



State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

| For Routing To Other Than The Addressee |                |
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| To <u>Pradeep</u>                       | Location _____ |
| To _____                                | Location _____ |
| To _____                                | Location _____ |
| From _____                              | Date _____     |

# Interoffice Memorandum

TO: Air Resources Management Personnel

FROM: Buck Oven *H/O*

DATE: November 15, 1988

SUBJECT: AES-Cedar Bay Cogeneration Project, Power Plant  
Siting Application PA 88-24, Module 8184

Please review the attached power plant siting application for completeness. Please return your comments to me by November 23, 1988. There will be a meeting to discuss the completeness of the application on November 28, at 1:00 p.m. in Room 338D.

Several copies of the application are being provided to your staff for their review. Additional copies have been sent to the District Program Managers for their review and comment as well.

H/O

Attach:

cc: Barry Andrews, w/attach  
Pradeep Ravel, w/attach  
Max Linn, w/attach  
Betsy Hewitt, w/attach

AES Meeting

3-3-88

①  $PM_{10}$  & dates

②  $SO_2$  problem

Plans for 1992 startup.

Recovery boiler can be permitted separately.

- If expansion is larger than 75 MW need PPS.

- Except for PPS if area covered is large from recovery boiler.

- They need to send max building demands to model downwash.

-  $PM_{10}$  monitoring probably will not be required if complete application is filed within 10 months from date the rule is effective (approx April 15??).

DER / AES MEETING  
3/3/88

ATTENDEES

| <u>NAME</u>    | <u>REPRESENTING</u> | <u>Ph</u>    |
|----------------|---------------------|--------------|
| KENNY VARKONDA | AES- Pros. Dev.     | 703 522 1315 |
| Steven M. Day  | Black & Veatch      | 913 339 2880 |
| Max Linn       | DER-BAGM            | 488-1344     |
| John Brown     | DER BAGM            | 488/344      |
| Fanny Collins  | DER BAGM            | 488-1344     |
| Barry Andrews  | DER-BAGM            | 488-1344     |
| Buck Owen      | DER - PPS           | 487-2522     |
| JOHN MILLICAN  | AES (ENV. SERV.)    | 584-5137     |
| PRADDEEP RAVAL | DER, BAGM           | 488 1344     |
| Tony Cole      | Ortel + Hoffman     | 877 0099     |

Feb 2, 1988

DER Offices - Tallahassee FL

|                |                           |                                    |
|----------------|---------------------------|------------------------------------|
| Steven M. Day  | Black & Veatch            | 913-339-2880                       |
| Buck Owen      | DER                       | 904-487-2522<br><del>488-517</del> |
| JOHN MILLICAN  | AES/ENV SERVICES          | 904-584-5137                       |
| JEFF SWAIN     | AES                       | 703-522-1315                       |
| Terry Cole     | AES - Dutil + Hoffman     | 904 877 0099                       |
| Bunny Andrews  | DER/DAM                   | 904 488-1344                       |
| KERRY VARKONDA | AES                       | 703-522-1315                       |
| Max LIND       | BAM                       | 904 488 1344                       |
| Pradeep Raval  | BAM                       | 904 488 1344                       |
| Sara Brumbaugh | Public Service Commission | 904 488 8501                       |
| Paul Dorst     | DCA                       | 904 488-4925                       |

DEPARTMENT OF HEALTH, WELFARE  
ENVIRONMENTAL SERVICES  
Environmental Services Division

December 20, 1988

Mr. Hamilton S. Oven, P.E.  
Chief, Power Plant Siting  
Florida Department of Environmental Regulation  
Twin Towers Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

RE: THE CEDAR BAY COGENERATION PROJECT

Dear Mr. Oven:

Bio-Environmental Services Division (BESD) appreciates the opportunity to review the Cedar Bay Cogeneration Power Plant Siting Application, as filed by Applied Energy Systems (AES). In view of the significant environmental issues associated with such a project, BESD has, by separate correspondence, requested "Party" status for the plant and associated transmission lines (copy enclosed). Further BESD petitions by this correspondence to be specified in the final site certification as the local regulatory agency to enforce the air pollution, water pollution, water conservation, and noise pollution aspects of the final site certification.

The BESD, upon review of the Applied Energy Systems application feels that insufficient data has been submitted to provide for adequate project review, relative to compliance with a number of environmental issues.

The following discussion will address those areas where insufficiency exists and other concerns of BESD:

I. GENERAL COMMENTS

- A. BESD strongly objects to the inclusion of the Kraft Recovery Boiler, the Smelt Dissolving Tank, the Multi-Effect Evaporator, and associated elements being included in the subject application. Such processes are not in concert with the intent or definition of Chapter 403, Florida Statutes (FS). Such processes should be addressed under typical DER permitting procedures, and not included in a Power Plant Siting application. Such elements are not included, or suggested in Sections 403.502, 403.503(4), or 403.503(7), FS and, therefore, it is inappropriate to attempt to include such non-related (per the statutes) processes within this application.



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DEC 21 1988

DER-BAQM

RESPONSES

1. Discussions were held with the Siting Coordination Section of DER early in the permitting phase of the project. The entire project is being developed concurrently with impacts resulting from each of the facilities. By including all of the related facilities in the SCA process, the DER believed that the total impacts would be better assessed and mitigated.

- B. The applicant (AES) has included a request for approval of construction at night, as may be necessary, in order to comply with local Noise Pollution regulations. The applicant must make such application directly to the City of Jacksonville, and must be specific as to the times, dates, type of operations involved, projected noise impacts, specific on-site contact personnel with authority to cease operations as necessary, etc. The City will not issue a blanket relief from the Ordinance Code, hence specifics are required.
- C. The applicant has provided insufficient detail to evaluate whether the project shall comply with the City's Landscaping and Tree Protection requirements, as specified in Ordinance 88-668-397, enacted on July 29, 1988.
- D. The BESD has received a memorandum that the height of the stacks for this project affect the Federal Aviation Rules (FAR), relative to minimum operating altitude for the area. If a change (shortening) of the stack results from compliance with the FAR requirements, then the air quality modeling results will be adversely affected. Hence, until the FAR issue is resolved, insufficient data exists to evaluate air quality impacts.
- E. BESD poses the question of whether AES has considered the use of shredded tires as a supplemental fuel for the fluidized bed boilers, since the literature suggests such is within the capabilities of the technology. In today's problem of adequate space for disposal of waste tires in landfills, the utilization of waste tires as an energy source seems attractive, if the resulting emissions can be held within standards.
- F. Volume II, Page 4-2 - Statements in this section lead the agency to believe that the applicant will fill-in sections of the Broward River; BESD has previously understood that such fill projects were prohibited.
- G. The applicant <sup>mulch</sup> indicates that 42,000 cubic yards of lime mud, and 20,000 cubic yards of lime <sup>mulch</sup> will be disposed of, but does not specify where. Hence, insufficient data exists to evaluate this element.
- H. The applicant notes that two separate methods for ash handling, but is not clear as to which will actually be utilized. Some clarification is needed.

2. The SCA process preempts all state and local permit requirements except building permits. Nevertheless, all applicable federal, state, and local requirements must be met by the project. We will comply with these requirements including all applicable regulations and ordinances. Even though the Certification is a DER process, it does provide a means for other jurisdictions to become involved in the project's regulation and permitting. Therefore, the SCA process provides a framework for the approval of construction activities at night, should such activities become necessary. Provision of the required information by the applicant prior to initiating nighttime construction could be made a condition of the site certification.
3. The requirements of this ordinance will be complied with. A preliminary onsite survey did not identify any protected trees in the areas to be developed. However, thorough inspections in all developed areas will be made prior to any tree removal to ensure that protected trees are either not disturbed or that appropriate approvals are obtained for removal or relocation. A landscape plan will be submitted upon completion of detailed design of the project. The plan will conform to all tree and landscape material planting requirements. As in the previous response, these requirements could be made conditions of the site certification.
4. Discussion with the FAA, with regard to stack heights as indicated, is proceeding. A preliminary agreement involving the installation of a non-directional beacon has been reached between the applicant and the FAA and Jacksonville Port Authority. The FAA and other applicable agencies are currently reviewing the applicant's proposal to provide this equipment.
5. The use of shredded tires as a supplemental fuel for this project is not currently being considered. Although tires have been fired in grate type systems, their use in GFB boilers is an unproven technology. Additionally, the combustion of tires would contaminate the combustion wastes with zinc calcine which could make the ash environmentally unacceptable for use as a mine reclamation material.
6. No filling will be done within the established channel of the Broward River. A minimal amount of fill will be placed as necessary to raise the railroad subgrade above the existing grade to maintain the required top of rail elevation. No fill will be placed below mean high water elevation 2.0. The SCA notes that "Addition of fill should not increase flood elevations or flow velocities...."
7. The lime mud currently stored in the area of the new facilities will be relocated to the north end of the applicant's (Seminole Kraft) property for storage and potential reuse as a fluidized bed combustion boiler additive. In addition, new equipment being installed by Seminole Kraft may have the potential for reuse of the lime mud. It is intended that the material will be covered by an impervious liner to limit potential contamination of ground water by the relocated material.
8. At this time, no decision has been made on the final arrangement and method for ash disposal off site. Both methods should be considered viable when analyzing the Site Certification Application.

RESPONSES

- I.
1. The applicant has not estimated or included in his air quality calculations the contribution from mobile sources, i.e., the high number of trucks that the applicant projects will be utilized (the truck traffic could add 0.8T/M of fugitive particulate to the atmosphere). 9.
- J. The applicant denotes various types of demolition shall be effected during site preparation. The applicant has not noted that local permits, especially relative to asbestos, under NESHAP, will be obtained, or complied with. Hence, insufficient data exists to evaluate compliance with NESHAPs for asbestos. 10.
- K. The applicant states that 6,000 cubic yards of fuel saturated soil will be disposed of, but fails to specify how or where.
- BESD was unaware that a hazardous material/waste problem existed at this site, as such was not reported until review of the subject application. 11.
- The information provided is insufficient to evaluate whether or not this hazardous waste will be properly handled.
- L. Has the Department of Environmental Regulation promulgated Chapter 17-274, FAC, and if so, is the applicant in compliance with such requirements? 12.
- II. NOISE POLLUTION COMMENTS
- A. Volume II, Page 2-151 - It appears the applicant has misinterpreted the local noise regulations by speaking of impacts on adjoining property. The City regulates noise based upon noise impact at the reception property line, which may or may not be adjoining the source's property line. 13.
9. In responding to this comment, AES requested additional information from BESD regarding their estimate of the fugitive dust emissions associated with truck traffic. BESD provided the supplemental information in a letter to Ms. Julie Blunden, of AES, dated February 2, 1989. In this letter, BESD corrected their original truck traffic fugitive dust estimate from 0.8 tons per month to only 0.18 tons per month. In a subsequent telephone call to BESD, it was determined that the "2 miles" mentioned in the February 2, 1989 letter should have been 7 miles. With this correction, the estimate of 0.18 tons per month can be verified from BESD's information.
- Thus, the estimate of truck traffic fugitive emissions will be approximately 2.2 tons per year. This estimate conservatively assumes there will not be any precipitation during the entire year. However, Jacksonville has on the average 115 days per year with precipitation greater than 0.01 inches. If the mitigating effect of precipitation would be considered, the estimate could be reduced by approximately 32 percent.
- The net particulate emissions for the project, considering the truck fugitive dust estimate, will result in a slight net particulate increase. However, increase will be well below EPA's significant emission rates of 25 tpy (TSP) and 15 tpy (PM<sub>10</sub>).
10. Site preparation will involve the demolition and removal of a few existing structures. These structures include a fuel oil tank, minor maintenance structures, and railroad tracks. Some of these existing structures may contain asbestos materials. All demolition activities will be conducted in compliance with applicable requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAPS). In addition, required notification will be made to the Jacksonville Bio-Environmental Services Division prior to any demolition activities.
11. Because of the revision to the site arrangement that is described in Amendment 1 to the SCA, the area of the southern-most fuel oil tank and fuel oil contaminated soil is not part of the project site and will not be disturbed as part of this project. Therefore, disposal of the soil is not applicable to the project.
12. The DER has not promulgated Chapter 17-274 FAC.
13. As was stated in the SCA, there are two separate local ordinances that apply to noise levels from the project site. The Jacksonville Land Use Regulation (S.656.323(a)(8)) is defined in terms of noise levels at "...a point where the district adjoins..." other districts. In addition, the Jacksonville Environmental Protection Board's Noise Pollution Control Rule (Rule No. 4) provides noise level restrictions for the City of Jacksonville. This rule defines the maximum sound pressure levels allowed within other land areas due to a noise source, depending on the land area's classification. Section 5.7 of the SCA includes assessments of maximum expected noise levels at nearby class B, C, and D land areas, whether or not these land areas adjoin the project property.

RESPONSES

III. POLLUTION COMMENTS

- A. The monitoring methodology employed is acceptable. However, the use of 1979-1980 source data to determine existing emissions and whether there is a projected significant increase in emission is contrary to Section 17-2.500(2)(e)3, FAC, which states that "An increase or decrease in the actual emissions. . . is contemporaneous with a particular modification if it occurs within the period beginning five years prior to the date on which the owner or operator of the facility submits a complete application for a permit. . .". This issue must be resolved in order to accurately project environmental impacts.
- B. The applicant reflects in numerous sections of the report differing maximum percent sulfur content for the coal to be utilized. The sulfur content of the coal is a significant factor and the applicant should more clearly express what shall be used at the site.
- C. BESD review did not locate the molar ratio of limestone to sulfur to be utilized as part of the sulfur dioxide control mechanism. This information is necessary to evaluate if the design is typical, as compared to historical installations.

IV. WATER POLLUTION COMMENTS

- A. The discharge of potentially harmful levels of metals into receiving waters has not been adequately addressed in either the NPDES permit (Page 10-1) or the DER industrial waste permit (Page 10-18). In the NPDES permit, only iron and magnesium are included, this is an incomplete list of metals that may be discharged. The DER industrial waste permit table of wastewater characteristics (Page 54) refers to Table 5.2-8 of the SCA. This is a table of the quality of cooling tower blowdown, not wastewater effluent.
- The topic of metals pollution is addressed in several tables, Page 5-12 - 5-20; however, this is also inadequate. There is only one table (Table 5.2-7) Page 5-20 which characterizes the total projected combined effluent, four metals are described here. This list should be expanded. The list (Table 5.2-7) is inadequate, in that it includes levels for copper and mercury as less than values. Both of these reported values exceed limits for Class III waters, better information must be provided. The aluminum value also exceeds Class III limits. Therefore, insufficient data exists to review this project for environmental compliance.
- B. A mixing zone has been mentioned several places (Pages 5-15, 5-21, 5-28). Has a mixing zone been applied for or is there one already in effect? (BESD would recommend against a mixing zone if one is not in place now.)
- C. A measurement program is described beginning on Page 5-28. Groundwater monitoring parameters and methods are given in great detail; however, no mention of surface water is made. Effluent monitoring should be described in a manner comparable to ground water.

14. The use of 1979 and 1980 source data was discussed with and approved by DER for determining existing emissions. This use is consistent with FAC in that Section 17-2.500(2)(e)3 refers to "actual emissions" which are defined in 17-2.100(2)(a) to be "...representative of the normal operation of the source." This definition also states "The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the source."
15. A specific coal contract for the project has not been determined. To maintain flexibility in negotiating a coal contract, the maximum sulfur content for the various coals was used in establishing the worst case environmental impacts. Typically, sulfur content will be lower but the maximum percentage of 1.3 percent defines the expected upper limit for acceptable coals.
16. The design molar ratio of calcium to sulfur for the CFB boiler is 2.50. This value is included in Table 10.8-5 of the BACT analysis within the SCA.
17. The AES/Cedar Bay cooling tower blowdown and yard area runoff will be permitted separately from the Seminole Kraft facility discharge. The NPDES application requires data on all pollutants in Group A (Table 20-2 of NPDES application guidance) and data on the pollutants in Group B which are expected to be present in the discharge. Iron and magnesium are the only constituents from Group B which are expected to be present in the AES/Cedar Bay discharge. This discharge will have essentially the same analysis as the cooling tower blowdown since the contribution from the yard area runoff is relatively small compared to the cooling tower blowdown.
18. Low volume drains, storage area runoff, and sanitary system effluent from the AES/Cedar Bay plant will be routed to the inlet of the Seminole Kraft wastewater treatment facility. Table 5.2-7 is provided to demonstrate that wastewater from the AES/Cedar Bay facility will not have a significant impact on the operation of the Seminole Kraft wastewater treatment system. Effluent from this treatment facility is included under the Seminole Kraft discharge permit.
19. A thermal mixing zone and a mixing zone for iron have been requested for the AES/Cedar Bay discharge. Section 5.1.1 has been revised (Amendment 1 to SCA) to include a discussion on a thermal mixing zone and Section 5.2.2 has also been revised to include a discussion on a mixing zone for iron. Subsequently, DER has indicated that only a variance for iron will be necessary and that a mixing zone will not be required. A variance request in the format specified by 17-103.100 FAC will be included in Amendment 2 to the SCA.
20. The discussion of monitoring on page 5-28 deals with groundwater monitoring only. There is currently no plan to monitor surface water during plant operation. The monitoring program for the individual wastewater streams is described in Subsection 5.2.3. By monitoring the individual wastewater streams, monitoring at the point of discharge in the St. Johns River is not required.

The two wastewater discharges from the AES/Cedar Bay plant will be cooling tower blowdown and effluent from the site runoff retention pond. Based on the estimated analyses of the two wastewater streams, only iron is expected to exceed the Class III standards. A variance is being requested for iron.



RESPONSES

The statement is made that when Class III limits are in violation outside the "mixing zones", mitigating measures will be taken. A more detailed description of "mitigating measures" is required.

D. Impacts of the Coal Marine Terminal to water bodies begins on Page 6-10. Approximately 10,000 cubic yards will be dredged from a heavily industrialized area. The material to be removed is likely to be contaminated with numerous pollutants. Reentrainment of these sediments may pose serious risks to the aquatic biota of the river. The sediments should be thoroughly characterized, and disposed of accordingly, so as to pose as little threat to the aquatic environment as possible. Timing of the actual dredging operation should be timed in order to minimize impacts on aquatic life, colder winters months would be best.

A small wetlands area will be crossed by the coal conveyor. Measures describing how this area will be protected or damage mitigated should be included.

E. Affects of the railroad corridor on waters and wetlands are described on Page 6-16. It is noted that some wetland vegetation (black rush and cord grass) will be removed. This impact should be adequately restored and/or mitigated as soon as possible and not merely left to natural revegetation.

21. 21. Compliance with surface water quality criteria will be ensured through discharge monitoring as discussed in Section 5.2.3 of Amendment 1 to the SCA.
22. 22. A thorough study of the sediments existing in the area of the proposed Coal Marine Terminal will be completed before any dredging operations commence. The results of the study will determine the appropriate methods of removal and disposal of these sediments. Construction procedures will be designed to minimize any potential impacts on aquatic life in the area. All applicable requirements of local, state, and federal government agencies will be addressed. It is anticipated that the dredging and construction operations will be scheduled for the winter.
23. 23. Locations of the coal conveyor supports have not been finalized. The degree of impact upon the small tidal marsh will depend upon the proximity of the supports to the tidal marsh. Because the marsh is predominantly Juncus - Spartina, any vegetation which is removed from the marsh during construction of the coal conveyor will be replaced in kind by Juncus and Spartina rhizomes. These rhizomes will be collected from the marsh before or during construction, then replanted upon completion of construction. Juncus and Spartina are extremely hardy plants, and the replanted rhizomes should revegetate the disturbed areas within a year of planting.
24. 24. Construction of the proposed railroad corridor will not include filling in or otherwise disturbing the Juncus - Spartina marsh along the Broward River. The new siding construction will extend as far south as the southern end of the northern yard.
- The only marsh area close enough to the construction corridor to be potentially impacted is a 170-foot stretch within 750 feet of the corridor's southern limit. This area will be protected from encroachment by construction soil by the construction of a retaining fence at the top of the Broward River bank.
- Removal of wetland plants or alteration of their water regime will not occur in this area.

RESPONSES

F. The application has information that indicates a reduction in the final wastewater effluent flow from a current 63.5 mgd to 20.8 mgd with the Cedar Bay Project. One of the current major sources of wastewater is the once-through cooling water which will be eliminated and replaced by cooling tower blowdown from Cedar Bay that will include only 2% of the existing flow-rate of the cooling water waste stream.

The other major waste stream flow, i.e., treated wastewater from the existing Seminole Kraft Wastewater Treatment Facility (WWTF) will remain relatively the same (20 mgd current versus approximately 19.4 mgd after Cedar Bay) except that 12,000 gpd of this waste will be from coal, limestone and ash pile runoff.

AES admits to probable problems meeting the iron water quality standard consistently in the final effluent. AES has discussed a mixing zone and variance for iron, but have not applied for either. Both mercury and aluminum have been singled out in the current Seminole Kraft State industrial permit review as potential exceedances of State water quality standards in the final effluent. These results were determined by Seminole Kraft prior to and without considering mixing with 43.5 mgd of once-through cooling water. AES has not proposed monitoring for any of these metals in their application nor has there been any specific dilution calculations or modeling to show compliance with the water quality standards at the point of discharge. The applicant has not provided sufficient data from which to evaluate this project.

Further if approximately 42 mgd of dilution water (once-through cooling water) is eliminated and the current process wastewater stream flow is maintained, then the result is higher concentrations of pollutants in the final effluent to the St. Johns River. AES needs to re-evaluate what will be the concentration of heavy metals and other pollutants in the final effluent with the changes proposed by the Cedar Bay Project.

| Table 5.2-2 | Current  | Proposed  |
|-------------|--|---|
|             | 43.5 mgd<br>Once-Through<br>Cooling Water (SK) | 1.4 mgd<br>Cooling Tower<br>Blowdown (CB)         |
|             | 20 mgd<br>Process<br>Wastewater<br>SK WWTF     | 19.4 mgd<br>Process<br>Wastewater<br>SK & CB WWTF |
|             | 63.5 mg<br>St. Johns River                     | 20.8 mgd  |

G. AES needs to submit the calculations that were used to determine runoff flow from coal, limestone and ash storage areas. The wastewater characterization submitted for the coal and ash runoff ponds is based on "limited" analysis results. More specific data is required from current Florida operations on these wastewater sources. The type of coal and coal analysis should be matched with the wastewater analysis to be able to make the assumption that the wastewater analysis will be typical for all potential pollutant parameters from the Cedar Bay Project.

25. The discharge from the Seminole Kraft wastewater treatment facility is covered under existing NPDES permit FL0000400, which is currently under review for renewal. Any required demonstration of compliance, including the effects of elimination of the once-through cooling water, would be part of this permit renewal process. Monitoring and the compliance with water quality standards of this discharge is the responsibility of Seminole Kraft.

The SCA intends to demonstrate that wastewater from the AES/Cedar Bay facility will not have a significant impact on the operation of the Seminole Kraft wastewater treatment system and the overall Seminole Kraft discharge.

The need for a mixing zone for iron was identified in the original SCA submittal and a mixing zone request with more refined calculations has been included in Amendment 1 to the SCA. A variance for periods of high iron concentrations in the river was requested in Section 5.12 of the SCA. Subsequently, DER has indicated that only a variance for iron will be necessary. That is, a mixing zone for iron will not be required. A request for this variance in the form specified by 17-103.100 FAC will be included in Amendment 2 to the SCA. Monitoring for iron in the cooling tower blowdown was proposed in Section 5.2.3 of the SCA.

26. The analysis of the runoff from the coal, limestone, and ash storage areas will be affected by several factors such as source of coal, quantity of coal, and the duration and intensity of a rainfall event. Specific data from current operation is not possible since the source of coal has not been determined at this time. The analysis provided in Table 5.2-4 is based on literature values of operating data for Eastern Tennessee and Kentucky coal. See Attachment A.

26.

RESPONSE

H. Clarification of Table 5.2-7 is required. How was the analysis data obtained to determine the contribution of iron, aluminum, copper, mercury and silver from the Cedar Bay project to Seminole Kraft's WWTF? What calculations were performed to project the concentrations of the above metals in the industrial treatment plant effluent (process wastewater) and the combined effluent to the St. Johns River? Page 5-21 indicates that "Seminole Kraft Corporation recently performed a water quality analysis demonstrating that the existing discharge concentrations do not cause an exceedance of any water quality parameter in the St. Johns River". BESD presumes this analysis was performed for the State industrial permit application. The first question that AES needs to answer is what type of sample was collected and is it representative of the Seminole Kraft operation over a period of time that could be worst case conditions or includes a period of high production output. BESD and DER have determined in the State permit application review that the dilution assumptions from the calculations for at least aluminum and mercury were suspected to be in error. BESD has requested that Seminole Kraft perform mixing zone calculations for aluminum and mercury (see attached letter BESD to SK dated October 25, 1988) or reproduce the dilution calculations using the 43.5 mgd cooling water. The elimination of 43.5 mgd cooling water, however, will invalidate the dilution calculations again.

AES needs to address in more detail the Cedar Bay project wastewater system more in relation to the current Seminole Kraft system and the impacts on the water quality in the final effluent from elimination of the once-through cooling water. There is also a need for discussing the current SK Wastewater Treatment Facility and metal removal capabilities. A description of the major WWTF components, i.e., clarifier and aeration ponds, how the metals are removed and where they are ultimately disposed of is required. The chemical, biological and physical method of metal removal in the WWTF system needs to be addressed. For example, what oxidation of iron occurs in the aeration ponds and the removal efficiency from the water column.

I. The thermal impacts on receiving waters is sufficiently addressed by the DER (interoffice memorandum, Al Bishop to Richard Harvey, DER, dated November 29, 1988).

J. If mixing zones and/or variances are required, then application needs to be made by AES.

K. How is the water spray waste from pellet handling fugitive dust control (and other dust control) disposed of?

Will the lime mud and lime <sup>mud</sup> ~~mulch~~ be disposed of during removal and site cleanup? The lime water ponds appear to remain intact under the Cedar Bay site. Will there be any changes in the causticizing area where the lime water waste is generated and are there any plans to eliminate the lime water ponds? If the lime water ponds are not eliminated, then where will the buildup of lime solids be disposed of?

M. The application (Page 4-3) indicates that approximately 6,000 cubic yards of fuel-oil saturated soil will be removed and replaced with fill along with an existing fuel tank, paint shop, etc. What caused the fuel-oil to be there in the soil and has there been any preliminary contamination assessment performed?

27. Table 5.2-7 provides a simple mass balance based on the predicted quantities and qualities of the individual wastewater streams entering the Seminole Kraft wastewater treatment system. The projected quality of the industrial treatment plant effluent is based on the assumption that metals are not removed from the AES/Cedar Bay wastewater streams. This approach is considered conservative since partial removal of some metals will occur.

Table 5.2-7 is intended to demonstrate that the average overall effect of the AES/Cedar Bay wastewater on the Seminole Kraft wastewater treatment system will be insignificant. As previously indicated, the effluent from the Seminole Kraft wastewater treatment system will be permitted separately from the AES/Cedar Bay discharges and is the responsibility of Seminole Kraft.

28. Responses to the DER memorandum were provided by AES letter to DER of January 4, 1989. Follow-up DER comments and responses are being provided under separate cover.

29. A thermal mixing zone and a mixing zone and variance for iron have been requested in Amendment 1 to the SCA. Subsequently, DER has indicated that only a variance for iron will be necessary. That is, a mixing zone for iron will not be required. A request for this variance in the form specified by 17-103.100 FAC will be included in Amendment 2 to the SCA.

30. Spray water will be limited to the amount required for the control of fugitive dust. Runoff resulting from spray water will be minimal and will be routed to the Storage Area Runoff Pond. Quantities of this spray are so minimal that reuse is impractical.

31. Lime mud will be removed from the existing lime settling ponds and relocated to the north end of the applicant's property as discussed in the response to BESD comment I.G. (No. 7). Minor regrading of the lime settling pond area will be performed as necessary to prepare the ponds to serve as runoff ponds (the lined Storage Area Runoff Pond and the unlined Yard Area Runoff Pond). A new mud clarifier as shown on SCA Figure 3.2-1 (issued with Amendment 1) will be constructed to replace the lime settling ponds.

32. As we discussed in the response to Comment I.K. (No. 11) above, this area of Seminole Kraft property is not now intended to be part of this project. However, a preliminary Environmental Assessment was performed in the area and the second phase of this assessment is in progress. Seminole Kraft will follow-up by discussing the results of the subsequent assessment with applicable regulatory agencies.

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RESPONSE

- N. Sections 4.2.2 and 4.3.2 (Pages 4-5 and 4-6) seem to contradict each other with respect to measuring and monitoring during construction. AES needs to clarify these sections. Will there be any monitoring of the dewatering discharge (2,000 gpm) for 6 months from the shallow aquifer directly to the Broward River?
- O. Water mass balances for both proposed and the "current" Seminole Kraft operation is required to enable proper comparisons.
- P. What is the projected chloride concentration in the final effluent based on 4.6 cycles of concentration and mixing of process wastewater and yard area runoff?
- Q. The application (Page 5-15, Para 2) references a mixing zone and Page 5-21 references a mixing zone for iron. AES did not apply for a mixing zone in either the NPDES permit or the State permit so these statements require clarification.
- R. The application (Page 8-6) refers to chemical cleaning. To what extent will the chemical cleaning wastewater be treated by a contractor prior to discharging the waste into the Seminole Kraft WWTF? A wastewater characterization of the chemical cleaning waste is required with reasonable assurance that the current WWTF is capable of treating the waste.
- S. Is the current sanitary waste treatment system (Imhoff tank) capable of treating an increase of 4,000 gpd sewage.

33.  
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35.  
36.  
37.  
38.

33. Section 4.2.2 should read:  
During construction, water samples from the runoff collection pond discharge and from the Broward River will be collected and tested weekly and compared to the background data and water quality standards for Class III surface water. Should degradation of the Broward River water quality occur from construction water discharge, mitigating measures will be implemented at the runoff ponds.
- Section 4.3.2 should read:  
Background water quality was described in Subsection 2.3.2.1, Subsurface Hydrologic Data for the Site. New monitoring wells will be installed and ground water will be monitored as described in Subsection 5.3.5.
34. The Preface and Section 5.2 of the SCA describes the impacts of the overall water consumption and wastewater discharges. Internal streams in the Seminole Kraft plant have not been determined and, therefore, a water mass balance cannot be provided for the Seminole Kraft facility.
35. The chloride concentration of the AES/Cedar Bay cooling tower blowdown is estimated to average approximately 140 mg/l as Cl with a maximum of approximately 210 mg/l as Cl. The chloride concentration in the site runoff pond effluent will be negligible. Therefore, the overall chloride concentration in the AES/Cedar Bay wastewater discharge will be essentially the same as the cooling tower blowdown.
36. A thermal mixing zone and a mixing zone and variance for iron have been requested in Amendment 1 to the SCA. Subsequently, DSR has indicated that only a variance is required for iron and that a mixing zone for iron is not necessary.
37. The chemical cleaning contractor will be required to properly dispose of the chemical cleaning wastewater offsite. Treatment and discharge onsite is no longer being considered as a disposal option at this time.
38. The current sanitary wastewater treatment system does have the additional capacity necessary to treat the expected increase.

RESPONSE

T. Appendix C of the application includes what appears to be sample analysis results for two surface water sample locations (by ERM). AES needs to report the details of the sample, i.e., exact location, dates, sample type, purpose of samples, etc.

V. GROUNDWATER COMMENTS

- A. The data provided in Volume II, Pages 2-66 is insufficient for proper evaluation of the project. The applicant must provide for the wells into the Floridan Aquifer data that is current, or at least within the past few years. The applicant has provided data that is at least 10 years old. Also the applicant must submit one hydrograph showing water level changes over time for at least one well in the well field. Also the applicant must submit water quality trends for the subject well.
- B. The data presented in Volume II, Page 2-66 is confusing. The data shown to Figure 2.3-18 is not the information that the text describes.
- C. A benchmark is required, but not provided, with the contours shown in Volume II, Page 2-69. This defect must be corrected.
- D. The applicant has failed to provide, but should provide a groundwater monitoring program for the Floridan Aquifer to verify that significant impacts upon the water levels of adjacent private wells will not occur.
- E. The applicant has not provided sufficient data or analysis to prove the applicant's conclusion (Volume II, Pages 5-28) that no water quality deterioration shall occur, over time, due to poorer quality waters in the lower zones migrating into the Floridan Aquifer wells.
- F. The applicant has not, but must provide a detailing of the rock wells in the area. This data is necessary to develop a complete understanding of the water usage of the area.
- G. The applicant in Volume II, Page 2-87 has omitted listing and details for J-3701 and D-262. Correction must be made.

- 39. The two surface water samples, SW-1 and SW-2, listed in Appendix C were taken on July 9, 1988 from the Broward River and the lime ditch, respectively. The sample locations are shown on SCA Figure 2.3-24. Each sample was collected in a Teflon bottle and analyzed for EPA priority pollutant organics (EPA methods 624/625) and metals. The samples were also analyzed for total dissolved solids (TDS) and pH.
- 40. Additional ground water data has been requested from the Seminole Kraft Corporation, USGS, St. Johns River Water Management District, and the HRS Division. Data requested includes well depths and construction, aquifer penetrated, piezometric levels, water quality analysis results, and transmissivities for all wells within a 5-mile radius of the site. A hydrograph showing water level changes over time and water quality trends for at least one well is included at Attachment B.
- 41. Current SCA Figure 2.3-16 is to be omitted. All references to Figure 2.3-16 should be changed to Figure 2.3-17. All references to Figure 2.3-17 should be changed to Figure 2.3-18. All references to Figure 2.3-18 should be changed to 2.3.18a. New Figure 2.3-18a is included as Attachment C.
- 42. The benchmark used for vertical control, SRD BM F-325, is a disk located in a concrete walk at the northeast corner of the Heckscher Drive bridge over the Broward River. The benchmark elevation is 14.39 ft msl.
- 43. A ground water monitoring program will be developed for the Floridan aquifer to verify that significant impacts upon the water levels of adjacent private wells will not occur. The applicant has attempted to obtain additional information on all wells located within a 5-mile radius of the Cedar Bay site. Minimal information resulted from this effort. A program is being developed to provide the necessary data to perform ground water modeling.
- 44. Refer to Response No. 49.
- 45. Data has been requested from the USGS regarding well depths and aquifers penetrated within a 5-mile radius of the site. A detailing of the rock wells will be made once this data is analyzed in conjunction with information obtained from the program referred to in Response No. 49.
- 46. Details for well J-3701 could not be located.

The entry for well D-262 should read as follows.

| <u>Owner</u>             | <u>Use Type</u> | <u>Designation</u> | <u>Aquifer</u> |
|--------------------------|-----------------|--------------------|----------------|
| Seminole Kraft Paper Co. | Industrial      | D262               | Floridan       |

RESPONSE

- H. Some confusion exists in Volume II, Page 3-33, so the applicant should explain why a difference in make-up water exists between Figure 3.5-1, of 3,990,000 gpd, and the test of 4,147,200 gpd (a difference of 2,880 gpm).
- I. The applicant must provide greater details relative to the wastewater offsets (expressed in Volume II, Page 3-37), if a complete picture is to be achieved.
- J. The applicant must explain further why the groundwater impacts of this project are based upon only an analysis of one well (Well #7), and not some other well, or group of wells in the well field. Since normal operation of the well field includes rotating the load amongst the well, greater detail is necessary.
- K. Insufficient data exists to explain why wells adjacent to Well #9, i.e., such as J-2094, will not be impacted by the increased withdrawal rates. Details must be projected based upon proposed operating schedules for the well field. (Volume II, Pages 5-25)
- L. In Volume III, the data supplied is 11 to 13 years old, more recent water quality data from the Floridan Aquifer wells is required.

47.

48.

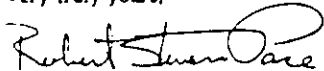
49.

- 47. The typical cooling tower makeup flow at 100 percent load will be 4,147,000 gpd (2,800 gpm) of which 3,990,000 gpd will be well water and 157,000 gpd will be boiler blowdown.
- 48. The offset in wastewater flows is described more fully in Section 5.2 of the SCA.
- 49. The currently available data are insufficient to perform detailed analyses. Additional data have been requested from Seminole Kraft Corporation, USGS, St. Johns River Water Management District, and the HRS Division. Data requested include well depths and construction, aquifer penetrated, piezometric levels, water quality analysis results, and transmissivities for all wells within a 5 mile radius of the site. Data received to date from Seminole Kraft and USGS are still insufficient to perform the requested detailed analyses. A program is being developed to provide the necessary data, including well testing at Seminole Kraft. The data will be used to model the groundwater at the site and the project's affect on the site wells and those in the surrounding area.

BESD has expended a tremendous amount of resources in the review of the subject application. The comments and questions presented by BESD must be resolved prior to any further action on the subject application if BESD and DER are to have reasonable assurances of compliance by the applicant. At this time one cannot project that compliance can be or is achieved.

Committed to assisting in, and being a party to review, and ultimate regulation of this source. DER's continued cooperation in ensuring sufficient quality and quantity of information is obtained from the applicant is appreciated.

Very truly yours,

  
 Robert S. Pace, P.E.  
 Assistant Division Chief

RSP/as

- cc: BESD Files
- Khurshid K. Mehta, P.E.
- se
- sewell, P.E.
- John K. Flowe, P.E.

Disc 4/1

Enclosure

DEPARTMENT OF HEALTH, WELFARE  
BIO-ENVIRONMENTAL SERVICES  
Environmental Services Division  
Air and Water Pollution Control



October 25, 1988

J. T. Frank Lee, General Manager  
Seminole Kraft Corporation  
9469 Eastport Road  
P.O. Box 26998  
Jacksonville, Florida 32216

**Subject:** Seminole Kraft, Jacksonville Facility, Application For Permit To Operate An Industrial Wastewater Treatment Facility (WWTF), Application No. IO16-150596, Letter And Supplemental Information From T. Frank Lee, Kraft to Bio-Environmental Services Division (BESD) Dated August 30, 1988.

Dear Mr. Lee:

BESD acknowledges receipt of the subject letter and supplemental information. The application supplemental information has been reviewed by BESD and DER and the application is believed to be complete with the exception of the request item number (1), concerning water quality impact analysis. (see BESD letter to Seminole Kraft dated July 7, 1988).

BESD does not agree with the dilution calculations for aluminum, unionized ammonia and mercury and does not have reasonable assurance that there will not be any degradation to the water quality from these parameters. This determination is based on the criteria used to determine whether the discharge will "cause or contribute" to water quality degradation that includes a 2% maximum degradation factor and a minimum 1:100 dilution ratio.

In order to provide the necessary assurance for issuing an operation permit, BESD requests that Seminole Kraft perform the proper mixing zone calculations for the immediate area around the discharge diffusers for aluminum, unionized ammonia and mercury. If the calculations indicate that the discharge will not degrade water quality, then an operation permit can be issued with technology based effluent limits. If the calculations indicate that a mixing zone will be required, then Seminole Kraft must apply for same.

BESD and DER are open to meet to discuss the water quality impact analysis with Seminole Kraft if deemed necessary. The administrative clock under Chapter 220, Florida Statutes (FS) has not been tolled so that BESD and DER must issue operation permit for the subject WWTF by November 27, 1988.




AREA CODE 904 / 630-3666 -- NIGHTS/WEEKENDS : 630-3665  
421 WEST CHURCH STREET, SUITE 412 / JACKSONVILLE, FLORIDA 32202-4111

... mixing zone calculations requested here are not received by November  
1988, then the Jacksonville Bio-Environmental Services Division and Florida  
Department of Environmental Regulation will initiate proceedings to deny the  
... per Chapter 403 Florida Statutes, Chapter 120 Florida Statutes, and  
Chapter 360 Ordinance Code.

USD and DER would consider accepting a waiver of the 90 day clock if Seminole  
raft requires more time to complete and submit the mixing zone calculations.  
copy of waiver form attached).

Very truly yours,



Dennis R. Wylie  
Associate Engineer

DW/add

Attachment

cc: Mr. Bob Leetch, DER, Jax.  
Mr. Bill Congdon, OGC, DER Tallahassee  
Ms. Robyn Dean, OGC, Jax.  
Ms. Kay Harris



Subparagraph 5.1.4.2. Salt Deposition.--This subparagraph contains an estimate of the average and maximum salt deposition rates from the cooling tower. Please describe the effect on plant and animal life of these levels of salt deposition.

12.

12. Drift from cooling towers may effect nearby vegetation primarily as salt deposition upon plants and soils. Effects vary greatly from site to site, because salt levels result from the interaction of many changing conditions such as relative humidity, prevailing winds, amount and frequency of rainfall, and source of cooling tower water. These factors must then interact with biological variables such as type of vegetation, salt tolerance levels of nearby plants, type of soil, and developmental stage of the plants. Little research has been performed regarding salt deposition and the information that is available is site-specific and should not necessarily be interpreted as universally consistent. Therefore, only generalizations can be made regarding overall trends of salt deposition effects upon vegetation. The following statements are generalizations regarding potential impacts upon nearby vegetation due to drift from AES Cedar Bay's ground water mechanical draft cooling towers:

1. It is assumed that wintertime icing of vegetation due to salt-induced fogging will not occur at the Cedar Bay facility, because the climate is too warm for ice to form.
2. It is likely that most of the native vegetation growing in the project area already has some tolerance to sodium chloride because of the area's proximity to brackish and salt water sources. Plants growing in the area are already adapted to salt from sea spray and mist from the brackish water of the St. Johns and Broward rivers.
3. It is likely that the sandy composition of native soils combined with high annual precipitation ratios will allow rapid leaching of salts from the soil, rather than accumulation.
4. As shown in Figure 5.1-1 of the AES Cedar Bay SCA Amendment 1, the heaviest salt deposition will occur onsite and over the Broward River, in a 5/8 mile radius around the cooling towers. There is also a leeward corridor extending an additional 3/4 mile eastward. The maximum offsite deposition rate - 1.5 kg/km<sup>2</sup>/month - is low. A generalized deposition rate of 400 kg/km<sup>2</sup>/month has been calculated as the threshold salt deposition rate above which visible damage to vegetation begins to occur. While this number is an approximation based upon existing research and should be used only as a general rule of thumb, it is much higher than the offsite deposition rates predicted for the proposed project. This suggests that, if project area vegetation respond to salt deposition in a manner comparable to existing data, effects of salt deposition upon vegetation near the proposed project will be minimal.

ATTACHMENT K

TABLE 1 COMPARISON OF COOLING TOWER ALTERNATIVES

| Parameter  | Type of Cooling Tower |         |               |                  |
|--|-----------------------|---------|---------------|------------------|
|  | Dry                   | Wet-Dry | Natural Draft | Mechanical Draft |
| Capital Cost, \$1000 <sup>a</sup>                | 19,000                | 16,925  | 4,200         | 2,500            |
| Annual Operating Cost <sup>b</sup>               | 20                    | 9.6     | Base          | 0.12             |
| Height, feet                                     | 50                    | 55      | 350           | 32               |
| Water Use, 1000 gpd <sup>c</sup>                 | 324 <sup>d</sup>      | 971     | 3,236         | 3,236            |
| Blowdown Volume, 1000 gpd <sup>c</sup><br>(Flow) | 91 <sup>d</sup>       | 273     | 911           | 911              |
| Make-up Volume, 1000 gpd <sup>c</sup><br>(Flow)  | 415 <sup>d</sup>      | 1,244   | 4,147         | 4,147            |

<sup>a</sup>Includes all Balance of Plant costs as well as Cooling Tower Costs.

<sup>b</sup>Differential Net Power Requirements, MW.

<sup>c</sup>Based on 100 percent load.

<sup>d</sup>Water use attributable to separate wet cooling tower required for auxiliary cooling requirements.