May 3, 2013

123-87582
Via Electronic Delivery

Mr. David Read
Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32339-2400

RE: RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION
FILE NO. 0990332-021-AC (PSD-FL-196R)
NEW NATURAL GAS FIRED BOILER (BOILER D)

Dear Mr. Read:

New Hope Power Company (NHPC) and Golder Associates Inc. (Golder) received a request for additional information (RAI) dated February 4, 2013 from the Florida Department of Environmental Protection (FDEP) regarding the new natural gas fired boiler at the Okeelanta cogeneration facility. Additionally, Golder and NHPC received an email dated April 15, 2013 from Stan Krivo of the Environmental Protection Agency (EPA) to Melody Lovin of FDEP. This response letter addresses both the FDEP RAI and the EPA email.

FDEP Request for Additional Information (February 4, 2013)

Comment 1. **<u>National Emission Standards for Hazardous Air Pollutants (NESHAP)</u>: On Page 23 of the application (Subsection 3.9.4), NESHAP applicability to the project is addressed. Specifically you indicate that NESHAP Subpart UUUUU – National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units is not applicable to the boiler project because:**

> **"the new natural gas-fired boiler at NHPC will burn natural gas at greater than 10 percent of the annual average heat input during any 3 calendar years, or for more than 15 percent of the annual heat input during any calendar year. The boiler will not burn fuel oil at greater than 10 percent of the annual average heat input during any 3 calendar years, or for more than 15 percent of the annual heat input during any single calendar year. Therefore, the new Boiler D will not be subject to Subpart UUUUU, which only regulates coal and oil-fired units."**

You also indicate that a case-by-case Maximum Achievable Control Technology (MACT) determination in accordance with Code of Federal Regulation (CFR) 40 CFR 63, Subpart B is not applicable because:

> **"In the absence of MACT regulations applicable to proposed Boiler D, 40 CFR 63, Subpart B, could require that a case-by-case MACT determination be made for the boiler. However, as demonstrated in Section 2.4, Boiler D will not itself be a major source of HAPs; therefore, case-by-case MACT does not apply."**

However you fail to address the applicability of NESHAP Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. If you feel Subpart DDDDD does not

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com

apply to Boiler D, please indicate the reasons why. If you feel Subpart DDDDD does apply to Boiler D, please indicate what requirements from the subpart (emission limits, monitoring requirement, etc.) are applicable to Boiler D.

[62-4.070, F.A.C., Reasonable Assurance].

Response: It has not yet been determined whether the proposed Boiler D at NHPC will be subject to 40 CFR 63 Subpart DDDDD (Boiler MACT). The existing boilers at the NHPC facility fit within EPA's definition of an electric generating unit (EGU). Likewise, the proposed Boiler D will fit within the definition of an EGU. Prior to 2013, all of the proposed and final versions of the Boiler MACT provided that EGUs, like the ones at the NHPC Facility, are not subject to the Boiler MACT. However, in the final rule published on January 31, 2013, the exemption for EGUs was changed. Under the 2013 final rule, EGUs are exempt from the Boiler MACT only if the EGUs are "covered by" 40 CFR 63 Subpart UUUUU, which covers only coal- and oil-fired EGUs. The existing EGUs at the NHPC Facility are not "covered by Subpart UUUUU", and neither will the proposed Boiler D.

NHPC recently filed a petition requesting EPA to reconsider its recent changes to its exemption for EGUs. Specifically, NHPC requested EPA to retain the former exclusion under Subpart DDDDD for all EGUs, not just those "covered by Subpart UUUUU". The Utility Air Regulatory Group (UARG) also filed a petition requesting EPA to reconsider this issue. It is unclear when EPA will rule on the merits of NHPC's petition.

In the event that the proposed Boiler D is determined to be subject to Boiler MACT, NHPC will accept federally enforceable operating limits so that the proposed boiler will be classified and regulated under Boiler MACT as a "unit designed to burn gas 1". Accordingly, fuel oil will not be burned for more than 48 hours during any calendar year, except during periods of gas curtailment or gas supply interruptions of any duration. This classification will not change any of the proposed BACT limits for the proposed Boiler D. If it is determined that Boiler MACT will not be applicable to the proposed natural gas-fired boiler, NHPC would like to retain the flexibility to burn both natural gas and fuel oil, up to the 10 percent and 15 percent thresholds, as stated in NHPC's application.

EPA Email Request for Additional Information

Comment 1. **<u>Proposed Project</u> – The proposed new 586 million BTU per hour boiler is indicated to not increase the maximum electric generating capacity of 140 net MW but only provide NHPC the flexibility of producing steam and electricity year-round from all four boilers using the most economical fuel or fuel mix. The application indicates the only facility emission changes are those associated with the addition of Boiler D and associated supporting structures. Therefore, only the emissions from Boiler D stack were included in the initial air quality significant impact assessment.**

Although the new boiler is indicated to provide economical operation with no increase in electrical capacity, the application should address possible increases in steam production for the sugar mill and refinery, and associated operational changes for existing boilers.

Response: The operation of Boilers A, B, and C will not increase as a result of the addition of Boiler D, but could decrease if less wood fuel and more natural gas is burned to generate steam at the facility.

Boilers A, B, and C are already providing the Okeelanta sugar mill with all the steam the mill can accommodate. The first objective of operating the boilers is to accommodate the grinding of sugarcane and the processing of cane juice into raw sugar. There are no plans at present to expand the grinding capacity of the sugar mill. In addition, any increase in the sugar cane crop would be accommodated by operating more days during the crop season, until all the available sugarcane is processed.

Similarly, the existing sugar refinery is already operating at capacity, to the extent possible, and is limited based on existing equipment. Any increase in production in the refinery would have to be accompanied by modification or addition of equipment, which would require an air construction permit application.

The addition of Boiler D is for the purpose of providing fuel flexibility during times, such as the present, when the cost of burning natural gas can compete economically with the cost of burning wood fuel. Therefore, there are no associated emissions increases from the existing three boilers, and no emissions decreases were claimed. The only emissions increases associated with the project are associated with the new Boiler D.

Comment 2. **NHPC Plant Property – The modeled property boundary includes the Okeelanta sugar mill and sugar refinery, and Transshipment facility (Figures 2-3 and 6-1). The "certified site boundary" for the NHPC is much smaller (Figures 2-2 and 2-3). The application should provided description of these separate facilities including the owner and operators, and relationship with NHPC. Only property containing facilities owned and/or operated by NHPC whose property boundary contains barriers to prevent public access (e.g., the employees of the other plants) can be considered non-ambient air for the NHPC air quality modeling.**

Given the above definition of ambient air for air quality impact assessment, the use of the large property boundary (i.e., 349 acres) rather than the NHPC "certified site boundary" (i.e., 111 acres) should be explained and justified.

Response: The Okeelanta sugar mill and sugar refinery, as well as the NHPC Okeelanta cogeneration facility, are all under the common ownership of Florida Crystals Corporation. These facilities all operate under the same Title V operating permit. All PSD applications affecting the NHPC emission units, dating back to the original PSD permit issued in 1994, have used the larger property boundary. Since the area within the larger property boundary is all under common ownership, it is appropriate to use this larger property boundary for assessing air quality impacts. The "certified site boundary" was identified for the purposes of obtaining certification under the Florida Electrical Power Plant Siting Act in 2001, but this boundary is not relevant for the purposes of PSD review.

Comment 3. **Project Emissions – The following comments are associated with the project emissions used in the impact assessment.**

The estimated short-term emissions for both natural gas and fuel oil operation provided in Table 2-2 should include 1-hour period emission rates for both NO_2 and SO_2.

Because this application is a modification of an existing facility, the difference between recent past actual emissions for the existing boilers and equipment, and the future allowable emissions for NHPC facility would be the project emissions that are included in the initial significant impact assessment.

As indicated above, the proposed new boiler, when combined with the existing boilers, may allow operating configurations not addressed in past permitting analyses for the NHPC facility. In addition, the new Boiler D and associated support facilities may change the building configuration and building downwash characteristics for the existing boiler emissions. If either or both of these are applicable, changes in existing Boilers A-C emissions should be considered as project emissions in the initial significant impact assessment.

Response: The maximum 1-hour emission rates for both nitrogen oxides (NO_x) and sulfur dioxide (SO_2) are the same as the 3-hour emission rates stated in the application. As stated previously, the three existing boilers will not increase their operation as a result of the addition of the proposed new Boiler D, but actually could decrease operation (i.e., annual operating hours). However, no credits were taken for

any emissions decreases from the existing boilers as a result of the operation of Boiler D. Therefore, the emissions increases as a result of the proposed project are solely due to the proposed Boiler D.

The existing boiler building for the three existing boilers is taller than the building that will house Boiler D. The Boiler D building will have no significant effect on the emissions characteristics from the existing boilers. Building downwash from the existing buildings was considered in the modeling for Boiler D.

Comment 4. **Recent Court Decision – PM2.5 SMC and SIL – The recent court decision concerning use of the PM2.5 significant monitoring concentration (SMC) and significant impact levels (SIL) as the basis for exemption from pre-construction air quality monitoring and cumulative NAAQS and PSD increment compliance modeling needs to be addressed.**

The court has vacated and remanded the PM2.5 SIL. Project impacts less than the SIL cannot, by itself, be used as justification to eliminate cumulative NAAQS and PSD increment compliance modeling. Additional information should be provided to support a conclusion that the project's impacts would not cause or contribute to a NAAQS or PSD increment exceedance.

The court also vacated the PM2.5 SMC. Project impacts less than the SMC can no longer be used to exempt the project from pre-construction ambient air quality monitoring. If existing air quality observations are proposed in lieu of pre-construction monitoring, supporting information should be provided to demonstrate that existing ambient air quality data would provide representative or conservative ambient concentrations for the impact area.

Response: The proposed project's maximum predicted annual and 24-hour average $PM_{2.5}$ impacts are 0.009 and 0.21 microgram per cubic meter ($\mu g/m^3$), respectively. These values are much smaller than the annual and 24-hour $PM_{2.5}$ SIL of 0.3 and 1.2 $\mu g/m^3$, respectively, which EPA had established to determine whether a cumulative source impact analysis would be required.

Sierra Club v. EPA, 705 F.3d 458 (D.C. Circuit 2013) vacated the $PM_{2.5}$ SIL under 40 CFR 51.166(k)(2) and 40 CFR 52.21(k)(2), and remanded the portions of EPA's rule regarding the SIL to exempt sources from cumulative source modeling. On March 4, 2013, EPA issued *Draft Guidance for $PM_{2.5}$ Permit Modeling* (Stephen D. Page, Director, OAQPS) that provided preliminary recommendations describing how a stationary source seeking a PSD permit can demonstrate that it will not cause or contribute to a violation of the NAAQS and PSD increments. According to the EPA's draft guidance, with additional justification, the permitting authority may use the same $PM_{2.5}$ SILs that were vacated to demonstrate that a full cumulative source impact analysis is not needed.

In the draft guidance, EPA suggests that the permitting authority can use the vacated SILs, but must first examine background air quality concentrations to determine whether a substantial portion of the NAAQS has been consumed. For this purpose, EPA recommends using preconstruction monitoring data that are typically obtained from a nearby monitoring station considered to measure concentrations representative of a project site. If the preconstruction monitoring data shows that the difference between the NAAQS and measured concentrations in the area is greater than the applicable SIL, EPA believes that, in most cases, the permitting authority can conclude that a source with an impact below the SIL will not cause or contribute to a violation of the NAAQS and not require a cumulative modeling analysis for $PM_{2.5}$.

Based on EPA's draft guidance, a review was conducted to determine the nearest $PM_{2.5}$ monitoring station to the project site. From this review, the $PM_{2.5}$ monitor station located in Belle Glade, approximately 14.3 kilometers (km) from the site, was determined to be nearest monitoring station to the site (see Figure 1). FDEP has operated this station since 2001. From 2010 to 2012, the 3-year annual average $PM_{2.5}$ concentration was 8.5 $\mu g/m^3$, while the 3-year 98th percentile 24-hour $PM_{2.5}$ concentration was 19 $\mu g/m^3$ (see Table 1 attached). These values are less than the respective NAAQS of 12 and 35 $\mu g/m^3$. In addition, the differences between the NAAQS and the measured concentrations at this monitor are greater than the

applicable SILs. For the annual average, the difference is 3.5 $\mu g/m^3$ compared to the SIL of 0.3 $\mu g/m^3$. For the 24-hour average, the difference is 16 $\mu g/m^3$ compared to the SIL of 1.2 $\mu g/m^3$.

Therefore, because the project's maximum $PM_{2.5}$ impacts are predicted to be less than the SIL, the differences between the NAAQS and the measured concentrations at the FDEP Belle Glade monitor are much greater than the applicable SIL, and there are minimal background emission sources near the project site, it can be concluded that the project's $PM_{2.5}$ impacts will not cause or contribute to a violation of the NAAQS or PSD increments. As a result, cumulative $PM_{2.5}$ modeling to address compliance with the NAAQS and PSD increments is not necessary for the NHPC Boiler D project.

Regarding the $PM_{2.5}$ SMC, the $PM_{2.5}$ air monitoring data collected at the FDEP Belle Glade monitor are submitted to satisfy the preconstruction monitoring requirement for $PM_{2.5}$ for this project (see Table 1). Therefore, NHPC requests that FDEP grant an exemption from preconstruction monitoring for $PM_{2.5}$.

Comment 5. **Ambient Monitoring Data – The following comments are associated with the ambient monitoring data.**

As noted above, additional explanation is needed to be exempted from the requirement to perform pre-construction PM2.5 ambient monitoring.

The representativeness of the selected existing NO2 ambient monitoring data for the project location was not provided. Sections 4.2, 6.5.3, and 6.8 indicate the selected Lantana NO2 monitor is considered conservative and more than adequately represents the potential impacts due to emission sources not included in the modeled NAAQS compliance assessment. The bases for these statements should be provided and explained.

Response: The ambient FDEP monitoring station at Lantana in Palm Beach County is the closest nitrogen dioxide (NO_2) monitor to the project site. The monitor is located approximately 68 km east of the project site on the Florida east coast (see Figure 1). This monitor is located near more industrialized and commercialized areas compared to the project site.

As discussed in the response to the comment regarding ozone assessment (see below), the major contributors of NO_x emissions in Palm Beach, Broward, and Miami-Dade counties are mobile sources (i.e., highway and off-highway vehicles). The FDEP monitor is situated in a heavily developed area of the county near major roadways that experience high traffic volumes. By comparison, the NHPC site is located in a remote agricultural area of western Palm Beach County, where traffic volumes are much lower than in Lantana. Given the density of NO_x sources in the area near the FDEP monitor, the ambient NO_2 concentrations measured at the Lantana monitor (presented in Table 4-1 of the PSD application) are expected to be considerably higher than those experienced at the proposed project site.

Comment 6. **Ozone Assessment – The project PSD pollutants include NOx. The anticipated impacts of the project's NOx emissions on the ambient ozone levels should be address in the application.**

Response: Based on the project's NO_x emissions, the project's NO_x impacts on the ambient ozone levels in the region (i.e., Palm Beach, Broward, and Miami-Dade Counties) are expected to be minimal. Since ozone is a regional pollutant, NO_x emissions from sources located in the three counties are expected to contribute to ozone formation in this region. In fact, FDEP developed an air quality maintenance plan in 2002 for the three counties to comply with the NAAQS [*Air Quality Maintenance Plan (2005-2015), Dade, Broward, and Palm Beach Counties, December 2002*)]. In the FDEP plan, both NO_x and volatile organic compound (VOC) emissions and emission reductions from a variety of sources were evaluated and measures were identified to ensure that these areas maintained compliance with the NAAQS. As a result, the ozone concentrations measured in these counties have continued to comply with the NAAQS. A summary of the ozone concentrations measured in Palm Beach County from 2010 to 2012 is presented in Table 1. The locations of these monitors are shown in Figure 1.

The project's maximum NO_x emissions are approximately 140 tons per year (TPY). A review was conducted to determine the latest NO_x emissions for the three counties, based on available EPA data. The three-county NO_x emissions include emissions from fuel combustion, mobile sources, industrial sources, biogenic sources, etc. Using EPA's website (http://www.epa.gov/ttn/chief/eiinformation.html), the latest detailed information for national and state emission inventories was available for 2008. A summary of the annual NO_x emissions for the three counties using EPA's data is presented in Table 2. Although these data were developed for 2008, they are representative of the general magnitude of the NO_x emissions for these counties.

Based on this information, the project's maximum NO_x emissions of 140 TPY are less than 0.1% of the total NO_x emissions of 152,500 TPY from Palm Beach, Broward, and Miami-Dade Counties, and less than 0.3% of the total NO_x emissions from Palm Beach County alone (45,000 TPY). As shown in Table 2, the major contributor of NO_x emissions in all three counties is mobile sources.

Therefore, the project's NO_x emissions are expected to affect minimally, if at all, ambient ozone concentrations in the region. With less than a 0.1% to 0.3% contribution to NO_x emissions on a region-wide or county-wide basis, measured ozone concentrations are expected to comply with the NAAQS when the project is operating. In any case, the proposed project will not contribute significantly to ambient ozone concentrations.

Comment 7. **<u>Modeled Procedures</u> – The following comments are associated with the air quality impact modeling analyses.**

The FLM should be provided an opportunity to review and comment on the Q/D screening procedures provided for this project.

In comparing the modeling impacts to ambient SIL and SMC, impacts equal to and greater than the SIL and SMC are significant requiring additional analyses. In addition, the above comments on the recent PM2.5 SMC and SIL court decision need to be addressed in the PM2.5 SIL analysis.

In the SIL and NO2 NAAQS compliance modeling assessments, confirmation is need that the maximum concentration, and all concentrations challenging the maximum concentration (e.g., greater than 90% of the maximum), were modeled with 100-m or less grid resolution. The 5.0 km radius modeling domain for the NO2 NAAQS compliance modeling should have all receptors with 100-m spacing.

Response: The FLM has been provided a copy of the PSD permit application that included the Q/D screening procedures and results of the analysis. Regarding the modeling analysis for $PM_{2.5}$ SIL and SMC, please refer to the responses to Comment 4 above that addressed these concerns.

The maximum 1-hour NO_2 impacts due to the project were predicted to occur on the facility's southern property boundary and decrease quickly beyond the property boundary. There were no areas beyond 0.5 km from the property boundary where the maximum concentrations challenged the overall maximum predicted concentration. Beyond 0.5 km from the plant property, the maximum 1-hour NO_2 concentrations were predicted to be less than 86 percent of the overall maximum predicted concentration.

It should be noted that the receptor spacing on the property boundary was 50 m; the receptor spacing was 100 m out to 2.0 km beyond the property boundary.

Comment 8. **<u>NO2 Modeling Results</u> – The following comments are associated with the impact modeling provided for NO2.**

The emission rates used in the 1-hour NO2 NAAQS compliance assessment for the three existing boilers at NHPC should be the permit allowable rates. Confirmation is needed that the derived values used in the modeling that were based on 0.25 lb/MMBtu are either the current permit allowable values or will become future allowable permit limits for these boilers.

The operating scenarios used for the four NHPC boilers in the NAAQS compliance modeling should be provided (e.g., all at 100% loads).

Although five other nearby emission sources were identified within 30 km of NHPC, these sources were not included in the cumulative NAAQS compliance modeling. It was assumed that the maximum ambient concentrations will be the result of only NHPC emissions. Note that all modeled concentrations exceeding the NAAQS are important. Either a technically based reason(s) should be provided to exclude these nearby sources or they should be include in the NAAQS compliance modeling at their maximum hourly rates. [Note: Table 6-1 does not provide the maximum 1-hour NO2 emission rates for these sources.]

Response: The existing three NHPC boilers have NO_x emission rates based on a 30-day rolling average. They have no 1-hour NO_x limits. The NO_x emission rates used in the modeling analysis for the three existing boilers were based on 0.25 pound per million British thermal units (lb/MMBtu) and the maximum heat input rate to each boiler of 760 million British thermal units per hour (MMBtu/hr). Historical NO_x continuous emissions monitoring systems (CEMS) from the three boilers were reviewed for several years, and this rate appeared to represent the highest emission rate for the boilers. It is noted that the boilers have a 30-day rolling average NO_x limit of 0.15 lb/MMBtu, with a selective non-catalytic reduction (SNCR) system which must be operated continuously for NO_x control. So it is very rare that NO_x emissions are as high as 0.25 lb/MMBtu. For the majority of the operating hours for the boilers, NO_x emissions are 0.15 lb/MMBtu or less, with occasional hours with emissions between 0.15 and 0.20 lb/MMBtu. Thus, the modeling analysis is extremely conservative.

The nearest significant background source is the Sugar Cane Growers Cooperative (SCGC), which is approximately 17 km from the proposed project. There are several other sources located more than 17 km from the project. None of these background sources were included in the 1-hour NAAQS analysis because the maximum predicted concentrations due to these sources are expected to occur during different meteorological conditions than those that occur when the maximum concentrations are predicted for the proposed boiler and NHPC's existing boilers. For example, because of the transport distances, atmospheric stability conditions, and wind speeds, the plumes from the background sources will interact minimally, if at all, with the project or NHPC's sources to produce combined maximum ground-level 1-hour concentrations. The interaction between the proposed boiler and NHPC's sources dominate the air quality impacts to produce maximum impacts at the property boundary.

To demonstrate this effect, a separate NO_2 NAAQS analysis was performed for the 1-hour averaging period that included the SCGC sources. The results of this analysis indicated a marginal, if any, increase in the maximum 1-hour total concentration. The hourly concentrations for each of the 5 years that were averaged to produce the highest 5-year average 98th-percentile concentration were predicted with wind speeds between 1.84 meters per second (m/s) [6.6 km per hour (km/hr)] and 2.72 m/s (9.8 km/hr). At these wind speeds, a plume from the SCGC sources would not be able to reach the NHPC site during the hours that the maximum concentrations from the project were predicted. Consequently, there would be no interaction from the nearest major sources near the project site. The modeling files will be submitted to FDEP electronically.

This analysis is consistent with the EPA guidance that was issued in a memorandum on March 1, 2011 (*Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard*, Tyler Fox, OAQPS). EPA indicated that the emphasis on determining which nearby sources to include in the modeling analysis should focus on the area within about 10 km of the project location in most cases. The routine inclusion of all sources within 50 km of the project location, the nominal distance for which AERMOD is applicable, is likely to produce an overly conservative result in most cases.

Comment 9. **Meteorological Data – The following comments are associated with the meteorological data used in the modeling assessment.**

The meteorological data selected [Palm Beach International Airport (PBI)] were "considered" to be representative of the project site and the wind direction/speed frequencies were "considered" similar to that for the NHPC site. The bases for these statements were not provided.

The meteorological site land use characteristics for the PBI, Fort Myers Airport, and the project site were determined and compared on a one sector (360 degree) basis. Given the wind direction dependency of ambient impacts, the reason a one sector analysis is sufficient for the three location comparison should be provided.

The comparison of the one-sector roughness parameters for these three sites reveal the project's site roughness about double those of the two airport sites. The stated conclusion that the selected meteorological sites are very similar to the project site does not appear supported by this analysis. An explanation should be provided as to why the selected meteorological data would provide representative or conservative ambient concentrations for the project location.

Considering the 1-hour NAAQS and the differences in land use characteristics between the meteorological and project sites, a directional dependent analysis of surface characteristics should be performed and used in determining the representativeness of the available meteorological data for the air quality impact assessment.

Response: The wind frequencies experienced at both PBI and the Fort Myers Airport, on the eastern and western side of the southern Florida peninsula, respectively, are quite similar because all areas of southern Florida are influenced by the easterly trade winds. The terrain across the peninsula is extremely flat. Consequently, the interior portions of south Florida are considered to be influenced by the same dominant climatological wind patterns that are observed at the two airports. In prior modeling applications for sources located in western Palm Beach County, meteorological data from both airports have been used with FDEP and EPA's consent.

Land use parameters of surface roughness length, Bowen Ratio, and albedo are included in AERMOD's meteorological data. The surface roughness length is a measure of the mean obstacle height in an area and has been shown to have a significant effect on AERMOD's predicted model impacts. Current EPA guidance suggests that surface roughness length should be based on the measurement sites (i.e., airports) where the wind speed data are obtained. However, because the area around airports is mostly cleared of obstacles, the average surface roughness length of airports is generally much lower than those around sites where emission sources are located.

The application addressed the differences in average surface roughness between the PBI and Fort Myers airports and the project site. The comparison was performed with one wind direction sector and indicated that the NHPC site surface roughness length was 0.14 meter (m), which was about twice the roughness measured at the PBI and Fort Myers airports of 0.073 and 0.074 m, respectively. As the differences in surface roughness were small, and the maximum predicted impacts were small compared to the SILs and NAAQS, the PBI data and PBI surface roughness were used for the analysis.

Performing the surface roughness comparison for multiple wind direction sectors was not considered for two reasons. First, the selection of a centroid location for the determining surface roughness at an application site is arbitrary, adding additional subjectivity to such a comparison. Second, since airports are mostly cleared of obstructions, there are always going to be inherent differences in the surface roughness calculations between airport and non-airport locations. Comparing surface roughness over multiple wind direction sectors would inevitably show some similarities but also greater differences for some of the wind direction sectors, and these differences would occur even if the airport was located across the street from the project site. As such, the "representativeness" of any airport collected meteorological data is questionable due to inherent differences in the average surface roughness.

As to the question of whether or not the predicted impacts for the project, based on PBI surface data and surface roughness, are conservative, FDEP was requested to prepare another 5-year meteorological record using PBI surface data and land use parameters from the NHPC site. The project-only results are summarized in Table 3 and indicate maximum impacts that are less than those presented in Table 6-3 of the application. Therefore, the application modeling results (based on the PBI meteorological data and PBI land use values that are not representative of the NHPC site's surface roughness) produced higher impacts than the PBI data with NHPC's land use values.

Going forward, it is suggested to consider using only off-site meteorological records developed with land use parameters obtained from a project site for a PSD application. This approach would address EPA's concerns regarding the representativeness of the meteorological record and would, therefore, represent the best alternative to available on-site meteorological data.

Comment 10. **<u>Additional Impact Analysis</u> – Section 7.0 addressed the additional impacts associated with growth, visibility, vegetation, soils, and wildlife. Visibility impacts in the vicinity of NHPC were mentioned but not addressed in the impact assessment.**

Response: Visible emissions from Boiler D will be limited to 20 percent based on 40 CFR 60, Subpart Da. However, Boiler D is not expected to have visible emissions greater than 10 percent (closer to zero) under normal operation because Boiler D will be primarily or exclusively fired with natural gas. Therefore, Boiler D will have no impact on visibility in the surrounding area.

Thank you for your consideration of this information. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

Philip D. Cobb, Ph.D., P.E.
Senior Project Engineer

David A. Buff, P.E., Q.E.P.
Principal Engineer

cc: M. Leis, NHPC
D. Dee, GBW Legal
J. Gonzalez, NHPC
W. Tarr, NHPC
M. Capone, NHPC
M. Riddle, NHPC
J. Luque, NHPC

Attachments

PC/DB/tz

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **David A. Buff**
   Registration Number: **19011**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6026 NW 1st Place**
   City: **Gainesville** State: **FL** Zip Code: **32607**
3. Professional Engineer Telephone Numbers...
   Telephone: (**352**) **336-5600** ext. **21145** Fax: (**352**) **336-6603**
4. Professional Engineer E-mail Address: **dbuff@golder.com**
5. Professional Engineer Statement:

   I, the undersigned, hereby certify, except as particularly noted herein, that:*

   (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this submittal, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

   (2) To the best of my knowledge, any emission estimates reported or relied on in this submittal are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

   (3) To the best of my knowledge, the proposed equipment is the same or similar to the existing equipment and is compatible with the existing equipment.

   (4) Based upon analysis of the project described in this submittal, no increase in actual air emissions is expected due to the project.

   David A. Buff — Signature

   5/3/13 — Date

   (seal)

* Attach any exception to certification statement.
**Board of Professional Engineers Certificate of Authorization #00001670.

TABLES

TABLE 1

SUMMARY OF MAXIMUM MEASURED $PM_{2.5}$ AND OZONE CONCENTRATIONS FOR PALM BEACH COUNTY, 2010 TO 2012

Site No.	Operator	Location	Measurement Period Year	Measured Concentration 1-Hour 3-year Average 4th Highest	8-Hour 3-year Average 4th Highest	24-hour 3-year Average 98th Percentile	Annual 3-year Average
PM2.5		**Florida AAQS ($\mu g/m^3$)**				**35**	**12**
12-099-0008	FDEP	Belle Glade	2008-2010	NA	NA	16	6.8
		Palm Beach County	2009-2011	NA	NA	17	7.6
			2010-2012	NA	NA	19	8.5
Ozone		**Florida AAQS (ppb)**		**120**	**75**		
12-099-0009	FDEP	Royal Palm Beach	2008-2010	70	65	NA	NA
		Palm Beach County	2009-2011	69	63	NA	NA
			2010-2012	70	63	NA	NA
12-099-0020	FDEP	Lantana	2008-2010	71	64	NA	NA
		Palm Beach County	2009-2011	71	62	NA	NA
			2010-2012	70	62	NA	NA
12-099-2101	FDEP	South Bay	2008-2010	61	56	NA	NA
		Palm Beach County	2009-2011	61	55	NA	NA
			2010-2012	61	55	NA	NA

Note: NA = not applicable
AAQS = ambient air quality standard

Source: FDEP Quick Look Reports - 2010, 2011, and 2012; FDEP Ozone Tracking Sheets.

Table 2. Summary of Annual 2008 NOx Emissions Estimated by EPA for Palm Beach County, Broward, and Miami-Dade Counties

Source Category	Estimated Annual NOx Emissions (tons/year)			
	Palm Beach	Broward	Miami-Dade	Total
NOx Emissions				
Fuel Combustion	6,152	9,847	4,191	20,189
Mobile Sources	35,686	48,910	70,321	154,917
Industrial	53	31	2,169	2,253
Solvent Usage	0	0	0	0
Biogenics	1,788	885	711	3,384
Miscellaneous	1,403	108	311	1,822
Total	45,081	59,781	77,703	182,565

Source: EPA, 2008 (http://www.epa.gov/ttn/chief/eiinformation.html).

Table 3. New Hope Power - Comparison of Maximum Predicted Impacts for Proposed Boiler D For PBI and NHPC Land Use Parameters

Pollutant	Averaging Time	Concentration Rank	Predicted Concentration for 100% Load (µg/m³)[a] PBI Land Use Parameters	Predicted Concentration for 100% Load (µg/m³)[a] NHPC Site Land Use Parameters	EPA Significant Impact Level (µg/m³)
Generic[b]	Annual	Highest	0.1925	0.1805	NA
(10 g/s)	Annual	Highest 5-yr Average	0.1705	0.1571	NA
	24-Hour	Highest	3.1624	2.8100	NA
	24-Hour	Highest 5-yr Average	2.7350	2.3412	NA
	8-Hour	Highest	8.9785	8.3826	NA
	1-Hour	Highest	30.3114	29.2693	NA
	1-Hour	Highest 5-yr Average	24.8636	21.8889	NA
NO_2[c]	Annual	Highest	0.06	0.05	1
	1-Hour	Highest 5-yr Average	14.8	13.0	7.52
PM_{10}	Annual	Highest	0.010	0.009	1
	24-Hour	Highest	0.413	0.367	5
$PM_{2.5}$	Annual	Highest 5-yr Average	0.009	0.008	0.3
(NAAQS)	24-Hour	Highest 5-yr Average	0.21	0.18	1.2
$PM_{2.5}$	Annual	Highest	0.010	0.009	0.3
(Increment)	24-Hour	Highest	0.24	0.22	1.2
CO	8-Hour	Highest	10.7	10.0	500
	1-Hour	Highest	36.0	34.8	2,000

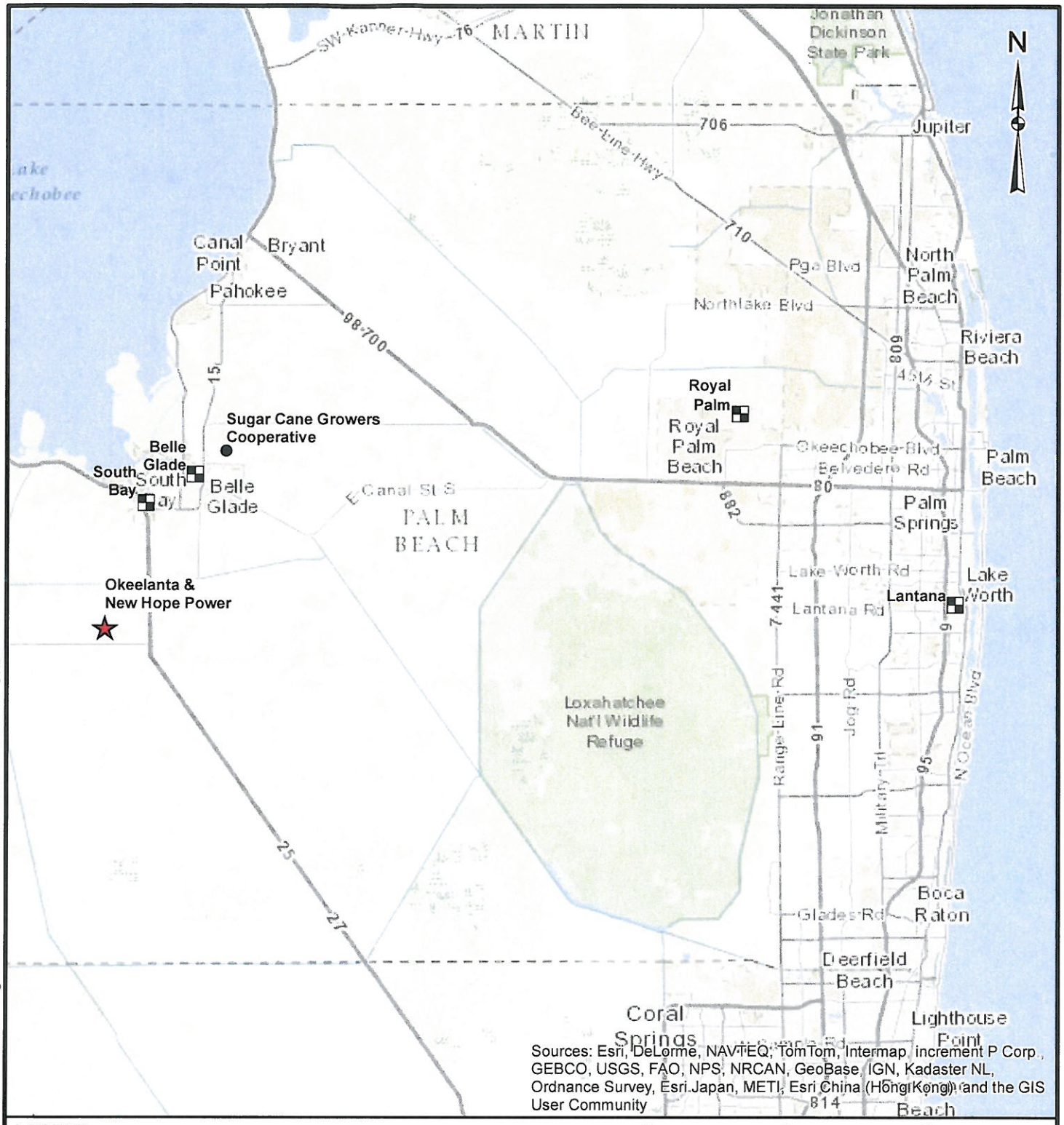
Note: NA = not applicable

[a] Concentrations are based on highest predicted concentrations from AERMOD using 5 years of meteorological data for 2006 to 2010 consisting of surface and upper air data from the National Weather Service stations at Palm Beach International Airport and Florida International University, respectively.

[b] Pollutant concentrations were based on a modeled or generic concentration predicted using a modeled emission rate of 79.37 lb/hr (10 g/s). Pollutant-specific concentrations were then estimated by multiplying the modeled concentration (at 10 g/s) by the ratio of the pollutant-specific emission rate to the modeled emission rate of 10 g/s.

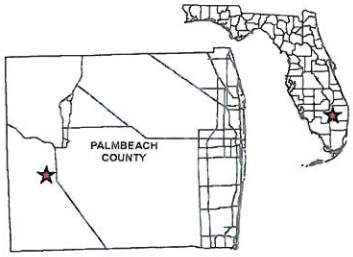
[c] For annual and 24-hour averaging times, 75 and 80 percent of NO_x is assumed converted to NO_2, respectively (EPA Ambient Ratio Method, Tier 2)

FIGURES



LEGEND

- Ambient Air Monitoring Sites
- Okeelanta & New Hope Power
- Sugar Cane Growers Cooperative



7 0 7 Miles

REV.	DATE	DES	REVISION DESCRIPTION	GIS	CHK	RVW
0						

PROJECT

NEW HOPE POWER
BOILER "D" PROJECT

TITLE

LOCATION OF NEAREST AIR MONITORING SITES TO THE NHPC SITE

REFERENCES

1, Approximate Project Location, New Hope Power Co., Golder Associates Inc., 2012
2. Ambient Air Monitoring Sites, FDEP, 2013

Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet
Projection: Transverse Mercator
Datum: North American 1983

Golder Associates

PROJECT No.		123-87582	FILE No.	12387582_C001
DESIGN	JDG	13 Sep. 2012	SCALE: AS SHOWN	REV. 0
GIS	NRL	30 Apr. 2013		
CHECK	NG	30 Apr. 2013		
REVIEW	DB	30 Apr. 2013		

FIGURE: 1

G:\PROJECTS\New_Hope_Power\Okeelanta\123-87582 NHPC_PSDIC - RAI RESPONSES\Figures\123-87582C001 NEAREST AIR MONITORING SITES .mxd