

**Summary Points from
“Air Quality Modeling and Health Impacts Assessment for Southeastern North Carolina,”
Technical Memorandum, November 7, 2011, by ICF International**

The following is a summary of the only publicly-released independent study to analyze the potential health impacts of air pollution from Titan Cement’s proposed cement plant in Castle Hayne, NC. In response to the NC Division of Air Quality’s refusal to require an independent public health risk assessment as part of Titan Cement’s application for an air permit, the Southern Environmental Law Center commissioned an independent consulting company, ICF International, to use state-of-the-science air models to simulate the impacts that the plant would have on regional air quality and public health. The study, released in November 2011, used data from Titan’s air permit request to estimate the increases in levels of fine particulates and ground-level ozone over a five-month period, then estimated the associated increased health care costs for residents of New Hanover, Pender, and Brunswick counties.

The study concluded that proposed emission levels from Titan America’s cement plant would pose a significant health threat to residents in the Cape Fear region. The two pollutants evaluated (fine particulates and ground-level ozone), would increase significantly with Titan’s emissions, and pose a particular health threat to children, the elderly, and residents with existing lung conditions.

A brief summary of findings from the ICF study includes:

- An added annual burden of up to \$13.5 million in additional health care costs for the citizens of the Cape Fear region could result from the proposed Titan cement plant. This cost is based on the likelihood of increased hospital admissions, acute respiratory problems, lost school and work days, and premature death.
- According to the conclusions of the study (from May through September of each year), adverse health affects from Titan’s proposed emissions are expected to result in:
 1. Over 50 lost work days;
 2. Up to 160 lost school days;
 3. Up to 850 cases of restricted-activity days among adults aged 18-65;
 4. An average of 170 cases of acute respiratory symptoms per month (May through September);
 5. Approximately one premature death.
- Titan would likely cause the number of “unhealthy air day” warnings to increase, and health professionals would increasingly recommend limiting outdoor activity – especially during summer months.

- Those with asthma or other respiratory diseases are at risk to experience negative health effects earlier and at lower levels of exposure. Children are more likely to have asthma, which makes them especially vulnerable.

Ground-level Ozone

- Ozone, a chemical by-product of Titan's emissions, can cause a variety of respiratory problems and may aggravate bronchitis, emphysema, and asthma, as well as cause permanent lung damage. Titan's cement plant would be the county's second-largest emitter of the two main chemical precursors to ozone, nitrous oxides and volatile organic compounds.
- Ozone averages in the study area are already near the EPA's maximum allowable level for public health. ICF found that expected increases in ozone from Titan's cement plant emissions would place the region even closer to this limit.
- Based on wind patterns analyzed for the study area, most of New Hanover and parts of Pender and Brunswick counties are within the plume radius resulting from the Titan cement plant air emissions of ozone.
- Prevailing winds will carry the pollution plume directly into the central and Western portions of New Hanover County during July and August, when hot weather and sunlight contribute most significantly to ozone formation.

Fine Particulates (PM_{2.5})

- Fine particle pollution, an extremely damaging form of soot, is a year-round health risk which can cause asthma attacks, breathing difficulties, irregular heartbeats, nonfatal heart attacks, and premature death in individuals with heart or lung disease. Titan's air permit allows them to release 160 tons of fine particulates into the air each year, increasing New Hanover County's total stationary emissions of these pollutants by about one third.
- The study found that emissions of fine particulates will be heavily concentrated in the immediate Castle Hayne area. However, significant increases in average concentrations of these particles are expected as far as 6 miles from the plant.
- Separate from the findings of this study, further increases in fine particulate levels are expected from reactions between other emissions from Titan's plant, including sulfur dioxides and nitrous oxides.

To view the full study, visit www.stoptitan.org/resources.

Please refer any questions or comments to Geoff Gisler of the Southern Environmental Law Center.

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