

SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 919-967-1450

601 WEST ROSEMARY STREET, SUITE 220
CHAPEL HILL, NC 27516-2356

Facsimile 919-929-9421

October 31, 2011

Via U.S. and Electronic Mail

Patrick Butler
DENR
Division of Air Quality
Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, N.C. 27609
patrick.butler@ncdenr.gov

Re: Titan America/Carolinas Cement Company, LLC Draft PSD Permit

Dear Mr. Butler,

Please accept these comments on the Division of Air Quality's ("DAQ") Preliminary Determination and Draft Air Quality Permit for Titan America/Carolinas Cement Company, LLC's ("Titan") proposed portland cement manufacturing facility that would be built at 6411 Ideal Cement Road, Castle Hayne, North Carolina.¹ The Southern Environmental Law Center submits these comments on behalf of the North Carolina Coastal Federation, Cape Fear River Watch, and the Sierra Club. Together, these organizations represent more than 10,000 members interested in protecting coastal environments like those that would be affected by the proposed facility. These organizations include many members who live in close proximity to the site or use and enjoy areas that would be affected by emissions from the facility.

Since Titan announced its plans to build the proposed plant, the public has been advised to trust the process and the regulations in place to protect air and water quality. This Preliminary Determination and Draft Permit represent a failure in that process. DAQ's analysis does not reflect a probing scrutiny of Titan's application. The agency failed to conduct the necessary investigations, deferring to the company in almost every instance. The Draft Permit that resulted from that failed process includes indefensible limits that would subject the public to unnecessary and harmful levels of air pollution.

In these comments, we identify areas in which Titan's application is incomplete, isolate unsupported assumptions that are essential to DAQ's analysis, recommend areas for investigation, and provide some of the information regarding pollution controls that is readily available and must be incorporated into DAQ's evaluation. The process followed in the Preliminary Determination violates the letter and spirit of the Clean Air Act, and the Draft Permit that follows from it cannot withstand scrutiny. DAQ must re-evaluate its analysis and conduct a thorough analysis that tests Titan's assertions and submissions. That scrutiny is essential if DAQ

¹ Comments prepared by Dr. Ron Sahu are attached as Exhibit 1 and incorporated by reference into these comments in their entirety. Due to their size, we have provided the exhibits on the enclosed compact disc.

is to carry out its mission of “work[ing] with the state's citizens to protect and improve outdoor, or ambient, air quality in North Carolina for the health and benefit of all.”

I. GENERAL COMMENTS

A. Titan's permit application is incomplete.

Two changes that have occurred since Titan's initial application substantially affect the application but have not been addressed in the revised application, rendering it incomplete. First, Titan abandoned the quarry plan it submitted on April 8, 2008, filing a revised, expanded quarry plan with the U.S. Army Corps of Engineers (“Corps”). Second, the New Hanover County Commission approved amendments to its zoning ordinance that invalidates the March 27, 2008 consistency determination filed with the application. The company has not sought a revised determination. Because the application is incomplete, DAQ cannot lawfully issue a final air quality permit.

1. Titan has not submitted a revised quarry map or modeling.

In its initial application, Titan submitted a draft survey map of its proposed quarry. That proposed quarry was to be located north of Holly Shelter Road and bordered by the proposed kiln, the Northeast Cape Fear River, and Island Creek. Simultaneously, the company approached the Corps to initiate the development of an environmental impact statement (“EIS”) pursuant to the National Environmental Policy Act. That quarry proposal was the basis of the Corps' May 30, 2008 Notice of Intent to Prepare a Draft Environmental Impact Statement.

Later that year, Titan abandoned the quarry design included in its air quality permit application and designated as its preferred alternative for the Corps' EIS, expanding its preferred alternative to include a much larger quarry – one that would “impact approximately 1,007 acres of waters of the US including wetlands.”² Based on the information we have received through public records requests and the information posted on DAQ's website, Titan's revised application does not include a description of its current quarry proposal, a listing of emission sources in that quarry, modeling of those emissions, or estimates of raw materials from that quarry.³ In the Preliminary Determination, DAQ acknowledges that the expanded quarry has not been incorporated in this analysis by noting that the 2009 Draft Permit's quarry analysis was not updated.⁴

Thus, as discussed in more detail below with respect to raw materials, fugitive dust, and modeling, Titan's application is incomplete. The projected emissions from the quarry, whether direct emissions from equipment or fugitive emissions, are outdated. The company has not provided additional, up-to-date emissions information as required for DAQ's analysis and therefore, the Draft Permit should be rescinded. If Titan submits a revised application for its

² Draft Purpose and Need for the Titan America Proposed Portland Cement Plant and Mine at 8 (Jan. 15, 2009), available at <http://www.saw.usace.army.mil/WETLANDS/Projects/Titan/index.html>.

³ We have mapped the modeling coordinates provided in the quarry modeling in the revised application. That map corresponds to the initial proposal and does not reflect the expanded proposal. The map is attached as Exhibit 2.

⁴ Preliminary Determination at 9.

expanded quarry proposal, that information must be incorporated into a new draft permit and released for public comment.

2. *Titan has not requested or submitted a current zoning consistency determination.*

At its October 3, 2011 meeting, the New Hanover County Commission approved amendments to its zoning ordinances that affect Titan's project and DAQ's authority to continue processing the company's permit application. The amendments include a requirement that uses proposed for the I-2 Heavy Industry zone, as Titan's project is, must obtain a special use permit from the County.⁵ As a result, Titan's March 27, 2008 consistency determination letter from the County is no longer valid.

DAQ cannot process Titan's application without a valid determination from New Hanover County. Permitting rules require applications to include "a letter from the local government indicating that all zoning or subdivision ordinances are met by the facility."⁶ The 2008 letter no longer serves this purpose and cannot be relied upon; the rules make clear that when circumstances surrounding the project change, the "applicant has a continuing obligation to submit relevant facts pertaining to his permit application and to correct incorrect information on his permit application."⁷ Therefore, it is Titan's responsibility to amend its application to address the change in the zoning ordinance. If it does not, the rules are clear that "the application package shall be returned."⁸

Moreover, Titan cannot demonstrate that its proposed project meets New Hanover County's zoning ordinance because its impacts on natural resources covered by the ordinance are too speculative. As discussed below with respect to the requirements of the air permit, a determination of Titan's compliance with the zoning ordinance is premature because the project's boundaries and impacts cannot be determined until the quarry boundaries are established by the U.S. Army Corps of Engineers' permitting process under the Clean Water Act.

B. DAQ cannot lawfully issue a PSD permit without additional quarry information.

A basic premise that underlies the Clean Air Act's, and therefore DAQ's, PSD program is that a permit applicant must provide adequate information regarding its projected emissions in order to allow DAQ to analyze the impact of those emissions on ambient air quality and evaluate potential control mechanisms. Indeed, DAQ's regulations incorporate the federal PSD requirement that "the owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or to make any determination required."⁹ That information should include "a description of the nature, location, design capacity, and typical operating schedule of the source . . . including specifications and drawings showing its design

⁵ Amendments to New Hanover County Zoning Ordinance are attached in two parts as Exhibits 3a and 3b.

⁶ 15A N.C. Admin. Code 02Q.0304(b)(1)(B).

⁷ 15A N.C. Admin. Code 02Q.0304(l).

⁸ 15A N.C. Admin. Code 02Q.0305(a).

⁹ 15A N.C. Admin. Code 02D.0530(g); 40 C.F.R. § 51.166(n).

and plant layout” as well as “a detailed schedule for construction of the source.”¹⁰ Titan has not provided any of that information regarding its proposed expanded quarry.

1. Titan’s quarry plan affects emissions from the quarry and the kiln.

According to the company, Titan’s proposed facility consists of two interdependent elements, the kiln and a limestone quarry. The “initial” step in cement production is the acquisition of materials and according to the Preliminary Determination, Titan “will obtain the required limestone/marl from a quarry that is located on the property.”¹¹

The details of the quarry influence DAQ’s analysis of the air quality impacts from both the quarry and the kiln. The Preliminary Determination includes at least 20 emission sources from the proposed quarry that are regulated by NSPS standards or DAQ’s PSD program.¹² Regulated activities include rock/limestone removal and loading, quarry roads, and storage of quarried materials. Those emission sources correspond with Titan’s initial quarry proposal,¹³ which it has subsequently withdrawn.

In addition to these details regarding these direct sources of air emissions, knowledge of the chemical composition of the limestone and marl extracted from the quarry is essential to DAQ’s analysis of both criteria and hazardous air pollutants. “Sulfides from the raw material (limestone rock) are the predominant source of SO₂.”¹⁴ Not surprisingly, Titan was forced to amend its initial application on October 21, 2008 because “the results of onsite testing of the raw materials from the mine [] indicated the sulfide content in the materials was higher than originally estimated.”¹⁵ Similarly, “[t]he level of contaminants in the kiln feed is unique to each site and results in site-specific CO and VOC emission rates.”¹⁶ And “[n]itrogen in the kiln feed may also contribute to NO_x formation.”¹⁷

Hazardous air pollutants, particularly mercury, are also significantly affected by the chemical composition of raw material. “Mercury emissions from the cement kiln reflect the amount of mercury in the kiln’s feedstock and fuel inputs. The amounts of mercury in these inputs and their relative contributions to overall mercury kiln emissions vary by site.”¹⁸ The EPA has found that “mercury emissions attributable to limestone often dominate the total due to the large amount of mass input contributed by limestone.”¹⁹ Consequently, before DAQ can evaluate Titan’s proposed emission estimates, the agency must confirm basic information regarding the quarry Titan proposes to construct.

¹⁰ 40 C.F.R. § 51.166(n)(2)(i), (ii).

¹¹ Preliminary Determination at 5.

¹² Preliminary Determination at 8-9.

¹³ See Exhibit 2.

¹⁴ Preliminary Determination at 11.

¹⁵ Preliminary Determination at 1.

¹⁶ Preliminary Determination at 103.

¹⁷ Preliminary Determination at 107.

¹⁸ Preliminary Determination at 79.

¹⁹ National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry; Proposed Rule, 74 Fed. Reg. 21,136, 21,142 (May 6, 2009).

The Preliminary Determination states that emissions are based on “site-specific sampling of the raw material at the proposed site during the initial stages of modeling,”²⁰ but does not identify where those sites were. Further, DAQ has not provided any evidence that these samples are representative of the proposed quarry and has not evaluated how limestone from other sites may affect the company’s emissions. Without that information, DAQ cannot properly evaluate Titan’s analysis or potential emissions.

2. *Calculation of fugitive emissions and their effects depends on quarry details.*

Under state regulations, the site description is also an important element of managing fugitive dust sources. PSD sources “shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints, or visible emissions in excess [of ambient air quality standards or beyond the property boundary].”²¹ Implicit in this determination is that the source of the fugitive emissions can be determined for the purpose of modeling and the property boundary has been established. Neither of those determinations can be made regarding Titan’s proposed quarry, because the company has not submitted information regarding the boundaries of the quarry or its emission sources.

The quarry contains several important fugitive emission sources. As stated in the Preliminary Determination:

Fugitive sources of PM10/PM2.5 from the proposed project include:

- (1) Quarrying operations (drilling, blasting, marl ripping, and truck loading)
- (2) Truck and loader traffic on unpaved roads
- (3) Truck traffic on paved roads
- (4) Material transfer points
- (5) Wind erosion from storage piles.²²

DAQ’s ability to evaluate these fugitive emissions depends on the boundaries and layout of the quarry.

3. *The location of Titan’s quarry has not been determined.*

Given the importance of quarry location and design as well as the chemical composition of raw materials to the levels of air emissions from Titan’s proposed facility, the applicant must identify the boundaries of the quarry that is purportedly regulated by the Draft Permit. Unlike other raw materials, which could presumably be replaced in the manufacturing process by materials with lower pollutant concentrations, Titan alleges that it will be restricted to sourcing limestone from its proprietary quarry for the life of the facility.²³

²⁰ Preliminary Determination at 57.

²¹ 15A N.C. Admin. Code 02D.0540(c).

²² Preliminary Determination at 87.

²³ According to Titan, the characteristics of the quarry are essential to the entire process, because for the facility “to be economically viable the quarried resource generally must be within an approximate 3 mile radius of the manufacturing facility and must provide for a long-term, at least 30 years, marl and limestone resource of sufficient quality that can be recovered in a systematic and cost-effective manner.” Draft Purpose and Need at 4.

As an initial matter, DAQ must evaluate whether that claim is true. At least two cement kilns in the U.S. receive their limestone from distant quarries.²⁴ In 2002 alone, companies imported 1,330 kt of limestone into the U.S. for cement manufacturing.²⁵ Given the proximity of Titan's proposed site to the Wilmington port and a navigable waterway, as well as previous proposals to ship cement by barge, the company may be able to reduce its emissions by importing limestone with lower pollutant levels and eliminate emissions from the quarry altogether. DAQ must evaluate whether Titan can import limestone and what effect that limestone would have on the proposed emissions.

But even if the company cannot import limestone, Titan has not completed the process of identifying the quarry's boundaries and therefore cannot accurately describe the chemical composition of the limestone. There is substantial uncertainty in the permitting processes necessary to establish its proposed quarry because of the substantial acreage of wetlands and vulnerable habitats on the company's proposed site. Further, there is a presumption under the Clean Water Act that Titan cannot mine its proposed site and that upland alternatives are available.

Although the company's quarry plans are uncertain, it is clear that the existing quarry is inadequate to meet Titan's needs and cannot be the basis for this Draft Permit. In a letter to the Department of Commerce, a company representative confessed that "the mining reserves found on Titan's currently owned property are not enough to justify the building of a cement plant."²⁶ On May 30, 2008, the U.S. Army Corps of Engineers published a notice of intent to prepare a draft EIS to evaluate Titan's proposal to "*establish* a quarry from which it can extract marl and limestone that will support manufacturing Portland cement."²⁷ Indeed, the company described the site as including "an *unrelated*, active aggregate quarry."²⁸ To determine where to establish the quarry component of the proposed facility, the EIS will include "[c]omprehensive geological investigations to identify high calcium marl and limestone reserves that meet cement chemistry criteria quality and quantity."²⁹

The Corps' process has not concluded, and therefore Titan cannot identify a quarry that can support the proposed manufacturing facility or provide a basis for estimating emissions. Following a February 2009 stakeholders' meeting to evaluate Titan's draft purpose and need and regional alternatives analysis, the Corps submitted a series of questions to the company. It is our understanding that Titan has not responded to these questions and no action has been taken to advance Titan's proposed quarry project.

²⁴ See G.E. Bridges & Associates Inc., Consultants for Ministry of Energy and Mines et al., Market Analysis Coastal Aggregate Development Opportunities 15 (2004), *available at* http://www.em.gov.bc.ca/Mining/MineralStatistics/MineralSectors/ConstructionAggregates/ReportsandPublications/Documents/FINAL_REPORT_Coastal_Markets.pdf, "Kirby Corporation Announces the Purchase of the Remaining 65% Interest in Offshore Partnership," Kirby Co. Press Release, Mar. 2, 2006, *available at* http://www.kirbycorp.com/3_ir/pr/030306.pdf.

²⁵ 7 *Industrial Minerals & Rocks: Commodities, Markets, and Uses* 1126 (Jessica Kogel et al. eds., 2006).

²⁶ Letter from Titan America to Ken Allen, N.C. Department of Commerce (Feb. 27, 2007).

²⁷ 73 Fed. Reg. 31,072 (May 30, 2008) (emphasis added).

²⁸ *Id.* (emphasis added).

²⁹ *Id.* at 31,073.

4. *DAQ cannot lawfully issue Titan's permit without detailed information regarding the proposed quarry.*

The Draft Permit unlawfully approves air emissions resulting from a quarry that neither Titan nor DAQ can identify. Moreover, the Draft Permit is based on a quarry proposal that the company has abandoned and fails to take into account or quantify emissions from more than 400 acres of quarry included in the company's most recent proposal.³⁰ Titan has not provided "all information necessary to perform any analysis or to make any determination required." Its application lacks critical details of the quarrying operation, both related to the location of the quarry and its chemical composition. The consequences of this omission are significant. Titan cannot reasonably model quarry emissions, whether from sources within the quarry or from fugitive dust, without identifying the location of the quarry and its operational capacity. An outdated, "draft" proposal cannot lawfully serve as the basis for those calculations.

In addition, the calculations of SO₂, CO, VOC, NO_x, and mercury emissions cannot be relied upon to set emission limits or evaluate technological controls until the Corps' process is completed and the boundaries of the quarry are identified. That is nowhere more evident than in Titan's October 2008 revision – which requested higher SO₂ limits based on changes in the expected raw materials. The Corps' EIS will provide "comprehensive geological investigations" that would inform DAQ's analysis, avoiding additional modifications because "original estimates" prove to be inaccurate. Until DAQ is provided with specific information regarding the outline and chemical composition of Titan's raw materials, it cannot reasonably establish emission limits. That information will not be available until the EIS process is complete. Issuing a final permit based on a "draft" quarry proposal that the company has long-since abandoned would be arbitrary and capricious and in plain violation of the Clean Air Act.

C. **DAQ must comply with Executive Order 15 before acting on Titan's permit application.**

Governor Hunt signed Executive Order 15 ("EO") on October 27, 1977.³¹ Among other purposes, the EO sought "[t]o insure the orderly and balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation." To do so, it requires that "all existing regulatory permits within the coastal area shall be administered in coordination and consultation with (but not subject to the veto of) the Coastal Resources Commission." The substantive portion of the EO advances this purpose by requiring that "[a]ll state agencies shall take account of and be consistent to the maximum extent possible with the coastal policies, guidelines and standards contained in the State guidelines, with the local land use plans developed under the mandate of the Coastal Area Management Act, and with the North Carolina Coastal Plan prepared under the Federal Coastal Zone Management Act of 1972 in all regulatory programs" It was expected that the EO would "represent a significant additional implementation mechanism."³² Titan's proposed project is within the coastal area covered by EO 15.

³⁰ None of the quarry points modeled include emissions from Titan's expanded quarry proposal. See Exhibit 2.

³¹ A copy of the Executive Order is attached as Exhibit 4.

³² State of North Carolina Coastal Program and Final Environmental Impact Statement at 240 (Aug. 1978).

EO 15 incorporates policies established in statutes, state regulations, and the Coastal Habitat Protection Plan into projects proposed for the coastal counties. North Carolina coastal policy begins with the recognition that “[c]oastal and estuarine waters and marshlands provide almost ninety percent (90%) of the most productive sport fisheries on the east coast of the United States.”³³ The coast “has an extremely high recreational and esthetic value which should be preserved and enhanced.”³⁴ The guidelines embodied in CAMA regulations are intended to put this policy into effect.³⁵

Those guidelines focus on areas of environmental concern (“AECs”) and act to promote “an integrated and comprehensive management approach” that is intended to protect “critical resource areas . . . through the establishment of unified policies, criteria, standards, methods, and processes.”³⁶ The guidelines are intended to provide guidance to other state agencies in aspects of coastal policy.³⁷

Titan’s proposed project affects public trust area and estuarine waters AECs in the guidelines as a result of the proximity of the property to the Northeast Cape Fear River and the tidally influenced wetlands within the previously proposed quarry boundaries.³⁸ Public trust areas “support commercial and sports fisheries, have aesthetic value, and are important resources for economic development.”³⁹ The management objective for public trust areas, in addition to protecting navigation and recreation, is “to safeguard and perpetuate their biological, economic and aesthetic value.”⁴⁰ Similarly, estuarine waters have an important economic role, “[o]f the 10 leading species in the commercial catch, all but one are dependent on the estuary.”⁴¹ The management objective for estuarine waters is “to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing estuarine waters so as to maximize their benefits to man and the estuarine and ocean system.”⁴² Moreover, the “highest priority” for this AEC is “the conservation of estuarine waters and their vital components.”⁴³

These values are also reflected in the Coastal Resources Commission’s policies on water quality, which state:

The waters of the coastal area are a valuable natural and economic resource of statewide significance. Traditionally these waters have been used for such

³³ N.C. Gen. Stat. § 113A-102(a).

³⁴ *Id.*

³⁵ N.C. Gen. Stat. § 113A-102(a).

³⁶ 15A N.C. Admin. Code 07H.0101(b).

³⁷ See 15A N.C. Admin. Code 07H.0101(c).

³⁸ Public trust areas include all natural bodies of water subject to lunar tides. 15A N.C. Admin. Code 07H.0207. Estuarine waters include rivers seaward of the dividing line between coastal waters and inland waters. 15A N.C. Admin. Code 07H.0206. The boundary for coastal and inland waters is upriver of Titan’s proposed site.

³⁹ 15A N.C. Admin. Code 07H.0207(b).

⁴⁰ 15A N.C. Admin. Code 07H.0207(c).

⁴¹ 15A N.C. Admin. Code 07H.0206(b).

⁴² 15A N.C. Admin. Code 07H.0206(c).

⁴³ 15A N.C. Admin. Code 07H.0206(d).

activities as commercial and recreational fishing, swimming, hunting, recreational boating, and commerce. These activities depend upon the quality of the waters. Due to the importance of these activities to the quality of life and the economic well-being of the coastal area, it is important to ensure a level of water quality which will allow these activities to continue and prevent further deterioration of water quality.⁴⁴

The Coastal Habitat Protection Plan (“CHPP”) further reflects the importance of these systems and the threats they face. Legislatively mandated to protect coastal fisheries, the CHPP recognizes the critical importance of the wetlands and river that would be affected by Titan’s proposed plant. Riverine wetlands provide the foundational organic matter for riverine systems and protect water quality by buffering the system from nutrient- and sediment-laden runoff from uplands.⁴⁵

This important role makes the protection of wetlands critical to protecting coastal fisheries. It is estimated that more than 95% of commercial finfish and shellfish rely on wetlands during some portion of their life cycle.⁴⁶ Areas like Titan’s proposed site – which borders an anadromous fish spawning area and a primary nursery area – are important for species including American eel, American shad, Atlantic sturgeon, blueback herring, hickory shad, shortnose sturgeon, and striped bass. As stated in the CHPP, *“maintaining a natural proportion and relative position of wetland and non-wetland shorelines will be a vital component of habitat restoration and management.”*⁴⁷

But wetland shorelines are not being protected. Wetlands within the Cape Fear River Basin have been hit particularly hard over the last ten years, losing more wetlands than any other coastal river basin.⁴⁸ Wetland-dependent fish species have experienced a decline as well, with river herring (alewife and blueback herring in Albemarle Sound), sturgeon, CSMA striped bass, southern flounder, spotted seatrout, and black seabass all listed as depleted in the CHPP.⁴⁹

Finally, the 2006 CAMA Land Use Plan for New Hanover County (“NHC Plan”) must be considered under EO 15. The NHC Plan recognizes that “conservation areas along the tidal creek system are approaching their build out capacity.”⁵⁰ Further, the plan recognizes the value of habitats along the Northeast Cape Fear River, recognizing that the watershed includes “major tracts of swamp forest” and freshwater marshes that merit protection.⁵¹ The NHC Plan calls for applicants, like Titan, to “delineat[e] wetlands and describe steps taken to protect wetlands prior to site plan development for new projects.”⁵² It continues, calling for the “careful[] control [of] development activities within the 100-year floodplain,” only allowing

⁴⁴ 15A N.C. Admin. Code 07M.0801(a).

⁴⁵ North Carolina Coastal Habitat Protection Plan at 281 (Dec. 2010) (“CHPP”).

⁴⁶ CHPP at 283.

⁴⁷ CHPP at 281.

⁴⁸ CHPP at 295.

⁴⁹ CHPP at 299.

⁵⁰ Wilmington-New Hanover County Joint Coastal Area Management Plan – 2006 Update at 58 (May 2006) (“NHC Plan”).

⁵¹ NHC Plan at 72-73.

⁵² NHC Plan at 98.

industrial facilities to be built in the floodplain if the location is essential and impacts to the estuarine system are “negligible.”⁵³ The plan recommends locating industrial uses outside of areas designated “conservation on the land classification map.”⁵⁴ These steps are necessary because conservation areas are too fragile to be developed, there are serious limitations to development, or the natural resources they include “are too valuable to endanger by development.”⁵⁵ Titan’s proposed site is within and would impact conservation areas under the NHC Plan, and therefore, under EO 15, must meet these criteria and address the issues raised in the plan. The facility has not done so in their air quality permit application.

DAQ has not addressed EO 15 and cannot act on Titan’s permit application until it meets the requirements of the Executive Order. Titan must provide the information necessary to determine whether the project complies with the order; to date, the company has failed to do so. DAQ must delay any further action on the application until it complies with EO15.

II. CONTROL TECHNOLOGY COMMENTS

A. General BACT comments

DAQ’s BACT analysis includes several critical flaws that cause it to violate the requirements of the Clean Air Act and DAQ’s implementing regulations and result in higher emission limits than legally permissible. The analysis fails to recognize the distinct roles of the NSPS and BACT, inappropriately evaluates costs, fails to incorporate adequate information regarding control technologies, and inappropriately dismisses raw material and fuel inputs. Each of these issues will be addressed at a general level in this section and in more detail as they relate to specific pollutants.

1. *The BACT analysis unlawfully adopts the NSPS as BACT.*

At the heart of DAQ’s failed BACT analysis is the adoption of the permit application’s focus on matching the NSPS limits. It is clear that Titan identified the NSPS levels, which represent best demonstrated technology (“BDT”) rather than BACT, and reverse engineered its BACT analysis to support technologies, efficiencies, and emissions limits to meet BDT as identified in the NSPS. That would have been a defensible application of the NSPS before the Clean Air Act Amendments of 1977,⁵⁶ but is no longer lawful. Following the 1977 Amendments, the Act requires a “case-by-case determination of BACT rather than automatic application of NSPS.”⁵⁷ The law is clear that BDT, as reflected in the NSPS, is not BACT.

⁵³ NHC Plan at 98.

⁵⁴ NHC Plan at 107.

⁵⁵ NHC Plan at 141.

⁵⁶ See *Sierra Club v. Costle*, 636 F.2d 323, 349 (D.C. Cir. 1979) (“The regulations provided that where an NSPS was applicable, compliance with the NSPS would constitute compliance with BACT.”).

⁵⁷ *Id.* at 351.

EPA's recent rulemaking emphasizes this fact, finding that some sources far exceed the newly established NSPS.⁵⁸

The Preliminary Determination states the proper role of the BACT analysis, but deviates from the statutory requirement. As DAQ recognizes, BACT is defined as an "emission limitation . . . based on the maximum degree of reduction of each pollutant subject to Prevention of Significant Deterioration (PSD) review . . . on a case-by-case basis."⁵⁹ But the Preliminary Determination adopts Titan's reverse engineering that is based on the NSPS and its BDT analysis rather than the case-by-case BACT analysis required by the Act. So although the Preliminary Determination claims to "follow closely the statutory language" rather than EPA's top-down process, its BACT analysis does anything but follow the statutory language.⁶⁰ The statute states that BACT represents the "maximum degree of reduction of each pollutant subject to regulation under this chapter" on a case-by-case basis. In the Preliminary Determination, DAQ has deferred to Titan's application of the industry-wide BDT. As demonstrated below, had DAQ applied the top-down process described in EPA's Draft 1990 NSR Workshop Manual, the Draft Permit would include more restrictive emission limits because the agency would have considered a broader range of information and evaluated more efficient control technologies. DAQ's discretion to avoid the top-down analysis does not include the discretion to approve emission limits that fail to meet the statutory definition of BACT. Because DAQ did not require sufficient additional analysis, the Preliminary Determination also fails to include the required analysis and the Draft Permit sets limits that are not BACT.

2. *DAQ's use of incremental costs prejudices the BACT analysis against available and affordable control technologies that would better reduce pollution.*

DAQ has inappropriately and unlawfully relied almost exclusively on incremental costs when conducting its BACT analysis. To provide a balanced, objective evaluation, the cost effectiveness evaluation in the BACT analysis should include both average cost and incremental costs for each control technology. Rather than isolating incremental costs, "[t]he incremental cost effectiveness should be examined in combination with the total cost effectiveness in order to justify elimination of a control option."⁶¹ Instead of including average and incremental costs for each technology, DAQ adopts Titan's analysis, calculating the average cost only for the company's preferred control technology and the incremental costs for all other technologies. This approach is misleading, as discussed below, because "undue focus on incremental cost effectiveness can give an impression that the cost of a control alternative is unreasonably high, when, in fact, the total cost effectiveness, in terms of dollars per total ton removed, is well within the normal range of acceptable BACT costs."⁶²

⁵⁸ See National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 75 Fed. Reg. 54,970, 54,994/2 (Sept. 9, 2010) (describing low emitting kilns in Florida and California).

⁵⁹ Preliminary Determination at 85 (quoting statute 42 U.S.C. § 7479 and 40 C.F.R. § 51.155(b)(12)).

⁶⁰ Preliminary Determination at 86.

⁶¹ Environmental Protection Agency, New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting – Draft at B.41 (Oct. 1990) ("EPA Draft NSR Manual").

⁶² EPA Draft NSR Manual at B.45-46.

DAQ recently recognized the importance of conducting both cost calculations and the potential for incremental costs to be misleading. In its August 2008 preliminary determination for the Wilbara sulfuric acid manufacturing plant in New Hanover County, DAQ stated:

It should be noted that the incremental cost of the lower-emitting vertical tube mist eliminator over the second-ranking control device, the higher-emitting vertical tube mist eliminator, is \$37,972/ton. However, based on the low average cost effectiveness of the lower-emitting vertical tube mist eliminator, the high incremental cost does not justify eliminating the more effective control device from consideration.⁶³

As described below, that analysis should apply in this case, and would result in different BACT determinations.

3. *DAQ failed to appropriately evaluate the range of potential technologies and the performance levels of selected technologies.*

DAQ's analysis of technologies and their respective efficiencies similarly reflects Titan's narrow focus. Several of the technologies evaluated in the BACT analysis have a range of efficiencies, yet were evaluated for a single efficiency, which was calculated based on BDT. When conducting a BACT analysis, "it is presumed that the source can achieve the same emission reduction level as another source."⁶⁴ As discussed for each pollutant below, the control technologies proposed by Titan and evaluated by DAQ can and have achieved greater efficiencies in practice than DAQ has included in the Draft Permit. The BACT analysis must be recalculated to evaluate these technologies.

An example of this narrow focus is DAQ's treatment of evidence supporting EPA's recent NSPS and NESHAP. As a general matter, where EPA's data suggested that Titan's requested efficiency rate was too low – as discussed below with respect to wet scrubbers and SNCR – DAQ ignored the data. If EPA's data supported Titan's assertions, however, DAQ referenced those data and relied upon EPA's analysis in the Preliminary Determination. Pollutant specific examples of this unequal treatment are addressed in the sections below.

4. *DAQ's analysis lacks necessary independent evaluation of information submitted by the applicant.*

As it did in the last draft permit, DAQ appears to have largely relied on Titan's submission and did not independently seek input from EPA, the record compiled for the MACT/NSPS, vendors, other permitting agencies, or other facilities. The Preliminary Determination does not reflect any additional analysis or reveal any data that DAQ relied on to verify Titan's submissions. Relevant sources of information would include control technology vendors, new source review permits (other than the RBLC database), environmental consultants,

⁶³ Prevention of Significant Deterioration Pre-construction Review and Preliminary Determination for Wilbara, LLC, New Hanover County, Wilmington, North Carolina at 14 (Aug. 2008).

⁶⁴ EPA Draft NSR Manual at B.24.

and technical journals, reports and newsletters, and air pollution control seminars.⁶⁵ It is not clear that DAQ considered any of these sources.

Further, even DAQ's analysis of the RBLC database was limited to the technologies included in the database. DAQ failed to evaluate emission limits at other sources or the performance of the technology at those sources. While the RBLC database may not include "sufficient documentation to determine if any particular emission rate has been achieved in practice or demonstrated," DAQ is not prohibited from communicating with other agencies to determine how and whether emission limits have been achieved at facilities identified through the database.

In each BACT section, DAQ generically states that "[w]here the Division of Air Quality agreed with the applicant, the information from the application was included in this BACT analysis review."⁶⁶ Because DAQ's source of information was restricted to its limited analysis of the RBLC database and the MACT/NSPS federal register notice, DAQ lacked the information and analysis to effectively critique Titan's submission.

B. The PM limit is not BACT.

DAQ has established BACT for PM₁₀/PM_{2.5} based on varying levels of baghouse controls and management practices. The analysis is flawed because it failed to evaluate PM₁₀ and PM_{2.5} separately, inappropriately relied on MACT as BACT, and did not evaluate different types and efficiencies of bagfilters.

1. DAQ has not demonstrated that PM₁₀ is an appropriate surrogate for PM_{2.5}.

The Clean Air Act prohibits the construction of major sources unless "the proposed facility is subject to the best available control technology for each pollutant subject to regulation under this chapter."⁶⁷ There is no dispute that Titan's proposed facility is a "major source" for PM_{2.5} and that it therefore requires PSD review before a permit can issue.⁶⁸ The facility would emit 160 tons of PM_{2.5} each year, exceeding the regulatory threshold of 100 tons/year.⁶⁹ Nonetheless, Titan failed to submit, and DAQ failed to conduct, a PM_{2.5} BACT analysis. DAQ cannot lawfully issue a permit for this facility until this pollutant is properly addressed.

DAQ has presumably, though not explicitly, used PM₁₀ as a surrogate for PM_{2.5} for the purpose of the BACT analysis. This surrogacy is unwarranted and improper. As reflected in an order from the EPA Administrator, case law – including case law regarding Portland cement plants – "demonstrate[s] the need for permit applicants and permitting authorities to determine whether PM₁₀ is a reasonable surrogate for PM_{2.5} under the facts and circumstances of the specific permit at issue, and not proceed on a general presumption that PM₁₀ is always a

⁶⁵ EPA Draft NSR Manual at B.11.

⁶⁶ See e.g. Preliminary Determination at 87.

⁶⁷ 42 U.S.C. § 7475(a)(4).

⁶⁸ Preliminary Determination at 2.

⁶⁹ *Id.*

reasonable surrogate for PM_{2.5}.⁷⁰ The Administrator went on to more clearly state that “any person attempting to show that PM₁₀ is a reasonable surrogate for PM_{2.5} would need to address the differences between PM₁₀ and PM_{2.5}.⁷¹

The burden on the applicant and regulator to demonstrate that PM₁₀ is an adequate surrogate is significant. “Without strong correlation, there can be little confidence that the statutory requirement will be met for PM_{2.5} using the controls selected through a PM₁₀ NSR analysis.”⁷² The correlation is necessary because “finer material is not as efficiently removed by baghouse as larger particles” and “the particles that make up PM_{2.5} may be transported over long distances while coarse particles normally travel only short distances.”⁷³

As recognized by EPA Region 4 in comments on the 2009 Draft Permit, DAQ “has not provided an adequate rationale in the Preliminary Determination to support the use of the PM₁₀ surrogate approach for this project.”⁷⁴ Without additional information, DAQ cannot conclude that fabric filters designed to remove filterable PM₁₀ will also remove PM_{2.5}.⁷⁵ Thus, DAQ must conduct a BACT analysis for PM_{2.5}.

2. *DAQ improperly relied on MACT as BACT.*

In its analysis of the kiln and clinker cooler, DAQ set BACT as “a numerical limitation based on the equation at 40 CFR §63.1343(b)(2),”⁷⁶ the MACT limit for PM as a surrogate for non-volatile metal HAPs. PM is used as a surrogate, but is still regulated under Section 111 of the Clean Air Act and must still undergo a BACT analysis. DAQ failed to conduct that analysis here and therefore the limit set is not BACT.⁷⁷

Critically, DAQ’s own analysis acknowledges that the limit set is not BACT and that greater emission reductions are achievable. DAQ’s calculations show that the proposed bagfilters should reduce emissions to 0.014 lbs/ton clinker and that the wet scrubber should remove additional PM.⁷⁸ Therefore, DAQ cannot legally set BACT at the rate of 0.0145 lb/ton clinker. DAQ must quantify the PM reduction provided by the wet scrubber, and any other control technologies that reduce PM, and set the BACT limit at a level that meets the statutory requirement to reduce emissions to the “maximum degree.”

⁷⁰ EPA Administrative Order, *In the Matter of: Louisville Gas and Electric Company*, Petition No. IV-2008-3 at 44 (Aug. 12, 2009) (“Louisville Administrative Order”).

⁷¹ *Id.* at 45.

⁷² *Id.*

⁷³ *Id.* at 44.

⁷⁴ Letter from Gregg Worley, EPA, to Booker Pullen, DAQ at 1 (Oct. 26, 2009) (“10-26-09 EPA Comments”).

⁷⁵ Sahu Comments at 2.

⁷⁶ Preliminary Determination at 94.

⁷⁷ Further, as DAQ notes in the Preliminary Determination, “when sources are subject to two regulations with different emission limits under Title 40, the more stringent requirements apply.” Preliminary Determination at 46. Between the MACT and BACT standard for PM, BACT is more stringent because the 0.01 lb/ton clinker is the starting point for the analysis.

⁷⁸ Preliminary Determination at 56.

3. *DAQ did not appropriately evaluate the range of bagfilters available and quantify co-benefits from other technologies.*

Because DAQ unlawfully relied on MACT as BACT, it failed to identify and evaluate bagfilters capable of providing varying ranges of PM control. To be sure, technology exists to reduce PM emissions below 0.01 lb/ton clinker. In EPA's recent rulemaking, performance tests revealed emission levels as low as 0.0023 lb/ton clinker.⁷⁹ DAQ cannot simply adopt the NSPS limit as BACT, the agency must conduct the analysis.

DAQ's BACT analysis for other process sources is similarly flawed. Failing to conduct a rigorous BACT analysis, the agency includes a pair of sentences referencing evaluations of better performing bagfilters in the PM section.⁸⁰ DAQ's analysis should be fully documented, explained, and analyzed through the process rather than injected at the end of the analysis.

Finally, DAQ's analysis fails to quantify the effect of wet scrubbing on PM removal and should re-evaluate the removal of condensable PM with varying levels of wet scrubbers, as more fully discussed below with respect to SO₂ removal.

For these reasons, DAQ's PM limit does not reflect BACT, and the agency should perform an appropriate analysis that determines the "maximum degree of reduction" of PM that is achievable by the proposed facility.

C. DAQ's SO₂ analysis does not reflect BACT.

As determined by DAQ, "BACT for SO₂ from the kiln system is the use of the inherently low-emitting process, coupled with a wet scrubber that achieves a minimum of 90% SO₂ removal efficiency or 0.4 lbs SO₂ per ton of clinker."⁸¹ DAQ's analysis is not adequately supported, does not take evaluate appropriate control technology, incorrectly evaluates cost effectiveness, and mischaracterizes the 90% removal efficiency provision of the NSPS. Therefore, it does not reflect BACT.

1. *DAQ relies on unsupported assumptions.*

DAQ's BACT analysis for SO₂ begins with the recognition that raw materials are an important source of SO₂ emissions. Yet the Preliminary Determination fails to meaningfully consider substitution of raw materials, either through quarrying or importing lower-sulfur raw materials. DAQ's conclusion that "raw material to be used is inherent to the project" highlights the problem with proceeding with the air quality permit before the company has received approval for its proposed quarry. The raw material that would be used will be defined by the Corps' process and has not been identified. Therefore, if it truly is "inherent," DAQ cannot process this permit application because that essential part of the project has not been defined.

⁷⁹ 73 Fed. Reg. at 34,076.

⁸⁰ Preliminary Determination at 94.

⁸¹ Preliminary Determination at 102.

Moreover, neither Titan nor DAQ have provided any evidence to support the claim that “reducing sulfur content below current levels may be detrimental to clinker product quality.” Other U.S. cement kilns produce clinker using lower-sulfur raw materials, presumably without harm to clinker quality. Further, it is not clear how variable the limestone within Titan’s initial or expanded quarry proposal is. Before the company or the agency can calculate baseline emissions, or determine what “current levels” are, Titan must provide a comprehensive survey of all potential sources of limestone so that the relative abundance of limestone with varying sulfur levels can be identified. Eliminating consideration of raw material substitution based on an unsupported claim is arbitrary and capricious.

Legally, DAQ cannot exclude raw material substitution from the BACT analysis. As stated plainly in the Clean Air Act, BACT includes consideration of “clean fuels.” 42 U.S.C. §7479(3). Substituting low-sulfur limestone is well within DAQ’s obligation in the BACT analysis.

2. *DAQ improperly excluded control technologies that have the potential to significantly reduce emissions.*

By adopting Titan’s analysis, DAQ failed to evaluate control technologies that could significantly reduce the proposed emissions. Perhaps most noticeably, DAQ failed to evaluate use of a wet scrubber designed to work at 90% efficiency, even though Titan’s control technology analysis acknowledges that wet scrubbers can achieve that level⁸² and the agency evaluated a 90% efficiency wet scrubber in its 2009 Preliminary Determination.⁸³ To be sure, wet scrubbers can easily achieve 90% removal efficiency. In its recent rulemaking EPA found that “[d]esign and performance data indicate the 90 percent control is continuously achievable for a well designed and operated wet scrubber.”⁸⁴

Scrubbers that can “continuously” achieve a minimum 90% control necessarily, on average, achieve greater controls. And the record supporting EPA’s NSPS demonstrates that scrubbers do, in practice, far exceed 90% control. An industry study of SO₂ controls found that scrubbers routinely resulted in reductions of 90-95%.⁸⁵ Performance data indicate that scrubbers installed on a kiln in Iowa achieved 96% control.⁸⁶ A span of 25 tests at TXI’s Midlothian facility revealed a range of performance from 91.2% to 99.1%, with an average control of 94.1%.⁸⁷ Finally, Holcim’s facility in Dundee, Michigan tested out at over 99% control efficiency.⁸⁸ With these proven performances, there is no basis for DAQ’s finding that 85% control represents BACT. DAQ must re-evaluate its BACT determination, evaluating scrubbers designed and engineered to perform at 90%, 95%, 98%, and 99% removal. The benefits of these more efficient scrubbers are illustrated in the following chart.

⁸² Preliminary Determination at 36.

⁸³ 2009 Preliminary Determination at 81.

⁸⁴ 75 Fed. Reg. at 54,995.

⁸⁵ Steven W. Miller and Jens Hansen, Methods for Reducing SO₂ Emissions: Study by IEEE-IAS Cement Industry Committee at 9 (attached as Exhibit 5).

⁸⁶ Memo from M. Bahner, M. Laney, and K. Barnett to Docket Number EPA-HQ-OAR-2007-0877 at 2-3 (May 29, 2008) (“05-29-08 Memo to Docket”) (attached as Exhibit 6).

⁸⁷ *Id.*

⁸⁸ *Id.*

Method	System Removal	Tpy SO ₂ Removed	BACT Limit (tpy)	Annualized Cost, 1000\$	Cost (\$/ton) Effectiveness
Wet Scrubbing (85%)	85%	2,443	432	8,151	3,337
WS (90%)	90%	2,592	288	8,793 ⁸⁹	3,392
WS (95%)	95%	2,736	144		
WS (98%)	98%	2,822	57		
WS (99%)	99%	2,851	28		

These emission levels are readily achievable through available technology. Yet DAQ did not support its decision not to evaluate more efficient control using wet scrubbers.

3. *DAQ's use of incremental cost prejudices more effective control technologies that are within accepted ranges of cost effectiveness.*

DAQ's cost effectiveness evaluation suffers several flaws. First, the proposed capital costs appear to be inflated. This is a new facility that can be designed from the outset to accommodate a SO₂ reduction technology and therefore should be able to minimize costs. As EPA noted in its comments on the 2009 Preliminary Determination, the estimate for the wet scrubber costs "assumes the worst case" and is "excessively high."⁹⁰

Even if the costs were accurate, DAQ's mixing of average cost effectiveness and incremental cost effectiveness prejudices the evaluation. As demonstrated in the following chart, every control option evaluated, with the exception of wet scrubbing and dry absorbent addition, is within \$1,000/ton SO₂ of wet scrubbing alone when evaluated based on average cost effectiveness. Further, up to 95% removal efficiency can be achieved for just over \$600/ton SO₂ more than applying a wet scrubber operating at 85%, which would amount to a total cost of \$1.7 million, less than 0.4% of the proposed \$500 million facility. Achieving those reductions through a higher performing wet scrubber alone may be even more economical. Given the similar average cost effectiveness of these various control technologies, "the high incremental cost does not justify eliminating the more effective control device from consideration."⁹¹

⁸⁹ Estimated annual cost based on 2009 Preliminary Determination, which evaluated wet scrubber at 90% removal efficiency.

⁹⁰ 10-26-09 EPA Comments at 2.

⁹¹ Wilbara Preliminary Determination at 14.

Method	System Removal	Tpy SO ₂ Removed	Annualized Cost, 1000\$	Cost (\$/ton) Effectiveness	Incremental Cost (\$/ton) Effectiveness
Wet Scrubbing (WS)	85%	2,443	8,151	3,337	
WS + WAA	92 %	2,661	10,068	3,783	8,792
WS + DAA	92 %	2,662	11,906	4,473	17,156
WS + DS	89 %	2,574	8,909	3,461	5,776
WS + LH	91 %	2,635	9,490	3,601	6,953
WS +DS +WAA	95 %	2,727	10,818	3,967	9,391
WS + LH + WAA	96 %	2,757	11,410	4,139	10,354

What's more, DAQ's cost effectiveness analysis appears to have no objective basis. In Titan's 2009 Draft Permit, DAQ ostensibly determined that installation of a wet scrubber was economically prohibitive at a cost effectiveness of \$3,392/ton SO₂.⁹² In the current evaluation, cost effectiveness of \$3,337/ton SO₂ has been deemed economical. Elsewhere, pollution controls have been deemed cost effective at much higher costs.⁹³ The only factor differentiating DAQ's determination in 2009 and the current Preliminary Determination is that the applicant proposed to implement the scrubber in this iteration of the permit. Given the lack of economic justification provided, the company's decision was not a reasonable basis for excluding a wet scrubber in 2009 and it is not a defensible basis for excluding a better performing wet scrubber or additional technology in this analysis.

Finally, DAQ's cost effectiveness calculation fails to account for cobenefits of wet scrubbing and to allocate the cost of the wet scrubber among the pollutants controlled. As DAQ acknowledges, the wet scrubber will be the primary HCl control mechanism.⁹⁴ Therefore, costs associated with the wet scrubber should not be entirely allocated to SO₂ removal, making it even more cost effective.⁹⁵

4. *DAQ mischaracterizes the 90% control option and inappropriately includes it as BACT.*

DAQ's BACT analysis mischaracterizes the 90% control option included in the recent NSPS for SO₂ and unlawfully applies it to Titan's facility. As DAQ notes, the raw materials for Titan's proposed facility "have a medium sulfur content relative to other US cement plants."⁹⁶ EPA included the option for a 90% reduction in the NSPS "to account for situations where the sulfur content of the raw materials is so high that, even with the most efficient SO₂ control, a kiln cannot meet the 0.4 lb/ton of clinker emissions limit,"⁹⁷ which is not the situation Titan is faced with. By the plain language of the regulation, the 90% control option is only available for those

⁹² 2009 Preliminary Determination at 82.

⁹³ Sahu Comments at 12-14.

⁹⁴ Preliminary Determination at 60.

⁹⁵ See 75 Fed. Reg. at 54,995 (stating that most facilities would be required to install wet scrubbers to comply with HCl MACT and that entire cost should not be allocated to SO₂ removal).

⁹⁶ Preliminary Determination at 101.

⁹⁷ 75 Fed. Reg. at 54,995.

facilities that cannot reduce SO₂ emissions below 0.4 SO₂/ton.⁹⁸ As discussed above, Titan can clearly reduce its emissions well below the minimum NSPS standard. The provision is not, as DAQ uses it, an escape valve to allow excess pollution when a well-maintained scrubber could have greater than a 90% reduction efficiency. DAQ's interpretation would allow this narrowly crafted exception to eclipse the numerical NSPS. Moreover, it conflicts with the plain language of the Act, reading the rule to preempt the statutory definition of BACT, which requires the "maximum reduction" of SO₂ possible. DAQ cannot lawfully issue a permit with the 90% alternative when Titan can reduce emissions below the numerical NSPS.

D. DAQ's NO_x limit does not represent BACT.

In the Draft Permit, DAQ's BACT analysis concludes that BACT for the proposed facility "is the use of indirect firing, low NO_x burners, staged combustion (SC), and Selective Non Catalytic Reduction (SNCR) with a not to exceed limit of 1.40 lb/ton of clinker, 30-day rolling average, as measured by a CEMS." This analysis errs by omitting information about Titan's raw material and fuel mixture and the effect of that mixture on NO_x emissions, excluding high-dust selective catalytic reduction ("SCR") as a technologically feasible control, and limiting its evaluation of selective non-catalytic reduction ("SNCR") to a 50% removal efficiency. For these reasons, the stated finding does not reflect BACT as required by the Clean Air Act.

1. DAQ's analysis omits important information regarding the proposed fuel mixture that could affect NO_x emissions.

DAQ's treatment of NO_x emissions from fuel is cursory. As the Preliminary Determination notes, "[f]uel usage affects the quantity and type of NO_x generated."⁹⁹ The BACT analysis, however, fails to evaluate fuel usage and its potential impact on NO_x emissions and the appropriate emissions limits. The Draft Permit would authorize Titan to use some mixture of coal and pet coke to fuel the facility, but does not place any limitation on the proportional fuel mix. Because pet coke and coal have different burning requirements, pet coke may result in lower NO_x emissions.¹⁰⁰ DAQ must evaluate the difference in emissions from these two fuel sources, potential mixtures, the effect of those mixtures on emission levels, and whether fuel mixture restrictions or separate BACT limits are appropriate.

2. DAQ's BACT analysis improperly rejects SCR.

DAQ improperly rejects high-dust SCR as an appropriate control technology for NO_x. DAQ adopted Titan's analysis of the technical capability of SCR, finding that due to "serious operational problems concerning catalyst plugging and deactivation," no cement kilns "have been successful on a sustained long-term basis."¹⁰¹

⁹⁸ See 40 C.F.R. § 60.62(4) (stating that facilities cannot exceed 0.4 lbs SO₂/ton clinker "unless" they demonstrate "a 90 percent SO₂ emissions reduction").

⁹⁹ Preliminary Determination at 7.

¹⁰⁰ ERG Inc., Assessment of NO_x Emissions Reduction Strategies for Cement Kilns – Ellis County at 3-8 (July 14, 2006) ("TCEQ Study") (attached as Exhibit 7).

¹⁰¹ Preliminary Determination at 98. DAQ does not define "successful" or "long-term."

The conclusion that no cement kilns have successfully implemented SCR is demonstrably false. In fact, DAQ's Preliminary Determination directly contradicts the conclusion. It states that there has been one "long-term pilot project" and "three industrial applications" of SCR. Each of these applications demonstrates that high-dust SCR is technically feasible. Further, experience with SCR in Europe began in the early 2000s, approximately the same time that wet scrubbers – technology that Titan and DAQ have accepted in this Draft Permit – started to be more widely used in this country.¹⁰²

The Solnhofer plant in Germany successfully implemented SCR from 2001 until 2006. Contrary to DAQ's statement that the Solnhofer facility's discontinuation of SCR was due to "serious operational problems," a 2006 report on the facility indicates that the original catalyst lasted "well beyond the catalyst manufacturer guarantee," that the facility encountered some problems when it incorporated a different catalyst, and that the plant installed SNCR to meet permit limits while it considered new catalysts.¹⁰³ The transition to that SNCR system increased ammonia consumption "by a factor of 5 to 8 compared to SCR," resulting in additional operating costs beyond those required for SCR.¹⁰⁴ Solnhofer was not only successful at operating the SCR system for more than 40,000 hours, the 2006 report concluded that engineers familiar with the SCR installation at the facility were optimistic about restarting the system.¹⁰⁵

Following Solnhofer, another SCR system was installed at Cementeria di Monelice.¹⁰⁶ The Monselice facility's SCR has been operating in Italy since 2006.¹⁰⁷ A review of that facility found up to 97% NO_x removal efficiency as well as co-benefits of removing air toxics and minimizing odor.¹⁰⁸ Further, the SCR was available 100% of the time.¹⁰⁹ In 2007, another Italian kiln installed SCR to control NO_x emissions.¹¹⁰ More recently, a domestic facility has agreed to install SCR.

Not only has SCR been implemented successfully and on a long-term basis at kilns that DAQ has identified, NACAA endorsed SCR as BDT in response to EPA's proposal of the recent NSPS.¹¹¹ In an attachment to those comments, NACAA noted that "operational histories of SCR installations at coal-fired power plants and the one cement plant indicate that NO_x reductions are being achieved in a reliable manner Advances in SCR technology have resulted in present-

¹⁰² 05-29-08 Memo to Docket at 2-3.

¹⁰³ Linero, Alvaro, Trip Report on SCR Experiences at Solnhofer Portland Zementwerke, Cementeria di Monselice, and ASM Brescia Waste-to-Energy Plant at 3 (July 31, 2006) ("Linero 2006") (Exhibit 8).

¹⁰⁴ *Id.* at 4.

¹⁰⁵ *Id.* at 4-5.

¹⁰⁶ U. Leibacher, et. al, High Dust SCR Succeeds at Cementeria di Monselice at 1 ("Leibacher Report") (Exhibit 9).

¹⁰⁷ Leibacher Report at 1.

¹⁰⁸ *Id.* at 10.

¹⁰⁹ *Id.*

¹¹⁰ A. Linero, The Costs and Benefits of Selective Catalytic Reduction on Cement Kilns for Multi-Pollutant Control at 4 (Feb. 11, 2008) ("Linero 2008") (Exhibit 10).

¹¹¹ Letter from Robert Hobdanbosi and Ursula Kramer, National Association of Clean Air Agencies, to U.S. EPA at 3 (Sept. 30, 2008) (Exhibit 11) ("NACAA NSPS Comments"); *see also* Letter from Carolyn Slaughter, Institute of Clean Air Companies, to Stephen Johnson, EPA (Sept. 30, 2008) (finding SCR to be technically feasible and effective at reducing multiple pollutants) (Exhibit 12).

day SCR systems that are typically achieving 90 percent or greater.”¹¹² The report cites industry and consultant support for SCR as proven technology that is capable of effectively reducing NO_x while providing additional co-benefits by reducing “VOCs, dioxins and furans, ammonia, and mercury.”¹¹³ Perhaps most importantly, NACAA concludes that “SCR can achieve this performance with cost effectiveness of approximately \$1500-3800/ton NO_x for dry kilns.”¹¹⁴

SCR has the potential to drastically reduce NO_x emissions from Titan’s proposed facility. The Monselice SCR system has reported NO_x emissions equivalent to approximately 0.25 lbs/ton clinker. Moreover, the supplier of Monselice’s SCR guaranteed reduction of 90%, which was surpassed by the realized reductions of 97%.¹¹⁵ Even a lower efficiency SCR, with 80% removal efficiency, would result in emissions in the range of 0.56 lbs/ton clinker at Titan’s facility.

Because of significant declines in cost projections, SCR is also economically feasible.¹¹⁶ Cost projections in a 2006 study prepared for the Texas Commission on Environmental Quality estimated capital costs for SCR at three dry kilns in Texas would range from \$6.7-8.4 million and annual operating costs would range from \$2.0-2.4 million.¹¹⁷ The report estimated the cost effectiveness of installing SCR at \$2,200/ton for TXI’s kiln and approximately \$2,000/ton for two Holcim kilns.¹¹⁸ And even though these costs are well within reasonable ranges of cost effectiveness, they should be distributed among several pollutants due to SCR’s ability to reduce emissions of SO₂ and VOCs in addition to NO_x.¹¹⁹

For the reasons discussed above, the proposed NO_x limit does not represent BACT. DAQ must re-evaluate the level of uncontrolled emissions proposed for Titan’s facility, the potential for increased SNCR efficiency, and the availability of SCR as a control technology. During that re-evaluation, DAQ should independently contact SCR vendors rather than relying on Titan’s representations of SCR functionality, particularly those vendors that have provided SCR equipment and catalysts for the European kilns that have successfully operated SCR systems and vendors that supply SCR systems to coal-fired power plants in the U.S. Finally, it should address the four page attachment that NACAA submitted along with its comments identifying SCR as BDT. Unless and until DAQ takes these steps, the proposed limit for NO_x cannot be defensibly identified as BACT.

3. *The BACT analysis must evaluate the full range of SNCR efficiencies.*

Even if we were to accept SNCR as the appropriate control technology for NO_x, the proposed NO_x limit does not reflect BACT. The proposed NO_x limit is calculated from baseline

¹¹² NACAA NSPS Comments, Attachment at 3; *see also* Memo from Ravi Srivastava, et al., Andover Technology Partners, to Jim Staudt at 23 (Mar. 10, 2009) (claiming 90% NO_x removal for SCR) (“Andover Memo”) (Exhibit 13).

¹¹³ NACAA NSPS Comments at 4. *See also* Linero 2008 at 5-8.

¹¹⁴ NACAA NSPS Comments at 4.

¹¹⁵ FL Dep. of Env. Protection NSPS Comments at 3 (Sept. 29, 2008) (“FDEP Comments”) (Exhibit 14).

¹¹⁶ Andover Memo at 21.

¹¹⁷ TCEQ Study at 4-19.

¹¹⁸ TCEQ Study at 4-15, 4-17.

¹¹⁹ FDEP Comments at 6.

NO_x emissions of 2.8 lbs/ton clinker and the application of a SNCR system with 50% efficiency. DAQ's consideration of each of these factors is flawed.

DAQ's baseline NO_x estimate is higher than similar facilities and the industry average. EPA has observed that "three recently permitted preheater/precalciner kilns utilizing well-designed and operated process designs including SCC, averaged NO_x emissions of 1.62, 1.88 and 1.97 lb/ton clinker" without "additional add-on controls."¹²⁰ Those rates are lower than the "uncontrolled industry average" of "2.5 lb NO_x/ton clinker."¹²¹ In its comments on the 2009 Draft Permit, Region 4 EPA noted that the agency "typically [has] seen facilities meet an emission rate of 2 lb/ton clinker without installing SNCR."¹²² Thus, some explanation is required to defend Titan's high base emission level.

DAQ's estimate that SNCR will achieve a 50% removal efficiency must also be examined. First, neither Titan nor DAQ have explained a technical basis for the selection of a 30% removal efficiency in 2009, the 46% removal efficiency proposed in the revised application, or the 50% removal efficiency in the Draft Permit. The explanation for choosing these low efficiency rates is essential because SNCR is capable of achieving much greater than the 50% removal efficiency proposed. "Data on SNCR show a performance that ranges from approximately 20 to 80 percent NO_x reduction."¹²³ In the Federal Register notice for the final NSPS, EPA observed that "there are numerous examples of SNCR systems achieving emission reductions greater than 50 percent and as high as 80 percent or more."¹²⁴ The agency noted that "[t]hese reductions were achieved without appreciable ammonia slip." Record evidence supporting EPA's analysis shows that the Ash Grove plant in Seattle has achieved 80-90% efficiency from its SNCR.¹²⁵ In fact, the two Swedish kilns that DAQ cites as examples of SNCR application¹²⁶ have achieved 80-85% removal efficiency.¹²⁷ Air pollution control manufacturer F.L. Smidth "tested SNCR on a preheater/precalciner kiln" and found "NO_x reductions of over 90 percent."¹²⁸

In short, there does not appear to be any technical basis supporting Titan and DAQ's selection of 50% removal efficiency. If Titan's proposed baseline emissions are reduced to those of recently permitted kilns – 1.62, 1.88 and 1.97 lbs/ton clinker – and those emissions are then reduced by 75%, the limit would be significantly less than 1.0 lbs/ton clinker.

If Titan's proposed baseline emissions are legitimately higher than average, then SNCR should be far more efficient than the projected 50%. "Generally, SNCR performance (i.e. percentage removed) increases as uncontrolled NO_x levels increase."¹²⁹ DAQ has rejected that

¹²⁰ 73 Fed. Reg. at 34,078-79.

¹²¹ *Id.* at 34,079.

¹²² 10-26-09 EPA Comments at 2.

¹²³ 73 Fed. Reg. at 34,079.

¹²⁴ 75 Fed. Reg. at 54,994.

¹²⁵ U.S. EPA, Alternative Control Techniques Document Update – NO_x Emissions from New Cement Kilns at 55 (Nov. 2007) (Exhibit 15).

¹²⁶ Preliminary Determination at 112.

¹²⁷ TCEQ Study at 4-25.

¹²⁸ TCEQ Study at 4-25.

¹²⁹ *Id.*

general trend here – including uncontrolled NO_x emissions that are higher than average, but applying an SNCR efficiency rate that is well below average. But the Preliminary Determination does not identify any site-specific variable that accounts for this reversal of the general trend. DAQ must explain why Titan's proposed baseline NO_x emissions are higher than average and then explain why those higher emissions do not correlate with higher SNCR efficiency rates in this instance.

DAQ must redo the NO_x BACT analysis for varying levels of SNCR removal efficiency, evaluating the potential for multiple locations of SNCR and expected performance of individual and cumulative sites. Further, DAQ must evaluate significant evidence demonstrating that SNCR can perform at much greater than 50% removal efficiencies. At this point, DAQ has not conducted that analysis. Given these substantial omissions from DAQ's analysis, even using SNCR, the proposed limit does not reflect the "maximum degree of reduction" of NO_x and is not BACT.

E. The Proposed Limits for CO and VOC Do Not Reflect BACT.

DAQ has proposed a BACT limit of 2.80 lbs CO/ton clinker on a 30-day rolling average.¹³⁰ The proposed BACT limit for volatile organic compounds ("VOC") is 0.16 lbs VOC/ton clinker.¹³¹ These limits are based on good combustion practices, which DAQ determined to be the only technologically available control technology.¹³² Because DAQ did not critique the proposed baseline emissions proposed by Titan and neglected to investigate lower emission levels achieved at other sources, the proposed limit is not BACT.

CO and VOCs are produced by inefficient combustion and from high organic content of raw materials.¹³³ Notably, "new precalciners are designed to combust fuel as efficiently as possible, and CO emissions from fuel combustion are minimized."¹³⁴ Therefore, Titan's facility should not produce significant quantities of CO and VOCs from combustion.

Because the source of Titan's raw materials have not been identified, it is not possible to determine the organic content of those materials or to estimate the potential CO and VOC emissions. In its BACT analysis, DAQ fails to identify the source of raw materials, approximate their organic content, or differentiate those materials from raw materials found at other sources. Importantly, Titan's Control Technology Analysis also fails to address the effect of raw materials on CO and VOC emissions.¹³⁵ Therefore, DAQ's analysis appears to be based solely on the unsupported emissions and limit proposed by the company. Setting emission limits without support or analysis is arbitrary and capricious.

The error in that approach is highlighted by the lower permit limits at other facilities. Just among the facilities identified by DAQ's RBLC database search, nine have lower permit

¹³⁰ Draft Permit at 46.

¹³¹ Draft Permit at 46.

¹³² Preliminary Determination at 107.

¹³³ 75 Fed. Reg. 54,996.

¹³⁴ *Id.*

¹³⁵ Titan America/CCC Control Technology Analysis at 63-64 (Apr. 2011).

limits for CO or VOCs.¹³⁶ Assuming that those facilities have complied with their permits, their actual emissions must necessarily be lower. Yet DAQ did not investigate those permits, the facilities' emissions, or any difference that may exist between those facilities and Titan's proposed plant.

DAQ's analysis of VOCs is fundamentally flawed in an additional aspect – it failed to evaluate the control capability of activated carbon injection ("ACI"). As EPA has observed, "most THC are also VOC."¹³⁷ Therefore, technologies capable of limiting THC will also limit VOC. ACI systems, which the Draft Permit requires Titan to install to meet its mercury limit, has been "conservatively estimated" to "reduce THC emissions by 75 to 80 percent."¹³⁸ Therefore, the company's VOC emissions could be reduced – with no additional technology – by more than 130 tons each year. Therefore, the proposed limit cannot be BACT.

F. The greenhouse gas limit is not BACT.

Titan's proposed facility would emit more than 2 million tons of CO₂ each year and more than 100 million tons over its projected 50 year life-cycle. Yet DAQ rejected taking a serious look at reducing those emissions by stating that calculating BACT is "legally unworkable." This straw man argument is an unwarranted distraction from the analysis DAQ should carry out with respect to GHGs. It is worth noting that while each of the other BACT analyses begins with an analysis of controls of the target pollutant, none begins with an analysis of the environmental impact. In fact, none of the analyses includes a discussion of the environmental impact of reducing the target pollutant or evaluates reductions in comparison to the NAAQS, something DAQ apparently deems critical with respect to GHGs. The BACT analysis serves to achieve the maximum reduction of the specified pollutant. GHGs can be measured and emissions can be reduced. DAQ should conduct a probing BACT analysis.

It is widely recognized that "greenhouse gases in the atmosphere endanger the public health and welfare of current and future generations."¹³⁹ This danger is particularly acute in eastern North Carolina where the effect of "more heavy downpours and flooding, increased drought, greater sea level rise, more intense storms, harm to water resources, harm to agriculture"¹⁴⁰ will directly affect the region's staples of agriculture, fishing, and tourism.

Therefore, DAQ must provide a more thorough analysis of Titan's proposed GHG emissions and methods for reducing those emissions. In its analysis, DAQ assumes that the facility will emit 0.91 tons CO_{2e} without documentation or support of that emission level or thorough analysis of whether it could be reduced. As a result, DAQ has not supported it as BACT.

¹³⁶ Preliminary Determination at 103-05.

¹³⁷ 75 Fed. Reg. 54,996.

¹³⁸ 74 Fed. Reg. at 21,152; DAQ acknowledges that ACI can reduce THC, and therefore VOCs, on p. 58 of the Preliminary Determination.

¹³⁹ Proposed Endangerment Finding and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 18,886 (April 24, 2009).

¹⁴⁰ *Id.*

G. DAQ's MACT analysis is not sufficiently documented or supported.

As with much of the Preliminary Determination, DAQ's application of the MACT standards to Titan's application relies on unsubstantiated assumptions that must be justified and documented if DAQ is going to rely on them.

DAQ's mercury MACT analysis is too vague. The calculations rely on raw materials that are not documented and are speculative. The Preliminary Determination notes that the analysis is based on "site-specific sampling of the raw material at the proposed site during the initial stages of modeling."¹⁴¹ The analysis fails to identify those sites. Moreover, the "initial stages of modeling" were based on a quarry proposal that the company has since withdrawn; does not reflect the current, expanded quarry design; and is, at best, speculative until Titan completes its the permitting process with the U.S. Army Corps of Engineers. Second, DAQ relies on a "recent EPA impact analysis" for mercury removal rates, but does not provide a citation to the analysis and fails to provide any documentation of ACI or wet scrubbing removal.

DAQ's THC analysis is also inappropriately vague. The analysis shows that based on proposed permit limits, Titan would slightly exceed the 24 ppmv MACT limit. DAQ's analysis, however, indicates that THC emissions may be higher. The analysis states that the proposed VOC BACT limit equates to approximately 24 ppmv, the MACT limit. DAQ goes on to state that "VOCs are a subset of total hydrocarbons and would not be expected to be equivalent to the total THC amount."¹⁴² If a subset of the THC amount is "approximately equivalent to the THC MACT value," then the full THC amount will exceed that limit. Therefore, DAQ's analysis does not indicate that Titan will comply with the THC limit.

With respect to HCl, DAQ relies on a statement that "much of the HCl is believed to be absorbed back into the process" and a "recent EPA impact analysis." Neither of these statements are supported or documented. Without some factual background for this analysis, DAQ's determination that the HCl limit will be met is arbitrary and capricious.

III. MODELING COMMENTS

A. Titan's quarry modeling is outdated and does not meet regulatory standards.

After its initial modeling submission, Titan altered its mining proposal but did not submit new quarry modeling. Although even that plan is speculative until evaluated by the Corps, it has a direct effect on the modeling relied upon in the Draft Permit. Modeling quarry emissions requires site-specific information including "[a] detailed, accurate map of the quarry site to include haul roads, location and footprint of all crushers, screens, conveyors, pit area, storage piles, and any other sources."¹⁴³ Elevation contours, property lines, and a certified plat map or surveyor's map are also required. Based on DAQ's analysis, it does not appear that any of that information has been submitted for the newest, expanded quarry proposal. Without that information, DAQ cannot issue a permit for the proposed facility.

¹⁴¹ Preliminary Determination at 57.

¹⁴² Preliminary Determination at 60.

¹⁴³ DAQ Quarry Guidance for Refined Modeling at 3.

B. DAQ's modeling analysis is inadequate.

Neither Titan's application nor DAQ's analysis provide adequate information on the following issues related to the modeling analysis:

- **Receptor Grid.** Titan's modeling includes 100 meter spacing of receptors at the fence line. Given the short averaging periods for some pollutants, like NO₂, this grid may not adequately evaluate maximum impacts. DAQ should require the company to use a more refined receptor grid to provide a detailed examination of impacts from the facility.
- **Meteorological Impacts.** Titan's modeling is based on a combination of 1988-1992 meteorological inputs from Wilmington and Charleston. DAQ must explain and support why these inputs are representative for the facility.
- **Background Concentrations.** The background concentrations included in Table 9 are from 2009 and were recommended by DAQ without explanation. The appropriateness of these background concentrations must be examined and explained.
- **SO₂ Emission Rate.** The short-term SIL analyses for SO₂ were based on an emission rate of 173 lbs/hr. The company or agency should provide an explanation of the source of this short-term emission rate.
- **PM₁₀ Modeling.** The modeling report conducts a source contribution analysis with respect to PM₁₀ for one receptor, but it is not clear whether that was the only receptor with a modeled exceedance value. If it is the only receptor with modeled exceedance, it should be clearly stated. If not, the analysis should include all exceedance receptors.
- **NO_x Modeling.** The most recent version of AERMOD (11059) includes some significant changes/corrections to the PVMRM method as used for the modeling analysis. Modeling should be re-calculated using this corrected version.
- **PM_{2.5} Modeling.** PM_{2.5} modeling does not include off-site emissions sources because "off-site inventories and monitoring data are currently not available." PM_{2.5} inventories can be compiled from other data and should be done so for this analysis.

IV. DAQ SHOULD DENY THE REQUESTED PERMIT BECAUSE IT WOULD HARM PUBLIC HEALTH AND WELFARE.

The Director of the DAQ "may deny a permit application when necessary to carry out the purposes of G.S. 143, Article 21B."¹⁴⁴ Article 21B, "Air Pollution Control," cites N.C. Gen. Stat. § 143-211 for its public purpose. That public purpose states:

It is the purpose of this Article to create an agency which shall administer a program of water and air pollution control and water resource management. It is the intent of the General Assembly, through the duties and powers defined herein, to confer such authority upon the Department of Environment and Natural Resources as shall be necessary to administer a complete program of water and air

¹⁴⁴ 15A N.C. Admin. Code 2Q.308(a)(3).

conservation, pollution abatement and control and to achieve a coordinated effort of pollution abatement and control with other jurisdictions. Standards of water and air purity shall be designed to protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of the natural attractions of the State, to encourage the expansion of employment opportunities, to provide a permanent foundation for healthy industrial development and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources.¹⁴⁵

Although the “purposes” of G.S. 143, Article 21B are not expressly stated, it may be inferred from the fact that the article is titled “Air Pollutant Control,” that its purposes include control of air pollution. The term “air pollution” is defined as “the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as is or tends to be injurious to human health or welfare, to animal or plant life or to property or that interferes with the enjoyment of life or property.”¹⁴⁶ “Air contaminant,” in turn, is defined as “particulate matter, dust, fumes, gas, mist, smoke, or vapor or any combination thereof.”¹⁴⁷

A pending report prepared by ICF International (“ICF”) demonstrates the threat of Titan’s facility to the communities in New Hanover, Pender, and Brunswick counties.¹⁴⁸ Based on EPA-supported models and Titan’s proposed emissions, ICF estimates that during the 5-month period between May and September each year, ozone pollution resulting from the facility will cause more than 500 incidences of acute respiratory harm, 160 days of missed school or camp, and 320 days of decreased worker productivity. PM_{2.5} pollution from the facility will add another 320 days of respiratory illnesses, 54 missed work days, 13 asthma attacks, and 1 premature death during that 5-month period each year. Importantly, these effects will be felt by the resident population, and do not take into account the substantial number of tourists attracted to North Carolina’s beaches each year.

Mercury pollution is a similar, widespread threat to our State. Titan would emit 46 lbs of mercury each year under the limits in the Draft Permit. That mercury would add to an existing problem that already threatens the health of the most vulnerable North Carolinians. Following a seven year, nationwide survey, the U.S Geological Survey found that the “highest fish-Hg concentrations in all sampled sites generally were fish collected from forest- or wetland-dominated coastal-plain streams in the eastern and southeastern United States.”¹⁴⁹ In fact, in “blackwater coastal-plain streams” like the Northeast Cape Fear River, the study found that concentrations of methylmercury in unfiltered water “were similar to those of streams” in basins that had been mined for mercury or gold – indicating the “capacity of an ecosystem to methylate inorganic Hg.”¹⁵⁰ Not only would Titan emit a substantial quantity of mercury, it would do so within an ecosystem that is remarkably efficient at converting that mercury to its most toxic form, one that readily bioaccumulates and threatens public health.

¹⁴⁵ N.C. Gen. Stat. § 143-211.

¹⁴⁶ N.C. Gen. Stat. § 143-213(5).

¹⁴⁷ N.C. Gen. Stat. § 143-213(2).

¹⁴⁸ The report is currently being prepared for public release and will be provided to DAQ when released.

¹⁴⁹ B. Scudder, et al., *Mercury in Fish, Bed Sediment, and Water from Streams Across the United States, 1998-2005* at 10 (2009), available at: <http://pubs.usgs.gov/sir/2009/5109/pdf/sir20095109.pdf>.

¹⁵⁰ *Id.* at 50.

For these reasons, the Director of DAQ should exercise her authority under 15A N.C. Admin. Code 2Q.0308 to deny Titan's requested permit. This action would advance the purposes of N.C. Gen. Stat. § 143, Article 21B and specifically serve to "protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, and to insure the continued enjoyment of the natural attractions of the State."

V. CONCLUSION

Titan's proposal to construct a portland cement manufacturing facility in Castle Hayne would introduce a major source of air pollution that would have long-term impacts on the environment of southeastern North Carolina and the health of its residents and visitors. The proposal deserves careful scrutiny. DAQ's analysis of the permit application as reflected in the Preliminary Determination and the Draft Permit does not reflect that scrutiny.

The first step in the thorough analysis that is required is demanding that the company provide a comprehensive evaluation of its proposal, including its proposed quarry. DAQ has not made that demand, and therefore its analysis largely rests on unsupported – and in many cases unsupportable – assumptions about the proposed facility. Issuing a final permit based on these assumptions would be arbitrary and capricious and violate DAQ's duty as described in the Clean Air Act and state regulations and policies.


Even based on the incomplete information that is available, Titan can reduce the emissions that would be authorized by the Draft Permit, and the Clean Air Act requires the company to do so. Reducing those emissions would reduce the harmful impacts to the communities in New Hanover, Pender, and Brunswick counties. If DAQ requires the company to operate its control technology at achievable levels as described above, the company could substantially reduce its emissions as demonstrated in the chart on the following page.

Pollutant	Raw Emissions	Applicable Technology	Proposed Efficiency	Proposed Limit	Potential Efficiency	Achievable Limit
Mercury	327.22 lbs/yr	ACI	86%	46 lbs/yr	90% ¹⁵¹	33 lbs/yr (ACI) ¹⁵²
THC	24.1 ppmvd	ACI	0% (good combustion)	24.1 ppmvd	80% ¹⁵³	4.82 ppmvd
VOC	175 tons/yr	ACI	0% (good combustion)	175 tons/yr	80%	35 tons/yr
HCl	31 tons/yr	Wet scrubber	42%	18 tons/yr	99% ¹⁵⁴	620 lbs/yr
NO _x	3,066 tons/yr	SNCR	50%	1,533 tons/yr	80% ¹⁵⁵	613 tons/yr
SO ₂	2,880 tons/yr	Wet scrubber	85%	433 tons/yr	95% ¹⁵⁶	144 tons/yr

DAQ has the authority to require Titan to meet these reduced emission limits, which are technologically and economically feasible. Moreover, many of these reductions are required by law.

SELC, NCCF, and Cape Fear River Watch appreciate the opportunity to submit these comments on behalf of thousands of concerned members in southeastern North Carolina. Please feel free to contact me at (919) 967-1450 if you have any questions about their content.

Sincerely,


Geoffrey R. Gisler
Staff Attorney

Enclosure

¹⁵¹ Preliminary Determination at 58, 75 Fed. Reg. 54,970, 54,979/2.

¹⁵² Does not include additional reductions that should be expected through the use of the wet scrubber that has been proposed for the facility.

¹⁵³ 74 Fed. Reg. 21,136, 21,252.

¹⁵⁴ 74 Fed. Reg. at 21,254.

¹⁵⁵ 75 Fed. Reg. at 54,994.

¹⁵⁶ 05-29-08 Memo to Docket.