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By Electronic Mail

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Re: Draft Air Construction Permit No. 0050014-024-AC for Lansing Smith Units 1 and 2

Dear Mr. Koerner and Ms. Pell:

Thank you for accepting these comments on behalf of the Sierra Club, Earthjustice, and their hundreds of members in Florida who will be substantially affected by this draft permit for construction and a test burn program at Gulf Power's Lansing Smith power plant. The air construction permit does not assure compliance with state law, and should not be issued in its current form.

Unfortunately, the Lansing Smith Test Burn of Emissions Control Sorbent Additives permit cannot assure compliance with Florida's Prevention of Significant Deterioration (PSD) program, pursuant to Rule 62-212.400, F.A.C., or the general preconstruction review permitting requirements of Rule 62-212.300, F.A.C. This permit, therefore, may not properly issue. The Florida Department of Environmental Protection (hereinafter "the Department" or "DEP"), may issue a permit only after it receives reasonable assurance that the installation will not cause pollution in violation of any of the provisions of Chapter 403, F.S., or the rules promulgated thereunder. F.A.C. 62-4.030; *see also* 62-4.070(1) (same); 62-212.300(3)(a)(2) (requiring applicant to demonstrate that they will comply with all relevant law). This permit violates this requirement. For the reasons explained in the attached analysis, the permit does not reasonably assure compliance with the general preconstruction review permitting requirements of Rule 62-212.300, F.A.C., or Florida's PSD program under Rule 62-212.400, F.A.C.

I. Preconstruction Requirements

This is an air construction permit. *See* Draft Air Permit No. 0050014-024-AC at 1. As such, the General Preconstruction Review Requirements of Rule 62-212.300, F.A.C. are

applicable (“This rule shall apply to the proposed . . . modification of all emissions units and facilities for which an air construction permit is required.”). As specified in the rule,

Each applicant for an air construction permit for an emissions unit subject to this rule shall provide . . .

1. The nature and amounts of emissions from the emissions unit, including baseline actual emissions and projected actual emissions . . .
2. The location, design, construction, and operation of the emissions unit to the extent necessary to allow the Department to determine whether construction or modification of the emissions unit would result in violations of any applicable provisions . . . or Department air pollution rules, or whether the construction or modification would interfere with the attainment and maintenance of any state or national ambient air quality standard.

62-212.300(3)(a), F.A.C.

For any air construction permit, the “Department shall determine whether a major modification will occur for each PSD pollutant.” 62-212.400(2)(a), F.A.C. For modifications at existing emissions units, the Department shall apply the “Baseline Actual-to-Projected Actual Applicability Test.” 62-212.400(2)(a)1., F.A.C. To determine if the PSD program applies, the Department must determine whether there will be a “significant emissions increase of a PSD pollutant,” which occurs if the difference “between the projected actual emissions and the baseline actual emissions equals or exceeds the significant emissions rate for that pollutant.” 62-212.400(2)(a)1., F.A.C.

II. Gulf Power and the Department Failed to Comply with the Applicable Preconstruction Requirements

As stated in the document entitled “Lansing Smith Electric Generating Plant Request for Project Extension Air Permit No. 0050014-023-AC,” attached as Attachment A, particulate matter (PM) emissions significantly increased during some of the previously authorized testing as part of Air Permit No. 0050014-023-AC, a permit which limited the application rate of ClearChem, Hydrated Lime, Activated Carbon, and Trona. Those application limits have been removed in Air Permit No. 0050014-024-AC. *See* Draft Air Permit No. 0050014-024-AC at 8.

The significance threshold at which the PSD requirements will become applicable is 25 tons per year for PM overall. 62-210.200(282)(a)1.d., F.A.C. However, the PSD significance thresholds for PM measuring 10 microns or less (PM₁₀) and PM measuring 2.5 microns or less (PM_{2.5}) are lower than the overall PM threshold, at 15 tons per year and 10 tons per year, respectively. 62-210.200(282)(a)1., F.A.C.

Gulf Power has provided no projection of emissions (or baseline of emissions) for this air construction permit, as required under the rules. However, assuming that the Department is still

relying on the application Gulf Power Made for Air Permit No. 0050014-023-AC, the analysis Gulf Power did falls far short of compliance with Florida law and the Department's rules. Instead of providing reasonable assurances regarding the validity of the projected actual emissions, as is clearly required by rule 62-212.300(3)(a), F.A.C., Gulf Power states that since 300 tons of sorbent material is to be utilized in the study, and the existing hot and cold side electrostatic precipitators (ESPs) have a removal efficiency of 98%, the maximum emissions increase will be 6 tons of PM, likely to be offset by some possible use of lower-ash coal. Smith Sorbent Injection Test Burn Project Description, attached to EPSAP application 3549-1. The Department previously had simply adopted this analysis, stating that "According to the applicant, the project is expected to increase PM emissions . . . by less than 6 tons/year." Technical Evaluation & Preliminary Determination, Project No. 0050014-023-AC at 7. Therefore, "the project does not result in a significant increase in emissions." *Id.* at 8. The Department repeats this analysis for this permit, stating that "the project is expected to increase PM emissions . . . by far less than 6 tons/year. The test burn program Gulf Power previously conducted on units 1 and 2 (permit No. 0050014-023-AC) using the same emission control sorbents saw a slight increase of PM emissions of 1.5 tons." Technical Evaluation & Preliminary Determination, Project No. 0050014-024-AC, at 7. That 1.5 tons of PM emissions increase appears to be in reference to the Cold-Side ESP Runs with Carbon Injection for Hg Control that took place over three days. Attachment A at 3. This draft permit authorizes Gulf Power to increase the injection rate of these sorbents (by removing any injection limit), and to do so for ninety days. Draft Air Permit No. 0050014-024-AC at 7-8. Just three days of testing, with a maximum of 6 hours testing per day, for a total of about 12 hours, apparently saw an increase in PM emissions of 1.5 tons.¹ Extrapolated out, the PM emissions increases would easily exceed the PSD significance threshold by many factors should the same rate of PM increase occur over a ninety day period. Yet, neither Gulf Power nor the Department offer any limits to prevent the PSD significance thresholds from being exceeded for PM, nor offer any analysis as to what the projected emissions will actually be.

Far from doing the required Baseline Actual-to-Projected Actual Applicability test to determine if there was going to be a significant increase in PM emissions, Gulf Power and the Department do no analysis at all of potential emissions, other than to say that since PM only increased 1.5 tons during 12 hours of testing, significance thresholds (10 tons per year for PM_{2.5}) will not be reached over ninety days of testing. This reasoning is flawed for several reasons, discussed below, and does not meet the requirements of 62-212.300 or 62-212.400, F.A.C. To comply with the rules, Gulf Power *must* provide reasonable assurances that this air construction project will not cause an increase in pollutants beyond PSD levels. Gulf Power and the Department are not permitted under the rules to avoid an analysis showing such an increase because to do so would be inconvenient and would force Gulf Power to comply with PSD requirements.

¹ Although it is unclear from the face of the analysis whether all 1.5 tons of PM are an increase over the baseline, a comparison of emission rates from the testing with the baseline emission rates presented in Attachment A at 3 show a significant increase (more than doubling) of PM emissions. The Department apparently adopts this 1.5 tons of PM emissions as an emissions increase. *See* Technical Evaluation & Preliminary Determination, Project No. 0050014-024-AC, at 7 ("The test burn program . . . saw a slight increase of PM emissions of 1.5 tons.").

The Department and Gulf Power's analysis (or lack thereof) also fails to resolve whether the PM emissions from the unlimited tons of sorbents used in its proposed testing program will qualify as PM₁₀ or PM_{2.5}, or whether the addition of those sorbents or different kind of coal will lead to an increase in PM₁₀ or PM_{2.5} emissions, or to provide any compelling analysis as to PM emissions overall. It is clear from Gulf Power's application that PM emissions have the potential to exceed relevant PSD thresholds for PM, meaning that the Department cannot assure compliance with its regulations or the Clean Air Act without a more complete application from Gulf Power. Under Florida law, Lansing Smith must provide a thorough analysis of its potential emissions, sufficient to provide the Department and the public reasonable assurance that PSD significance thresholds will not be violated.

Assuming the Department's "far less than 6 tons/year" statement of possible increase in PM emissions, Technical Evaluation and Preliminary Determination for Air Permit No. 0050014-024-AC at 7, is from the application for Air Permit No. 0050014-023-AC, this statement lacks as much basis, or even more basis, than when it was originally made as demonstrated by the above analysis. However, since the Department appears to be relying on the analysis from the original application, we will restate why that analysis was severely flawed. As Gulf Power's original application explains, the electrostatic precipitator (ESP) efficiency at Lansing Smith when combining the hot and cold ESPs is 95.0-99.9%. EPSAP application 3549-1 (under "Emissions Unit Control Equipment"). This range in potential efficiency belies Gulf Power's claim, in calculating its potential PM emissions, that 98% removal is "a conservative PM removal efficiency." Smith Sorbent Injection Test Burn Project Description, attached to EPSAP application 3546-1. If, for example, the 95.0% efficiency were to apply during the tests the increase in PM emissions from 300 tons of sorbent (a limit now removed under the proposed permit) would then be 15 tons. If this increase was predominantly comprised of PM_{2.5} or PM₁₀, than the significance threshold for PSD applicability will be exceeded. Gulf has not demonstrated that its emissions will not trigger the PM_{2.5} or PM₁₀ PSD thresholds; indeed, it has not even attempted to separately calculate the relative fractions of these PM components in its emissions. Because the PM_{2.5} or PM₁₀ PSD thresholds could be exceeded at the control efficiency of the Lansing Smith ESP, Gulf has not provided reasonable assurances that it will comply with applicable law.

Further, as we discuss below, the sorbent changes which Gulf Power proposes to test are known to decrease ESP efficiency. These technologies therefore increase the risk that the ESP will operate below the 98% efficiency which Gulf Power uses as the sole basis for its original PSD applicability discussion (of which it does not discuss at all for the draft air permit). They thus increase the risk that the PM_{2.5} or PM₁₀ PSD thresholds will be breached. In fact, if ESP efficiency drops sufficiently, as seems to be indicated by the testing actually done, even the generic PM PSD threshold of 25 tons per year may be breached.

Gulf Power provides no direct assurances – much less substantial evidence – to the contrary. Instead, it assures the Department that whatever PM emissions increase there will be will at least be partially offset by the use of Colombian coal, but there is no analysis anywhere in the EPSAP application or project description to substantiate this claim, and no analysis as to the particle size of the PM that the Colombian coal will generate as a substitute for the coal Gulf Power currently burns at Lansing Smith. Florida Rules 62-212.300 and 62-212.400, F.A.C.,

require more, both from Gulf Power and from the Department. This analysis assumes, of course, that the ESP can even maintain its current efficiency, which, as pointed out before, is very doubtful, and for which, of course, Gulf Power has provided absolutely no analysis.

Moreover, Gulf has provided no analysis as to whether the ESP will be able to achieve 95% efficiency with the new processes being proposed in the test burn, which include the potential addition of ClearChem, Hydrated Lime, Trona, powder activated carbon, as well the use of Colombian coal. Each of these sorbents can reduce ESP efficiency, and as was demonstrated from the 12 hours of testing with carbon injection for Hg control, our original analysis appears to be substantiated considering the more than doubling of PM rates as measured per lb/mmbtu over other baseline testing. Attachment A at 3.

Powder activated carbon has the potential to have an “impact on the bulk properties of the ash collected on the [ESP] plates. A change in the overall resistivity of the material could result in a significant degradation of the performance of the ESP.” Michael Durha, et. al., Full Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of ESPs, at 10 (attached as Attachment B). Another concern with powder activated carbon is “whether the easily reentrainable carbon can be effectively captured in the ESP.” *Id.* Considering how much PM emissions increases were seen, *see* Attachment A at 3, it would seem that ESP efficiency was significantly impaired.

ClearChem seems to be relatively new, and the effects of it have not been studied. Gulf Power provides no analysis as to what the effect of adding ClearChem at Lansing Smith will be on the ESP. Even in the corporate presentation on ClearChem, they admit that there will be some “tube deposits and impact on ESP.” *See* Attachment C at 4. Despite the conclusion of the maker of ClearChem that ClearChem will have some impact on the efficiency of ESPs, *see* Attachment B at 4, there is no analysis anywhere, by either Gulf Power or the Department, as to what that impact will be and whether that will result in a significant increase in emissions for a PSD pollutant.

Adding Hydrated Lime can also significantly decrease the efficiency of ESPs by effecting fly ash resistivity. Robert Mastropietro, Impacts of Hydrated Lime Injection on Electrostatic Precipitator Performance, ASTM Symposium on Lime Utilization, June 28, 2012 (attached as Attachment D). The sulfur content of the coal, injection rate, temperature, and flue gas moisture content all impact ESP efficiency when using Hydrated Lime. *Id.* at 9.

Again, there was absolutely no analysis by the Department or Gulf Power as to whether ESP efficiency will be impacted by the addition of these sorbents, even though the evidence now points to a strong impact, at least from the activated carbon. The rules specifically require that projected actual emissions be calculated, but neither Gulf Power nor the Department have provided well-substantiated calculations of projected actual calculations under testing conditions. Any such analysis, as indicated above, would now seem to indicate that significance thresholds will be easily exceeded, and that PSD does apply.

Far from providing the reasonable assurances as required under the law, Gulf Power has provided no assurances at all that the proposed air construction permit will not cause pollution in

violation of any of the provisions of Chapter 403, F.S., or the rules promulgated thereunder. Until Gulf Power provides those reasonable assurances, the proposed air construction permit cannot issue under Florida law.

III. Lansing Smith Units 1 & 2 Should Be Retired

Gulf Power's Lansing Smith plant units 1 and 2 are aging facilities lacking major pollution controls. This proposed test burn program is merely an attempt to prevent either the inevitable retirement of the plant or the installation of real and effective pollution controls. In addition to posing a serious threat to public health, it is not economic to operate. As explained in Attachment E, Lansing Smith is either going to have to install a scrubber, or retire. The Department should focus on these approaches, to protect the health of Floridians and Florida's environment. The proposed air construction permit does not make sufficient progress in protecting Florida's environment.

IV. Conclusion

In sum, Gulf Power has not provided reasonable assurances that the proposed air construction permit will meet the applicable requirements of the Department's rules, and has not provided reasonable assurances that the proposed air construction complies with the law. Gulf Power has provided no analysis showing that the five separate proposed modifications, either in combination or separately, will not result in a significant increase in a PSD pollutant. Any analysis, based on the previous testing data, would seem to indicate that PSD thresholds will easily be exceeded. Gulf Power has not even provided a statement that the proposed sorbents will not decrease ESP efficiency (and thus significantly increase PM emissions), let alone the analysis that is required under Florida law. No well-supported baseline or projected actual emissions have been provided, as required under Florida law. Until Lansing Smith and the Department undertake the required analyses, the proposed air construction permit cannot issue. The required analyses could find that PSD is triggered, and that the applicable rules and provisions would then need to be followed for Lansing Smith.

In short, because the Department lacks any reasonable assurance that this permit will assure compliance with DEP rules, it must revise or at a minimum not finalize the permit. We would be happy to discuss this matter further with you and your staff, and look forward to the Department's efforts to ensure that the proposed permit complies with DEP's rules and regulations.

Sincerely,



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