soil Conservation Service (SCS) - Gainesville, FL); U.S. Department of Commerce (National Oceanographic and Atmospheric Administration (NOAA) - St. Petersburg, FL); Florida Department of State (Division of Historic Resources/State Historic Preservation Officer (SHPO) - Tallahassee, FL); Colorado State University (Documents Department - Fort Collins, CO); Federal Aviation Administration (FAA, Orlando Airports District Office - Orlando, FL); FDEP (Southwest District - Tampa, FL); Florida Department of Community Affairs (State Clearinghouse - Tallahassee, FL); and U.S. Department of Health and Human Services (Centers for Disease Control (CDC)/ National Center for Environmental Health - Atlanta, GA). Of these, EPA considered comments provided by CDC, FDEP and FAA as requiring substantive responses. In addition to these comment letters, EPA and Tampa Electric Company corresponded generally throughout the EIS process.

Environmental concerns raised in the above comment letters included the following:

- Cumulative human health effects of air-deposited pollutants attributable to the proposed Polk Power Station

- Presence/absence of chlorinated dioxins and furans during IGCC coal gasification
- Analysis of indirect human exposure risk due to plant emissions
- Hexavalent chromium levels due to IGCC coal gasification
- Adequacy of groundwater monitoring for the proposed plant
- Quality control of the coal gasification slag by-product, including Toxicity Characteristic Leachate Procedure (TCLP) testing and radionuclide levels
- Height of structures and stacks proposed for the plant and FAA permitting for structures greater than 200 ft above ground level
- Site inspection procedures for the proposed plant
- Potential EPA inclusion of more stringent conditions regarding penalties than those contained in the standard Part II NPDES permit language and Florida law
- Potentially linking NPDES permit conditions with final approval and continuance of the proposed DOE cost-shared financial assistance under the DOE CCT Demonstration Program
- Identification and hazardous waste potential of catalyts referenced in the Draft EIS (vanadium pentoxide)

Responses to Public Hearing comments and the Draft EIS and/or Draft NPDES permit comment letters were provided in the Final EIS.

The Final EIS was noticed as an NOA in the Federal Register at 59 FR 30001 on June 10, 1994. As in the case of the Draft EIS NOA, a brief reference to the fact that the Final EIS involved an NPDES permit was made in the NOA. The official 30-day NEPA public comment period for the Final EIS was from June 10, 1994 to July 11, 1994. Numerous copies of the Final EIS (which included a copy of the Draft NPDES permit dated March 31, 1994 as an appendix) and numerous additional copies of the Final EIS Executive Summary were mailed to the public and review agencies. An additional EPA Public Notice attached to the inside front cover of the Final EIS (Volume I) announced the due date for written comments on the Final EIS and/or Draft NPDES permit as being July 11, 1994. The EPA contact person for written comments was also the same for both. Therefore, the comment period for the Final EIS also served as an additional comment opportunity on the Draft NPDES permit dated March 31, 1994, which had previously been made available at the EPA Joint EIS/NPDES Permit Public Hearing.

Three (3) comment letters and one (1) comment telephone call were received by EPA on the Final EIS and/or Draft NPDES permit during the comment period. Comment letters were received from the U.S. Department of Agriculture (SCS: Gainesville, FL); HUD (Atlanta, GA); and the Florida Department of State (Division of Historic Resources/State Historic Preservation Officer (SHPO) - Tallahassee, FL). The comment telephone call was received from Mr. Mark Jensen of the Federal Energy Regulatory Commission (FERC: Washington, DC).

Comments generally did not raise new substantive environmental issues. A copy of the comment letters and a log of the FERC telephone call are appended at the end of this NOD/ROD notice. Comments are also briefly summarized below in the chronological order received:

- SCS - "...no comments at this time."
- FERC - Status of FERC FGT pipeline project was reviewed: Final EIS issued in August 1993, Commission (FERC) Order issued in September 1993, and construction started in April 1994. Other more general comments were also made (see appended log). [Note: The FGT pipeline would likely be used for Tampa Electric Company's proposed natural gas interconnection.]
- HUD - "...no significant adverse impacts on any HUD programs as a result of this project."
- SHPO - "...proposed site will have no effect on historic properties listed, or eligible for listing, in National Register of Historic Places, or otherwise of historical or architectural value...project is also consistent with the historic preservation laws of Florida's Coastal Management Program...Once the alignment within the northern transmission line corridor is finalized, location maps should be submitted for our [SHPO] review...Future interconnections with fuel oil or natural gas pipelines would require Tampa Electric Company to consult with this agency [SHPO] before commencing project activities."

Any additional comment letters that may be received by EPA after the official end of the public comment period of July 11, 1994 and/or the signature date of this NOD/ROD notice (but during the general timeframe of the comment period) will be retained in the EPA project file but will not be addressed in this NOD/ROD notice or the referenced additional notice ("Public Notice of NPDES Permit Determination (NOD) and Availability of EIS Record of Decision (ROD)") to be published in local newspapers.

PROJECT SUMMARY

Through license and permit applications, Tampa Electric Company is proposing to construct and operate a new power plant and associated facilities on an approximately 4,348-acre site in southwestern Polk County, Florida. The proposed facilities would be known as the "Tampa Electric Company Polk Power Station." The proposed total net generating capacity at full build-out of the units at the site would be approximately 1,150 megawatts (MW: note that references in the EIS and herein to MW capacities of power generating units are understood to be "nominal net" capacities). The generating units planned for the Polk Power Station would be developed at the site according to a phased schedule that matches Tampa Electric Company's forecasted

growth in electricity demands beginning in 1996 and continuing into the year 2010. The first generating facility at the Polk Power Station site is proposed to be an integrated gasification combined cycle (IGCC) unit. This IGCC unit would be known as "Polk Unit 1."

Cost-shared financial assistance for the IGCC unit would be provided by the U.S. Department of Energy (DOE) through the DOE Clean Coal Technology (CCT) Demonstration Program, pending successful completion of this EIS process. The 260-MW IGCC unit would consist of a 150-MW advanced combustion turbine (CT), heat recovery steam generator (HRSG), steam turbine (ST), and coal gasification (CG) facilities. The IGCC unit would be fueled by coal-derived gas called syngas, which is produced in the CG facilities with low-sulfur No. 2 fuel oil as a backup fuel. Tampa Electric Company's current Power Resource Plan indicates that later facilities would consist of two combined cycle (CC) generating units and six simple-cycle CTs fueled by natural gas with low-sulfur No. 2 fuel oil as a backup fuel.

## EIS ALTERNATIVES ANALYSIS

Both EPA and DOE have "EIS Action Alternatives" for the proposed project, i.e., actions that require or typically require an EIS. As previously indicated, EPA's "EIS Action Alternatives" were to issue, issue with conditions, or deny the NPDES permit for a new source. DOE's "EIS Action Alternatives" are to provide or deny the approximately $130 million in cost-shared financial assistance under the DOE CCT Demonstration Program (amended from $120 million due to additional costs of design changes and improvements). Although other federal agencies, such as the U.S. Army Corps of Engineers (USACOE), also have actions relevant to the proposed project, they are not considered "EIS Action Alternatives." Both DOE and USACOE are Cooperating Agencies to EPA for this EIS and have participated in its development.

The alternative for the project proposed by Tampa Electric Company and addressed in the EIS, i.e., "Tampa Electric Company's Proposed Project (Preferred Alternative With DOE Financial Assistance)," is acceptable to EPA with mitigation. In general, the EIS addresses environmental impacts for a full build-out of this alternative to a 1,150-MW capacity proposed by Tampa Electric Company by the the year 2010. However, the Florida Department of Environmental Protection (FDEP) has only approved a Prevention of Significant Deterioration (PSD) permit for the 260-MW Polk Unit 1 increment and the Florida Public Service Commission (FPSC) has approved a need for the 220-MW capacity for Polk Unit 1 proposed in Tampa Electric Company's need petition.

Based on recent EPA coordination with the FPSC, the FPSC is aware of the proposed 260-MW capacity for Polk Unit 1 and that Tampa Electric Company is including it in its future plans. Furthermore, Tampa Electric Company projects that future demands will exceed the approved 220 MW capacity or the expected 260 MW capacity of Polk Unit 1.

Also, the environmental impacts of 260-MW generation are expected to be nominally the same as for 220-MW generation. Although the FPSC has at this time only approved a 220-MW capacity for Polk Unit 1, Polk Unit 1 was nevertheless referred to in the EIS and herein as a "260-MW" facility since it is proposed to have such a design capacity based on a Tampa Electric Company engineering study.

Project design modifications and improvements proposed by Tampa Electric Company for the "Tampa Electric Company's Proposed Project (Preferred Alternative With DOE Financial Assistance)" occurred during the EIS process. Relevant design aspects not documented in the published Draft EIS are incorporated in the Final EIS. The preferred alternative documented in the Final EIS essentially constitutes Tampa Electric Company's final design proposal, although this remains a somewhat ongoing and dynamic process. The design modifications have resulted in overall design improvements, cost reductions, and general environmental impact reductions. For the purposes of NEPA, the most significant design changes are the proposed use of coal storage silos instead of an on-site coal pile, and the increase in size and hours of operation of the auxiliary boiler.

The use of coal silos instead of coal piles is expected to result in some environmental benefits. For example, use of the silos would generate storm water runoff that is less degraded, which in turn is predicted to result in the elimination of the slight exceedance of the primary drinking water standard predicted for antimony in the cooling reservoir water at the Draft EIS stage. Other environmental benefits would include a reduction in fugitive dust and a reduction of 30 acres of area that would have been used for power plant facilities.

Although instances of increases in individual environmental impacts due to design changes exist, the design changes are generally not predicted to result in environmental compliance changes, i.e., aspects of the proposed Polk Power Station did not come out of or into compliance since the Draft EIS stage due to the proposed design modifications and improvements. However, the above-discussed antimony concentration in the cooling reservoir is now predicted to come into compliance with primary drinking water standards due to design changes. Other examples may also exist. It should also be noted that FDEP may choose to modify the PSD permit for Polk Unit 1 due to certain air quality impact changes such as an increase in the number of plant emission stacks. In addition, the nearby Tampa Electric Company Big Bend plant would be used for coal pile storage beyond the silo storage at the proposed Polk Power Station. This required a permit modification from FDEP, which was secured by Tampa Electric Company on March 31, 1994.

In addition to the preferred alternative, the EIS also considered other reasonable alternatives/subalternatives. These included specific alternatives ("No-Action Alternative" and "Tampa Electric Company's Alternative Power Resource Proposal (Without DOE Financial Assistance)") and general alternatives (alternatives to constructing new generating facilities, alternative generation technologies, alternative sites, and alternative processes and facilities).

EIS ENVIRONMENTAL IMPACTS

Environmental impact issues addressed in the Final EIS included surface water quality, groundwater, wetlands, endangered species, air quality, global climate change, noise, human health, socioeconomics, environmental justice, and cumulative impacts. These impact areas are summarized below:

- Surface Water Quality - Water quality modeling results demonstrate that cooling reservoir discharges throughout the year would comply with State of Florida Class III surface water quality standards, except the thermal standard. A mixing zone of 250 ft from the point of discharge would be required to reduce the temperature to less than $3^{o}F$ above the ambient temperature in the receiving unnamed reclaimed lake water body during winter conditions.

  The reservoir water quality is predicted to meet all primary drinking water standards. It is also expected to meet applicable FDEP Class G-II standards, with only exceedances of secondary drinking water standards for iron (0.627 mg/L predicted vs. a 0.3 mg/L standard) and color (50.49 color units predicted vs. a 15 color units standard). The goal of the secondary standards is to control contaminants that primarily affect the aesthetic qualities of drinking water. At considerably higher concentrations of these contaminants, health implications may exist, as well as aesthetics degradation. The predicted iron concentrations may be high enough to cause some aesthetic degradation but no adverse effects to human health are expected.

- Groundwater Quality - During plant operation, groundwater would be withdrawn from the Floridan aquifer to provide makeup water for the cooling reservoir and for other potable and process water uses. The annual average and peak month withdrawal rates are expected to approximate 6.6 and 9.3 mgd, respectively. Potential impact due to a steady-state average withdrawal condition (6.6 mgd) would be a drawdown of approximately 4.6 ft at the site boundaries, which is within Southwest Florida Water Management District (SFWMD) guidelines. Drawdown would be somewhat greater during peak month withdrawals (9.3 mgd), although such drawdowns would be temporary. The cooling water reservoir design emphasizes water reuse and minimizes Floridan aquifer and surface water withdrawals while maintaining reservoir water quality.

  Impacts to water quality in the Floridan or intermediate aquifers are not anticipated from the proposed project operations due to the presence of confining layers between these aquifers and the overlaying surficial aquifer and the fact that water in the proposed cooling reservoir would meet applicable FDEP Class G-II standards, with only the above-discussed exceedances of secondary drinking water standards for iron and color. However, the concentrations of iron and color are below ambient levels in the surficial aquifer.

Tampa Electric Company has prepared a preliminary "Groundwater Monitoring Plan." This plan is included in the Final EIS in Appendix G. The plan is currently being revised in accordance with FDEP instructions to include more parameters and precise locations of wells. EPA recommends inclusion of field groundwater measurements of pH, specific conductance, total organic carbon, and total organic halogen.

- Wetlands - Approximately 253 (253.11) acres of USACOE jurisdictional wetlands are expected to be lost due to the proposed project. These wetlands consistent of approximately 212 (211.78) acres of phosphate mine cuts and approximately 41 (41.33) acres of highly stressed wetlands. Tampa Electric Company proposes to compensate for these losses by creating and enhancing approximately 168.41 acres of wetlands. Wetland mitigation would occur in various on-site areas east of SR 37. Together with the FDEP-required wetland site reclamation, which is a separate State of Florida process, an increase of approximately 187 acres of on-site wetlands compared to premining conditions is proposed by Tampa Electric Company.

- Endangered Species - Several endangered species range in the proposed project area. In response to EPA coordination, the FWS indicated specific concerns for the red-cockaded woodpecker and the Florida scrub jay for the site preferred by Tampa Electric Company (site "PLK-A"). On December 23, 1993, the U.S. Fish and Wildlife Service (FWS) inspected selected areas of the site as well as the proposed transmission line corridor and railroad spur alignment adjacent to the site. Based on correspondence from FWS, their concern for these two species appears to be resolved.

  One abandoned bald eagle nest and one inactive nest are located on site. Both nests are in areas of the site that are not proposed for development. One active nest is located off site, but adjacent to the proposed site some 1.5 miles away from the proposed location of the main power block and 2,500 ft from the nearest proposed project construction (cooling reservoir). The active nest site is near a homestead and close to a county road and active railroad so that the eagle pair is accustomed to a human presence. The nest has been active since 1989 and was verified as being active as recently as January 1994.

- Air Quality - Construction of the proposed facility would generate fugitive dust; particulate matter (PM), carbon monoxide (CO), nitrogen oxides (NOx) and hydrocarbons from open burning; CO and $NO_x$ from operation of combustion engines; and volatile organic compounds (VOCs) from on-site painting, refueling of equipment, and application of adhesives and waterproofing chemicals. Construction should not generate violations of State or National Ambient Air Quality Standards (AAQS).

Proposed operation of the facility (primarily combustion turbines, thermal oxidizer and auxiliary boiler) would produce exhaust gases (primarily NOx, CO, sulfur dioxide (SO2) and small quantities of VOCs, PM and trace constituents present in fuel or generated during combustion). Air quality results indicate that the operation of the proposed Polk Power Station would not cause or contribute to a violation of any air quality regulations including consumption of PSD increments or AAQS.

Tampa Electric Company's proposed use of the IGCC for Polk Unit 1 represents efficient technology for producing electricity from coal and has lower levels of air pollutant emissions than conventional pulverized coal generation technology. The IGCC and the proposed subsequent stand-alone combustion turbine and combined cycle units would also be equipped with appropriate Best Available Control Technology (BACT) for all affected pollutants and emission sources in accordance with the requirements of the State of Florida's Final PSD Determination.

o Global Climate Change - Due to fossil-fuel combustion associated with power plants, greenhouse gases (CO2, NOx, CO, VOC/ozone (VOC/O3), methane (CH4), etc.) would be emitted from the proposed project. Land clearing would also reduce the amount of CO2 that could be sequestered by vegetation.

No federal requirement presently exists for mitigating global climate change impacts. Tampa Electric Company proposes to plant trees and other vegetation as part of its mining reclamation and wetland mitigation to partially offset (less than 1%) project impacts due to construction and operation. It is estimated that approximately 761,600 acres of open land (an area the size of Connecticut) would need to be planted with trees to offset the CO2 emissions from the proposed plant while it is operating on natural gas, and 1.6 million trees would need to be planted to offset emissions while the plant is operating on syngas.

Tampa Electric Company forecasts a need for 2,100 MW of power by the year 2010. However, due to the effects of existing conservation measures such as load management, this capacity is expected to be substantively reduced by approximately 1,010 MW by the year 2010. The reductions in power needs due to conservation measures would substantively reduce the amount of greenhouse gas emissions in the sense that less new power would be generated. (Note: The 1,090-MW difference between Tampa Electric Company's projected need for power (2,100 MW to the year 2010) and the reduction in power needs (1,010 MW to the year 2010) approximates Tampa Electric Company's proposed capacity for facility build-out for the Polk Power Station (1,150 MW by 2010)).

- Noise - Based on the literature, noise from proposed construction activities are estimated to be between 35 and 40 dB Leq(1) at the nearest residence (1.6 miles from power block), which is less than measured ambient levels of 51.7 dB Leq(24). Temporary noise levels from steam blow-out activity is estimated to produce a significant maximum instantaneous noise level of between 80 and 85 dB at the nearest residence. To help minimize such noisy events, Tampa Electric Company proposes to publish advance notices in local newspapers to announce such scheduled events.

  Based on modeling, plant operation at full build-out is predicted to generate 51 dB Leq(24) at the nearest residence, which is quite similar to the above ambient level. Maximum instantaneous noise levels during operation would be a significant 75 dB at the nearest residence and 77 dB at the next nearest residence.

  The noise level for project-related truck traffic (including coal truck traffic) along the proposed route is predicted to be 57.5 dB Leq(1) at the nearest residence (85 ft from edge of highway), which is less than the peak hour level of 64 dB Leq(1) for existing route traffic. A significant truck passby maximum level of 86 dB is predicted.

  Tampa Electric Company will also provide a special toll-free telephone number (1-800-282-4667) to consider public comments (such as noise) related to plant construction and operation.

- Human Health - Relative to on-site phosphate mining activities, human health risk from radiation exposure during proposed plant construction is negligible due to the absence of phosphogypsum on site (phosphogypsum is a waste by-product from the processing of phosphate ore into phosphoric acid and becomes enriched with radium-226 and radium-228). No phosphate ore was processed on the proposed site and the site was not used for disposal of phosphogypsum from any off-site processing facilities.

  Results of a No-Threat Level analysis indicate that public health in Polk County and adjacent counties would not be jeopardized with respect to direct human inhalation of air emissions from the proposed project operations. Based on the results of a human health analysis, the total cancer risk for individuals due to direct human inhalation of the proposed project air emissions is $1.8 \times 10^{-6}$ (i.e., 2 persons per one million persons).

  An indirect exposure analysis was not conducted in addition to the above direct exposure analysis for the proposed project. While the inclusion of an indirect analysis in addition to a direct exposure analysis is evolving within the EPA RCRA program of the Waste Management Division relative to the permitting of hazardous waste incinerators, it is presently not EPA agency policy to specifically require consideration of indirect exposure risks and the proposed Polk Power Station was not considered a hazardous waste incinerator or a RCRA site.

In regard to electromagnetic field (EMF) impacts, both the proposed transmission lines and existing transmission lines to be interconnected are to be in compliance with the Florida EMF Rule for 230-kV transmission lines.

- Socioeconomics - Construction of the proposed project should have a positive socioeconomic impact including increased employment opportunities, payrolls, and tax base. Construction employment is expected to peak at 1,400 workers and average approximately 650 workers during the initial phase. Construction should not have a great effect on land use due to existing phosphate mining effects.

  As with construction, the proposed project operation should also have positive effects. At the proposed full build-out, some 210 persons would be employed, the majority of which are expected to be drawn from the local labor pool (Polk, Hillsborough, Manatee, and Hardee Counties). Tampa Electric Company would also institute training coursework within the local community college curriculum for those residents interested in potential employment. The total cumulative annual operation payroll is estimated to be approximately $109 million (in 1992 dollars) from 1995 to 2010. Ad valorem taxes generated by the project are expected to increase from $1.9 million in 1996 to $19.6 million in the year 2011.

  Construction and operation socioeconomic impacts such as noise, environmental justice, and other impacts to the human environment are summarized elsewhere in this section under relevant subsections.

- Environmental Justice - Existing land use adjacent to the proposed site consists of phosphate mining, reclaimed and unreclaimed mining areas, agricultural sites and fairly sparse housing. The most notable community is the unincorporated community of Bradley Junction located approximately 4-5 miles from the site. There are no schools, hospitals and other sensitive receptors in the area, although churches and other institutional uses exist there. Bradley Junction is located within Polk County Tract 161.98, which has a higher population of Blacks (43.2%) than surrounding tracts in Polk and adjacent counties. However, Bradley Junction is specifically located in Block Group 2 of Tract 161.98, which has a nearly equal division of citizens, Blacks (50.1%) and Whites (49.0%).

  Impacts to surrounding housing would include human health, noise, groundwater, and socioeconomic impacts, which are summarized above. Of particular interest are human health risk aspects. A total cancer risk for individuals due to direct human inhalation of the proposed project air emissions is predicted to be $1.8 \times 10^{-6}$ (i.e., 2 persons per one million persons).

The Tampa Electric Company "Siting Selection Task Force" used during site selection included Mr. Henry Carley, an educator at Hillsborough Community College (HCC) and coordinator of minority outreach programs at HCC, and the then president of the Tampa branch of the National Association for the Advancement of Colored People (NAACP); Dr. David Denslow, the interim director of the Bureau of Economic and Business Research and professor in the Department of Economics at the University of Florida (UF); and Dr. Sanford Berg, also a professor of Economics at UF and executive director of the Public Utility Research Center at UF.

On April 1, 1994, the day after the EPA public hearing in nearby Bartow, Florida, EPA representatives coordinated with Bradley Junction by leaving three copies of some public hearing materials at the residence of Reverend Ronie Moates of the Church of God (who was not home but who had previously been provided, along with Mr. Frank Satchel of nearby Mulberry, Florida, a copy of the Draft EIS during its distribution), and by visiting a local African American citizen east of the CSX railroad and leaving her the same materials, which she offered to distribute to a community leader. EPA encouraged her to express any concerns and to ask the community leaders to express any concerns about the project to EPA by April 11, 1994 (i.e., the close of the public comment period for the Draft EIS/Draft NPDES permit), by telephone or in writing. No comments were received by EPA.

- Cumulative Impacts - Cumulative impacts are difficult to assess due to their predictive nature. Based on the results of mathematical modeling, other analyses and general information for full build-out to a 1,150-MW facility, some cumulative impact assessments or predictions were made for air quality, surface and groundwater quality, aquatic and terrestrial ecology, noise, land use, transportation, and secondary (induced) impacts from construction and operation of the proposed facility. Cumulative air emission impacts included nearby proposed and existing facilities (e.g., power and cogeneration plants) to the extent data were available.

  Of particular concern in south-central Florida is the cumulative effect of mercury and its entrance into the food chain as methyl mercury. Although the proposed plant would be a contributor of mercury emissions, the plant is predicted to emit an annual maximum concentration of 0.000177 $ug/m^3$. Project design and permitting would control mercury emissions through use of the IGCC coal gasification process (which includes water scrubbing and volatilization of mercury naturally present in coal); PSD permit conditions; and use of "clean" fuel in the other proposed (non-IGCC) units such as natural gas which is relatively low in mercury compared to alternate fuels.

PROJECT MITIGATION

Pollution prevention and impact avoidance/minimization methods were addressed in the EIS. Examples of proposed techniques include use of BACT in plant design, use of construction Best Management Practices (BMPs) for erosion control, water recycling, use of power conservation methods such as load management, generation of saleable by-products such as sulfuric acid, selection of a site in an already environmentally disturbed phosphate mining area, use of low-sulfur and low-ash fuels, use of a large project site and vegetated buffer zones, etc. Proposed examples of mitigation, notably the compensation for projected wetland losses, are discussed in association with several of the impact categories presented above. Tampa Electric Company will also provide a special toll-free telephone number (1-800-282-4667) to consider public comments related to plant construction and operation.

RESOLUTION OF DRAFT EIS UNRESOLVED ISSUES

The unresolved issues at the Draft EIS stage have either been resolved or mechanisms to resolve them have been established. The unresolved issues at the Draft EIS stage primarily pertained to U.S. Department of the Interior (DOI)-requested air quality depositional modeling, USACOE Section 404 dredge-and-fill permitting, and NEPA compliance with federal, state and/or local agencies for several proposed linear facility alignments (i.e., transmission lines, railroad spur, natural gas line, and a possible fuel oil pipeline).

Air Quality Depositional Modeling

Issue: In response to EPA coordination during Draft EIS development, DOI indicated concerns regarding potential PSD air quality impacts to the Chassahowitzka National Wilderness Area (NWA) and requested additional modeling using a revised MESOPUFF II model to predict deposition and concentration of sulfate, nitrate, mercury and beryllium.

Initial EPA Response: EPA's initial response to the DOI concerns was that Industrial Source Complex (ISC) dispersion modeling as opposed to MESOPUFF II modeling had been conducted for the four parameters. Additionally, EPA indicated that EPA had fully delegated the PSD Program to the State of Florida, that beyond the PSD incremental assessment the DOI Federal Land Manager (FLM) at the Chassahowitzka NWA may interpret the proposed power station to have an adverse effect on the environmental criteria for the Class I area, that the State of Florida consequently would be coordinating with the FLM, and that EPA would also consider the need for additional modeling from a NEPA perspective based on the FLM's decision.

Subsequent DOI-FDEP Coordination: Because the PSD Program is now fully delegated to the State of Florida, additional coordination occurred between DOI and FDEP. Relative to the Air Quality Related Values Analysis in a letter to FDEP dated February 14, 1994, DOI expressed concern about cumulative depositional effects of sulfate, nitrate, mercury and beryllium and that the DEIS analysis was not cumulative for these pollutants. DOI stated that: "We need to know: (1) the cumulative deposition of pollutants, and (2) the ecological consequences of this deposition" and, "We ask that TECO [Tampa Electric Company] be required to perform these analyses when they apply for permits for future phases of their Polk Power Station."

EPA's NEPA Resolution: From a NEPA perspective, EPA agrees with the State of Florida that additional modeling to determine potential cumulative depositional effects for sulfate, nitrate, mercury and beryllium (as well as any other reasonable parameters that may need to be monitored), should be modeled for the proposed additional units beyond the 260-MW Polk Unit 1 (if Tampa Electric Company pursues these additional units and the additional need for power beyond the approved 220 MW capacity is approved by the FPSC). Additional coordination should therefore be conducted by Tampa Electric Company with FDEP during prospective application for such additional units up to 1,150 MW at the Polk Power Station. Based on the February 14, 1994 letter from DOI to FDEP, it appears that the mechanism for resolving the air quality modeling issue has been established for units beyond the 260-MW and up to the proposed 1,150 MW full build-out for the Polk Power Station.

USACOE Section 404 Permitting

Tampa Electric Company has submitted a dredge-and-fill permit application ("Joint Application for Works in Waters of Florida") dated July 24, 1992, to USACOE and the State of Florida. A USACOE Public Notice regarding this application was issued by USACOE on October 7, 1992. At the subsequent request of EPA, which independently reviews Section 404 dredge-and-fill permit applications, USACOE agreed to hold in abeyance Tampa Electric Company's application to fill approximately 253 acres of jurisdictional wetlands until the completion of the EIS NEPA process. More recently, Tampa Electric Company has submitted an update (May 9, 1994) to its original permit application to USACOE, and EPA has provided a comment letter (May 11, 1994) to the USACOE on their Public Notice. The USACOE permitting decision will follow after completion of the NEPA process.

NEPA Compliance of Linear Facility Alignments

Since the final alignments for the proposed off-site/on-site transmission lines and natural gas pipeline and the possible off-site/on-site fuel oil pipeline either have not been determined or have not been finalized at this time, additional coordination will be needed by Tampa Electric Company, since alignment finalization

would not occur until after completion of this NEPA EIS process. Coordination for these interconnecting linear facilities would need to be made with appropriate federal and state agencies once alignments are finalized. For example, environmental impacts such as potential wetland, cultural resource and endangered species impacts will need to be properly coordinated with USACOE, Florida State Historic Preservation Officer (SHPO), and FWS, respectively. The transmission lines would be required at plant operation start-up while the need for a natural gas pipeline is expected by 1999 as a primary fuel source, and the fuel oil pipeline may or may not be needed. The interconnecting 200-ft railroad spur alignment adjacent to the site has been coordinated on site with the FWS and by telephone with the Florida SHPO; however, the USACOE may wish to review this alignment as part of the 404 permitting process and the Florida SHPO may request more formal coordination in conjunction with the other proposed alignments. The railroad spur would be required during both plant construction and operation.

STATE SITE CERTIFICATION PROCESS AND PERMITTING

The State of Florida Site Certification Process generally paralleled the EPA EIS process. It is a related but separate process from the EIS NEPA process. Consistent with the Florida Electric Power Plant Siting Act (PPSA), the site certification process included: 1) Tampa Electric Company filing a Site Certification Application (SCA) with FDEP (July 30, 1992); 2) the state coordinating with EPA and other agencies during SCA review; 3) FDEP preparing a Staff Analysis Report (SAR) including the conditions of certification; 4) the state conducting the administrative hearings for certification (October 13, 1993); 5) the state hearing officer filing a recommended order subject to specific conditions of certification (January 25, 1994), which then became the final order, 6) the state approving the Final PSD Determination, which includes the PSD permit (February 24, 1994) for the 260-MW Polk Unit 1 (Note: as previously indicated, the state may choose to modify this permit due to design changes and improvements proposed by Tampa Electric Company); and 7) the state approving the proposed site reclamation plans (approved in conjunction with approval of the recommended order) for site "PLK-A," which has been purchased (December 31, 1993) by Tampa Electric Company.

As part of the state process, the FPSC determines the need for power in the State of Florida. As previously indicated, the FPSC, in its "Order Determining the Need for a Proposed Electric Power Plant" dated March 2, 1992, approved the need for the 220-MW capacity for Polk Unit 1 proposed in Tampa Electric Company's "Petition to Determine Need for Electrical Power Plant" (submitted to FPSC September 5, 1991).

Because FPSC approval was only for 220 MW and not for the entire 1,150 MW capacity proposed by Tampa Electric Company for facility full build-out, Tampa Electric Company would need to make additional need determination application to FPSC for the proposed future capacity

beyond the approved 220 MW and up to the proposed 1,150 MW build-out capacity. Similarly, because the state-approved PSD permit is limited to the 260-MW increment for Polk Unit 1, Tampa Electric Company would also need to make additional PSD permit application to the State of Florida for the proposed future units beyond the approved 260-MW Polk Unit 1 and up to the proposed 1,150 MW build-out capacity.

As previously indicated, Tampa Electric Company will need to provide additional state coordination regarding linear facilities (transmission lines, natural gas line, railroad spur, and a possible fuel oil pipeline). Furthermore, other state actions not discussed herein will also be needed or have been secured by Tampa Electric Company for construction and/or operation of the proposed project.

FEDERAL PERMITTING AND COMPLETION OF THE NEPA PROCESS

In addition to required state actions, and the present EPA NPDES permitting determination to issue the NPDES permit as amended (since March 31, 1994) for proposed project operation (provided that no timely request for an evidentiary hearing is received by EPA), a USACOE permitting decision for construction in jurisdictional wetlands and a DOE decision on cost-shared financial assistance are two significant federal actions still pending. With this completion of the EPA ROD within this notice, USACOE and DOE decisions can be expected in the near future.

Proposed construction in jurisdictional wetlands would require issuance of an individual dredge-and-fill 404 permit from the USACOE. As previously indicated, the USACOE permitting decision regarding Tampa Electric Company's application to fill 253 acres of jurisdictional wetlands will follow after completion of this NEPA process. Pending successful completion of this EIS process, it is expected that USACOE would adopt this EPA EIS as NEPA documentation for any Section 404 permits USACOE may choose to issue, and would prepare, as appropriate, its own EIS ROD (separate from this EPA ROD) for its Section 404 permitting action.

Consistent with a Cooperative Agreement with Tampa Electric Company, DOE is considering to provide Tampa Electric Company approximately $130 million in cost-shared financial assistance for the 260-MW IGCC Polk Unit 1 portion of the proposed Polk Power Station (amended from $120 million because of additional costs in design changes and improvements). Pending successful completion of this EIS process, it is expected that DOE would adopt this EPA EIS as NEPA documentation for its preferred CCT cost-shared financial assistance action for the proposed project, and would prepare, as appropriate, its own EIS ROD (separate from this EPA ROD) for its proposed action. DOE's preferred alternative is to provide Tampa Electric Company approximately $130 million in cost-shared financial assistance for the 260-MW IGCC Polk Unit 1 portion of the proposed Polk Power Station.

As previously indicated, Tampa Electric Company will need to provide additional federal coordination regarding linear facilities (transmission lines, natural gas line, railroad spur, and a possible fuel oil pipeline), as appropriate. Coordination would include USACOE and FWS. Other federal actions not discussed herein would also be needed or have been secured by Tampa Electric Company for construction and/or operation of the proposed project.

FINAL EIS ERRATA

Some errors/omissions exist in the Final EIS. Some of the instances noticed of a more substantive nature are as follows:

- Volume I: Executive Summary (pg. E-3), Section 1.3.1 (pg. 1-31), and Section 2.1.1 (pg. 2-3) - It could have been clarified that although EPA has NPDES permit responsibilities for projects in Florida subject to PPSA, and that it was determined that an EIS was appropriate as the required NEPA documentation for the NPDES permit for the proposed Polk Power Station project, EPA could have been a Cooperating Agency to an appropriate federal Lead Agency (as opposed to being the federal Lead Agency itself) and still have satisfied its NPDES/NEPA responsibilities. If EPA would have been a Cooperating Agency as opposed to the federal Lead Agency, EPA would have adopted the EIS, as appropriate, for its NEPA review purposes for the NPDES permit.

- Volume I: Executive Summary (pg. E-4), Section 1.3.1 (pg. 1-33), Section 2.1.1.2 (pg. 2-4), Section 6.4 (pg. 6-20) - These sections of the EIS and perhaps others indicate that EPA's preferred permit action is to issue the permit with conditions, pending successful completion of the EIS process. However, EPA has decided to issue the NPDES permit without conditions because none were necessary beyond those normally contained in an NPDES permit (e.g., effluent limitations, monitoring, reporting), and the State of Florida has waived Section 401 certification by letter to EPA dated June 21, 1994. As such, EIS references to an EPA preference "to issue the NPDES permit with conditions" should read "to issue the NPDES permit" (i.e., without conditions). Also, as previously indicated, the NPDES permit dated March 31, 1994 presented in Appendix A of the Final EIS and available at the EPA Joint EIS/NPDES Permit Public Hearing was amended for the Final NPDES permit.

- Volume I: Executive Summary (pg. E-28) and Section 4.7.1.2 (pg. 4-114) - Section 4.7.1.2 states that "...Tampa Electric Company has proposed a cooperative training program in the power generating and process industry be developed as a joint venture between power producers in the area and Polk Community College and South Florida Community College." The reference to "cooperative training program" should have more appropriately read "training

coursework" consistent with page E-28 of the Executive Summary, while the Executive Summary should have referenced local "power producers" as opposed to just Tampa Electric Company.

- Volume I: Executive Summary (pg. E-39) and Section 4.0 (pg. 4-2) - These sections state that "Although instances of increases in individual impacts due to design changes exist, the design changes are not predicted to result in environmental compliance changes, i.e., aspects of the proposed Polk Power Station did not come out of or into compliance since the DEIS stage due to the proposed design modifications and improvements." This statement should have been somewhat qualified to indicate that this is only "generally" the case since the concentration of antimony, which was predicted at the Draft EIS stage to slightly exceed the primary drinking water standards in the cooling reservoir, is now predicted to come into compliance due to design changes (use of coal storage silos instead of coal piles). Other examples may exist.

- Volume I: Executive Summary (pg. E-40) and Section 4.0 (pg. 4-1) - Regarding the environmental impacts relative to design changes and improvements proposed by Tampa Electric Company, the bullet reference to "Use of Tampa Electric Company's nearby Big Bend plant for coal storage beyond the on-site storage silos" should have clarified that the Big Bend plant employs coal piles as opposed to silos.

- Volume I: Section 1.1.3 (pg. 1-3) and Section 2.0 (pg. 2-1) - The third paragraph of Section 1.1.3 on page 2-1 incorrectly indicates that "At this time, the Florida Public Service Company (FPSC) has only determined a need for the proposed 260-MW facility" and the the second bullet of this page still states that "...the 260-MW Polk Unit 1 currently approved by FPSC." Other instances may exist. It should be noted that the FPSC has approved the 220-MW capacity (as opposed to a 260-MW capacity) for Polk Unit 1 proposed in Tampa Electric Company's petition of need. This was explained on page 1-25 of Volume I and on page E-6 of the Executive Summary of the Final EIS. This page of the Executive Summary also referenced that the Draft EIS incorrectly stated that the FPSC approved a 260-MW capacity.

- Volume I: Section 1.3.5 (pg. 1-36) - The phrase "These include issuance of an EPA NPDES permit for operation point source discharges from plant operation and storm water runoff to waters of the United States (Note: for the proposed Polk Power Station, the EPA NPDES permit applied for by Tampa Electric Company will also address NPDES storm water permitting for plant operation)," should more appropriately have read:

These include issuance of an NPDES permit for storm water point source discharges during plant operation to waters of the United States (Note: for the proposed Polk Power Station, the EPA NPDES permit applied for by Tampa Electric Company will also address NPDES storm water permitting during plant operation).

- Volume I and Volume II: Section 1.4.2 (pg. 1-39); Section 1.4.3 (pg. 1-41); Section 7.0 (pg. 7-1); Appendix F - These sections and a few additional references in the EIS present the public participation and public notices regarding the EIS and NPDES permit. The EPA notices attached to the Draft and Final EIS and the EPA "Environmental News" release announcing the EPA Joint EIS/NPDES permit Public Hearing could have also been discussed in one or more of these sections relative to public participation. However, the Draft EIS notice and the news release are presented in Appendix F, the Draft and Final EIS notices are attached to the inside front cover of Volume I of the Draft and Final EIS respectively, and all three notices are discussed above in this NOD/ROD notice (see "PUBLIC PARTICIPATION"). Public participation regarding the Final EIS in general, which was largely unknown or unverified prior to Final EIS printing, is also discussed herein.

- Volume II: Appendix G, Preface to EPA Public Hearing Transcript - Based on DOE determinations, a third paragraph to the preface should have been added. It should have read as follows:

  > Also regarding the DOE presentation, it should be noted that on page 12 (line 15) of the transcript, "gray field" should be "greenfield," i.e., the proposed Polk Power Station project is a greenfield or new project as opposed to a converted, repowered or expanded project.

  Also, because the transcript cover page only references the NPDES permit, this preface could have re-emphasized that the public hearing was a joint hearing for both the EIS and NPDES permit as opposed to just the NPDES permit.

- Volume II: Appendix G, EPA Response to Letter #6 from FAA - Given the next to last paragraph of this response, the last paragraph of this response should have been deleted. It reads as follows:

  > This has been resolved and there is a permit issued from FAA.

- Volume II: Appendix G, EPA Response to Letter #9 from CDC - The second sentence in the last paragraph under the "Chlorinated Dioxins and Furans" section should have referred to the "combustion" process as opposed to the "gasification" process. The sentence therefore should have read as follows:

The combustion process is an oxidation process where more oxygen is available than is used and organics such as chlorinated dioxins/furans can be formed during the cool down phase at temperatures below 750°F.

In addition, the sixth paragraph under the "Groundwater Monitoring" section should have indicated that the source of the referenced preliminary Groundwater Monitoring Plan was the SCA (TEC, 1992a). The third sentence in that paragraph should therefore have read as follows:

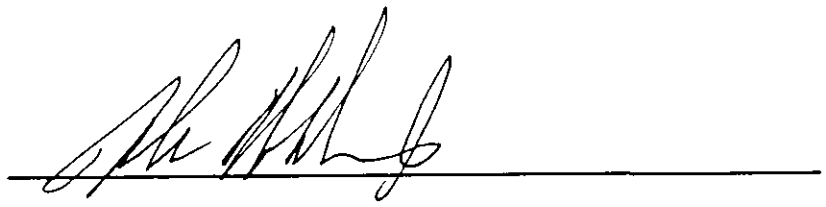
A copy of this plan excerpted from the SCA (TEC, 1992a) is appended at the end of this response for letter #9 from CDC.

PUBLIC AVAILABILITY OF THIS NOTICE

However, copies of this NOD/ROD notice are available to the public and may be requested from: Ms. Lena Scott; U.S. Environmental Protection Agency/Region IV; 345 Courtland Street, NE; Atlanta, GA 30365; (404) 347-3004, x6754; FAX (404) 347-5206. A limited number of copies of the Draft EIS, Final EIS, separate Executive Summaries of the Draft EIS and the Final EIS, and the Final NPDES permit are also available at the same address.

EPA APPROVAL

This "Public Notice of the NPDES Permit Determination (NOD) and EIS Record of Decision (ROD)" is approved by:



7/14/94

John H. Hankinson, Jr.
Regional Administrator
EPA Region IV

Date

PUBLIC COMMENTS EPA RECEIVED

ON THE FINAL EIS DURING THE PUBLIC COMMENT PERIOD

(JUNE 10, 1994 - JULY 11, 1994)

United States Department of Agriculture
Soil Conservation Service
State Office
P. O. Box 141510
Gainesville, FL 32614-1510

June 10, 1994



Heinz J. Mueller, Chief
Environmental Policy Section
United States Environmental
Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Mueller:

We have reviewed the Final Environmental Impact Statement (FEIS) prepared for the Tampa Electric Company-Polk Power Station and have no comments at this time.

Thank you for the opportunity to review this document.

Sincerely,

Niles Glasgow

T. Niles Glasgow
State Conservationist

TELEPHONE LOG

**DATE:** June 15, 1994

**FROM:** Mark Jensen - Federal Energy Regulatory Commission (FERC); Environmental Policy and Project Analysis Branch; Office of Pipeline and Producer Regulation; Washington, DC

**TO:** Chris Hoberg - EPA, Environmental Policy Section; Atlanta, GA

Mr. Jensen called in comments on the Polk Power Station Final EIS. These can generally be summarized as follows:

- On page 2-45, the Final EIS (FEIS) states that "...the FEIS for the proposed pipeline FGT Phase III pipeline is presently under preparation by Federal Energy Regulatory Commission (FERC)." Mr. Jensen wanted to update that FERC pipeline project and indicated that the FERC Final EIS was issued in August 1993, the Commission (FERC) issued its Order in September 1993, and construction started in April 1994.

- The length of the Final EIS was mentioned as being longer than indicated in the Council on Environmental Quality (CEQ) guidelines.

- Mr. Jensen asked if EPA wanted a follow-up comment letter, which seemed appropriate. However, after EPA agreed to a letter, Mr. Jensen referenced the difficulties of getting a letter through the FERC system, so that EPA did not disagree with the fact that a formal comment letter from FERC would not be forthcoming. EPA offered to document his comments in the ROD.

- Mr. Jensen indicated that only Volume I of the EPA FEIS had been received, but that he was not concerned. Even when specifically asked that "for the record" if he wanted a copy of Volume II, he declined. A copy was consequently not sent.

- Other comments on the timing of EIS distributions in general were made.

Rec'd
JUN 21 1994
cc: Chris Haberg

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

ATLANTA OFFICE
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303-3388

June 16, 1994

Ms. Lena Scott
Public Notice Coordinator
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Scott:

This refers to your Public Notice dated June 10, 1994, and your Final Environmental Impact Statement entitled "Tampa Electric Company - Polk Power Station".

Our review indicates there will be no significant adverse impact on any HUD programs as a result of this project.

Thank you for the opportunity to review and comment on the Tampa Electric Company project located in southwestern Polk County, Florida.

Very sincerely yours,

Warren J. Howze
Senior Environmental Advisor

FLORIDA DEPARTMENT OF STATE
Jim Smith
Secretary of State
DIVISION OF HISTORICAL RESOURCES
R.A. Gray Building
500 South Bronough
Tallahassee, Florida 32399-0250
Director's Office (904) 488-1480
Telecopier Number (FAX) (904) 488-3353

June 30, 1994

Mr. Heinz J. Mueller
U.S. Environmental Protection Agency,
Region IV
345 Courtland St., N.E.
Atlanta, Georgia 30365

In Reply Refer To:
Frank J. Keel
Historic Sites
Specialist
(904) 487-2333
Project File No. 942043

RE: Cultural Resource Assessment Request
Final Environmental Impact Statement for the Tampa Electric Company - Polk Power Station
Polk County, Florida

Dear Mr. Mueller:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

A review of our files indicates that the site for the Polk Power Station has been previously surveyed and no cultural resources were located as a result of that survey. Therefore, it is the opinion of this office that the proposed project will have no effect on historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical or architectural value. The project is also consistent with the historic preservation laws of Florida's Coastal Management Program.

Once the alignment within the northern transmission line corridor is finalized, location maps should be submitted for our review. Future interconnections with fuel oil or natural gas pipelines would require Tampa Electric Company to consult with this agency before commencing project activities.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer

for George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Kfk

## ADDITIONAL COMMENT LETTERS RECEIVED BY EPA

EPA received four (4) additional comment letters after the July 11, 1994 close of the public comment period for the Final EIS. Although these letters were received after the comment period, they were considered by EPA. Copies of the letters with EPA responses are appended below in this appendix of the NOD/ROD notice. Therefore, a total of seven (7) comment letters and one (1) comment telephone call were received by EPA on the Final EIS and/or draft NPDES permit during the general timeframe of the comment period.

In general, these letters did not raise new substantive environmental issues (with one only requesting a time extension and another providing a correction to that time extension request). However, a Centers for Disease Control (CDC) letter did provide some follow-up comments on primarily two CDC concerns at the Draft EIS stage; a Florida Department of Transportation review letter attached to a State of Florida Office of the Governor comment letter requested project coordination with the air programs of Hillsborough and Pinellas Counties (EPA believes this should be State of Florida coordination rather than EPA coordination); and a Department of State Division of Historical Resources review letter also attached to the State of Florida Office of Governor comment letter requested additional coordination on linear facilities once finalized (depending on future federal involvement, EPA believes this would primarily be Tampa Electric Company and State of Florida coordination).

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta GA 30341-3724

July 8, 1994

Ms. Lena Scott
Public Notice Coordinator
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30345

Dear Ms. Scott:

Thank you for the opportunity to review the Final Environmental Impact Statement entitled "Tampa Electric Company - Polk Power Station." We are pleased to note that our earlier comments were thoroughly discussed in Volume II of the latest document. This additional discussion largely satisfies the concerns regarding the potential of this project to impact human health as detailed in our earlier correspondence dated April 15, 1994. In particular, we believe that the responses to the issues of groundwater monitoring, slag characterization, and chromium monitoring are fully responsive to assuring that public health will be adequately protected.

We also feel that EPA's response to our earlier comments regarding indirect exposure, air-deposited pollutants, and chlorinated dioxins and furans is generally reasonable. We are aware that indirect exposure assessment is evolving within EPA and is not yet required for combustion sources other than newly-permitted (Resource Conservation and Recovery Act) hazardous waste incinerators. Nevertheless, from a public health perspective it would seem to be reasonable to apply such an evaluative tool to all major combustion sources, not just incineration, at least until such time that source-specific baseline data are established. We also recognize, however, that limited resources and the very limited experience with indirect exposure assessment methodology probably precludes its present application to the proposed Polk Power Station.

Regarding the air-deposited pollutants discussion, we are pleased to learn that additional modelling will be undertaken for future expansion to the Polk Power Station. We assume that, where possible, source emissions input for these future modelling activities will be based upon actual field (stack sampling) data from the first phase facility rather than assumed standard emission factors. Regarding the deposition of mercury, the use of relatively low-mercury content fuels should help to minimize the impact of mercury emissions to the surrounding environment. For purposes of validating the modelling results for mercury or

other deposited pollutants, has EPA considered the merits of doing any pre- and post-operational soil sampling at predicted maximum deposition points around the new plant? This could provide useful real-world data to support later-phase development of the Polk Power Station.

Finally, regarding the question of chlorinated dioxin and furan production and possible emissions, we are still somewhat confused with the rationale to dismiss this from further consideration, particularly in light of the current controversy concerning these substances. We agree with the discussion regarding the likelihood that few, if any, chlorinated dioxins would be formed or survive the reducing environment of the gasifier, and further that the scrubber would remove a high percentage of the HCl, prior to the resultant gases being processed in the gas turbine combustor.

Our confusion lies in the area of the fate of the chlorine, albeit a small amount, that carries into the gas turbine combustor along with the $C^1$ molecules. Are we incorrect in assuming that the gas turbine combustor is operated in an oxidative mode? Even though this gas turbine combustor is operated at elevated temperatures, and we concur that chlorinated dioxins would likely not be present in this hot zone, we wonder about the fate of the chlorine as the turbine gases are subsequently cooled. Ideally, we would hope that virtually all the carbon is oxidized to $CO_2$ and that the small amounts of chlorine find no ring structures (newly formed) to combine with. Are there data available that show this to be generally true, or have there been any studies done to confirm that chlorinated dioxins are essentially nonexistent when syngas is burned? Intuitively, we do not feel that chlorinated dioxins are likely to be significant from this process; however if actual analytic datum exists to support this view, it would be useful to reference it.

We appreciate the opportunity to review and comment upon this document and the obvious careful consideration that was given to our earlier concerns. If you have any questions or wish to discuss these comments, you may contact Mr. Harvey Rogers at (404) 488-7092.

Sincerely yours,

Kenneth W. Holt

Kenneth W. Holt, M.S.E.H.
Special Programs Group (F29)
National Center for Environmental Health

EPA RESPONSE

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES; CENTERS FOR DISEASE CONTROL; ATLANTA, GEORGIA; KENNETH W. HOLT, M.S.E.H.; SPECIAL PROGRAMS GROUP (F29); NATIONAL CENTER FOR ENVIRONMENTAL HEALTH; JULY 8, 1994

Thank you for your comments.

The Centers for Disease Control (CDC) was generally complimentary about EPA's response in the Final EIS (Appendix G; Letter #9) to CDC concerns at the Draft EIS stage; follow-up comments were made primarily on two CDC concerns at the Draft EIS stage (air-deposited pollutants and chlorinated dioxins/furans).

Regarding air-deposited pollutants, EPA does not plan any pre- or post- operational soil sampling mentioned by CDC. The FDEP may or may not choose to include such sampling in their PSD permitting process for proposed additional plant units.

Regarding the CDC question on the potential for dioxins/furans production in the IGCC process, CDC appeared to principally agree with the EPA response concerning chlorinated dioxins/furans in the Final EIS. It is expected that all of the hydrocarbons (including chlorinated dioxins/furans) would be decomposed in the high temperature (reducing) environment of the coal gasifier with its high concentration of hydrogen, as well as an expected high hydrogen chloride removal from the fuel gas resulting from coal gasification. In the fuel gas (syngas) of the coal gasification process, the very low (parts per billion [ppb] levels) of chlorine and Cl molecules are unlikely to form chlorinated dioxins at the elevated 2400$^{o}$F hot zone and oxidative environment of the gas turbine combustor. All of the carbon monoxide in the fuel gas including ppb levels of Cl hydrocarbons should be destroyed and no ring compounds containing chlorine should be formed as the gas turbine exhaust is cooled down rather quickly to approximately 280$^{o}$F. Therefore, EPA wishes to reiterate the conclusion provided in Appendix G of the Final EIS (Letter #9) that "polycyclics like chlorinated furans and dioxins should not exist in the high temperature, reducing environment of the proposed Texaco gasifier, the clean fuel gas, or the combustion process and the conditions are not conducive to their formation anywhere in the process."

In response to the CDC question whether the gas turbine combustor is operated in the oxidative mode, it should be noted that the combustor environment would be oxidative. However, as indicated above, all of the carbon monoxide in the fuel gas including ppb levels of Cl hydrocarbons should be destroyed and no ring compounds containing chlorine should be formed by that point in the process. By contrast, the municipal waste combustion process

(see correction in the "FINAL EIS ERRATA" section, eleventh bullet, of this NOD/ROD) in which chlorinated dioxins/furans are believed to form in a moderate temperature combustion process, oxygen as well as chlorine and unburned hydrocarbons are in excess during the cool down phase at 750$^{o}$F, thus providing the environment for the potential formation of chlorinated dioxins/furans.

Regarding the CDC question as to the availability of supportive analytical data regarding the potential for chlorinated dioxins/furans formation during the IGCC process, we are aware of a very recent (July 26, 1994) position paper regarding the Shell Coal Gasification Plant-1 (Baker, 1994). This paper indicates that actual measurements of the synthesis gas showed that dioxins/furans and their precursors were not present at a detection limit of 1 ppb by volume. It also suggests that the concentration of dioxins/furans in the actual exhaust gas would be less than a part per trillion (ppt) by volume. For your information, we have provided the citation below and have appended a copy of the paper (taken from a facsimile) to this response:

Baker, Dan. 1994. Position Paper on Dioxins and Furans in the Shell Coal Gasification Process. Shell Development Company. July 26, 1994. 3 pp.

# POSITION PAPER ON
# DIOXINS AND FURANS IN THE SHELL COAL GASIFICATION PROCESS

The general terms "dioxins and furans" as used here refer to classes of compounds, specifically polychlorinated species of the oxygen-containing, three member aromatic ring compounds known as dibenzodioxin and dibenzofuran, respectively. Examples of these compounds are the 2,3,7,8-tetrachlorodibenzodioxin and 2,3,7,8-tetrachlorodibenzofuran molecules which are highly toxic and listed by the EPA as probable human carcinogens. Much of the environmental concern for these compounds centers around emissions from municipal and chemical waste incinerators and accidental fires involving PCB-containing transformers.

There is no general procedure or model for predicting emissions of dioxins and furans from thermal processes like incineration and combustion since the mechanisms of formation and destruction are not well understood. However, conditions which favor the formation of dioxins and furans are known to include the following:

- -the presence of dioxins and furans in the feed;
- -precursors to formation of dioxins and furans in the feed -- chlorinated ring compounds, like polychlorinated biphenols, chlorinated phenols, and chlorinated benzene [1];
- -low temperatures (i.e., less than 800°C [2]) with incomplete combustion products being present which may become precursors for the formation of dioxins and furans;
- -low residence time (i.e., less than 1 second) so that dioxins and furans, or their precursors, persist;
- -the presence of excess oxygen which is needed for formation of dioxins and furans;
- -the presence of high levels of chlorine [3] which is also needed for formation of dioxins and furans.

In contrast to this, coal and petroleum coke do not contain polychlorinated organic compounds. Instead, coal chloride is associated with inorganic ash material. During gasification in the Shell Coal Gasification Process, the flame conditions are high enough (i.e., greater than 2700°C) that there are no products of incomplete conversion of the feedstock -- either coal or petroleum coke -- to synthesis gas that could serve as precursors for formation of dioxins and furans, like multi-ring compounds, phenols, and chlorinated compounds. Also the residence time of the gas at temperatures above 800 [illegible] is significantly longer than 1 second. In addition, the gasification step occurs in the presence of limited oxygen -- with no oxygen being available outside of the flame (i.e., at lower temperature where dioxins and furans would be thermally stable) -- and in the presence of low to moderate levels of chlorine in the synthesis gas.

Actual measurements of the synthesis gas from the Shell Coal Gasification Plant-1 for dioxins and furans showed that these species were not present at a detection limit of 1 part

per billion by volume -- nor were there any precursors for formation of dioxins and furans at the same detection level [4,5]. For these determinations, a sample of the synthesis gas was collected in a SUMMA cannister and analyzed (within 24 hours) by combined gas chromatography and mass spectrometry (GC/MS). The resultant spectra was compared against a database of nearly 50,000 compounds. As expected based on the flame temperature and severity of the gasification process, only a few molecules containing more than a single carbon atom were detected at the part per billion level. In fact, the highest molecular weight compounds -- among those few multi-carbon species detected at the part per billion level -- were actually traces of the solvent used in acid-gas treating (single ring compounds containing sulfur and oxygen). This speaks to the thoroughness of the sampling and analysis since these compounds were not known to be present by the analysts. It also speaks to the completeness of the gasifiction step since these compounds are not inherent, but were introduced into the synthesis gas downstream of the gasification step.

Additional synthesis gas analysis, from both short-term and long-term carbon bed absorption, showed that no dioxins and furans -- nor any precursors for formation of dioxins and furans -- were present in the gas at the part per billion by volume level [4,5].

Although dioxins and furans are not water soluble, precursors for their formation are, particularly phenols and chlorinated phenols. Measurements of the process water at SCGP-1 also showed that there were no organic compounds detected in the process water at the part per billion by weight level. The absence of any precursors for formation of dioxins and furans -- like multi-ring compounds, phenols, or chlorinated organics -- was confirmed not only during normal operation, but also early on in the development program during an intentionally-prolonged start-up. These process water analyses complement the synthesis gas analyses in demonstrating the completeness of the gasification step.

Analysis at even lower detection limit for dioxins and furans (i.e., California Air Resources Board, CARB Method 428 detects part per quadrillion levels) was not pursued because of the absence of any precursors which might suggest their presence (i.e., no two-member (or higher) ring compounds were detected, no phenols were detected, and no chlorinated hydrocarbons of any type were detected). Also it must be kept in perspective that the synthesis gas is not emitted to the atmosphere, but rather fed to a combustion turbine operating at 2300°C which further removes any trace organic compounds. Furthermore due to better fuel-air mixing, this purely gas-phase combustion is more efficient for destruction of organic compounds than solid fuel combustion [6]. Finally, in addition to the absence of organic compounds in the synthesis gas, the total chlorine content of the synthesis gas is only a few parts per billion by volume. Thus dioxins and furans are not present in the synthesis gas, nor are they likely to be associated with the exhaust gas from the heat recovery steam generator (HRSG).

Regarding the actual gasification plant emissions, there is approximately an order of magnitude dilution which occurs between the feed synthesis gas and the HRSG exhaust gas (i.e., as in any combustion process) due to dilution from nitrogen, steam and excess

combustion air.* Furthermore, even assuming a modest combustion efficiency of only 99%, the overall effect (dilution and combustion) will be at least three orders of magnitute drop in concentration when comparing the commercial emissions point relative to the measurement point at SCGP-1. Using this factor of 1000, it can be argued that the concentration of dioxins and furans in the actual exhaust gas will be less than a part per trillion by volume. This provides Shell with information at the concentration level that is currently being sought for commercial coal combustion units.

* Concentration comparisons are now more appropriate since the (HRSG) exhaust gas is comparable to pulverized coal combustion exhaust gas (i.e., both fully combusted), with the one exception that the energy output from gasfication is higher than from combustion. There is no counterpart to the synthesis gas in pulverized coal combustion.

REFERENCE:


1. Esposito, M. P., et al., (Pedco Environmental), "Dioxin: Volume I - Sources, Exposure, Transport and Control. (Prepared for the U.S. Environmental Protection Agency, Cincinnati, Ohio), EPA - 600/2-8--156, June 1980.
2. Ahling, B. and A. Lindskog, "Emission of Chlorinated Organic Substances from Combustion: Chlorinated Dioxins and Related Compounds Impact on the Environment", O. Hutzinger, R. W. Frei, E. Marian, F. Pocchiari (eds.), Pergamon Press Ltd., pg 215-225, 1982.
3. Shih, C., et al., (TRW, Inc.), POM Emissions from Stationary Conventional Combustion Processes, with Emphasis on Polychlorinated Compounds of Dibenzo-p-dioxin (PCDDs), Biphenyls (PCBs) and Dibenzo-p-furan (PCDFs), (Prepared for the U.S. Environmental Protection Agency, Research Triangle Park, NC), EPA Contract No. 68-02-3138, September, 1979.
4. Baker, D.C., W. V. Bush, K. R. Loos, "Determination of the Level of Hazardous Air Pollutants and other Trace Constituents in the Syngas from the Shell Coal Gasification Process", in "Managing Hazardous Air Pollutants: State of the Art", W. Chow and K. K. Connor (eds.), Lewis Publishing, 1993.
5. Baker, D. C., "Projected Emission of Hazardous Air Pollutants from a Shell Coal Gasification Process/Combined Cycle Power Plant", FUEL, 73, July, 1994.
6. (Arthur D. Little, Inc.), "Study on the State-of-the-Art of Dioxin from Combustion Sources", (Prepared for the American Society of Mechanical Engineers), Cambridge, MA, December, 1980.

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399-2100

LAWTON CHILES
Governor

LINDA LOOMIS SHELLEY
Secretary

Mr. Chris Hoberg
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, Northeast
Atlanta, Georgia 30365

RE: Clean Coal Technology Program - Environmental Impact Statement - Tampa Electric Company Polk Power Station - Hillsborough County, Florida
SAI: FL9402240121CR

Dear Mr. Hoberg:

The Florida State Clearinghouse is awaiting additional comments from our reviewing agencies on the above referenced project. We are therefore requesting an additional fifteen (15) days for completion of the consistency review in accordance with 15 CFR 930.41(b).

We will make every effort to conclude the review and forward the consistency determination to you on or before July 22, 1994.

Very truly yours,

Linda Loomis Shelley
Secretary

LLS/rk

EPA RESPONSE

STATE OF FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS; TALLAHASSEE, FLORIDA; LINDA LOOMIS SHELLEY, SECRETARY

We note that the Florida State Clearinghouse is "awaiting additional comments from our review agencies," that you are requesting a 15-day time extension, and that you expect to complete the review and forward a "consistency determination" on or before July 22, 1994.

Although EPA has not received (as of mid-August 1994) a follow-up letter directly from your office other than a correction letter enclosing a dated replacement letter for this undated time extension request (see below for copy of correction letter dated July 15, 1994, with replacement letter dated July 12, 1994), we have, however, received a letter from the Florida Office of the Governor dated July 13, 1994. EPA assumes that this is the follow-up comment letter you referenced since it was dated after your time extension request letter, referenced a Florida State Clearinghouse review, enclosed several state review letters, and provided a coastal zone consistency determination from the Florida Department of Commerce and a statement from the Florida Department of Environmental Protection that the Polk Power Station "...was granted site certification, subject to specific conditions, on January 25, 1994." A copy of the letter from the Florida Office of the Governor and its enclosed review letters is provided below with EPA responses provided.

In the unlikely event that the Florida Office of the Governor letter is not the follow-up comment letter that you referenced and a letter directly from your office is still forthcoming and is received by EPA at a later date, it will be retained in the project file but will not be addressed in this NOD/ROD notice and the newspaper publication of the NOD/ROD Availability notice in the Tampa Tribune and the Polk County Democrat (expected on September 1, 1994). However, should a substantive issue be raised in such a letter, EPA will coordinate with the State of Florida, as appropriate.

LAWTON CHILES
GOVERNOR

STATE OF FLORIDA

# Office of the Governor

THE CAPITOL
TALLAHASSEE, FLORIDA 32399-0001

July 13, 1994



Mr. Heinz Mueller, Chief
Environmental Policy Section
United States Environmental
Protection Agency
Region IV
345 Courtland Street, Northeast
Atlanta, Georgia 30365

RE: Final Environmental Impact Statement (FEIS) - Tampa Electric Company - Polk Power Station

SAI: FL9402240121E

Dear Mr. Mueller:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 93-194, and the National Environmental Policy Act, has coordinated a review of the above referenced FEIS.

Based on the State's review of the Draft and Final EIS the proposed activity is in accord with state plans, programs, and policies. Comments received from the Departments of Commerce, Transportation, Environmental Protection and State are enclosed for your information and any action needed.

We appreciate the opportunity to review this document as provided for in Presidential Executive Order 12372 and the National Environmental Policy Act.

Sincerely,

Estus Whitfield

Estus D. Whitfield
Policy Coordinator
Environmental Policy/Community and
Economic Development Unit

EDW/mt

Enclosure

STATE OF FLORIDA DEPARTMENT OF COMMERCE

Division of Economic Development

June 16, 1994

Ms. Janice L. Hatter, Director
State Clearinghouse
Office of Planning and Budgeting
Executive Office of the Governor
The Capitol
Tallahassee, Florida 32399-0001

RE: SAI# FL 94 02 24 0121CR (Tampa Electric/Polk Power/E.I.S.)

Dear Ms. Hatter:

Thank you for asking the Florida Department of Commerce to make a consistency review of this Environmental Impact Statement (E.I.S.) of the Environmental Protection Agency. The project involves constructing the Polk Power Station by Tampa Electric Company. Economic estimates are that between 1994-2010, the project will generate $118,427,000 construction wages, $107,438,000 operation-maintenance wages (both in 1992 dollars) and $197,005,700 in new taxes.

Based on those portions of the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) and the Florida Coastal Management Program (Secs. 380.19-33, F.S.) for which the Department of Commerce has responsibility, we believe the proposed plans and actions are **consistent** with criteria in Chapter 288, Florida Statutes: positive net impacts on income and employment; social benefits outweigh identifiable social costs; no adverse effects on any key Florida industry; and official local agency support exists for the project.

Very respectfully,

Wynnelle Wilson
Economic Development Policy Coordinator
Bureau of Economic Analysis

WW/rdp

FLORIDA DEPARTMENT OF TRANSPORTATION
LAWTON CHILES
GOVERNOR
605 Suwannee Street, Tallahassee, Florida 32399-0450
BEN G. WATTS
SECRETARY

June 20, 1994

State Clearinghouse
Executive Office of the Governor - OPB
Room 1603, The Capital
Tallahassee, Florida 32399-0001
Re: **SAI#: FL9402240121CR**



Dear Sir or Madam

The DOT offers the following comments.

In a review of the maps contained in the document it would appear that this power station is to be located approximately four miles from the Hillsborough County line. Hillsborough County is currently designated as a nonattainment county for Ozone and Lead. Nitrogen Oxides (NOx), Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) are all precursors to the formation of Ozone. Hillsborough county is currently struggling to meet the future emissions budgets in terms of their NOx and VOCs emissions. This new power plant will increase the emissions by:

| | | |
|---|---|---|
| 3,421 | tons/year (tpy) for | NOx |
| 2,541 | tpy for | CO |
| 399 | tpy for | VOC |

We recommend that this project be coordinated with the Hillsborough and Pinellas County Air Quality Agencies to ensure the emissions from this power plant do not jeopardize Hillsborough County's ability to be consistent with its emissions budgets once the nonattainment area has been redesignated as a Maintenance area by EPA.

Should you have any questions please contact Amy Datz at 922-7206.

# Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

11 July 1994



IGA

Suzanne Traub-Metlay
State Clearinghouse
Office of Planning and Budgeting
Executive Office of the Governor
The Capitol
Tallahassee, Florida 32399-0001

RE: Final Environmental Impact Statement, Tampa Electric Company, Polk Power Station, Polk County
SAI: FL9402240121CR

Dear Ms. Traub-Metlay:

The Environmental Protection Agency has requested comments on the above-referenced Final Environmental Impact Statement (FEIS) regarding the Polk Power Station. This station was granted site certification, subject to specific conditions, on January 25, 1994. Therefore, the Department has no comments or objections to offer on this project.

For your reference, I have included the Final Order Approving Certification as an attachment to this letter. If I may be of further assistance, please call me at 487-2231.

Sincerely,

Susan Goggin

Susan Goggin
Environmental Specialist
Office of Intergovernmental Programs

Attachment

/seg

STATE OF FLORIDA
BEFORE THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

**IGA**

| | |
|---|---|
| IN RE: | |
| APPLICATION FOR POWER PLANT CERTIFICATION OF TECO POLK COUNTY PROJECT, PA 92-32 | DOAH CASE NO. 92-4896EPP<br>OGC CASE NO. 92-1399 |

# FINAL ORDER APPROVING CERTIFICATION

On January 25, 1994, this matter came before the Governor and Cabinet, sitting as the Siting Board, pursuant to the Florida Electrical Power Plant Siting Act (PPSA), Section 403.501 et seq., Florida Statutes (1993), for final agency action concerning a recommended order dated November 30, 1993, attached as Exhibit 1, which recommends site certification for the Tampa Electric Company Polk Power Station project. By order dated January 26, 1993, the Board found the Polk site to be consistent and in compliance with existing land use plans and zoning ordinances. On March 2, 1992, the Public Service Commission certified the need for 260 MW of integrated combined cycle coal-gasification (IGCC) generating capacity at the site.

No party has filed exceptions to the Recommended Order.

Having reviewed the recommended order and otherwise being fully advised, it is ORDERED:

1. Pursuant to Section 120.57 (1)(b)(10), Florida Statutes (1993), the Recommended Order dated November 30, 1993, (Exhibit 1) is APPROVED and ADOPTED by the Board.

2. The Board APPROVES certification for the location,

construction and operation of 260 MW of integrated gasification combined cycle generating capacity at the the Tampa Electric Company Polk Power Station Site as proposed in the Site Certification Application, subject to the Conditions of Certification contained in Appendix A to Exhibit 1.

3. The Tampa Electric Company Polk Power Station Site is certified for an ultimate site capacity of 1150 MW fueled by coal gas and natural gas, subject to need determination by the Florida Public Service Commission as required by law, supplemental application review and approval by the Board pursuant to Section 403.517, Florida Statutes, and compliance with the Conditions of Certification contained in Appendix A to Exhibit 1.

4. The Board DELEGATES to the Department of Environmental Protection the authority to assure and enforce compliance by Tampa Electric Company and its agents with all of the Conditions of Certification imposed by this Order.

## NOTICE OF RIGHTS

Any party to this certification proceeding has the right to seek judicial review of this Order under Section 120.68, Florida Statutes, by the filing of a notice of appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department of Environmental Protection, Office of General Counsel, 2600 Blair Stone Road, Tallahassee, FL 32399-2400; and by filing a copy with the appropriate District Court of Appeal.

The notice of appeal must be filed within 30 days from the date this Order is filed with the Clerk of the Siting Board.

DONE and ORDERED this 27th day of January, 1994, at Tallahassee, Florida, pursuant to a vote of the Governor and Cabinet sitting as the Siting Board, at a duly-noticed and constituted Cabinet meeting on January 25, 1994.

THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

BY: _____
THE HONORABLE LAWTON CHILES

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ 1/27/94
Clerk Date

## CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been sent by U.S. Mail, to the following listed persons:

Hamilton S. Oven
Office of Siting Coordination
Department of Environmental Protection
3900 Commonwealth Blvd Ste 953
Tallahassee FL 32399-3000

Karen Brodeen, Esq.
Assistant General Counsel
Department of Community Affairs
2740 Centerview Dr Rm 138
Tallahassee FL 32399-0863

Michael Palecki, Esquire
Division of Legal Services
Public Service Commission
101 E Gaines St Rm 212
Tallahassee FL 32399-0850

Carolyn S. Holifield, Esq.
Administrative Law Section
Department of Transportation
Haydon Burns Bldg
605 Suwannee St MS 58
Tallahassee FL 32399-0458

R. Douglas Leonard
Executive Director
Central Florida Regional Planning Council
409 E Davidson St
Bartow FL 33830

James Antista
General Counsel
Florida Game & Fresh Water Fish Commission
Bryant Bldg
620 S Meridian St
Tallahassee FL 32399-1600

Mark Carpanini, Esquire
Office of County Attorney
Polk County
P O Box 60
Bartow FL 33830-0060

Julia Greene
Executive Director
Tampa Bay Regional Planning Council
9455 Koger Blvd
St Petersburg FL 33702

John J. Dingfelder, Esquire
Hillsborough County
P O Box 1110
Tampa FL 33601-1110

Martin D. Hernandez, Esquire
Southwest Florida Water Management District
2370 Broad St
Brooksville FL 34609-6899

Certificate of Service (continued)

Sara Fotopulos, Chief Counsel
EPC of Hillsborough County
1900 9th Ave
Tampa FL 33605

Lawrence N. Curtin, Esq.
Holland and Knight
P.O. Drawer 810
Tallahassee, FL 32302

this 27th day of January, 1994.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

R T Donelan, Jr.

RICHARD T. DONELAN, JR.
Assistant General Counsel

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee FL 32399-2400
Telephone: (904)488-9314

FLORIDA DEPARTMENT OF STATE
Jim Smith
Secretary of State
DIVISION OF HISTORICAL RESOURCES
R.A. Gray Building
500 South Bronough
Tallahassee, Florida 32399-0250
Director's Office (904) 488-1480
Telecopier Number (FAX) (904) 488-3353

June 30, 1994

Ms. Janice L. Hatter, Director
State Clearinghouse
Executive Office of the Governor
Room 1603, The Capitol
Tallahassee, Florida 32399-0001

In Reply Refer To:
Frank J. Keel
Historic Sites Specialist
(904) 487-2333
Project File No. 942044

RE: Cultural Resource Assessment Request
SAI# FL940224012ICR
Final Environmental Impact Statement for the Tampa Electric Company - Polk Power Station
Polk County, Florida

Dear Ms. Hatter:

In accordance with the provisions of Florida's Coastal Zone Management Act and Chapter 267, Florida Statutes, as well as the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical or architectural value.

A review of our files indicates that the site for the Polk Power Station has been previously surveyed and no cultural resources were located as a result of that survey. Therefore, it is the opinion of this office that the proposed project will have no effect on historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical or architectural value. The project is also consistent with the historic preservation laws of Florida's Coastal Management Program.

Once the alignment within the northern transmission line corridor is finalized, location maps should be submitted for our review. Future interconnections with fuel oil or natural gas pipelines would require Tampa Electric Company to consult with this agency before commencing project activities.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer

for George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Kfk
xc: Jasmin Raffington, FCMP-DCA

EPA RESPONSE

STATE OF FLORIDA OFFICE OF THE GOVERNOR; TALLAHASSEE, FLORIDA; ESTUS D. WHITFIELD, POLICY COORDINATOR, ENVIRONMENTAL POLICY/COMMUNITY AND ECONOMIC DEVELOPMENT UNIT; JULY 13, 1994

Thank you for your comments.

We note that based on the your coordinated review of the Draft and Final EIS within the State of Florida, the proposed project "...is in accord with state plans, programs, and policies."

Four (4) letters from your state review agencies were enclosed in your comment letter. EPA offers the following regarding their comments:

- State of Florida Department of Commerce (FDOC) - We note from FDOC's EIS consistency review that:

  Based on those portions of the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) and the Florida Coastal Zone Management Program (Secs. 380.19-33, F.S.) for which the Department of Commerce has responsibility, we believe the proposed plans and actions are consistent with criteria in Chapter 288, Florida Statutes: positive net impacts on income and employment; social benefits outweigh identifiable social costs; no adverse effects on any key Florida industry; and official local agency support exists for the project.

- Florida Department of Transportation (FDOT) - We note FDOT's concerns for potential project impacts to Hillsborough County, which is designated nonattainment for ozone and lead, and power plant predicted emissions of NOx, CO, and VOC, which are precursors to ozone. We concur with your suggestion that the project should be coordinated with the Hillsborough and Pinellas County Air Quality Agencies "...to ensure the emissions from this power plant do not jeopardize Hillsborough County's ability to be consistent with its emissions budgets once the nonattainment area has been redesignated as a Maintenance area by EPA." However, EPA assumes that your comments are directed to appropriate State of Florida agencies such as the FDEP rather than to EPA since EPA air programs have been delegated to Florida. Nevertheless, we are providing a copy of this NOD/ROD to the FDEP Air Permitting Section, Division of Air Resource Management for their consideration to assist your State of Florida coordination efforts.

- Florida Department of Environmental Protection Agency (FDEP) - We note FDEP's comments regarding site certification of the proposed Polk Power Station:

  > This station was granted site certification, subject to specific conditions, on January 25, 1994. Therefore, the Department has no comments or objections to offer this project.

  We appreciate the copy of the Final Order Approving Certification enclosed with your letter.

- Florida Department of State, Division of Historical Resources - We note that the letter from the Florida State Historic Officer (SHPO) is essentially the same as a letter also dated June 30, 1994, that was provided directly to EPA and was discussed in the text of this NOD/ROD notice with a copy appended above in this appendix. It is clear that Tampa Electric Company will need to provide additional coordination with the SHPO and other appropriate state and federal agencies regarding potential impacts along the final proposed alignments for various transmission and pipeline linear facilities once finalized.

  EPA believes this coordination would primarily be initiated by Tampa Electric Company now that the NEPA EIS process has been completed. However, depending on future federal involvement, EPA may still have some involvement through, for example, Section 106 of the National Historic Preservation Act, Section 404 of the Clean Water Act, and/or Section 7 of the Endangered Species Act. This potential continued involvement is a clarification that should be made to the Draft and Final EIS text (e.g., Final EIS Executive Summary and Sections 2.6.12, 2.6.13, 3.10, 4.10, 5.1.6, 6.1.1.10, 6.1.2.10, 6.2.10, and 6.3); the above-referenced discussion in the text of this NOD/ROD notice regarding the SHPO comment letter on the Final EIS; and the EPA response in Appendix G of the Final EIS to the State of Florida Department of Community Affairs comment letter (Letter #8) and the SHPO comment letter (Letter #4) received on the Draft EIS.

# STATE OF FLORIDA
# DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399-2100

LAWTON CHILES
Governor

LINDA LOOMIS SHELLEY
Secretary



July 15, 1994

Mr. Chris Hoberg
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, Northeast
Atlanta, Georgia 30365

RE: Clean Coal Technology Program - EIS - Tampa Eletric Company Polk Power Station - Hillsborough County, Florida
SAI: FL9402240121CR

Dear Mr. Hoberg:

The date was inadvertently omitted from the July 12, 1994 letter transmitted to you by the Department of Community Affairs regarding the above referenced project. Please replace that correspondence with the enclosed letter, which includes the correct date. If you have any questions, please contact Jasmin Raffington, Florida Coastal Management Program, at (904) 922-5438.

Sincerely,

Rosalyn F. Kilcollins

Rosalyn F. Kilcollins
Planner IV

RFK/rk

Enclosure

# STATE OF FLORIDA
# DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399-2100

LAWTON CHILES
Governor

LINDA LOOMIS SHELLEY
Secretary

July 12, 1994

Mr. Chris Hoberg
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, Northeast
Atlanta, Georgia 30365

RE: Clean Coal Technology Program - Environmental Impact Statement - Tampa Electric Company Polk Power Station - Hillsborough County, Florida
SAI: FL9402240121CR

Dear Mr. Hoberg:

The Florida State Clearinghouse is awaiting additional comments from our reviewing agencies on the above referenced project. We are therefore requesting an additional fifteen (15) days for completion of the consistency review in accordance with 15 CFR 930.41(b).

We will make every effort to conclude the review and forward the consistency determination to you on or before July 22, 1994.

Very truly yours,

Linda Loomis Shelley
Secretary

LLS/rk

EPA RESPONSE

STATE OF FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS; TALLAHASSEE, FLORIDA; ROSALYN F. KILCOLLINS; PLANNER IV; July 15, 1994

We note your correction letter indicating that the time extension letter should have been dated July 12, 1994. Thank you for enclosing a dated (July 12, 1994) replacement letter requesting the 15-day time extension.

PUBLIC NOTICE

U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

PUBLIC NOTICE NO. 94FL0162 September 1, 1994

PUBLIC NOTICE OF NPDES PERMIT DETERMINATION (NOD)
AND
AVAILABILITY OF EIS RECORD OF DECISION (ROD)

Facility Name: Tampa Electric Company, Polk Power Station
Location: Polk County, 9995 SR 37 South, Mulberry, Florida 33860
Permit No.: FL0043869
Permit Effective Date: January 1, 1995
Prior Public Notice No.: 94FL0012; 94FL0016 and 94FL0017
Prior Public Notice Date: February 17, 1994; February 24, 1994
Draft EIS Notice of Availability Date: February 25, 1994
NPDES Permit/EIS Public Hearing Date: March 31, 1994
Final EIS Notice of Availability Date: June 10, 1994
EIS Record of Decision Effective Date: July 14, 1994

PURPOSE OF NOTICE

Pursuant to Title 40, Code of Federal Regulations (40 CFR), Section 124.15, this public notice will serve as the U.S. Environmental Protection Agency (EPA) Region IV Notice of Determination (NOD) for the National Pollutant Discharge Elimination System (NPDES) permit for the 1,150-MW Polk Power Station proposed by the Tampa Electric Company applicant for Polk County near Bartow, Florida. Consistent with 40 CFR 1506.6(b), this notice will also serve as the EPA announcement of the public availability of its Record of Decision (ROD) for the associated EPA Environmental Impact Statement (EIS: "Tampa Electric Company - Polk Power Station") prepared as documentation pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, for that NPDES permit. The EIS ROD itself is jointly provided together with the NOD in a separate EPA notice entitled "Public Notice of NPDES Permit Determination (NOD) and EIS Record of Decision (ROD)." That NOD/ROD notice was signed together with the present notice by the EPA Regional Administrator on July 14, 1994. The contents of the NOD is essentially the same in both notices.

Due to its length, the NOD/ROD notice containing the ROD is not published here or elsewhere. EPA also does not plan a full EIS distribution of that notice. However, copies of the entire, signed NOD/ROD notice are available to the public and may be requested from: Ms. Lena Scott; U.S. Environmental Protection Agency/Region IV; 345 Courtland Street, NE; Atlanta, GA 30365; (404) 347-3004, x6754; FAX (404) 347-5206. A limited number of copies of the Draft EIS, Final EIS, separate Executive Summaries of the Draft EIS and the Final EIS, and Final NPDES permit are also available at the same address.

EPA NPDES PERMIT AND EIS DETERMINATIONS

After due consideration of the facts applicable to the above-named power plant facility as they appear in the administrative record and the requirements and policies expressed in the Clean Water Act and appropriate regulations, the EPA Regional Administrator (Region IV) has determined that the NPDES permit as amended (since March 31, 1994) should be issued. This action constitutes EPA's final permit decision in accordance with 40 CFR 124.15(a). With the issuance of this NOD, the Final NPDES permit will become effective on January 1, 1995, provided that no timely request for an evidentiary hearing is received by EPA.

The EIS associated with this NPDES permit was prepared pursuant to NEPA and EPA's responsibilities for NPDES permitting for a new source in Florida. Both the U.S. Department of Energy (DOE) and the U.S. Army Corps of Engineers (USACOE) are Cooperating Agencies to EPA for this EIS and have participated in its development. The EPA Regional Administrator has determined that this EIS associated with the NPDES permit is acceptable. This determination considered that environmental impacts have been documented, reasonable mitigation has been proposed for certain important impacts, the NPDES permit as amended (since March 31, 1994) is acceptable for issuance, the opportunity for public comments on the EIS and Draft NPDES permit has been provided, and the nature of the comments on the Final EIS. As such, an EIS ROD has been prepared in accordance with 40 CFR Part 6, Subpart D, § 6.400(e), and approved for the EPA EIS entitled "Tampa Electric Company - Polk Power Station." As indicated above, the ROD itself is not presented herein but is provided together with the NOD in the EPA "Public Notice of NPDES Permit Determination (NOD) and EIS Record of Decision (ROD)" which is available from EPA at the above address.

REQUEST FOR EVIDENTIARY HEARING FOR NPDES PERMIT

Any interested person may contest this NPDES permitting decision by submitting a timely request for an evidentiary hearing (hearing) pursuant to the procedures at 40 CFR § 124.74. An original and two copies of the request must be submitted to the Regional Hearing Clerk (Ms. Julia P. Mooney: 404/347-1565, x6731) at the above EPA Region IV address within thirty (30) days following the issuance of the NPDES permit. The procedures and requirements for evidentiary hearing requests and appeals to the EPA Regional Administrator are published in 40 CFR Part 124, Subpart E.

If a request for a hearing is received by EPA, following review, a determination will be made and the requester advised of EPA's decision on the request. Until that time, the hearing request will render the permit ineffective pursuant to 40 CFR § 124.15(b). Also, since this

facility is a new source (see below), the request will render the facility without an NPDES permit pending final EPA action and the facility may not discharge (unless relief is granted by the Presiding Officer under 40 CFR § 124.60(a)).

For purposes of judicial review under the Clean Water Act, 33 USC § 1251 et seq., final EPA action on a permit does not occur unless and until a party has exhausted its administrative remedies as required by 40 CFR Part 124.

EPA's permit action alternatives were to issue, issue with conditions, or deny an NPDES permit for a new source. EPA's preferred action in the EIS was to issue an NPDES permit with conditions. However, EPA has decided to issue the NPDES permit without conditions because none were necessary beyond those normally contained in an NPDES permit (e.g., effluent limitations, monitoring, reporting). The effective date for the permit is now proposed for January 1, 1995, while the effective date for the EIS ROD is the notice signature date of July 14, 1994.

## NEW SOURCE DETERMINATION

EPA's tentative "new source" determination for the NPDES permit was announced in the newspaper by public notice on February 17, 1994 in the Polk County Democrat (Public Notice No. 94FL0012: "Notice of Initial New Source Determination") and by EPA letter to the Tampa Electric Company applicant dated January 11, 1994. This NOD constitutes the formal new source determination by EPA.

## RECENT MODIFICATIONS TO THE NPDES PERMIT

The Draft NPDES permit EPA made available at the EPA Joint EIS/NPDES Permit Public Hearing on March 31, 1994 is the same draft permit dated March 31, 1994 that EPA included in Appendix A in the Final EIS. That Draft NPDES permit has been amended since March 31, 1994, primarily to include updated information in the permit regarding design modifications and improvements proposed by Tampa Electric Company and to append related water balance information. The resultant Final NPDES permit will become effective January 1, 1995, provided that no timely request for an evidentiary hearing is received by EPA.

EPA had previously requested certification pursuant to Section 401 of the Clean Water Act from the State of Florida for the Draft NPDES permit dated March 31, 1994. Florida waived Section 401 certification by letter to EPA dated June 21, 1994. The State did not recommend inclusion of any more stringent requirements in the Final NPDES permit during the 401 certification process. Therefore, as indicated above, EPA issues the permit without conditions.

It should be clarified that although the EPA NPDES permit is for point source discharges during plant operation to waters of the United States, this permit also addresses NPDES storm water permitting during plant operation. Also, Tampa Electric Company has already achieved coverage under the EPA NPDES General Permit issued on September 25, 1992, regarding plant construction storm water point source discharges to waters of the United States (i.e., General Permit for "Storm Water Discharges from Construction Sites"). Tampa Electric Company applied for coverage under the General Permit on August 25, 1993.

PUBLIC PARTICIPATION

Opportunity for public participation was provided for both the Draft NPDES permit and the EIS. The Draft EIS was noticed as a Notice of Availability (NOA) in the Federal Register at 59 FR 9211 on February 25, 1994. A brief reference to the fact that the Draft EIS involved an NPDES permit was made in the NOA. The official NEPA 45-day public comment period for the Draft EIS was from February 25, 1994 to April 11, 1994. Numerous copies of the Draft EIS (which included a copy of the Draft NPDES permit as an appendix) and numerous additional copies of the Draft EIS Executive Summary were mailed to the public and review agencies. On March 31, 1994, during the public comment period, an EPA Joint EIS/NPDES Permit Public Hearing was held in Bartow, Florida. The hearing was announced in newspapers on February 24, 1994, in the Polk County Democrat (Public Notice No. 94FL0016) and the Tampa Tribune (Public Notice No. 94FL0017) and in an EPA "Environmental News" press release dated March 28, 1994, which was available to various Florida media. The official end of the comment period for the Draft NPDES permit and the Draft EIS was announced in these notices as April 11, 1994. Since the end of the comment period for the Draft NPDES permit was the same as for the Draft EIS, the lengths and dates of the comment periods for both the Draft EIS and Draft NPDES permit were essentially the same. An additional EPA Public Notice attached to the inside front cover of the Draft EIS (Volume I) also announced the due date of written comments on the Draft EIS and/or Draft NPDES permit as being April 11, 1994. The EPA contact person for written comments was also the same for both.

In addition to four EPA representatives and associated personnel (third-party contractor and court reporter), 20 people registered at the public hearing. These attendees consisted primarily of DOE and Tampa Electric Company representatives and their contractors, but also included the public. One public speaker provided verbal comments at the public hearing. This speaker represented the Central Florida Development Council and promoted the proposed project.

The Final EIS was noticed as an NOA in the Federal Register at 59 FR 30001 on June 10, 1994. As in the case of the Draft EIS NOA, a brief reference to the fact that the Final EIS involved an NPDES permit was made in the NOA. The official 30-day NEPA public comment period for the Final EIS was from June 10, 1994 to July 11, 1994. Numerous copies of the Final EIS (which included a copy of the Draft

NPDES permit dated March 31, 1994 as an appendix) and numerous additional copies of the Final EIS Executive Summary were mailed to the public and review agencies. An additional EPA Public Notice attached to the inside front cover of the Final EIS (Volume I) announced the due date for written comments on the Final EIS and/or Draft NPDES permit as being July 11, 1994. The EPA contact person for written comments was also the same for both. Therefore, the comment period for the Final EIS also served as an additional comment opportunity on the Draft NPDES permit dated March 31, 1994, which had previously been made available at the EPA Joint EIS/NPDES Permit Public Hearing.

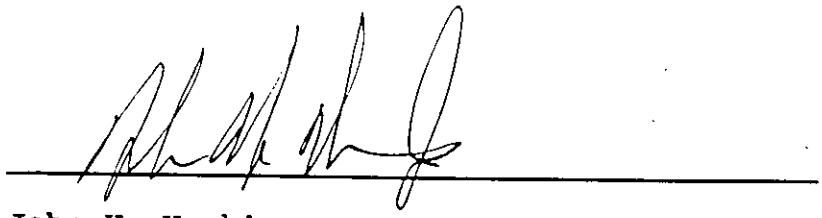
Public participation relative to the EIS (other than the above NOAs and Public Hearing discussion) is addressed in the ROD portion of the referenced "Public Notice of NPDES Permit Determination (NOD) and EIS Record of Decision (ROD)" available from EPA. Specifically, this included discussion of the nine (9) public comment letters on the Draft EIS and/or Draft NPDES permit that were received by EPA, as well as the three (3) public comment letters and one (1) comment telephone call received on the Final EIS and/or Draft NPDES permit. In general, these comments concerned the EIS as opposed to the NPDES permit per se. Copies of the comment letters and the telephone log are appended to the referenced NOD/ROD notice available from EPA.

PROJECT SUMMARY

Through license and permit applications, Tampa Electric Company is proposing to construct and operate a new power plant and associated facilities on an approximately 4,348-acre site in southwestern Polk County, Florida. The proposed facilities would be known as the "Tampa Electric Company Polk Power Station." The proposed total net generating capacity at full build-out of the units at the site would be approximately 1,150 megawatts (MW: note that references herein to MW capacities of power generating units are understood to be "nominal net" capacities). The generating units planned for the Polk Power Station would be developed at the site according to a phased schedule that matches Tampa Electric Company's forecasted growth in electricity demands beginning in 1996 and continuing into the year 2010. The first generating facility at the Polk Power Station site is proposed to be an integrated gasification combined cycle (IGCC) unit. This IGCC unit would be known as "Polk Unit 1." Cost-shared financial assistance for the IGCC unit would be provided by DOE through the DOE Clean Coal Technology (CCT) Demonstration Program, pending successful completion of this EIS process. The 260-MW IGCC unit would consist of a 150-MW advanced combustion turbine (CT), heat recovery steam generator (HRSG), steam turbine (ST), and coal gasification (CG) facilities. The IGCC unit would be fueled by coal-derived gas called syngas, which is produced in the CG facilities with low-sulfur No. 2 fuel oil as a backup fuel. Tampa Electric Company's current Power Resource Plan indicates that later facilities would consist of two combined cycle (CC) generating units and six simple-cycle CTs fueled by natural gas with low-sulfur No. 2 fuel oil as a backup fuel.

EPA APPROVAL

This "Public Notice of NPDES Permit Determination (NOD) and Availability of EIS Record of Decision (ROD)" is approved by:



7/14/94

John H. Hankinson, Jr.
Regional Administrator
EPA Region IV

Date

****

NOTE: EPA received four (4) additional comment letters after the July 11, 1994 close of the public comment period for the Final EIS. Although these letters were received after the comment period, they were considered by EPA. Copies of the letters with EPA responses are included in the appendix of the NOD/ROD notice that was referenced above and is available from EPA. Therefore, a total of seven (7) comment letters and one (1) comment telephone call were received by EPA on the Final EIS and/or draft NPDES permit during the general timeframe of the comment period.

PUBLIC NOTICE

U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

PUBLIC NOTICE NO. 94FL0163 September 1, 1994

PUBLIC NOTICE OF NPDES PERMIT DETERMINATION (NOD)
AND
AVAILABILITY OF EIS RECORD OF DECISION (ROD)

Facility Name: Tampa Electric Company, Polk Power Station
Location: Polk County, 9995 SR 37 South, Mulberry, Florida 33860
Permit No.: FL0043869
Permit Effective Date: January 1, 1995
Prior Public Notice No.: 94FL0012; 94FL0016 and 94FL0017
Prior Public Notice Date: February 17, 1994; February 24, 1994
Draft EIS Notice of Availability Date: February 25, 1994
NPDES Permit/EIS Public Hearing Date: March 31, 1994
Final EIS Notice of Availability Date: June 10, 1994
EIS Record of Decision Effective Date: July 14, 1994

PURPOSE OF NOTICE

Pursuant to Title 40, Code of Federal Regulations (40 CFR), Section 124.15, this public notice will serve as the U.S. Environmental Protection Agency (EPA) Region IV Notice of Determination (NOD) for the National Pollutant Discharge Elimination System (NPDES) permit for the 1,150-MW Polk Power Station proposed by the Tampa Electric Company applicant for Polk County near Bartow, Florida. Consistent with 40 CFR 1506.6(b), this notice will also serve as the EPA announcement of the public availability of its Record of Decision (ROD) for the associated EPA Environmental Impact Statement (EIS: "Tampa Electric Company - Polk Power Station") prepared as documentation pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, for that NPDES permit. The EIS ROD itself is jointly provided together with the NOD in a separate EPA notice entitled "Public Notice of NPDES Permit Determination (NOD) and EIS Record of Decision (ROD)." That NOD/ROD notice was signed together with the present notice by the EPA Regional Administrator on July 14, 1994. The contents of the NOD is essentially the same in both notices.

Due to its length, the NOD/ROD notice containing the ROD is not published here or elsewhere. EPA also does not plan a full EIS distribution of that notice. However, copies of the entire, signed NOD/ROD notice are available to the public and may be requested from: Ms. Lena Scott; U.S. Environmental Protection Agency/Region IV; 345 Courtland Street, NE; Atlanta, GA 30365; (404) 347-3004, x6754; FAX (404) 347-5206. A limited number of copies of the Draft EIS, Final EIS, separate Executive Summaries of the Draft EIS and the Final EIS, and Final NPDES permit are also available at the same address.

Florida Department of
# Environmental Protection

Memorandum

TO: Buck Oven, P.E. Administrator

FROM: John Brown, P.E. Administrator

DATE: June 9, 1994

SUBJECT: TECO Polk Power Station - PA 92-32, Mod 8042
PSD-FL-194

The Bureau of Air Regulation finds the above referenced modification request insufficient. Based on our initial review of their proposal, we have determined that additional information is needed in order to process the application. The following information is required:

1. Submit flow diagram for the IGCC unit showing the volumetric air flow rates for the updated IGCC configuration of treating only 15% syngas flow. Also, submit flow diagram showing volumetric air flow rates for the updated auxiliary boiler.

2. Please quantify the decrease in $NO_x$ and $SO_2$ emissions during the demonstration period when the system is sized to treat 10 to 15% of the syngas flow instead of the design concept of 50% as proposed in the Site Certification application for the HGCU system.

3. Please show the calculations in arriving at 16.6 tpy $NO_x$ emission rate for the updated auxiliary boiler.

4. Please provide calculations to show that the $H_2SO_4$ plant emissions meet the NSPS requirements of Subpart H.

If there are any questions on the above, please call Syed Arif at 488-1344.

JB/SA/bjb

c.c. Scott Davis, EPA

Clair Fancy

Florida Department of

# Environmental Protection

## Memorandum

TO: Power Plant Siting Review Committee

FROM: Buck Oven

DATE: September 19, 1994

SUBJECT: Modification of TECO Polk Power Station
PA 92-32A

Attached is a copy of TECO's latest response to sufficiency comments relating to the redesign of the Polk Power Station and proposed modification of the conditions of certification.

Please review and comment by October 11, 1994.

cc: Scott Davis, EPA

# TAMPA ELECTRIC COMPANY
# POLK POWER STATION
# PA 92-32

# RESPONSES TO COMMENTS
# ON
# POSTCERTIFICATION DESIGN UPDATES

**Submitted by:**

TAMPA ELECTRIC
A TECO ENERGY COMPANY

**Tampa, Florida**

September 1994

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Florida Department of
# Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

June 15, 1994

Mr. Greg Nelson
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Re: Polk Power Station Modification, PA 92-32A

Dear Mr. Nelson:

The Department of Environmental Protection has reviewed the information submitted to support the requested modification of the Polk Power Station. The Department requests that you clarify the following:

1. Submit a flow diagram for the IGCC unit showing the volumetric air flow rates for the updated IGCC configuration of treating only 15% syngas flow. Also, submit flow diagram showing volumetric air flow rates for the updated auxiliary boiler. FDEP-1

2. Please quantify the decrease in $NO_x$ and $SO_2$ emissions during the demonstration period when the system is sized to treat 10 to 15% of the syngas flow instead of the design concept of 50% as proposed in the Site Certification application for the HGCU system. FDEP-2

3. Please show the calculations in arriving at 16.6 tpy $NO_x$ emission rate for the updated auxiliary boiler. FDEP-3

4. Please provide calculations to show that the $H_2SO_4$ plant emissions meet the NSPS requirements of Subvert H. FDEP-4

(If there are any questions on the above, please call Syed Arif at 488-1344.

5. On page 2-27 there is discussion of using water from an on-site water well to charge and test the fire protection water system. Where will the fire protection water be disposed if the system is charged and tested in the construction phase? If the intention is to discharge the test water to a surface water, what is the expected quality of the water to be discharged from the fire protection system? (Mandrup-Poulsen) FDEP-5

6. We have some concern about the proposal to discharge the sulfuric acid plant wastewater stream to the equalization basin. Condition of Certification XIV. C. requires that combined discharges to the cooling pond fall within the pH range of 6.0 - 9.0. If the discharge from the equalization basin is considered a "combined" FDEP-6

discharge, we suggest that TEC be required to determine whether this condition can be met under worst case conditions including no stormwater inputs to the equalization basin. If this is not what is meant by "combined" discharge, we still have some concerns regarding possible mixing of a low pH wastestream with other metal bearing wastes. We would therefore request that TEC consider:

a. The feasibility of routing this wastestream to the proposed neutralization basin.

b. Whether this wastestream can be used for pH control in the H2S degasifier or for the R.O. feedwater. (Please contact Craig Diltz at 8-4522 if you have any questions.)

7. The predicted concentrations of sulfate have increased from 120 mg/L to 146 mg/L from the Reservoir Blowdown quality (c.f., Table 2.3-2). However, the Equalization/Filtration wastestream has been predicted to have a sulfate concentration of 380 mg/L (formerly 139 mg/L) with a flow rate of ≈400,000 gpd (c.f., Table 2.3-1). It is my understanding that the TECO may utilize the volume of the Cooling Water Reservoir to dilute this concentration of sulfate below that of the MCL (250 mg/L). However, it would be appropriate for TECO to provide reasonable assurance that the discharge from the Cooling Water Reservoir will not violate this standard. (Joe May) FDEP-7

8. With regard to the domestic wastewater facilities to be proposed for this project, the preliminary information in the SCA estimated 400-600 workers in the construction workforce. This estimate has been revised to a range estimate of 650-1400 workers during the construction phase. Dependent on yet unsubmitted scheduling and other details, this population change may require incorporation into the forthcoming Preliminary Design Report that is required by 17-600.715, F.A.C. (Joe Amato) FDEP-8

9. Prior to initiation of construction of the brine storage cells, TECO must provide us with a revised final design of the brine storage cells. Any leachate generated must be collected and treated in accordance with the applicable conditions of the certification (Chapter XXI). Be aware that any modification to the proposed "temporary enclosure" system will require Department evaluation and approval. FDEP-9

10. The proposed discharge of the sulfuric acid wastewater stream to the equalization/filtration system, with extremely low levels of pH as low as 2.0 standards units FDEP-10

(hazardous waste characteristic), is not acceptable. TECO must investigate an alternate pretreatment and disposal system for the disposal of this wastewater. On page 2-22 the wastewater stream from the sulfuric acid plant is described as having an acid concentration of 1 per cent or less. On page 2-23 the pH is given a range of 2 to 6. Should the pH equal 2.0 or less it will become classified as a hazardous waste. What is the schedule and method for testing the pH and metals content of this waste stream, and what is TECO's proposed method of handling the wastewater if it is hazardous? (Yanisa Angulo, Gary Santii)

11. Review of the proposed modifications to the TECO Polk Power Station site certification by the SWD Air Program raises one issue for possible consideration. The auxiliary boiler is increased in size from 49.5 MMBtu/hr heat input capacity to 120 MMBtu/hr. This means it is now subject to NSPS Subpart Db instead of Subpart Dc. The auxiliary boiler will also have an increase in permitted operating hours further increasing potential tons/yr emissions. These change should also be evaluated and incorporated into the PSD BACT analysis and BACT determination which is part of the PSD construction permit for this facility. (David Zell) FDEP-11

I am also attaching a request for information from the Florida Department of Transportation. If you have any questions about these requests, I may be contacted at (904) 487-0472.

Sincerely,

Hamilton S. Oven

Hamilton S. Oven, P.E.
Administrator, Siting
Coordination Office

cc: Richard Donelan
Larry Curtin

## RESPONSES TO COMMENTS FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

**(Letter from Hamilton S. Oven, P.E., Administrator, Siting Coordination Office, FDEP, to Gregory M. Nelson, P.E., Tampa Electric Company, dated June 15, 1994)**

FDEP-1. Submit a flow diagram for the IGCC unit showing the volumetric air flow rates for the updated IGCC configuration of treating only 15% syngas flow. Also, submit flow diagram showing volumetric air flow rates for the updated auxiliary boiler.

Response

IGCC 7F CT Unit

Air flow rates for the integrated coal gasification combined cycle (IGCC) 7F combustion turbine (CT) unit at base load and 90 degrees Fahrenheit (°F) are as follows:

| Location | Volumetric Air Flow Rate ($ft^3/hr$) | |
|---|---|---|
| | Syngas | Distillate Fuel Oil |
| CT inlet | $42.91 \times 10^6$ | $42.96 \times 10^6$ |
| CT exhaust (HRSG inlet) | $150.05 \times 10^6$ | $131.87 \times 10^6$ |
| Stack outlet | $70.98 \times 10^6$ | $62.58 \times 10^6$ |

Note: $ft^3/hr$ = cubic feet per hour.
HRSG = heat recovery steam generator.

Auxiliary Boiler

With the auxiliary boiler operating at design (maximum rated) conditions, there will be 24,000 cubic feet per minute (cfm) of air consumed at an ambient temperature of 80°F and 41,200 cfm of flue gas produced at 350°F. Assumptions used in determining these rates are as follows:

- Fuel = No. 2 fuel oil.
- Firing rate (HHV) = 120 million British thermal units per hour (MMBtu/hr).
- Excess air = 15 percent.

- Air temperature = 80°F.
- Steam production = 98,160 pounds per hour (lb/hr).

FDEP-2. Please quantify the decrease in $NO_x$ and $SO_2$ emissions during the demonstration period when the system is sized to treat 10 to 15% of the syngas flow instead of the design concept of 50% as proposed in the Site Certification application for the HGCU system.

Response

Results of hot gas cleanup (HGCU) pilot testing were used to resize the HGCU equipment to meet the requirements of the U.S. Department of Energy (DOE). The equipment sizes have not been reduced in proportion to the flow reduction. Consequently, in an HGCU system sized to treat 10 to 15 percent instead of 50 percent of the syngas flow, the quantities of the nitrogen oxides ($NO_x$) and sulfur dioxide ($SO_2$) emissions are not reduced significantly. Part of the reason for this is the fact that the volume of purge gas which must be treated will not be reduced in proportion to the change in the size of the HGCU system. Since HGCU is a demonstration project, the actual changes to $NO_x$ and $SO_2$ emissions due to changes in size are not yet known. During the demonstration period, the actual $NO_x$ and $SO_2$ emissions will be monitored under varying fuel and operating conditions. Following the demonstration period, HGCU mode operation must comply with the lower postdemonstration emission limitations.

FDEP-3. Please show the calculations in arriving at 16.6 tpy $NO_x$ emission rate for the updated auxiliary boiler.

Response

The requested calculation is detailed in the following:

$$E_A = \frac{(E_O \times H_O) + (E_S \times H_S)}{2{,}000\ lb/ton}$$

where: $E_A$ = maximum annual emissions (tons per year [tpy]),

$E_O$ = operating emission rate (lb/hr) = 8.6 lb/hr,

$H_O$ = maximum operating hours per year (hr/yr) = 3,000 hr/yr,

$E_S$ = standby emission rate (lb/hr) = 1.3 lb/hr, and

$H_S$ = standby hours per year (hr/yr) = 5,760 hr/yr.

Substituting, the annual $NO_x$ emissions are:

$$E_A = \frac{(8.6\ lb/hr \times 3{,}000\ hr/yr) + (1.3\ lb/hr \times 5{,}760\ hr/yr)}{2{,}000\ lb/ton}$$

$$= 16.6\ tpy$$

FDEP-4. Please provide calculations to show that the $H_2SO_4$ plant emissions meet the NSPS requirements of Subvert H.

Response

Subpart H, Standards of Performance for Sulfuric Acid Plants (40 Code of Federal Regulations [CFR] 60.80 *et seq.*), applies to affected sulfuric acid ($H_2SO_4$) production units. However, affected $H_2SO_4$ production units are not ". . . facilities where conversion to $H_2SO_4$ is utilized primarily as a means of preventing emissions to the atmosphere of $SO_2$ or other sulfur compounds" (40 CFR 60.81[a]). Because the Polk Power Station $H_2SO_4$ plant is used primarily as a means of preventing $SO_2$ emissions to the atmosphere, the $H_2SO_4$ plant is not regulated under Subpart H. This plant is unlike the much larger $H_2SO_4$ plants used in the phosphate industry to produce $H_2SO_4$ from sulfur as part of fertilizer production.

Even though Subpart H is not applicable to the $H_2SO_4$ plant at the Polk Power Station, Tampa Electric Company's current contractual arrangements to purchase the $H_2SO_4$ plant include guarantees that the plant will meet Subpart H emission standards for $H_2SO_4$ mist and $SO_2$.

FDEP-5. On page 2-27 there is discussion of using water from an on-site water well to charge and test the fire protection water system. Where will the fire protection water be disposed if the system is charged and tested in the construction phase? If the intention is to discharge the test water to a

surface water, what is the expected quality of the water to be discharged from the fire protection system?

Response

As discussed on Page 2-27 of the Postcertification Design Updates document, the fire protection water system will be charged and tested during the construction phase of the Polk Power Station. Testing of the system is required to check for leaks; flush any traces of dirt, rust, etc.; and generally check out the system for possible use during construction. Water used to test the system will be withdrawn from one of the onsite water supply wells. The test water will be discharged either to a completed subarea of the cooling reservoir or to a reservoir subarea being used to hold water from construction dewatering. Therefore, the test water will not be discharged offsite to a surface water. Further, since the test water will be withdrawn from an onsite water supply well, the quality of the test water is expected to be similar to the quality of the raw Floridan aquifer water shown in Table 2.3-1 on Page 2-23 of the design update document. No chemicals will be added to the test water for the fire protection system.

FDEP-6. We have some concern about the proposal to discharge the sulfuric acid plant wastewater stream to the equalization basin. Condition of Certification XIV.C requires that combined discharges to the cooling pond fall within the pH range of 6.0 - 9.0. If the discharge from the equalization basin is considered a "combined" discharge, we still have some concerns regarding possible mixing of a low pH wastestream with other metal bearing wastes. We would therefore request that TEC consider:

a. The feasibility of routing this wastestream to the proposed neutralization basin.

b. Whether this wastestream can be used for pH control in the $H_2S$ degasifier or for the R.O. feedwater.

Response

Based on the concerns expressed by the Florida Department of Environmental Protection (FDEP) in this comment, Tampa Electric Company has re-evaluated the handling and

treatment of the small acidic wastewater stream from the $H_2SO_4$ plant. As suggested by FDEP, Tampa Electric Company will now route the $H_2SO_4$ plant wastewater stream to the neutralization basin for appropriate pH treatment instead of to the equalization basin. In the neutralization basin, the $H_2SO_4$ plant wastewater stream will be neutralized along with other wastewater streams prior to discharge to the cooling reservoir. A caustic solution will be provided to the neutralization basin to control the pH range of the combined wastewater discharge from the basin to between 7 and 7.5.

The updated (09/01/94) water balance diagram presented in Figure FDEP-6.1 reflects Tampa Electric Company's current plans for the handling and treatment of the $H_2SO_4$ plant wastewater stream as well as the other current designs for the Polk Power Station discussed in the previously submitted Postcertification Design Updates document. Also, based on these current updated designs, Table FDEP-6.1 presents estimates of the water quality of the various water supplies to the cooling reservoir and Table FDEP-6.2 presents the water quality projections of discharges or blowdown from the cooling reservoir. As shown in Table FDEP-6.1, all of the combined wastewater supplies to the cooling reservoir are estimated to fall within a pH range of 6 to 8.5, which meets the requirements of the Condition of Certification No. XIV.C.

FDEP-7. The predicted concentrations of sulfate have increased from 120 mg/L to 146 mg/L from the Reservoir Blowdown quality (c.f., Table 2.3-2). However, the Equalization/Filtration wastestream has been predicted to have a sulfate concentration of 380 mg/L (formerly 139 mg/L) with a flow rate of ≈400,000 gpd (c.f., Table 2.3-1). It is my understanding that the TECO may utilize the volume of the Cooling Water Reservoir to dilute this concentration of sulfate below that of the MCL (250 mg/L). However, it would be appropriate for TECO to provide reasonable assurance that the discharge from the Cooling Water Reservoir will not violate this standard.

Response

In Tables 2.3-1 and 2.3-2 in the Postcertification Design Updates document, the primary reason for the increases in sulfate concentrations in the equalization/filtration wastewater

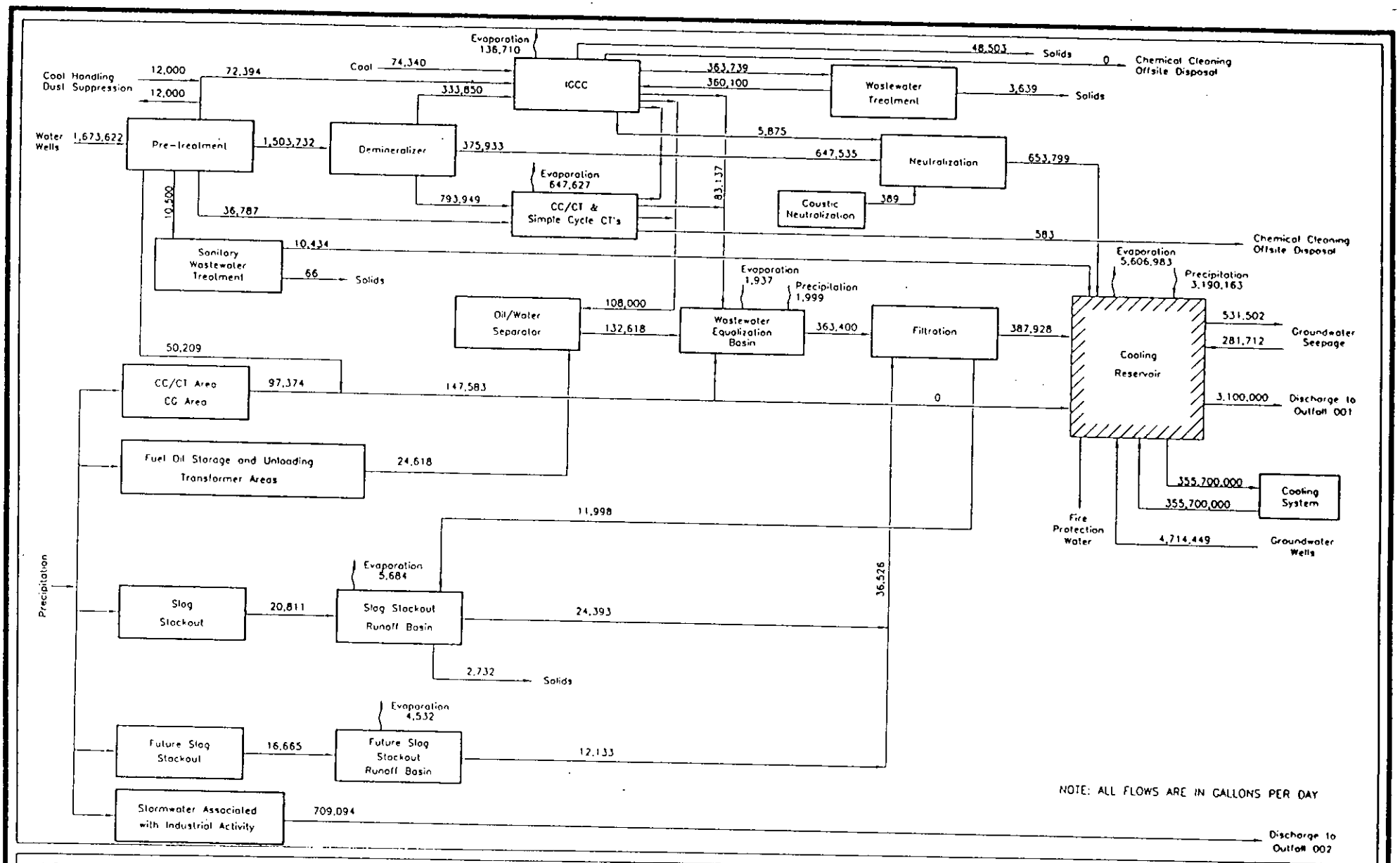


FIGURE FDEP-6.1.

WATER MASS BALANCE, ANNUAL AVERAGE MAKEUP
(UPDATED 09/01/94)

Sources: UE&C, 1992. Texaco, 1992. Bechtel, 1994. ECT, 1992.

TAMPA ELECTRIC
A TECO ENERGY COMPANY

POLK POWER STATION

Table FDEP-6.1. Water Quality of Supply Water to Cooling Reservoir (mg/L) (Updated 09/01/94)

| Parameter | Precipitation | ~~Runoff~~ | Equalization/ Filtration | Sanitary Waste Treatment Plant | Neutralization Basin | Floridan Aquifer | Surficial Aquifer |
|---|---|---|---|---|---|---|---|
| Alkalinity | | | ~~22~~ 0 | 153 | ~~80~~ 50 | 110 | 43.7 |
| Aluminum | | | ~~0.30~~ 0 | 0.15 | | | 0 |
| Ammonia | | ~~0.25~~ | 0 | ~~3~~ <10 | | | |
| Antimony | | | ~~0.060~~ 0 | | | | |
| Arsenic | | | ~~0.0053~~ 0 | | | 0 | 0 |
| Barium | | | ~~0.064~~ 0.057 | 0.092 | ~~0.206~~ 0.205 | 0.092 | 0 |
| Benzene | | | | | | 0 | 0 |
| Beryllium | | | ~~0.00082~~ 0 | | | 0 | 0 |
| $BOD_5$ | 0 | ~~10~~ | 0 | 20 | 0 | 0 | 0 |
| Cadmium | | | ~~0.00022~~ 0 | | | 0 | 0.0019 |
| Calcium | | | ~~41.4~~ 23.1 | ~~77~~ 77.1 | ~~85.8~~ 85.3 | 37.1 | 21.7 |
| Chloride | | | ~~6.04~~ 14.7 | 76.3 | ~~60~~ 59.7 | 13.4 | 10.4 |
| Chlorine | | | 0 | 0.2 | | | 0 |
| Chromium, total | | | ~~0.00027~~ 0 | | | | 0 |
| Chromium III | | | ~~0.00027~~ 0 | | | 0 | 0 |
| Color | | ~~120~~ | ~~20~~ 12.4 | 20 | ~~45~~ 43.9 | 20 | 193 |
| Copper | | | ~~0.019~~ 0 | | | 0 | 0 |
| Cyanide | | | ~~0.00003~~ 0 | | | 0 | 0 |
| Dissolved oxygen | 8.2 | ~~3~~ | 0 | 0 | 0 | 0 | 0 |
| Fecal coliform | | ~~100~~ | | 100 | | 0 | 0.67 |
| Fluoride | | | ~~0.25~~ 0.274 | 0.44 | ~~0.91~~ 0.904 | 0.44 | 0.67 |
| Gross alpha | | | 0 | 0 | 0 | 0 | 24.7 |
| Iron | | | ~~0.21~~ 0.124 | 0.20 | ~~0.45~~ 0.445 | 0.20 | 3.50 |
| Lead | | | ~~0.0014~~ 0 | | | 0 | 0.012 |
| Magnesium | | | ~~8.46~~ 8.2 | 53.1 | ~~30.3~~ 30.1 | 13.1 | 6.65 |
| Manganese | | | ~~0.025~~ 0 | 0.400 | | 0 | 0 |
| Mercury | | | ~~0.00006~~ 0 | | | 0 | 0 |
| Nickel | | | ~~0.006~~ 0 | | | 0 | 0 |
| Nitrate | 0.81 | ~~5~~ | ~~1.62~~ 1.8 | 30.3 | ~~0.582~~ 0.6 | 0.26 | 0 |
| Nitrite | | ~~0.3~~ | | ~~2~~ <1 | | | |
| Oil and grease | | ~~10~~ | 5 | | | | 0 |
| Organic nitrogen | | ~~0.05~~ | | ~~1~~ <2 | | | 2.2 |
| pH | 5 | ~~7.4~~ | ~~7 to 9~~ 6 to 8.5 | ~~6 to 9~~ 6 to 8.5 | ~~7 to 9~~ 7 to 7.5 | 7.7 | 7.7 |
| Phosphorus | | ~~5~~ | ~~0.041~~ 0.044 | 30.1 | ~~4.35~~ 4.3 | 0.071 | 6.8 |
| Potassium | | | ~~2.46~~ 2.7 | 15.3 | ~~9.82~~ 9.8 | 4.28 | 0.944 |
| Radium 226 | | | ~~0.77~~ 0.87 | 1.4 | ~~3.13~~ 3.12 | 1 | 6.5 |
| Radium 228 | | | 0 | 0 | 0 | 0 | 1.1 |
| Selenium | | | ~~0.00038~~ 0 | | | 0 | 0 |
| Silver | | | | | | 0 | 0 |
| Sodium | | | ~~17.62~~ 14.4 | 80.1 | ~~55.5~~ 319.6 | 15.7 | 8.3 |
| Sulfate | | ~~75~~ | ~~139~~ 90.4 | ~~155~~ 154.5 | ~~288~~ 870.9 | 39.5 | 10.7 |
| Sulfide | | | ~~1.08~~ 1.17 | ~~1.88~~ 1.9 | ~~4.21~~ 4.2 | 0.186 | 0.63 |
| Surfactants | | | ~~0.018~~ 0.04 | 0.060 | ~~0.134~~ 0.134 | 0 | 2.2 |
| TDS | 2 | ~~80~~ | ~~243~~ 157 | 602 | ~~580~~ 1,411 | 237 | 119 |
| TOC | | | ~~9.3~~ 10 | 17 | ~~37~~ 36 | 19.6 | 9.8 |
| TSS | | ~~10~~ | 15 | 20 | 5 | | |
| Zinc | | | ~~0.030~~ 0.009 | 0.014 | 0.031 | 0.0135 | 0 |
| Flow rate (gpd) | 3,190,163 | ~~40,502~~ | ~~386,438~~ 387,928 | 10,434 | ~~647,535~~ 653,799 | ~~4,681,700~~ 4,714,449 | 281,712 |

Note: Changes indicated in this table represent changes in the water quality concentrations which were provided in the SCA information and considered in the certification of the Polk Power Station compared to concentrations based on the postcertification design updates.

Sources: RE&C, 1994.
TEC, 1992a.
ECT, 1994.

Table FDEP-6.2. Cooling Reservoir Discharge Water Quality Projections (mg/L) and Water Quality Standards (Updated 09/01/94)

| Parameter | Reservoir Blowdown Quality | FDEP Class III Surface Water Standard | FDEP Class G-II Ground Water Standard |
|---|---|---|---|
| Alkalinity | ~~166.7~~ 158.6 | >20.0 | |
| Aluminum | ~~0.033~~ 0.0004 | | <0.2 |
| Ammonia (unionized) | ~~0.000~~ 0 | <0.02 | |
| Antimony | ~~0.007*~~ 0 | <4.300 | <0.006 |
| Arsenic | ~~0.001~~ 0 | <0.050 | <0.05 |
| Barium | 0.165 | | <2.0 |
| Benzene | ~~0.000~~ 0 | <0.071 | <0.001 |
| Beryllium | ~~0.000089~~ 0 | <0.00013 | <0.004 |
| BOD | 0.7 | | |
| Cadmium | ~~0.000173~~ 0.000149 | <0.00117 | <0.005 |
| Calcium | ~~70.37~~ 68.83 | | |
| Chloride | ~~21.0~~ 59.0 | | <250 |
| Chlorine | 0.0007 | <0.010 | |
| Chromium, total | ~~0.00003~~ 0 | | <0.1 |
| Chromium, VI | ~~0.00~~ 0 | <0.011 | |
| Chromium, III | ~~0.00003~~ 0 | <0.214 | |
| Color | ~~50.3~~ 50.48† | | <15 |
| Copper | ~~0.002~~ 0 | <0.012 | <1.0 |
| Cyanide | ~~0.000003~~ 0 | <0.0052 | <0.2 |
| Dissolved oxygen | ~~5.38~~ 5.46 | >5 | |
| Fecal coliform | 0.3 | <200 | |
| Fluoride | ~~0.82~~ 0.83 | <10.00 | <4.00 |
| Gross alpha | 1.94 | <15 | <15 |
| Iron | ~~0.634~~ 0.627† | <1.000 | <0.3 |
| Lead | ~~0.001096~~ 0.00094 | <0.00334 | <0.015 |
| Magnesium | ~~24.20~~ 24.30 | | |
| Manganese | ~~0.004~~ 0.0012 | | <0.050 |
| Mercury | ~~0.000007~~ 0 | <0.000012 | <0.002 |
| Nickel | ~~0.010~~ 0 | <0.163 | <0.1 |
| Nitrate | ~~1.67~~ 1.53 | | <10.0 |
| Nitrite | 0.00 | | <1.0 |
| Oil and grease | ~~0.56~~ 0.54 | <5 | |
| Organic nitrogen | 0.00 | | |
| pH | ~~7.8~~ 7.6 | 6 to 8.5 | 6 to 8.5 |
| Phosphorus | ~~1.550~~ 1.491 | | |
| Potassium | ~~7.76~~ 7.84 | | |
| Radium 226 | ~~2.45~~ 2.48 | <5 | <5 |
| Radium 228 | 0.09 | <5 | <5 |
| Selenium | ~~0.00004~~ 0 | <0.005 | <0.05 |
| Silver | ~~0.000000~~ 0 | <0.00007 | <0.1 |
| Sodium | ~~23.28~~ 80.64 | | <160.0 |
| Sulfate | ~~119.9~~ 219.69 | | <250.0 |
| Sulfide | ~~0.87~~ 0.89 | | |
| Surfactants | ~~0.199~~ 0.202 | <0.500 | <0.5 |
| TDS | ~~454.4~~ 596.9† | <826.0** | <500.00 |
| TOC | ~~34.2~~ 34.33 | | |
| TSS | ~~11.0~~ 10.86 | | |
| Zinc | ~~0.027~~ 0.024 | <0.110 | <5.0 |

Note: Blowdown = 3.10 mgd.
Average makeup = ~~4.68~~ 4.71 mgd.
Maximum makeup = 6.5 mgd.
Water level = 136 ft-NGVD.
Hardness = 104 mg/L.
Fecal coliform in MPN/100 mL.
Color in pt-co.
Radium 226, 228 and gross beta in pCi/L.
Changes indicated in this table represent changes in the water quality concentrations which were provided in the SCA information and considered in the certification of the Polk Power Station compared to concentrations based the postcertification design updates.

~~*Violation of primary drinking water standard.~~
†Violation of secondary drinking water standard.
**TDS standard calculated from conductivity standard.

Source: Modified from TEC, 1992a.

stream, and, in turn, in the cooling reservoir blowdown was the routing of the small acidic wastewater stream from the $H_2SO_4$ plant to the equalization basin. At the time the Postcertification Design Update document was submitted, Tampa Electric Company had not purchased the $H_2SO_4$ plant and was having discussions regarding the purchase of the plant with several vendors. $H_2SO_4$ plants from the various vendors had different configurations and processes which resulted in different wastewater streams in terms of flow volume and acid concentrations. In the update document, a typical acid wastewater stream of approximately 8 gallons per minute (gpm) with an $H_2SO_4$ concentration of 1 percent (by weight) was used for the water balance calculations and the predictions of the water quality of discharges to the cooling reservoir and of the reservoir blowdown. Since the update document was submitted, Tampa Electric Company has purchased the $H_2SO_4$ plant. Based on the current plant configuration from the selected vendor, a design condition of the plant wastewater stream is approximately 4.1 gpm with an $H_2SO_4$ concentration of approximately 6.5 percent (by weight) and a pH of 2.6.

It is important to note that even though these design characteristics of the wastewater stream are used for the enclosed updated water balance and discharge water quality predictions, the normal flow rate of this stream may be lower based on the operational experience of the selected $H_2SO_4$ plant vendor.

As discussed in the response to Comment FDEP-6, Tampa Electric Company is now planning to route the $H_2SO_4$ plant wastewater stream to the neutralization basin instead of the equalization basin and to neutralize the stream along with other wastewater streams prior to discharging the stream to the cooling reservoir. As shown in Table FDEP-6.1, this updated design plan reduces the concentrations of sulfate in the equalization/filtration system wastewater discharge to the cooling reservoir and addresses FDEP concerns regarding the pH of the $H_2SO_4$ plant wastewater stream expressed in Comments FDEP-6 and FDEP-10. As shown in Table FDEP-6.1, the re-routing and treatment of the $H_2SO_4$ plant wastewater stream are estimated to increase the concentrations of sulfate and total dissolved solids (TDS) in the neutralization basin discharge to the cooling reservoir.

Based on the updated estimates of the water quality of the water supplies to the reservoir in Table FDEP-6.1, Table FDEP-6.2 provides predictions of the water quality of discharges from the cooling reservoir compared to applicable FDEP surface and ground water quality standards. These predictions of water quality of the reservoir blowdown are considered conservative since the ultimate parameter concentrations are based on long-term (i.e., 25 to 30 years) modeling analyses of the project operations after full build-out of the proposed facilities to 1,150 megawatts (MW) in the year 2010. As shown in Table FDEP-6.2, the modeling analyses project that the quality of the reservoir blowdown will meet all FDEP Class III surface water standards and all FDEP Class G-II primary drinking water standards. Similar to the analyses previously presented in the SCA, the projections indicate that the water quality of the reservoir blowdown will exceed the secondary drinking water standards for iron and color. As shown in Table FDEP-6.1, the predicted concentrations for iron and color are significantly lower than background concentrations in the surficial aquifer based on available water quality data. Further, as stated in the Condition of Certification No. XVIII.H, "if representative ambient values for iron and color are shown to already exceed secondary drinking water standards, then these representative values shall be the prevailing standard (Rule 17-520.420(2), Florida Administrative Code [F.A.C.]." Therefore, if the background water quality data collected as part of the project's ground water monitoring plan confirms that ambient concentrations for iron and color are higher than the secondary standards and the concentrations of these parameters in the reservoir discharges, then the background values for these parameters will be the applicable standards, and the iron and color concentrations in the reservoir discharges will not be considered as exceedances of the standards.

The updated water quality projections for the cooling reservoir discharges in Table FDEP-6.2 indicate the secondary drinking water standard for TDS may be exceeded. The predicted TDS concentration in the reservoir discharges is approximately 597 milligrams per liter (mg/L) compared to the secondary drinking water standard of 500 mg/L. According to Rule 17-500.320(1), F.A.C., the secondary maximum contaminant level for TDS "may be greater [than 500 mg/L] if no other maximum contaminant level is

exceeded." As discussed previously, if the prevailing secondary standards for iron and color are considered to be background values which are higher than the concentrations of these parameters in the reservoir discharges, the predicted concentrations of these parameters are not considered to represent exceedances of the prevailing standards. Therefore, TDS will be the only parameter predicted to potentially exceed an applicable standard and a standard greater than 500 mg/L could be considered by FDEP. Tampa Electric Company believes that such consideration by FDEP would be appropriate for the project due to the remote location of the site and the characteristics of the confining layers between the surficial and the underlying aquifers, as well as the fact that the surficial aquifer is not used as a source of drinking water in the site area. Therefore, the predicted TDS levels in the reservoir discharge will not create adverse water quality impacts in the project area.

Further, due to the conservative assumptions used to estimate the quality of water supplies to the reservoir and used for the long-term modeling analyses, Tampa Electric Company believes that the actual TDS concentrations in the reservoir discharges will be lower than projected in Table FDEP-6.2. Even with these conservative assumptions, the results of the modeling indicate that a TDS concentration of 500 mg/L in the reservoir discharges would not be reached until at least the $8^{th}$ year of operation, or 2004.

Based on the modeling results, the primary water quality parameter which contributes to the predicted TDS concentration levels in the cooling reservoir discharges is sulfate. As shown in Table FDEP-6.1, the primary source of the sulfate in the reservoir is the water supplied from the neutralization basin, which contains the neutralized wastewater stream from the $H_2SO_4$ plant. In Tables FDEP-6.1 and FDEP-6.2, the estimated sulfate concentration in the neutralization basin wastewater supplied to the reservoir is approximately 871 mg/L, and the long-term equilibrium sulfate concentration in the reservoir discharges is predicted to be approximately 220 mg/L. This predicted level in the reservoir discharge is less than the secondary drinking water standard of 250 mg/L.

Tampa Electric Company is currently required to collect, analyze, and report the results for total sulfate concentrations in water quality samples of surface water discharges from the cooling reservoir (i.e., OSN001) on a monthly basis after plant startup in accordance with the requirements of the Condition of Certification No. XIV.A.3. Tampa Electric Company has also proposed to sample and analyze water quality in the surficial aquifer for sulfate and TDS on an initial and quarterly basis as part of the project ground water monitoring plan, which has been submitted to FDEP for review. The results of these water quality monitoring programs will verify whether or not the predicted concentrations of TDS and sulfate in the reservoir discharge based on the conservative modeling assumptions reflect actual operational conditions.

Finally, to provide reasonable assurance that adverse TDS or sulfate water quality impacts do not result from the Polk Power Station operations, Tampa Electric Company will implement appropriate actions to further treat the $H_2SO_4$ plant and/or neutralization basin discharges to the cooling reservoir if the results of the water quality monitoring programs document the following: (1) sulfate concentrations in the surface water discharges from the reservoir at OSN001 are greater than the predicted levels of approximately 220 mg/L; and (2) TDS and sulfate concentrations in the proposed surficial aquifer monitoring wells downgradient of the cooling reservoir are greater than 550 mg/L and 220 mg/L, respectively. If the results of the water quality monitoring programs document these two operational water quality conditions exist, Tampa Electric Company has sufficient time to implement appropriate treatment action to provide reasonable assurance that the cooling reservoir discharges will not exceed the secondary drinking water standards for sulfate of 250 mg/L and predicted TDS level of approximately 597 mg/L.

FDEP-8. With regard to the domestic wastewater facilities to be proposed for this project, the preliminary information in the SCA estimated 400-600 workers in the construction workforce. This estimate has been revised to a range estimate of 650-1400 workers during the construction phase. Dependent on yet unsubmitted scheduling and other details, this population change may require incorporation into

the forthcoming Preliminary Design Report that is required by 17-600.715, F.A.C.

Response

The domestic wastewater facilities described in the SCA will not be used by the construction workers for the Polk Power Station. As discussed in the SCA, the construction workforce will use portable chemical toilets during the site preparation and construction activities for the project. Under contractual arrangement with Tampa Electric Company, all construction contractors will be responsible for providing the required number of portable toilets to serve their workers on the site. The construction contractors will also be responsible for assuring that the toilets are appropriately serviced by a licensed contractor and that all sanitary sewage from these facilities is transported offsite for disposal at an approved, permitted facility.

The domestic wastewater facilities for the Polk Power Station have been planned to serve the estimated number of operational workers at full buildout of the project. The estimated number of operational workers has not changed. These facilities will be addressed in the forthcoming Preliminary Design Report required by Section 17-600.715, F.A.C..

FDEP-9. Prior to initiation of construction of the brine storage cells, TECO must provide us with a revised final design of the brine storage cells. Any leachate generated must be collected and treated in accordance with the applicable conditions of the certification (Chapter XXI). Be aware that any modification to the proposed "temporary enclosure" system will require Department evaluation and approval.

Response

Comment noted. Prior to construction of the brine storage area, Tampa Electric Company will submit detailed plans and drawings as required by Chapter 17-701, F.A.C., and the Conditions of Certification to FDEP for review and approval.

FDEP-10. The proposed discharge of the sulfuric acid wastewater stream to the equalization/filtration system, with extremely low levels of pH as low as 2.0 standards units (hazardous waste characteristic), is not acceptable. TECO must investigate an alternate pretreatment and disposal system for the disposal of this wastewater. On page 2-22 the wastewater stream from the sulfuric acid plant is described as having an acid concentration of 1 per cent or less. On page 2-23 the pH is given a range of 2 to 6. Should the pH equal 2.0 or less it will become classified as a hazardous waste. What is the schedule and method for testing the pH and metals content of this waste stream, and what is TECO's proposed method of handling the wastewater if it is hazardous?

Response

As discussed in the response to Comment FDEP-7 previously, at the time the Postcertification Design Updates document was submitted, Tampa Electric Company had not purchased the $H_2SO_4$ plant and was having discussions regarding the purchase of the plant with several vendors. As expected, $H_2SO_4$ plants from various vendors have different configurations and processes which result in different wastewater streams in terms of flow volume and acid concentrations. In the update document, a typical acid wastewater stream of approximately 8 gpm with an $H_2SO_4$ concentration of 1 percent (by weight) was used for the water balance calculations. The pH of this typical stream was calculated to be 3.4. However, in Table 2.3-1 on Page 2-23 of the update document, a pH range of 2 to 6 was indicated to encompass the various wastewater stream characteristics from the various plant vendors.

Since the update document was submitted, Tampa Electric Company has purchased the $H_2SO_4$ plant. Based on the current plant configuration from the selected vendor, a design condition of the plant wastewater stream is approximately 4.1 gpm with a pH of 2.6. Based on this pH level, this wastewater stream will not be classified as a hazardous waste. Further, as discussed in the response to Comment FDEP-6, this wastewater stream will now be routed and neutralized in the neutralization basin, instead of the equalization/filtration system. As indicated in Table FDEP-6.1, the discharge from the neutralization basin to the cooling reservoir will be controlled to a pH range of 7 to 7.5.

FDEP-11. Review of the proposed modifications to the TECO Polk Power Station site certification by the SWD Air Program raises one issue for possible consideration. The auxiliary boiler is increased in size from 49.5 MMBtu/hr heat input capacity to 120 MMBtu/hr. This means it is now subject to NSPS Subpart Db instead of Subpart Dc. The auxiliary boiler will also have an increase in permitted operating hours further increasing potential tons/yr emissions. These change should also be evaluated and incorporated into the PSD BACT analysis and BACT determination which is part of the PSD construction permit for this facility.

Response

As presented in the Postcertification Design Update document, Tampa Electric Company recognizes that the larger auxiliary boiler is now subject to Subpart Db instead of Subpart Dc and has provided suggested updates to the appropriate Conditions of Certification to reflect this change in NSPS applicability in Appendix B of the update document.

A best available control technology (BACT) analysis for the 49.5-MMBtu/hr auxiliary boiler was presented in the SCA and incorporated into the BACT determination for the Polk Power Station. The emission control technologies selected for the proposed 120-MMBtu/hr auxiliary boiler are identical to the emission control technologies proposed for the 49.5-MMBtu/hr unit. Specifically, this emission control technologies include:

- Clean fuels and good combustion practices for particulate matter (PM) control.
- Combustion controls and good operating practices for carbon monoxide (CO) and volatile organic compounds (VOC) control.
- Low-$NO_x$ burner technology for the control of $NO_x$.
- Combustion of low sulfur distillate oil for $SO_2$ and $H_2SO_4$ control.

These control technologies are also considered to represent BACT for the larger 120-MMBtu/hr auxiliary boiler. The emission rates proposed for the 120-MMBtu/hr auxiliary boiler reflect the application of these technologies. An emission rate

comparison of the 49.5 MMBtu/hr and the 120-MMBtu/hr auxiliary boilers is provided in Table FDEP-11.1. The 120-MMBtu/hr unit emission rates (in MMBtu/hr) are less than or equal to the 49.5-lb/MMBtu unit emission rates for all criteria pollutants. Increased hours of auxiliary boiler operation occur primarily in the standby mode (65 percent of the time, annually). Emission rates in the standby mode are significantly lower than during normal boiler operation.

Because the cited emission control technologies remain applicable and the level of control (in lb/MMBtu) decreases or remains unchanged, the emission limitations shown in Table FDEP-11.1 represent BACT for the proposed 120-MMBtu/hr auxiliary boiler.

Table FDEP-11.1. Auxiliary Boiler Emission Rate Comparison

| Pollutant | 49.5-MMBtu/hr Unit Emission Rate (lb/MMBtu) | 120-MMBtu/hr Unit Emission Rate (lb/MMBtu) |
|---|---|---|
| PM | 0.061 | 0.058 |
| $SO_2$ | 0.053 | 0.053 |
| $NO_x$ | 0.159 | 0.072 |
| CO | 0.087 | 0.044 |
| VOC | 0.049 | 0.022 |

Source: ECT, 1994.

FLORIDA DEPARTMENT OF TRANSPORTATION

LAWTON CHILES
GOVERNOR

605 Suwannee Street, Tallahassee, Florida 32399-0450

BEN G. WATTS
SECRETARY



June 10, 1994

Hamilton S. Oven, Jr. P.E.
Office of Siting Coordination
Department of Environmental Protection
3900 Commonwealth Blvd., Ste. 953A
Tallahassee, FL 32399-3000

Re: Tampa Electric Company, Polk Power Station
Case No. PA 92-32

Dear Mr. Oven:

This letter will constitute the Department of Transportation's response to Tampa Electric Company Polk Power Station Post-certification Design Updates, which was circulated last month. The Department has serious new concerns that could not have been raised in the sufficiency or certification phases of this proceeding.

Tampa Electric, which previously had planned to haul fuel by rail, now proposes to haul all materials to the plant, including its coal supplies, by truck. Such an alteration will have significant impact on state roads on the hauling route(s). Although the Application for Certification did take the hauling of these materials by truck into account for the operational transportation analysis, the structural impacts to highways in the area of the continuous loadings caused by hauling the materials was not provided. Now, with trucks being the sole mode of transporting fuel supplies, this information is crucial for the Department of Transportation to evaluate the impacts the modification would have.

Therefore, the following information must be provided to determine any possible adverse impacts upon the state roads and highways in the area.

1. Designation on maps and written descriptions of each haul route to be utilized in the transport of materials by truck. FDOT-1

2. An analysis on the structural impacts to the haul route, including, but not limited to, State Road 60, State Road 60A, State Road 37 and U.S. 98. FDOT-2

Please be advised that Assistant General Counsel Thomas H. Duffy is now this office's representative in this matter, and all correspondence and pleadings should be sent to him. Sandra Whitmire remains the staff contact.

If there are any other questions, please do not hesitate to contact this office.

Sincerely,

Thornton Williams
General Counsel

TD/md

## RESPONSES TO COMMENTS FROM FLORIDA DEPARTMENT OF TRANSPORTATION

**(Letter from Thornton Williams, General Counsel, FDOT, to Hamilton S. Oven, Jr., P.E., Office of Siting Coordination, FDEP, dated June 10, 1994)**

FDOT-1. Designation on maps and written descriptions of each haul route to be utilized in the transport of materials by truck.

Response

The source of the coal for the Polk Power Station will be the Tampa Electric Company Big Bend Station in southwestern Hillsborough County. The coal will be loaded onto trucks at the Big Bend Station and transported to the Polk Power Station. Two haul routes are proposed which are graphically shown in Figures FDOT-1.A and FDOT-1.B and are described as follows:

Primary Route--The trucks will exit the Big Bend Station and proceed east on Big Bend Road to U.S. Highway 301 (U.S. 301). The trucks will then turn right on U.S. 301 and proceed south to Balm Road (County Road [CR] 672) and then turn left and proceed east to CR 39. At CR 39, the trucks will turn right and proceed south to State Road (SR) 674. The trucks will turn left at SR 674 and proceed east to Polk County. In Polk County, the trucks will proceed to SR 37 at which point they will turn left and proceed north to the Polk Power Station.

Secondary Route--The secondary route is the same as the primary route except instead of proceeding on Balm Road to CR 39, the trucks will turn right on Balm-Wimauma Road and proceed south to SR 674. The trucks will then turn left on SR 674 and proceed east to SR 37.

FDOT-2. An analysis on the structural impacts to the haul route, including, but not limited to, State Road 60, State Road 60A, State Road 37 and U.S. 98.

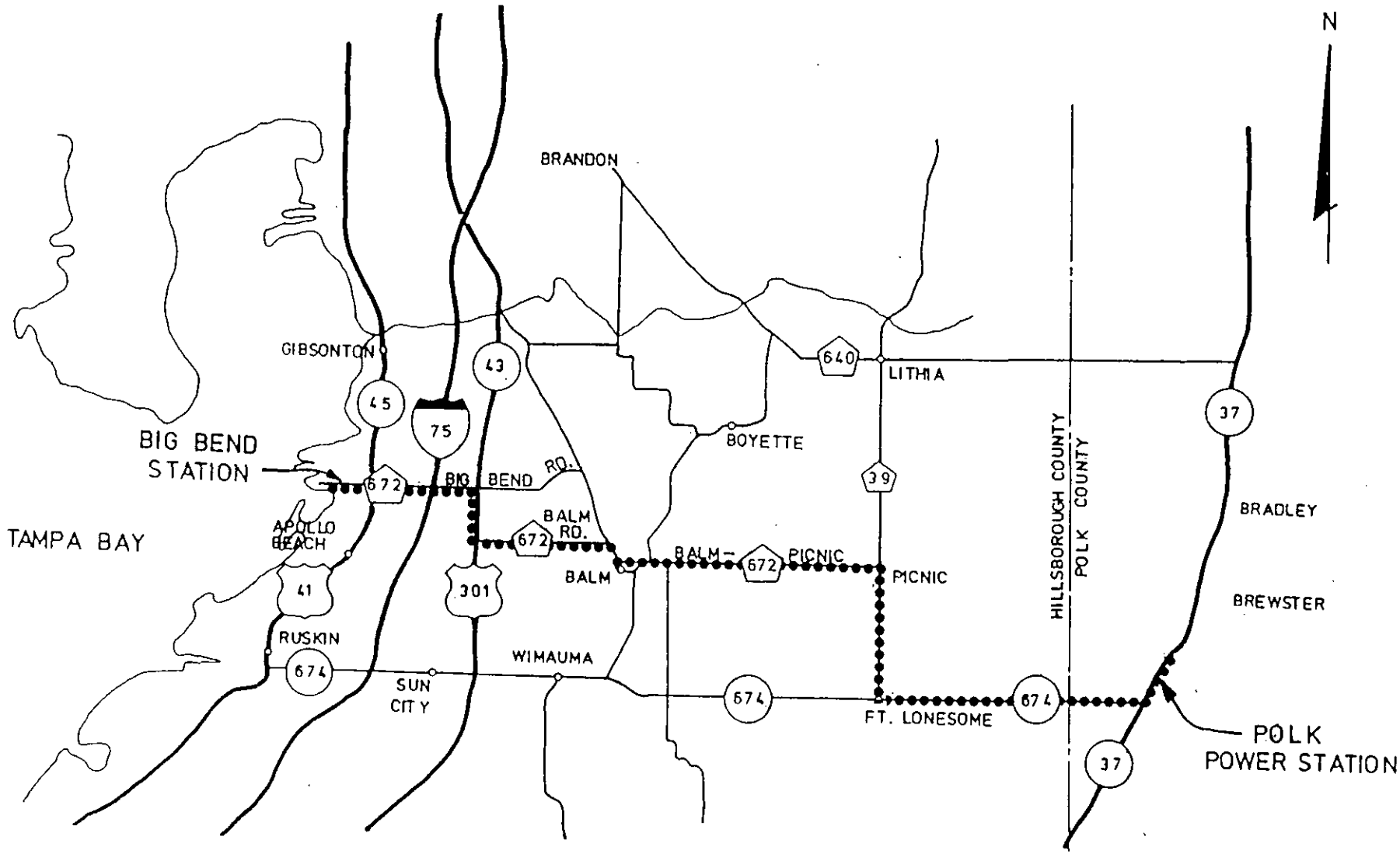


FIGURE FDOT-1.A.

PRIMARY TRUCK ROUTE

Source: Lincks & Associates, Inc., 1994.

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**POLK POWER STATION**

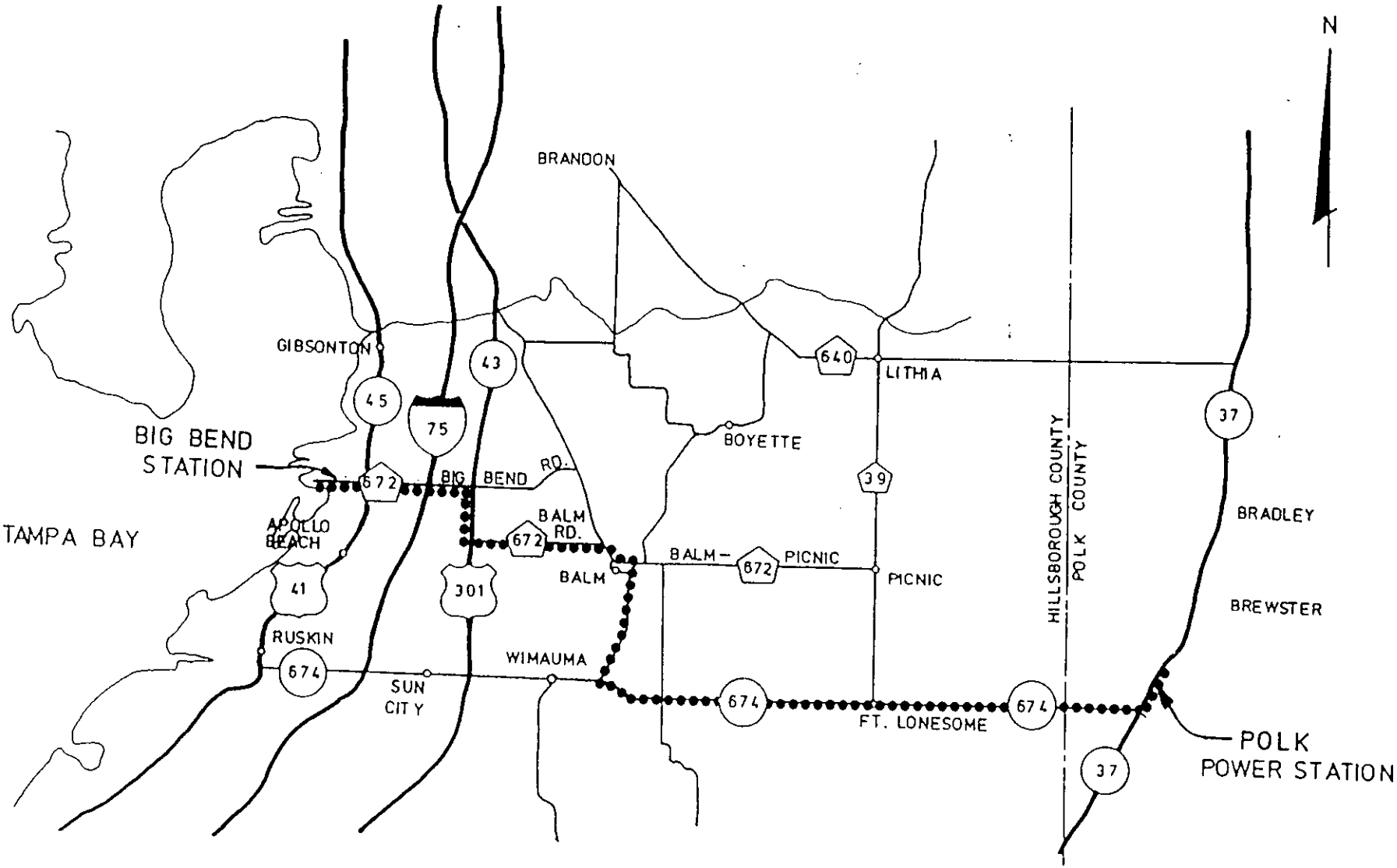


FIGURE FDOT-1.B.

SECONDARY TRUCK ROUTE

Source: Lincks & Associates, Inc., 1994.

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Response

The trailers that are proposed to be used by Tampa Electric Company to haul the coal have been customized to maximize cleanliness, safety, and productivity. The aluminum trailer bodies will allow a 28-ton payload capacity within the 80,000-pound gross vehicle weight limitations of the Florida Department of Transportation (FDOT). A bottom-dump configuration will allow rapid unloading and eliminates weight associated with a hydraulic cylinder. Aluminum knife gate top covers will be activated from within the truck cab, allowing the driver to remain in the cab during all stages of loading and eliminating the possibility of coal loss during transport.

In response to the structural analysis requested in Mr. Williams' letter, according to Jesse Ortiz of FDOT, District Bridge office in Tampa, there are no weight restrictions on any state bridges or roads along either the primary or secondary routes described in the response to FDOT-1.

# TAMPA ELECTRIC COMPANY
# POLK POWER STATION
# PA 92-32

## RESPONSES TO COMMENTS
## ON
## POSTCERTIFICATION DESIGN UPDATES

**Submitted by:**

TAMPA ELECTRIC
A TECO ENERGY COMPANY

**Tampa, Florida**

**September 1994**

TABLE OF CONTENTS

Florida Department of
# Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

June 15, 1994

Mr. Greg Nelson
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Re: Polk Power Station Modification, PA 92-32A

Dear Mr. Nelson:

The Department of Environmental Protection has reviewed the information submitted to support the requested modification of the Polk Power Station. The Department requests that you clarify the following:

1. Submit a flow diagram for the IGCC unit showing the volumetric air flow rates for the updated IGCC configuration of treating only 15% syngas flow. Also, submit flow diagram showing volumetric air flow rates for the updated auxiliary boiler. FDEP-1

2. Please quantify the decrease in $NO_x$ and $SO_2$ emissions during the demonstration period when the system is sized to treat 10 to 15% of the syngas flow instead of the design concept of 50% as proposed in the Site Certification application for the HGCU system. FDEP-2

3. Please show the calculations in arriving at 16.6 tpy $NO_x$ emission rate for the updated auxiliary boiler. FDEP-3

4. Please provide calculations to show that the $H_2SO_4$ plant emissions meet the NSPS requirements of Subvert H. FDEP-4

(If there are any questions on the above, please call Syed Arif at 488-1344.

5. On page 2-27 there is discussion of using water from an on-site water well to charge and test the fire protection water system. Where will the fire protection water be disposed if the system is charged and tested in the construction phase? If the intention is to discharge the test water to a surface water, what is the expected quality of the water to be discharged from the fire protection system? (Mandrup-Poulsen) FDEP-5

6. We have some concern about the proposal to discharge the sulfuric acid plant wastewater stream to the equalization basin. Condition of Certification XIV. C. requires that combined discharges to the cooling pond fall within the pH range of 6.0 - 9.0. If the discharge from the equalization basin is considered a "combined" FDEP-6

discharge, we suggest that TEC be required to determine whether this condition can be met under worst case conditions including no stormwater inputs to the equalization basin. If this is not what is meant by "combined" discharge, we still have some concerns regarding possible mixing of a low pH wastestream with other metal bearing wastes. We would therefore request that TEC consider:

a. The feasibility of routing this wastestream to the proposed neutralization basin.

b. Whether this wastestream can be used for pH control in the H2S degasifier or for the R.O. feedwater. (Please contact Craig Diltz at 8-4522 if you have any questions.)

7. The predicted concentrations of sulfate have increased from 120 mg/L to 146 mg/L from the Reservoir Blowdown quality (c.f., Table 2.3-2). However, the Equalization/Filtration wastestream has been predicted to have a sulfate concentration of 380 mg/L (formerly 139 mg/L) with a flow rate of ≈400,000 gpd (c.f., Table 2.3-1). It is my understanding that the TECO may utilize the volume of the Cooling Water Reservoir to dilute this concentration of sulfate below that of the MCL (250 mg/L). However, it would be appropriate for TECO to provide reasonable assurance that the discharge from the Cooling Water Reservoir will not violate this standard. (Joe May) FDEP-7

8. With regard to the domestic wastewater facilities to be proposed for this project, the preliminary information in the SCA estimated 400-600 workers in the construction workforce. This estimate has been revised to a range estimate of 650-1400 workers during the construction phase. Dependent on yet unsubmitted scheduling and other details, this population change may require incorporation into the forthcoming Preliminary Design Report that is required by 17-600.715, F.A.C. (Joe Amato) FDEP-8

9. Prior to initiation of construction of the brine storage cells, TECO must provide us with a revised final design of the brine storage cells. Any leachate generated must be collected and treated in accordance with the applicable conditions of the certification (Chapter XXI). Be aware that any modification to the proposed "temporary enclosure" system will require Department evaluation and approval. FDEP-9

10. The proposed discharge of the sulfuric acid wastewater stream to the equalization/filtration system, with extremely low levels of pH as low as 2.0 standards units FDEP-10

(hazardous waste characteristic), is not acceptable. TECO must investigate an alternate pretreatment and disposal system for the disposal of this wastewater. On page 2-22 the wastewater stream from the sulfuric acid plant is described as having an acid concentration of 1 per cent or less. On page 2-23 the pH is given a range of 2 to 6. Should the pH equal 2.0 or less it will become classified as a hazardous waste. What is the schedule and method for testing the pH and metals content of this waste stream, and what is TECO's proposed method of handling the wastewater if it is hazardous? (Yanisa Angulo, Gary Santii)

11. Review of the proposed modifications to the TECO Polk Power Station site certification by the SWD Air Program raises one issue for possible consideration. The auxiliary boiler is increased in size from 49.5 MMBtu/hr heat input capacity to 120 MMBtu/hr. This means it is now subject to NSPS Subpart Db instead of Subpart Dc. The auxiliary boiler will also have an increase in permitted operating hours further increasing potential tons/yr emissions. These change should also be evaluated and incorporated into the PSD BACT analysis and BACT determination which is part of the PSD construction permit for this facility. (David Zell) FDEP-11

I am also attaching a request for information from the Florida Department of Transportation. If you have any questions about these requests, I may be contacted at (904) 487-0472.

Sincerely,

Hamilton S. Oven

Hamilton S. Oven, P.E.
Administrator, Siting
Coordination Office

cc: Richard Donelan
Larry Curtin

## RESPONSES TO COMMENTS FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

**(Letter from Hamilton S. Oven, P.E., Administrator, Siting Coordination Office, FDEP, to Gregory M. Nelson, P.E., Tampa Electric Company, dated June 15, 1994)**

FDEP-1. Submit a flow diagram for the IGCC unit showing the volumetric air flow rates for the updated IGCC configuration of treating only 15% syngas flow. Also, submit flow diagram showing volumetric air flow rates for the updated auxiliary boiler.

Response

IGCC 7F CT Unit

Air flow rates for the integrated coal gasification combined cycle (IGCC) 7F combustion turbine (CT) unit at base load and 90 degrees Fahrenheit (°F) are as follows:

| Location | Volumetric Air Flow Rate ($ft^3/hr$) | |
|---|---|---|
| | Syngas | Distillate Fuel Oil |
| CT inlet | $42.91 \times 10^6$ | $42.96 \times 10^6$ |
| CT exhaust (HRSG inlet) | $150.05 \times 10^6$ | $131.87 \times 10^6$ |
| Stack outlet | $70.98 \times 10^6$ | $62.58 \times 10^6$ |

Note: $ft^3/hr$ = cubic feet per hour.
HRSG = heat recovery steam generator.

Auxiliary Boiler

With the auxiliary boiler operating at design (maximum rated) conditions, there will be 24,000 cubic feet per minute (cfm) of air consumed at an ambient temperature of 80°F and 41,200 cfm of flue gas produced at 350°F. Assumptions used in determining these rates are as follows:

- Fuel = No. 2 fuel oil.
- Firing rate (HHV) = 120 million British thermal units per hour (MMBtu/hr).
- Excess air = 15 percent.

- Air temperature = 80°F.
- Steam production = 98,160 pounds per hour (lb/hr).

FDEP-2. Please quantify the decrease in $NO_x$ and $SO_2$ emissions during the demonstration period when the system is sized to treat 10 to 15% of the syngas flow instead of the design concept of 50% as proposed in the Site Certification application for the HGCU system.

Response

Results of hot gas cleanup (HGCU) pilot testing were used to resize the HGCU equipment to meet the requirements of the U.S. Department of Energy (DOE). The equipment sizes have not been reduced in proportion to the flow reduction. Consequently, in an HGCU system sized to treat 10 to 15 percent instead of 50 percent of the syngas flow, the quantities of the nitrogen oxides ($NO_x$) and sulfur dioxide ($SO_2$) emissions are not reduced significantly. Part of the reason for this is the fact that the volume of purge gas which must be treated will not be reduced in proportion to the change in the size of the HGCU system. Since HGCU is a demonstration project, the actual changes to $NO_x$ and $SO_2$ emissions due to changes in size are not yet known. During the demonstration period, the actual $NO_x$ and $SO_2$ emissions will be monitored under varying fuel and operating conditions. Following the demonstration period, HGCU mode operation must comply with the lower postdemonstration emission limitations.

FDEP-3. Please show the calculations in arriving at 16.6 tpy $NO_x$ emission rate for the updated auxiliary boiler.

Response

The requested calculation is detailed in the following:

$$E_A = \frac{(E_O \times H_O) + (E_S \times H_S)}{2{,}000\ lb/ton}$$

where: $E_A$ = maximum annual emissions (tons per year [tpy]),

$E_O$ = operating emission rate (lb/hr) = 8.6 lb/hr,

$H_O$ = maximum operating hours per year (hr/yr) = 3,000 hr/yr,

$E_S$ = standby emission rate (lb/hr) = 1.3 lb/hr, and

$H_S$ = standby hours per year (hr/yr) = 5,760 hr/yr.

Substituting, the annual $NO_x$ emissions are:

$$E_A = \frac{(8.6\ lb/hr \times 3{,}000\ hr/yr) + (1.3\ lb/hr \times 5{,}760\ hr/yr)}{2{,}000\ lb/ton}$$

$$= 16.6\ tpy$$

FDEP-4. Please provide calculations to show that the $H_2SO_4$ plant emissions meet the NSPS requirements of Subvert H.

Response

Subpart H, Standards of Performance for Sulfuric Acid Plants (40 Code of Federal Regulations [CFR] 60.80 *et seq.*), applies to affected sulfuric acid ($H_2SO_4$) production units. However, affected $H_2SO_4$ production units are not ". . . facilities where conversion to $H_2SO_4$ is utilized primarily as a means of preventing emissions to the atmosphere of $SO_2$ or other sulfur compounds" (40 CFR 60.81[a]). Because the Polk Power Station $H_2SO_4$ plant is used primarily as a means of preventing $SO_2$ emissions to the atmosphere, the $H_2SO_4$ plant is not regulated under Subpart H. This plant is unlike the much larger $H_2SO_4$ plants used in the phosphate industry to produce $H_2SO_4$ from sulfur as part of fertilizer production.

Even though Subpart H is not applicable to the $H_2SO_4$ plant at the Polk Power Station, Tampa Electric Company's current contractual arrangements to purchase the $H_2SO_4$ plant include guarantees that the plant will meet Subpart H emission standards for $H_2SO_4$ mist and $SO_2$.

FDEP-5. On page 2-27 there is discussion of using water from an on-site water well to charge and test the fire protection water system. Where will the fire protection water be disposed if the system is charged and tested in the construction phase? If the intention is to discharge the test water to a

surface water, what is the expected quality of the water to be discharged from the fire protection system?

Response

As discussed on Page 2-27 of the Postcertification Design Updates document, the fire protection water system will be charged and tested during the construction phase of the Polk Power Station. Testing of the system is required to check for leaks; flush any traces of dirt, rust, etc.; and generally check out the system for possible use during construction. Water used to test the system will be withdrawn from one of the onsite water supply wells. The test water will be discharged either to a completed subarea of the cooling reservoir or to a reservoir subarea being used to hold water from construction dewatering. Therefore, the test water will not be discharged offsite to a surface water. Further, since the test water will be withdrawn from an onsite water supply well, the quality of the test water is expected to be similar to the quality of the raw Floridan aquifer water shown in Table 2.3-1 on Page 2-23 of the design update document. No chemicals will be added to the test water for the fire protection system.

FDEP-6. We have some concern about the proposal to discharge the sulfuric acid plant wastewater stream to the equalization basin. Condition of Certification XIV.C requires that combined discharges to the cooling pond fall within the pH range of 6.0 - 9.0. If the discharge from the equalization basin is considered a "combined" discharge, we still have some concerns regarding possible mixing of a low pH wastestream with other metal bearing wastes. We would therefore request that TEC consider:

a. The feasibility of routing this wastestream to the proposed neutralization basin.

b. Whether this wastestream can be used for pH control in the $H_2S$ degasifier or for the R.O. feedwater.

Response

Based on the concerns expressed by the Florida Department of Environmental Protection (FDEP) in this comment, Tampa Electric Company has re-evaluated the handling and

treatment of the small acidic wastewater stream from the $H_2SO_4$ plant. As suggested by FDEP, Tampa Electric Company will now route the $H_2SO_4$ plant wastewater stream to the neutralization basin for appropriate pH treatment instead of to the equalization basin. In the neutralization basin, the $H_2SO_4$ plant wastewater stream will be neutralized along with other wastewater streams prior to discharge to the cooling reservoir. A caustic solution will be provided to the neutralization basin to control the pH range of the combined wastewater discharge from the basin to between 7 and 7.5.

The updated (09/01/94) water balance diagram presented in Figure FDEP-6.1 reflects Tampa Electric Company's current plans for the handling and treatment of the $H_2SO_4$ plant wastewater stream as well as the other current designs for the Polk Power Station discussed in the previously submitted Postcertification Design Updates document. Also, based on these current updated designs, Table FDEP-6.1 presents estimates of the water quality of the various water supplies to the cooling reservoir and Table FDEP-6.2 presents the water quality projections of discharges or blowdown from the cooling reservoir. As shown in Table FDEP-6.1, all of the combined wastewater supplies to the cooling reservoir are estimated to fall within a pH range of 6 to 8.5, which meets the requirements of the Condition of Certification No. XIV.C.

FDEP-7. The predicted concentrations of sulfate have increased from 120 mg/L to 146 mg/L from the Reservoir Blowdown quality (c.f., Table 2.3-2). However, the Equalization/Filtration wastestream has been predicted to have a sulfate concentration of 380 mg/L (formerly 139 mg/L) with a flow rate of ≈400,000 gpd (c.f., Table 2.3-1). It is my understanding that the TECO may utilize the volume of the Cooling Water Reservoir to dilute this concentration of sulfate below that of the MCL (250 mg/L). However, it would be appropriate for TECO to provide reasonable assurance that the discharge from the Cooling Water Reservoir will not violate this standard.

Response

In Tables 2.3-1 and 2.3-2 in the Postcertification Design Updates document, the primary reason for the increases in sulfate concentrations in the equalization/filtration wastewater

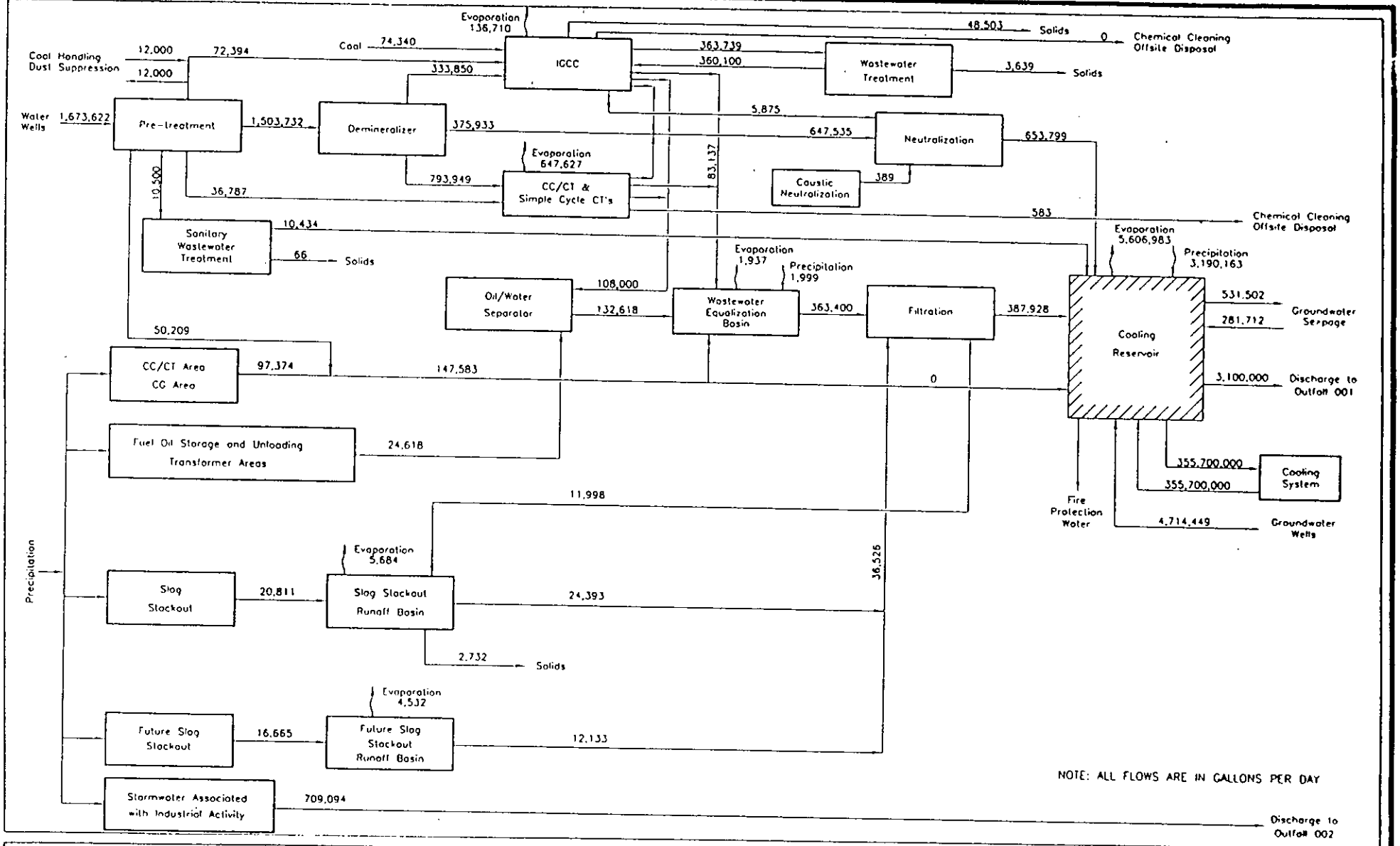


FIGURE FDEP-6.1.

WATER MASS BALANCE, ANNUAL AVERAGE MAKEUP
(UPDATED 09/01/94)

Sources: UE&C, 1992. Texaco, 1992. Bechtel, 1994. ECT, 1992.

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Table FDEP-6.1. Water Quality of Supply Water to Cooling Reservoir (mg/L) (Updated 09/01/94)

| Parameter | Precipitation | ~~Runoff~~ | Equalization/ Filtration | Sanitary Waste Treatment Plant | Neutralization Basin | Floridan Aquifer | Surficial Aquifer |
|---|---|---|---|---|---|---|---|
| Alkalinity | | | ~~22~~ 0 | 153 | ~~80~~ 50 | 110 | 43.7 |
| Aluminum | | | ~~0.30~~ 0 | 0.15 | | | 0 |
| Ammonia | | ~~0.25~~ | 0 | ~~2~~ <10 | | | |
| Antimony | | | ~~0.060~~ 0 | | | | |
| Arsenic | | | ~~0.0053~~ 0 | | | 0 | 0 |
| Barium | | | ~~0.064~~ 0.057 | 0.092 | ~~0.206~~ 0.205 | 0.092 | 0 |
| Benzene | | | | | | 0 | 0 |
| Beryllium | | | ~~0.00082~~ 0 | | | 0 | 0 |
| $BOD_5$ | 0 | ~~10~~ | 0 | 20 | 0 | 0 | 0 |
| Cadmium | | | ~~0.00022~~ 0 | | | 0 | 0.0019 |
| Calcium | | | ~~41.4~~ 23.1 | ~~77~~ 77.1 | ~~85.8~~ 85.3 | 37.1 | 21.7 |
| Chloride | | | ~~6.04~~ 14.7 | 76.3 | ~~60~~ 59.7 | 13.4 | 10.4 |
| Chlorine | | | 0 | 0.2 | | | 0 |
| Chromium, total | | | ~~0.00027~~ 0 | | | | 0 |
| Chromium III | | | ~~0.00027~~ 0 | | | 0 | 0 |
| Color | | ~~120~~ | ~~20~~ 12.4 | 20 | ~~45~~ 43.9 | 20 | 193 |
| Copper | | | ~~0.019~~ 0 | | | 0 | 0 |
| Cyanide | | | ~~0.00003~~ 0 | | | 0 | 0 |
| Dissolved oxygen | 8.2 | ~~2~~ | 0 | 0 | 0 | 0 | 0 |
| Fecal coliform | | ~~100~~ | | 100 | | 0 | 0.67 |
| Fluoride | | | ~~0.25~~ 0.274 | 0.44 | ~~0.91~~ 0.904 | 0.44 | 0.67 |
| Gross alpha | | | 0 | 0 | 0 | 0 | 24.7 |
| Iron | | | ~~0.21~~ 0.124 | 0.20 | ~~0.45~~ 0.445 | 0.20 | 3.50 |
| Lead | | | ~~0.0014~~ 0 | | | 0 | 0.012 |
| Magnesium | | | ~~8.46~~ 8.2 | 53.1 | ~~30.3~~ 30.1 | 13.1 | 6.65 |
| Manganese | | | ~~0.025~~ 0 | 0.400 | | 0 | 0 |
| Mercury | | | ~~0.00006~~ 0 | | | 0 | 0 |
| Nickel | | | ~~0.096~~ 0 | | | 0 | 0 |
| Nitrate | 0.81 | ~~5~~ | ~~1.62~~ 1.8 | 30.3 | ~~0.582~~ 0.6 | 0.26 | 0 |
| Nitrite | | ~~0.3~~ | | ~~2~~ <1 | | | |
| Oil and grease | | ~~10~~ | 5 | | | | 0 |
| Organic nitrogen | | ~~0.95~~ | | ~~1~~ <2 | | | 2.2 |
| pH | 5 | ~~7.4~~ | ~~7 to 9~~ | ~~6 to 9~~ | ~~7 to 9~~ | 7.7 | 7.7 |
| | | | 6 to 8.5 | 6 to 8.5 | 7 to 7.5 | | |
| Phosphorus | | ~~5~~ | ~~0.041~~ 0.044 | 30.1 | ~~4.35~~ 4.3 | 0.071 | 6.8 |
| Potassium | | | ~~2.46~~ 2.7 | 15.3 | ~~9.82~~ 9.8 | 4.28 | 0.944 |
| Radium 226 | | | ~~0.77~~ 0.87 | 1.4 | ~~3.13~~ 3.12 | 1 | 6.5 |
| Radium 228 | | | 0 | 0 | 0 | 0 | 1.1 |
| Selenium | | | ~~0.00038~~ 0 | | | 0 | 0 |
| Silver | | | | | | 0 | 0 |
| Sodium | | | ~~17.63~~ 14.4 | 80.1 | ~~55.5~~ 319.6 | 15.7 | 8.3 |
| Sulfate | | ~~75~~ | ~~139~~ 90.4 | ~~155~~ 154.5 | ~~288~~ 870.9 | 39.5 | 10.7 |
| Sulfide | | | ~~1.08~~ 1.17 | ~~1.88~~ 1.9 | ~~4.21~~ 4.2 | 0.186 | 0.63 |
| Surfactants | | | ~~0.018~~ 0.04 | 0.060 | ~~0.134~~ 0.134 | 0 | 2.2 |
| TDS | 2 | ~~80~~ | ~~243~~ 157 | 602 | ~~580~~ 1,411 | 237 | 119 |
| TOC | | | ~~9.3~~ 10 | 17 | ~~27~~ 36 | 19.6 | 9.8 |
| TSS | | ~~10~~ | 15 | 20 | 5 | | |
| Zinc | | | ~~0.039~~ 0.009 | 0.014 | 0.031 | 0.0135 | 0 |
| Flow rate (gpd) | 3,190,163 | ~~40,503~~ | ~~386,428~~ 387,928 | 10,434 | ~~647,535~~ 653,799 | ~~4,681,700~~ 4,714,449 | 281,712 |

Note: Changes indicated in this table represent changes in the water quality concentrations which were provided in the SCA information and considered in the certification of the Polk Power Station compared to concentrations based on the postcertification design updates.

Sources: RE&C, 1994.
TEC, 1992a.
ECT, 1994.

Table FDEP-6.2. Cooling Reservoir Discharge Water Quality Projections (mg/L) and Water Quality Standards (Updated 09/01/94)

| Parameter | Reservoir Blowdown Quality | FDEP Class III Surface Water Standard | FDEP Class G-II Ground Water Standard |
|---|---|---|---|
| Alkalinity | ~~166.3~~ 158.6 | >20.0 | |
| Aluminum | ~~0.033~~ 0.0004 | | <0.2 |
| Ammonia (unionized) | ~~0.000~~ 0 | <0.02 | |
| Antimony | ~~0.007*~~ 0 | <4.300 | <0.006 |
| Arsenic | ~~0.001~~ 0 | <0.050 | <0.05 |
| Barium | 0.165 | | <2.0 |
| Benzene | ~~0.000~~ 0 | <0.071 | <0.001 |
| Beryllium | ~~0.000089~~ 0 | <0.00013 | <0.004 |
| BOD | 0.7 | | |
| Cadmium | ~~0.000173~~ 0.000149 | <0.00117 | <0.005 |
| Calcium | ~~70.37~~ 68.83 | | |
| Chloride | ~~21.0~~ 59.0 | | <250 |
| Chlorine | 0.0007 | <0.010 | |
| Chromium, total | ~~0.00003~~ 0 | | <0.1 |
| Chromium, VI | ~~0.00~~ 0 | <0.011 | |
| Chromium, III | ~~0.00003~~ 0 | <0.214 | |
| Color | ~~50.3~~ 50.48† | | <15 |
| Copper | ~~0.002~~ 0 | <0.012 | <1.0 |
| Cyanide | ~~0.000003~~ 0 | <0.0052 | <0.2 |
| Dissolved oxygen | ~~5.38~~ 5.46 | >5 | |
| Fecal coliform | 0.3 | <200 | |
| Fluoride | ~~0.82~~ 0.83 | <10.00 | <4.00 |
| Gross alpha | 1.94 | <15 | <15 |
| Iron | ~~0.634~~ 0.627† | <1.000 | <0.3 |
| Lead | ~~0.001096~~ 0.00094 | <0.00334 | <0.015 |
| Magnesium | ~~24.20~~ 24.30 | | |
| Manganese | ~~0.004~~ 0.0012 | | <0.050 |
| Mercury | ~~0.000007~~ 0 | <0.000012 | <0.002 |
| Nickel | ~~0.010~~ 0 | <0.163 | <0.1 |
| Nitrate | ~~1.67~~ 1.53 | | <10.0 |
| Nitrite | 0.00 | | <1.0 |
| Oil and grease | ~~0.56~~ 0.54 | <5 | |
| Organic nitrogen | 0.00 | | |
| pH | ~~7.8~~ 7.6 | 6 to 8.5 | 6 to 8.5 |
| Phosphorus | ~~1.550~~ 1.491 | | |
| Potassium | ~~7.76~~ 7.84 | | |
| Radium 226 | ~~2.45~~ 2.48 | <5 | <5 |
| Radium 228 | 0.09 | <5 | <5 |
| Selenium | ~~0.00004~~ 0 | <0.005 | <0.05 |
| Silver | ~~0.000000~~ 0 | <0.00007 | <0.1 |
| Sodium | ~~33.28~~ 80.64 | | <160.0 |
| Sulfate | ~~119.9~~ 219.69 | | <250.0 |
| Sulfide | ~~0.87~~ 0.89 | | |
| Surfactants | ~~0.199~~ 0.202 | <0.500 | <0.5 |
| TDS | ~~454.4~~ 596.9† | <826.0** | <500.00 |
| TOC | ~~34.2~~ 34.33 | | |
| TSS | ~~11.0~~ 10.86 | | |
| Zinc | ~~0.027~~ 0.024 | <0.110 | <5.0 |

Note: Blowdown = 3.10 mgd.
Average makeup = ~~4.68~~ 4.71 mgd.
Maximum makeup = 6.5 mgd.
Water level = 136 ft-NGVD.
Hardness = 104 mg/L.
Fecal coliform in MPN/100 mL.
Color in pt-co.
Radium 226, 228 and gross beta in pCi/L.

Changes indicated in this table represent changes in the water quality concentrations which were provided in the SCA information and considered in the certification of the Polk Power Station compared to concentrations based the postcertification design updates.

~~*Violation of primary drinking water standard.~~
†Violation of secondary drinking water standard.
**TDS standard calculated from conductivity standard.

Source: Modified from TEC, 1992a.

stream, and, in turn, in the cooling reservoir blowdown was the routing of the small acidic wastewater stream from the $H_2SO_4$ plant to the equalization basin. At the time the Postcertification Design Update document was submitted, Tampa Electric Company had not purchased the $H_2SO_4$ plant and was having discussions regarding the purchase of the plant with several vendors. $H_2SO_4$ plants from the various vendors had different configurations and processes which resulted in different wastewater streams in terms of flow volume and acid concentrations. In the update document, a typical acid wastewater stream of approximately 8 gallons per minute (gpm) with an $H_2SO_4$ concentration of 1 percent (by weight) was used for the water balance calculations and the predictions of the water quality of discharges to the cooling reservoir and of the reservoir blowdown. Since the update document was submitted, Tampa Electric Company has purchased the $H_2SO_4$ plant. Based on the current plant configuration from the selected vendor, a design condition of the plant wastewater stream is approximately 4.1 gpm with an $H_2SO_4$ concentration of approximately 6.5 percent (by weight) and a pH of 2.6.

It is important to note that even though these design characteristics of the wastewater stream are used for the enclosed updated water balance and discharge water quality predictions, the normal flow rate of this stream may be lower based on the operational experience of the selected $H_2SO_4$ plant vendor.

As discussed in the response to Comment FDEP-6, Tampa Electric Company is now planning to route the $H_2SO_4$ plant wastewater stream to the neutralization basin instead of the equalization basin and to neutralize the stream along with other wastewater streams prior to discharging the stream to the cooling reservoir. As shown in Table FDEP-6.1, this updated design plan reduces the concentrations of sulfate in the equalization/filtration system wastewater discharge to the cooling reservoir and addresses FDEP concerns regarding the pH of the $H_2SO_4$ plant wastewater stream expressed in Comments FDEP-6 and FDEP-10. As shown in Table FDEP-6.1, the re-routing and treatment of the $H_2SO_4$ plant wastewater stream are estimated to increase the concentrations of sulfate and total dissolved solids (TDS) in the neutralization basin discharge to the cooling reservoir.

Based on the updated estimates of the water quality of the water supplies to the reservoir in Table FDEP-6.1, Table FDEP-6.2 provides predictions of the water quality of discharges from the cooling reservoir compared to applicable FDEP surface and ground water quality standards. These predictions of water quality of the reservoir blowdown are considered conservative since the ultimate parameter concentrations are based on long-term (i.e., 25 to 30 years) modeling analyses of the project operations after full build-out of the proposed facilities to 1,150 megawatts (MW) in the year 2010. As shown in Table FDEP-6.2, the modeling analyses project that the quality of the reservoir blowdown will meet all FDEP Class III surface water standards and all FDEP Class G-II primary drinking water standards. Similar to the analyses previously presented in the SCA, the projections indicate that the water quality of the reservoir blowdown will exceed the secondary drinking water standards for iron and color. As shown in Table FDEP-6.1, the predicted concentrations for iron and color are significantly lower than background concentrations in the surficial aquifer based on available water quality data. Further, as stated in the Condition of Certification No. XVIII.H, "if representative ambient values for iron and color are shown to already exceed secondary drinking water standards, then these representative values shall be the prevailing standard (Rule 17-520.420(2), Florida Administrative Code [F.A.C.]." Therefore, if the background water quality data collected as part of the project's ground water monitoring plan confirms that ambient concentrations for iron and color are higher than the secondary standards and the concentrations of these parameters in the reservoir discharges, then the background values for these parameters will be the applicable standards, and the iron and color concentrations in the reservoir discharges will not be considered as exceedances of the standards.

The updated water quality projections for the cooling reservoir discharges in Table FDEP-6.2 indicate the secondary drinking water standard for TDS may be exceeded. The predicted TDS concentration in the reservoir discharges is approximately 597 milligrams per liter (mg/L) compared to the secondary drinking water standard of 500 mg/L. According to Rule 17-500.320(1), F.A.C., the secondary maximum contaminant level for TDS "may be greater [than 500 mg/L] if no other maximum contaminant level is

exceeded." As discussed previously, if the prevailing secondary standards for iron and color are considered to be background values which are higher than the concentrations of these parameters in the reservoir discharges, the predicted concentrations of these parameters are not considered to represent exceedances of the prevailing standards. Therefore, TDS will be the only parameter predicted to potentially exceed an applicable standard and a standard greater than 500 mg/L could be considered by FDEP. Tampa Electric Company believes that such consideration by FDEP would be appropriate for the project due to the remote location of the site and the characteristics of the confining layers between the surficial and the underlying aquifers, as well as the fact that the surficial aquifer is not used as a source of drinking water in the site area. Therefore, the predicted TDS levels in the reservoir discharge will not create adverse water quality impacts in the project area.

Further, due to the conservative assumptions used to estimate the quality of water supplies to the reservoir and used for the long-term modeling analyses, Tampa Electric Company believes that the actual TDS concentrations in the reservoir discharges will be lower than projected in Table FDEP-6.2. Even with these conservative assumptions, the results of the modeling indicate that a TDS concentration of 500 mg/L in the reservoir discharges would not be reached until at least the $8^{th}$ year of operation, or 2004.

Based on the modeling results, the primary water quality parameter which contributes to the predicted TDS concentration levels in the cooling reservoir discharges is sulfate. As shown in Table FDEP-6.1, the primary source of the sulfate in the reservoir is the water supplied from the neutralization basin, which contains the neutralized wastewater stream from the $H_2SO_4$ plant. In Tables FDEP-6.1 and FDEP-6.2, the estimated sulfate concentration in the neutralization basin wastewater supplied to the reservoir is approximately 871 mg/L, and the long-term equilibrium sulfate concentration in the reservoir discharges is predicted to be approximately 220 mg/L. This predicted level in the reservoir discharge is less than the secondary drinking water standard of 250 mg/L.

Tampa Electric Company is currently required to collect, analyze, and report the results for total sulfate concentrations in water quality samples of surface water discharges from the cooling reservoir (i.e., OSN001) on a monthly basis after plant startup in accordance with the requirements of the Condition of Certification No. XIV.A.3. Tampa Electric Company has also proposed to sample and analyze water quality in the surficial aquifer for sulfate and TDS on an initial and quarterly basis as part of the project ground water monitoring plan, which has been submitted to FDEP for review. The results of these water quality monitoring programs will verify whether or not the predicted concentrations of TDS and sulfate in the reservoir discharge based on the conservative modeling assumptions reflect actual operational conditions.

Finally, to provide reasonable assurance that adverse TDS or sulfate water quality impacts do not result from the Polk Power Station operations, Tampa Electric Company will implement appropriate actions to further treat the $H_2SO_4$ plant and/or neutralization basin discharges to the cooling reservoir if the results of the water quality monitoring programs document the following: (1) sulfate concentrations in the surface water discharges from the reservoir at OSN001 are greater than the predicted levels of approximately 220 mg/L; and (2) TDS and sulfate concentrations in the proposed surficial aquifer monitoring wells downgradient of the cooling reservoir are greater than 550 mg/L and 220 mg/L, respectively. If the results of the water quality monitoring programs document these two operational water quality conditions exist, Tampa Electric Company has sufficient time to implement appropriate treatment action to provide reasonable assurance that the cooling reservoir discharges will not exceed the secondary drinking water standards for sulfate of 250 mg/L and predicted TDS level of approximately 597 mg/L.

FDEP-8. With regard to the domestic wastewater facilities to be proposed for this project, the preliminary information in the SCA estimated 400-600 workers in the construction workforce. This estimate has been revised to a range estimate of 650-1400 workers during the construction phase. Dependent on yet unsubmitted scheduling and other details, this population change may require incorporation into

the forthcoming Preliminary Design Report that is required by 17-600.715, F.A.C.

Response

The domestic wastewater facilities described in the SCA will not be used by the construction workers for the Polk Power Station. As discussed in the SCA, the construction workforce will use portable chemical toilets during the site preparation and construction activities for the project. Under contractual arrangement with Tampa Electric Company, all construction contractors will be responsible for providing the required number of portable toilets to serve their workers on the site. The construction contractors will also be responsible for assuring that the toilets are appropriately serviced by a licensed contractor and that all sanitary sewage from these facilities is transported offsite for disposal at an approved, permitted facility.

The domestic wastewater facilities for the Polk Power Station have been planned to serve the estimated number of operational workers at full buildout of the project. The estimated number of operational workers has not changed. These facilities will be addressed in the forthcoming Preliminary Design Report required by Section 17-600.715, F.A.C..

FDEP-9. Prior to initiation of construction of the brine storage cells, TECO must provide us with a revised final design of the brine storage cells. Any leachate generated must be collected and treated in accordance with the applicable conditions of the certification (Chapter XXI). Be aware that any modification to the proposed "temporary enclosure" system will require Department evaluation and approval.

Response

Comment noted. Prior to construction of the brine storage area, Tampa Electric Company will submit detailed plans and drawings as required by Chapter 17-701, F.A.C., and the Conditions of Certification to FDEP for review and approval.

FDEP-10. The proposed discharge of the sulfuric acid wastewater stream to the equalization/filtration system, with extremely low levels of pH as low as 2.0 standards units (hazardous waste characteristic), is not acceptable. TECO must investigate an alternate pretreatment and disposal system for the disposal of this wastewater. On page 2-22 the wastewater stream from the sulfuric acid plant is described as having an acid concentration of 1 per cent or less. On page 2-23 the pH is given a range of 2 to 6. Should the pH equal 2.0 or less it will become classified as a hazardous waste. What is the schedule and method for testing the pH and metals content of this waste stream, and what is TECO's proposed method of handling the wastewater if it is hazardous?

Response

As discussed in the response to Comment FDEP-7 previously, at the time the Postcertification Design Updates document was submitted, Tampa Electric Company had not purchased the $H_2SO_4$ plant and was having discussions regarding the purchase of the plant with several vendors. As expected, $H_2SO_4$ plants from various vendors have different configurations and processes which result in different wastewater streams in terms of flow volume and acid concentrations. In the update document, a typical acid wastewater stream of approximately 8 gpm with an $H_2SO_4$ concentration of 1 percent (by weight) was used for the water balance calculations. The pH of this typical stream was calculated to be 3.4. However, in Table 2.3-1 on Page 2-23 of the update document, a pH range of 2 to 6 was indicated to encompass the various wastewater stream characteristics from the various plant vendors.

Since the update document was submitted, Tampa Electric Company has purchased the $H_2SO_4$ plant. Based on the current plant configuration from the selected vendor, a design condition of the plant wastewater stream is approximately 4.1 gpm with a pH of 2.6. Based on this pH level, this wastewater stream will not be classified as a hazardous waste. Further, as discussed in the response to Comment FDEP-6, this wastewater stream will now be routed and neutralized in the neutralization basin, instead of the equalization/filtration system. As indicated in Table FDEP-6.1, the discharge from the neutralization basin to the cooling reservoir will be controlled to a pH range of 7 to 7.5.

FDEP-11. Review of the proposed modifications to the TECO Polk Power Station site certification by the SWD Air Program raises one issue for possible consideration. The auxiliary boiler is increased in size from 49.5 MMBtu/hr heat input capacity to 120 MMBtu/hr.. This means it is now subject to NSPS Subpart Db instead of Subpart Dc. The auxiliary boiler will also have an increase in permitted operating hours further increasing potential tons/yr emissions. These change should also be evaluated and incorporated into the PSD BACT analysis and BACT determination which is part of the PSD construction permit for this facility.

Response

As presented in the Postcertification Design Update document, Tampa Electric Company recognizes that the larger auxiliary boiler is now subject to Subpart Db instead of Subpart Dc and has provided suggested updates to the appropriate Conditions of Certification to reflect this change in NSPS applicability in Appendix B of the update document.

A best available control technology (BACT) analysis for the 49.5-MMBtu/hr auxiliary boiler was presented in the SCA and incorporated into the BACT determination for the Polk Power Station. The emission control technologies selected for the proposed 120-MMBtu/hr auxiliary boiler are identical to the emission control technologies proposed for the 49.5-MMBtu/hr unit. Specifically, this emission control technologies include:

- Clean fuels and good combustion practices for particulate matter (PM) control.
- Combustion controls and good operating practices for carbon monoxide (CO) and volatile organic compounds (VOC) control.
- Low-$NO_x$ burner technology for the control of $NO_x$.
- Combustion of low sulfur distillate oil for $SO_2$ and $H_2SO_4$ control.

These control technologies are also considered to represent BACT for the larger 120-MMBtu/hr auxiliary boiler. The emission rates proposed for the 120-MMBtu/hr auxiliary boiler reflect the application of these technologies. An emission rate

comparison of the 49.5 MMBtu/hr and the 120-MMBtu/hr auxiliary boilers is provided in Table FDEP-11.1. The 120-MMBtu/hr unit emission rates (in MMBtu/hr) are less than or equal to the 49.5-lb/MMBtu unit emission rates for all criteria pollutants. Increased hours of auxiliary boiler operation occur primarily in the standby mode (65 percent of the time, annually). Emission rates in the standby mode are significantly lower than during normal boiler operation.

Because the cited emission control technologies remain applicable and the level of control (in lb/MMBtu) decreases or remains unchanged, the emission limitations shown in Table FDEP-11.1 represent BACT for the proposed 120-MMBtu/hr auxiliary boiler.

Table FDEP-11.1. Auxiliary Boiler Emission Rate Comparison

| Pollutant | 49.5-MMBtu/hr Unit Emission Rate (lb/MMBtu) | 120-MMBtu/hr Unit Emission Rate (lb/MMBtu) |
|---|---|---|
| PM | 0.061 | 0.058 |
| $SO_2$ | 0.053 | 0.053 |
| $NO_x$ | 0.159 | 0.072 |
| CO | 0.087 | 0.044 |
| VOC | 0.049 | 0.022 |

Source: ECT, 1994.

FLORIDA DEPARTMENT OF TRANSPORTATION
LAWTON CHILES
GOVERNOR
605 Suwannee Street, Tallahassee, Florida 32399-0450
BEN G. WATTS
SECRETARY



June 10, 1994

Hamilton S. Oven, Jr. P.E.
Office of Siting Coordination
Department of Environmental Protection
3900 Commonwealth Blvd., Ste. 953A
Tallahassee, FL 32399-3000

Re: Tampa Electric Company, Polk Power Station
Case No. PA 92-32

Dear Mr. Oven:

This letter will constitute the Department of Transportation's response to Tampa Electric Company Polk Power Station Post-certification Design Updates, which was circulated last month. The Department has serious new concerns that could not have been raised in the sufficiency or certification phases of this proceeding.

Tampa Electric, which previously had planned to haul fuel by rail, now proposes to haul all materials to the plant, including its coal supplies, by truck. Such an alteration will have significant impact on state roads on the hauling route(s). Although the Application for Certification did take the hauling of these materials by truck into account for the operational transportation analysis, the structural impacts to highways in the area of the continuous loadings caused by hauling the materials was not provided. Now, with trucks being the sole mode of transporting fuel supplies, this information is crucial for the Department of Transportation to evaluate the impacts the modification would have.

Therefore, the following information must be provided to determine any possible adverse impacts upon the state roads and highways in the area.

1. Designation on maps and written descriptions of each haul route to be utilized in the transport of materials by truck. FDOT-1

2. An analysis on the structural impacts to the haul route, including, but not limited to, State Road 60, State Road 60A, State Road 37 and U.S. 98. FDOT-2

Please be advised that Assistant General Counsel Thomas H. Duffy is now this office's representative in this matter, and all correspondence and pleadings should be sent to him. Sandra Whitmire remains the staff contact.

If there are any other questions, please do not hesitate to contact this office.

Sincerely,

Thornton Williams
General Counsel

TD/md

## RESPONSES TO COMMENTS FROM FLORIDA DEPARTMENT OF TRANSPORTATION

**(Letter from Thornton Williams, General Counsel, FDOT, to Hamilton S. Oven, Jr., P.E., Office of Siting Coordination, FDEP, dated June 10, 1994)**

FDOT-1. Designation on maps and written descriptions of each haul route to be utilized in the transport of materials by truck.

Response

The source of the coal for the Polk Power Station will be the Tampa Electric Company Big Bend Station in southwestern Hillsborough County. The coal will be loaded onto trucks at the Big Bend Station and transported to the Polk Power Station. Two haul routes are proposed which are graphically shown in Figures FDOT-1.A and FDOT-1.B and are described as follows:

Primary Route--The trucks will exit the Big Bend Station and proceed east on Big Bend Road to U.S. Highway 301 (U.S. 301). The trucks will then turn right on U.S. 301 and proceed south to Balm Road (County Road [CR] 672) and then turn left and proceed east to CR 39. At CR 39, the trucks will turn right and proceed south to State Road (SR) 674. The trucks will turn left at SR 674 and proceed east to Polk County. In Polk County, the trucks will proceed to SR 37 at which point they will turn left and proceed north to the Polk Power Station.

Secondary Route--The secondary route is the same as the primary route except instead of proceeding on Balm Road to CR 39, the trucks will turn right on Balm-Wimauma Road and proceed south to SR 674. The trucks will then turn left on SR 674 and proceed east to SR 37.

FDOT-2. An analysis on the structural impacts to the haul route, including, but not limited to, State Road 60, State Road 60A, State Road 37 and U.S. 98.

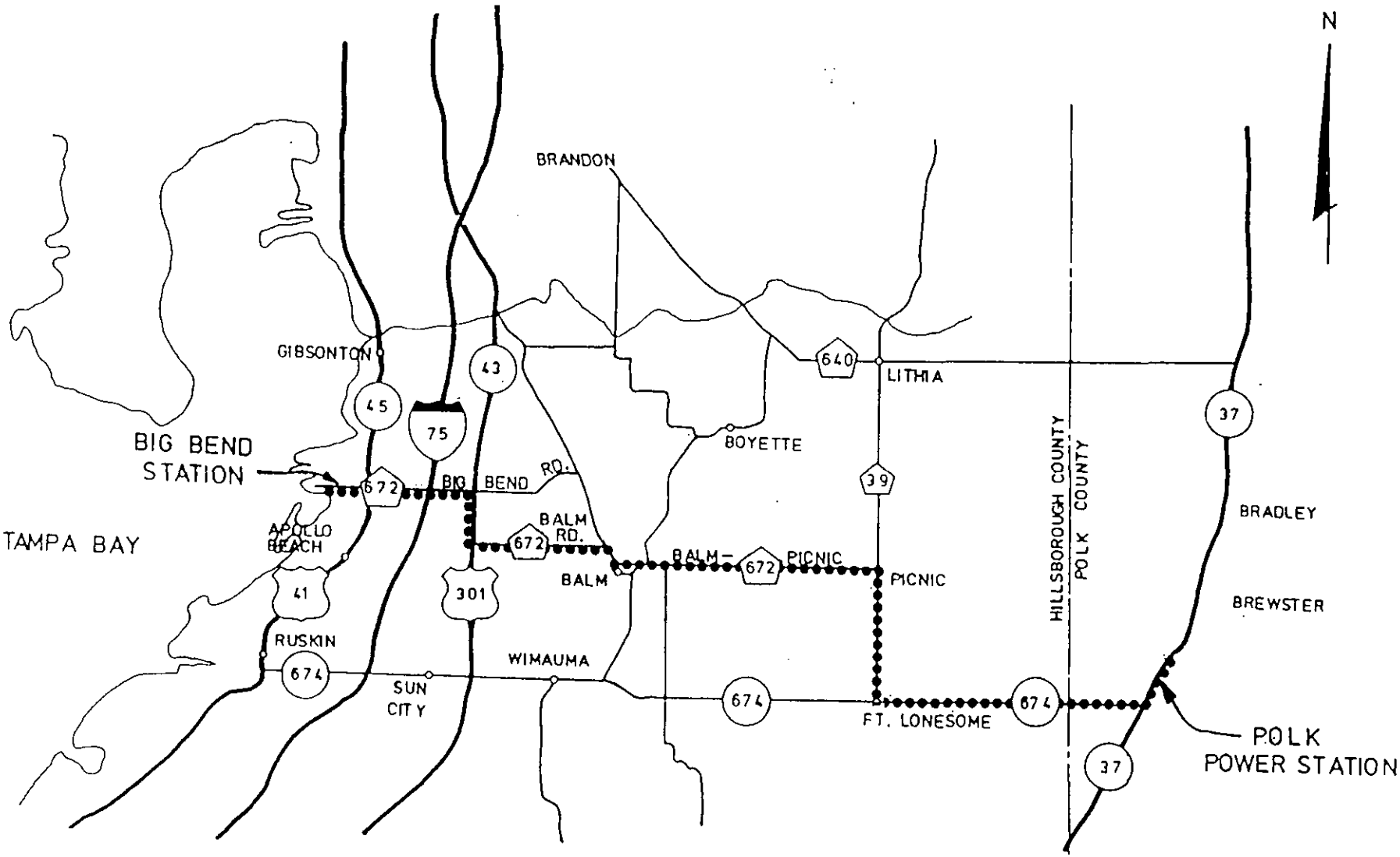


FIGURE FDOT-1.A.

PRIMARY TRUCK ROUTE

Source: Lincks & Associates, Inc., 1994.

TAMPA ELECTRIC
A TECO ENERGY COMPANY

**POLK POWER STATION**

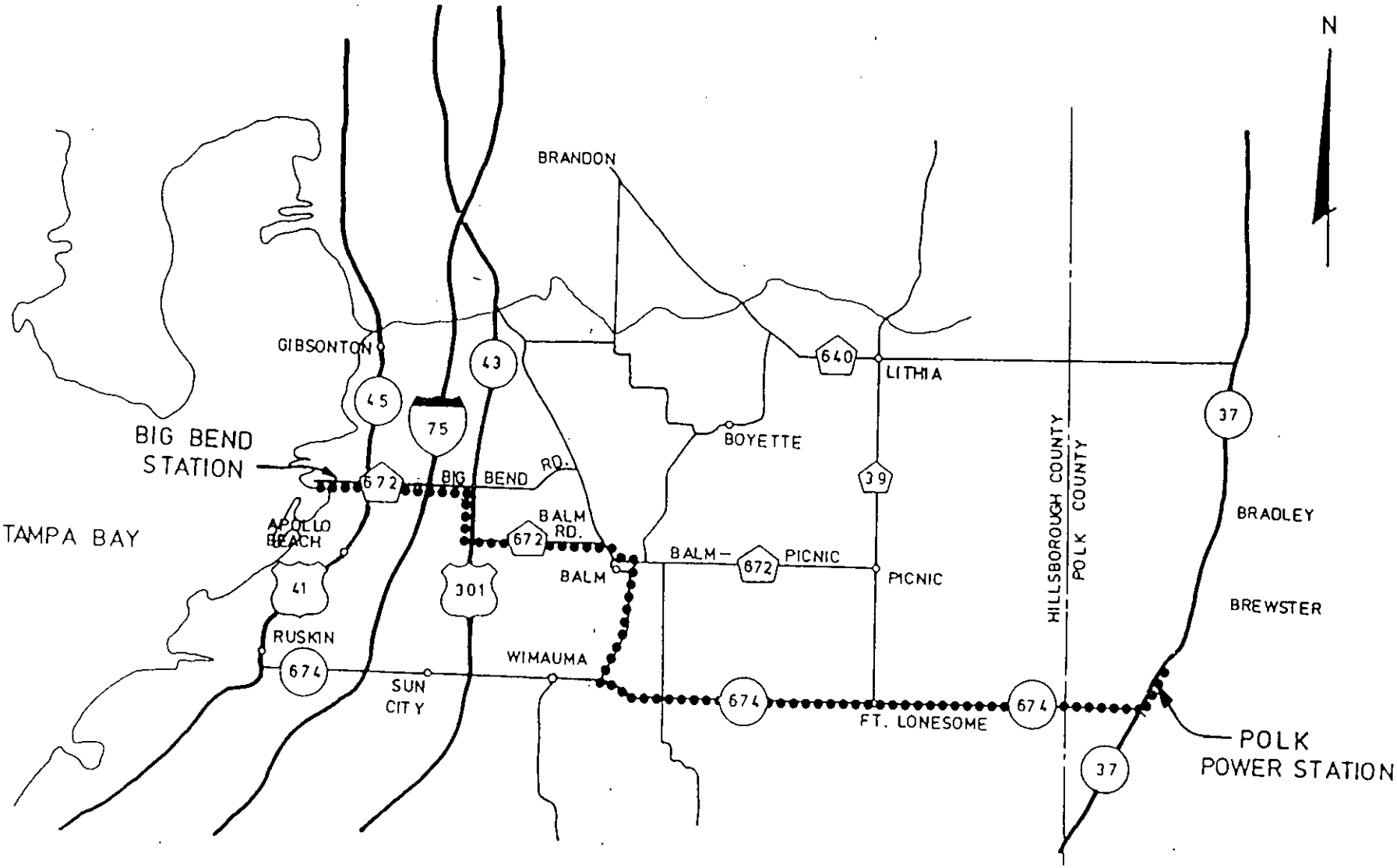


FIGURE FDOT-1.B.

SECONDARY TRUCK ROUTE

Source: Lincks & Associates, Inc., 1994.

TAMPA ELECTRIC
A TECO ENERGY COMPANY

**POLK POWER STATION**

Response

The trailers that are proposed to be used by Tampa Electric Company to haul the coal have been customized to maximize cleanliness, safety, and productivity. The aluminum trailer bodies will allow a 28-ton payload capacity within the 80,000-pound gross vehicle weight limitations of the Florida Department of Transportation (FDOT). A bottom-dump configuration will allow rapid unloading and eliminates weight associated with a hydraulic cylinder. Aluminum knife gate top covers will be activated from within the truck cab, allowing the driver to remain in the cab during all stages of loading and eliminating the possibility of coal loss during transport.

In response to the structural analysis requested in Mr. Williams' letter, according to Jesse Ortiz of FDOT, District Bridge office in Tampa, there are no weight restrictions on any state bridges or roads along either the primary or secondary routes described in the response to FDOT-1.