HOPPING BOYD GREEN & SAMS

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET

POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(904) 222-7500

FAX (904) 224-8551

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
THOMAS M. DeROSE
WILLIAM H. GREEN
WADE L. HOPPING
FRANK E. MATTHEWS
RICHARD D. MELSON
WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

C. ALLEN CULP, JR.
RALPH A. DeMEO
JAMES C. GOODLETT
RICHARD W. MOORE
ANGELA R. MORRISON
MARIBEL N. NICHOLSON
LAURA BOYD PEARCE
GARY V. PERKO
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
JULIE B. ROME
KRISTIN C. RUBIN
CECELIA C. SMITH

OF COUNSEL
W. ROBERT FOKES

May 28, 1992

Mr. Clair Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

Re: Indiantown Cogeneration, L.P.
Indiantown Cogeneration Project
PSD-FL-168, Martin County

Dear Mr. Fancy,

On behalf of Indiantown Cogeneration, L.P., I am writing to request that the Department of Environmental Regulation (Department) make certain minor amendments to the above-referenced PSD permit. The Department issued the permit on March 26, 1992. Subsequent review of the permit and of the project's design have identified several items in the permit that require change.

During recent final design efforts, ICL has identified a need to provide greater reliability in the operation of the facility's auxiliary boiler. In the original design, a single auxiliary boiler would be used during plant startup and as a backup source of steam to the adjacent citrus plant during those periods when the main boiler was not operating. ICL now proposes that it be permitted to pursue an option to split the auxiliary boiler into two boilers, vented through a common stack, with a total combined capacity equal to the original boiler.

All emission limits and other requirements of the PSD permit for the single auxiliary boiler would be complied with, the only difference being that two 50% capacity boilers may be used, instead of one. The attached analyses show that there are no changes in air quality impacts or the BACT analysis for the auxiliary boiler as a result of this

change. A separate request to modify the site certification under the Power Plant Siting Act to allow use of two 50% capacity boilers has been previously filed with the Department. I understand the Department concluded the changes would not impact air quality, based on the review of the certification modifications. ICL therefore requests that the PSD permit be amended to reflect that two auxiliary boilers may be used instead of one, subject to the limits already established in the facility's PSD permit. The proposed amendments to the PSD permit to address this revision are attached under the heading "Auxiliary Boiler."

ICL also requests that Specific Condition 2 on page 5 be amended to reflect that propane is permitted to be fired in the main and auxiliary boilers. Propane is referenced elsewhere in the permit as a boiler fuel. Propane should therefore be listed in Specific Condition 2 for clarity. A proposed amendment to that effect is attached.

ICL requests a correction to the PSD permit emission limits for lead. Specific Condition 5 on page 6 of the PSD permit establishes emissions limits for several pollutants, including lead. The hourly and annual lead emission limits and the basis for their calculation as set forth in that condition vary from that requested in the PSD permit application and the limits established in the conditions of certification in the separate Site Certification Order. The difference in these values appears to result from rounding down of the requested basis of 0.0000187 to 0.00001 in calculating the emission rates for lead in the PSD permit. ICL is requesting that the Department amend the PSD permit to reflect the requested emission rates. The amended Specific Condition 5 is attached.

Your attention to this request is appreciated. Please do not hesitate to call me if you or members of your staff have any requests regarding this request.

Sincerely

Douglas S. Roberts

Encls.
cc: Preston Lewis
J. Rogers
B. Daiker
O. Harper, EPA
C. Shaver, NPS

Indiantown Cogeneration Project
PSD-FL-168
Amendments

1. Auxiliary Boiler

Page 1, ¶3, amend as follows:

The proposed facility includes one main boiler and one steam generator, and one or two auxiliary boilers operated during lightoff and startup of the main boiler or if the main boiler is down and process steam is required for Caulkins Citrus Processing. The primary source of air emissions will be the main boiler, firing coal. Secondary air emission sources include the auxiliary boilers firing natural gas, propane or No. 2 fuel oil, and the material handling systems. The operation of these units will result in significant net emissions increases of regulated air pollutants over the current emissions levels and thus, is subject to review by the Department under the prevention of significant deterioration (PSD) regulations (Rule 17-2.500, Florida Administrative Code).

Page 5, Specific Conditions 3 and 4, amend as follows:

3. The maximum heat input to the PC boiler shall not exceed 3422 MMBtu/hr while firing coal. The one or two auxiliary boilers shall not exceed a combined total of 342 MMBtu/hr while firing No. 2 fuel oil and a combined total of 358 MMBtu/hr firing natural gas or propane.

4. The PC boiler shall be allowed to operate continuously (8760 hrs/yr). The auxiliary boiler or boilers shall operate a maximum of 5000 hrs at the combined total heat input rates with up to 1000 hrs/yr on No. 2 fuel oil with 0.05% sulfur, by weight, and the balance on natural gas or propane. Fuel consumption must be continuously measured and recorded by fuel type (coal, natural gas or No. 2 fuel oil) for both the PC boiler and auxiliary boilers.

Page 7, Specific Condition 9, amend as follows:

9. The auxiliary boiler or auxiliary boilers rated at a combined total of up to 358 MMBtu/hr (Natural gas and propane) and 342 MMBtu/hr (No. 2 fuel oil), shall be limited to a maximum of 5000 hrs/year at the combined total heat input rates with up to 1000 hrs /yr firing No. 2 fuel oil with 0.05% sulfur, by weight, and the balance firing natural gas or propane. The maximum total annual emissions from the auxiliary boiler or boilers will be as follows when firing No. 2 fuel oil for 1000 hrs/yr:

2. Propane

Page 5, Specific Condition 2, amend to read:

2. Only coal, natural gas, propane or No. 2 fuel oil shall be fired in the pulverized coal (PC) boiler and auxiliary boilers.

3. Emission Limits for Lead:

Page 6, Specific Condition 5 amend to read:

5. Based on a permitted heat input rate of 3422 MMBtu/hr, the stack emissions from the main boiler shall not exceed any of the following limitations:

Pollutant	Basis lb/MBtu	Emission lb/hr	Limitation TPY
SO_2	0.170	582*	2549
NO_x	0.170	582*	2549
PM	0.018	61.6	270
PM_{10}	0.018	61.6	270
CO	0.110	376*	1649
VOC	0.0036	12.32	54.0
H_2SO_4	0.0004	1.45	6.51
Beryllium	0.0000027	0.0094	0.041
Mercury	0.0000114	0.039	0.17
~~Lead~~	~~0.00001~~	~~0.034~~	~~0.15~~
Lead	0.0000187	0.064	0.280
Fluorides	0.0015	5.08	22.3
Arsenic	0.000051	0.18	0.77

* 24 hour daily block average (midnight to midnight)

AIR QUALITY IMPACT INVESTIGATION IN SUPPORT OF THE INDIANTOWN COGENERATION PROJECT DESIGN AND SITE LAYOUT MODIFICATIONS

Proposed Action:

Substitution of Two 50% Auxiliary Boilers for the Original Single Auxiliary Boiler

In order to insure reliability to the steam host, ICL proposes to replace the single auxiliary boiler with two boilers, each one-half the size of the original auxiliary boiler. This substitution will provide a minimum of 50% of the normal steam supply in the event that one of the reduced size boilers is out of service.

Findings:

The modeling methodology employed in the original PSD permit application was used to determine whether air quality impacts caused by the proposed substitution will exceed those presented in the original analysis. SO_2 impacts associated with the operation of the two auxiliary boilers were investigated; one stack for two boilers at full load (i.e., 100% capacity) and one stack for one boiler at full load (i.e., 50 % capacity). Impacts associated with air pollutants, other than SO_2, were estimated by taking the ratio of the specified pollutant emission rate to the SO_2 emission rate.

The GEP stack height for the ICL facility, reported in the original PSD permit application, was calculated at 500 feet. The main boiler stack will be constructed to 495 feet. For the substitution discussed here, the auxiliary boiler stack will be increased from 90 feet to 200 feet. Modeling results based on this substitution, and reflecting the increased auxiliary boiler stack height are summarized in Table 1. Results indicate that the full load case has higher ground-level concentrations than those estimated for the 50% load scenario, over all averaging time periods. The maximum impact areas are within 300 meters of the main boiler stack due to plume downwash conditions created by the boiler building. Modeling results also show that the maximum combined impacts (i.e., main boiler plus auxiliary boiler(s)) are less than the impacts reported in the original PSD application. Similar results are expected for the other air pollutants emitted.

In summary, the substitution of the original auxiliary boiler with two boilers, each one-half the size of the original auxiliary boiler, will result in impacts slightly lower than those presented in the original PSD application. No additional adverse effects to air quality, due to the proposed substitution, are expected.

Proposed Action:

Increased Size of the Coal Storage Building

The original coal storage building was designed to accommodate a seven-day supply of coal. Based on discussions with the coal supplier, ICL has determined that additional coal will be required to be stored on site in order to insure an adequate fuel supply to the facility. ICL has proposed to increase the length of the coal storage building by an additional 150 feet, thereby adding 8000 tons of storage capacity.

Findings:

The increase in length of the coal storage building by 150 feet will not affect either the GEP stack height determination nor the plume downwash calculations, because the controlling structure, which dictates the occurrence and extent of plume downwash, is still the boiler building, as reported in the original PSD application.

In spite of the increase in capacity of the active coal storage pile from 24,000 to 32,000 tons, the daily coal consumption by the ICL facility remains unchanged. Due to the fact that there will be no increase in the number of railroad cars per train load and that the load capacity per car remains unchanged, the number of hours of coal unloading activities per day at the ICL facility is expected to be the same as that reported in the original PSD application. In the original PSD application, the coal unloading activities were very conservatively assumed to occur 4 hours per day on every day of the year. Therefore, no additional fugitive dust impacts associated with this proposed action are expected.

Proposed Action:

Increase in Size of the Ash Storage Silo

In order to accommodate changes to the actual operating practices defined in discussions with the railroad and coal supplier, additional storage capacity is required to provide up to nine days of ash storage on site. This will be accomplished by increasing the ash storage silo diameter from 50 feet to 55 feet and the silo height from 120 feet to 185 feet.

Findings:

The increase of the silo building dimensions will not increase ash emissions at any of the transfer points due to the fact that the daily coal consumption by the ICL facility remains unchanged.

In dispersion modeling, fugitive dust emissions are assumed to be released at ambient temperature with virtually no exit velocity. Therefore, fugitive dust concentration estimates are made with the assumption that there is very little momentum or buoyancy plume rise. By increasing the silo height from 120 feet to 185 feet the fugitive dust emission release will be at a greater height, thereby increasing downwind distance and consequently dispersion of the fugitive dust plume prior to its impact with the ground. Therefore, the fugitive dust concentrations at ground-level receptors, under the same ambient conditions, will be less with an increased release height.

In summary, fugitive dust concentrations around the ICL facility will be slightly less if the release height from the ash storage silo is increased from 120 feet to 185 feet. Therefore, the proposed action will not pose any adverse effects to air quality.

TABLE 1. ICL STACK SOURCES AT MAXIMUM IMPACT LOCATIONS
(AUXILIARY BOILERS AT 100 % LOAD)

Pollutant	Averaging Period	Aux. Boilers	New Total	Original Total
SO_2	3-Hour	17.2 (0.30,050)	23.2 (2.20,310)	24.7 (0.25,100)
	24-Hour	7.5 (0.25,330)	7.5 (0.25,330)	11.6 (0.25,110)
	Annual	0.94 (0.25,340)	0.94 (0.25,340)	1.15 (0.25,100)

(AUXILIARY BOILER AT 50 % LOAD)

Pollutant	Averaging Period	Aux. Boiler	New Total	Original Total
SO_2	3-Hour	6.1 (0.30,030)	22.7 (2.2,310)	24.7 (0.25,100)
	24-Hour	3.9 (0.25,350)	6.0 (3.2,310)	11.6 (0.25,110)
	Annual	0.62 (0.25,340)	0.64 (3.0,310)	1.15 (0.25,100)

Note: Concentrations are in $\mu g/m^3$.
Distance and direction shown are in km and degree, respectively, relative to the ICL main stack in parenthesis.
Total = Main Boiler + Auxiliary Boiler(s)

ENSR
ENSR Consulting and Engineering

MEMORANDUM

TO:	Jean Hopkins/US Generating Co.	**DATE:**	April 17, 1992
FROM:	Steve Jalinek	**FILE:**	5402-008-600
RE:	Indiantown Aux Boiler Design Change - Effect on BACT Conclusions	**CC:**	

Per your request, I have evaluated how changing the auxiliary boiler from a single 100% unit to a set of two 50% capacity units would affect the Indiantown PSD Best Available Control Technology (BACT) Analysis. As we discussed, it's my opinion that given certain design considerations, the BACT conclusions would remain the same if this change were made. This memo discusses these conclusions and the design parameters which must be considered in making the change.

I understand that the auxiliary boiler, originally designed to fire either natural gas, propane, or distillate fuel oil at an output of approximately 358 MMBtu/hr with a total maximum operating schedule of 8,000 hours/yr and a maximum of 1,000 hours/yr on oil, is being redesigned. The new configuration, requested by Caulkins Citrus Processing, will consist of two seperate combustion units, each sized for a maximum heat rate of approximately 179 MMBtu/hr and the same operating schedule as proposed in the original application. Both units will exhaust through a common stack.

<u>NO_x Control</u>

The BACT for the original design evaluated the technical and economic feasibility of selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), flue gas recirculation (FGR), and low NO_x burners. These alternative controls are all technically feasible for boilers in either size range (360 or 180 MMBtu/hr). However, SCR, SNCR and FGR were all rejected as BACT for economic reasons, while low NO_x burners with a NO_x emission rate of 0.2 lb/MMBtu was concluded to represent BACT. The DER concurred with this conclusion.

The redesign calls for both boilers, which generally will operate at the same time, to exhaust through a common stack. In this configuration, a common SCR system would be technically feasible and would have essentially identical economic impacts as in the previous design since an equivalent amount of catalyst would be required in either case. However, separate emission

control equipment for each boiler would be required for the SNCR, FGR and low NO_x burner alternatives. This would result in slightly higher capital costs for these alternatives for the new design when compared to the costs for the original design. The controlled emissions, however, would remain the same, and thus the economic impact of each alternative would increase. Since the economic impacts for all of these alternatives were concluded to be unreasonable with the original design, the change to two boilers would not alter this conclusion.

Low NO_x burners with a maximum emission rate of 0.2 lb/MMBtu thus would likely still be concluded to represent BACT for the reconfigured auxiliary boiler equipment.

SO_2 and Acid Gas Control

The BACT for the original auxiliary boiler configuration evaluated flue gas desulfurization and fuel sulfur limitations and concluded that limiting the maximum fuel sulfur content to 0.05% was representative of BACT based on unreasonable economic impacts for flue gas desulfurization (FGD). The DER concurred with this conclusion.

As with SCR for NO_x control, the use of two 50% boilers with a common stack would allow the use of a common FGD system. Thus an FGD system for this configuration would have similar capital costs to one designed for a single 100% boiler since the exhaust flows for the two systems would be approximately equal. The emission rates of SO_2 and acid gases would be virtually the same in either case, consequently the cost effectiveness would remain the same and the BACT conclusions would not change. BACT could still be concluded to be represented by low sulfur fuel with a maximum emission rate of 0.052 lb/MMBtu.

CO and VOC Control

The original BACT concluded that combustion controls represented BACT for control of VOC and CO from the auxiliary boiler since the alternative which is generally considered the most stringent, catalytic oxidation, was concluded to be infeasible for an oil-fired source. Oil firing would still be conducted with the new design at the same operating schedule as the original design, thus the technical infeasibility of catalytic oxidation remains unchanged. Were oil firing to be eliminated as an alternative fuel, then the technical arguments against catalytic oxidation would no longer be valid, and the BACT conclusions might change.

However, at this time there is no plan to eliminate fuel oil firing and thus the BACT conclusion of combustion controls for control of CO and VOC remains valid.

Particulate Matter Control

BACT for PM in the original BACT was concluded to be represented by the use of high quality, low ash fuels since fabric filters are infeasible on oil-fired sources and electrostatic precipitators were concluded to be cost ineffective. As discussed, the use of two 50% units firing simultaneously and exiting from a common stack results in a comparable exhaust rate than a single 100% unit. An ESP designed for either configuration would be approximately identical in size and cost, and control the same amount of particulate matter. As a result, the cost effectiveness of this alternative would be identical, and unrepresentative of BACT, for either configuration.

Since neither the fuel mix nor the exhaust rate is changing, the BACT conclusion of 0.02 lb/MMBtu achieved firing low ash fuels, would be concluded to represent BACT for the modified configuration.