South Carolina Department of Health and Environmental Control
Bureau of Air Quality

February 05, 2010

Response to Comments
Public Notices #09-099-N-C-H, #09-116-C-N-ECP
Johnson Controls, Inc. (Florence Recycling Plant)
Construction Permit
Florence, Florence County, South Carolina
Permit 1040-0129-CA

The following is the South Carolina Department of Health and Environmental Control (SC DHEC) Bureau of Air Quality's (Department) response to comments made during the formal comment period, held August 20, 2009, through September 29, 2009, then extended until October 29, 2009, and the public hearing held on September 22, 2009, regarding the draft construction permit (1040-0129-CA) for Johnson Controls Battery Group Inc.-Florence Recycling Plant at Paper Mill Road in the city of Florence, in Florence County. Because of the many comments received and the range of topics covered, responses have been composed on a topical basis to minimize repetition. The comments received regarding the draft permit are available for viewing at http://www.scdhec.gov/environment/baq/Comments.aspx, and at the SC DHEC Columbia office located at 2600 Bull Street, Columbia, SC 29201; or hardcopies can be requested by contacting our Freedom of Information Office at (803) 898-3817.

1. SITE LOCATION

a. Why did Johnson Controls choose this Florence site and why did they not locate in the Industrial Park? Why did they choose a site so close to the [Great] Pee Dee River?

Response: All zoning decisions are made at the local level by a city or county zoning authority, usually before a permit request is submitted to DHEC. In accordance with Section 48-1-100(A) of South Carolina Pollution Control Act, the Department must issue a permit if an applicant submits an application that meets all applicable Department standards. The Department does not have the regulatory authority to tell a facility where to locate.

In response to the comment received, the Department asked Johnson Controls to elaborate as to why they chose this location. Their response was that the decision to locate at this site was based on many factors including: a capable area work force, a regional need for battery recycling, a strategic location to existing battery manufacturers in the region, the site is an existing industrial area, the utilities are available, and there is a potential to locate other Johnson Controls operations in the area.

b. There is no need for a new battery recycling operation; the capacity to handle battery recycling needs already exists in the U.S.

Response: The Department's air quality regulations do not require a demonstration of need analysis. An air permit must be issued if the facility can show that it can comply with the applicable state and federal air regulations.

c. Traffic concerns

Response: The Department's Bureau of Air Quality does not have the regulatory authority to regulate truck traffic on the public roads. However, the Resource Conservation and Recovery Act (RCRA) regulations require traffic to be addressed in the Part B application in accordance with S.C. R.61-79.270.14(b)(10) of the Hazardous Waste Management Regulations and S.C. R.61-104. Section IV.F.1 of the Hazardous Waste Management Location Standards.

S.C. R.61-79.270.14(b)(10) requires the facility to include the following information in the Part B application: traffic patterns, estimated volume (number, types of vehicles) and control (for example, show turns across traffic lanes, and stacking lanes (if appropriate); descriptions of access road surfacing and load bearing capacity; and showings of traffic control signals.

S.C. R.61-104. Section IV.F.1 requires that transportation modes shall be by roads, rails and water ways with capacity to accept the demands created by the facility; limits conveyance on roadways to interstate, state, or county highways or other roads which are well maintained, well constructed, free of obstructions and with a high degree of visibility. Roads or bridges with weight restrictions cannot be used if these restrictions will be exceeded. An existing and acceptable route shall be available if access by the primary transportation corridor is blocked.

The public will have the opportunity to comment during the public notice process for the RCRA permit application and any draft permit.

d. Odor from plastics

Response: There are no state or federal odor regulations. The Department's regional offices do investigate citizen complaints, including some odor complaints.

e. Property value depreciation

Response: The Department does not have the regulatory authority to deny a permit based on current or future possible property values of nearby properties or possible hindrances to future development.

2. EMISSION ESTIMATES

a. Emissions were not properly estimated.

Response: Emissions from the Johnson Controls' operations were estimated using a variety of information sources: EPA's "Compilation of Air Pollution Emission Factors" AP-42 documents, manufacturer's data, emissions data from similar operations, and engineering calculations. These methodologies are commonly used by facilities for estimating emissions. Information on the emissions from the melter, smelting furnaces, and refining kettles was obtained from the manufacturer, which was based on a review of other similar manufacturing operations constructed by the vendor. Metal HAPs emission factors were based on emissions reported by operations at other secondary lead smelting operations since the raw material received should be similar. Emissions from polypropylene extrusion were obtained from the Air and Waste Management Association ("Development of Emission Factors for Polypropylene Processing", ISSN 1047-3289, J. *Air & Waste Management Assoc.* 49:49-56). Mercury emissions factors were based on a stack test at another secondary lead recycling facility. The emission factors used in estimating the emissions will be verified through stack testing for several sources. The Department has reviewed the manner in which the emissions were estimated and determined the facility has used appropriate emission factors. Although the comment questioned the emission estimates, no additional data was supplied to indicate what other emission factors should be used or would be more appropriate.

b. Emission estimates are too close to the synthetic minor limits. Other sources' emissions should be reviewed for emissions estimates.

Response: The potential controlled emissions of carbon monoxide (CO) and nitrogen oxides (NO_X) are the two Prevention of Significant Deterioration (PSD) pollutants that were close to the 100 ton per year major source threshold. CO was estimated to be 96.15 tons per year (TPY) and NO_X was estimated to be 97.7 TPY. Based on comments received, Johnson Controls reviewed CO and NO_X emissions and control technologies from other secondary lead smelting operations across the U.S. and Mexico.

Many of the other secondary lead smelters utilize blast furnaces. Blast furnaces operate at higher temperatures than rotary furnaces and use higher volumes of air. This makes capturing process and fugitive emissions more difficult. Blast and reverberatory furnaces tend to leave a significant amount of lead in the slag, approximately 40 percent. This slag needs to be processed further, usually in a rotary furnace. This processing results in additional emissions. Johnson Controls will not utilize blast furnaces. The use of a rotary furnace alone to process the feed material is more efficient at removing lead and processing the slag further is not necessary. Based on comments received, Johnson Controls prepared a site-wide emissions comparison with available emissions from other secondary lead

smelting facilities. They compared capacity to emissions to develop an estimated emissions factor.

NO_X review: Johnson Controls estimated emissions using manufacturer data, engineering calculations, and AP-42 factors. They are required to utilize low NOx technology on the smelting furnaces and the refining kettles. When reviewing other secondary lead smelting operations, the facility-wide developed factor for NOx emissions was similar to the emissions at the Exide plant in Georgia, which also has a synthetic minor permit. Several of the secondary smelting operations reviewed by Johnson Controls did not employ low NO_X technology on their furnaces. In addition, emission inventories for various facilities were also reviewed. These are actual emissions reported to the respective environmental State agencies. Four existing PSD major sources' actual emissions of NOx are less than the major source thresholds.

CO review: Johnson Controls estimated emissions using manufacturer data, engineering calculations and AP-42 factors. They are required to utilize an afterburner to control CO emissions. When reviewing other secondary lead smelting operations, the facility-wide developed factor for CO was similar to the emissions of the Exide plant. The EnviroFocus facility-wide emission factor for CO was nine times higher than the Johnson Controls CO facility-wide emission factor. The CO emissions from EnviroFocus are expected to be higher based on the lead smelting technology used because EnviroFocus utilizes a blast furnace. In addition, emission inventories for various facilities were reviewed. Two existing PSD major sources' actual emissions of CO are less than the major source thresholds.

Based on our review of all the information provided, the Department has determined Johnson Controls emission estimates are appropriate. The facility, operating under the constraints of its permit, should be able to meet the less than 100 ton per year emission limits. A CEMs for NOx and CO will be required on the larger emitting NOx and CO sources. Information from the CEMs will be used to calculate the actual emissions from these sources. The remaining sources will have other monitoring and recordkeeping to ensure facility-wide compliance with the less than 100 ton per year limits.

c. Why did other secondary lead smelting operations trigger PSD and Johnson Controls is not triggering PSD?

Response: PSD is triggered by the construction of a new major source or a major modification at an existing major source. A secondary lead smelting operation is considered a major source if the potential to emit is at or above 100 tons per year of any PSD pollutant. Once a facility is considered a PSD major source, any major modification is triggered at the PSD significance threshold. The PSD significance threshold is more stringent than the major source threshold. For example, a new major source triggers PSD at 100 tons per year of SO_2, a major

modification triggers PSD at 40 tons per year of SO_2. Several of the secondary lead smelters were in operation prior to the onset of the PSD regulations and were considered existing PSD major sources. Any subsequent modifications occurring after that date would be subject to the PSD significance threshold, so PSD was triggered at much lower emission levels. EnviroFocus started operations in the 1960s; Quemetco started operations in 1959 and Revere started operations in the early 1970s. Gopher started operations in 1990, but does not utilize an SO_2 scrubber; thus, potential emissions would be over 100 tons per year. The newest facility, Exide, which started operation in 1994, was permitted as a synthetic minor source. See response "b" of this section for further discussion.

d. Emissions were estimated using AP-42 emission factors, which are outdated, and can significantly underestimate emissions expected. The facility shouldn't rely on AP-42 emission factors for NOx.

   Response: The Department determines appropriate use of emission factors on a permit-by-permit basis. Johnson Controls used AP-42 emission factors to estimate NO_X emissions for the small natural gas-fired boiler, generators, and the flash tube dryer. Using AP-42 emission factors for small natural gas combustion sources is widely used and the Department (as well as other state agencies) has generally accepted its use. The Department has had no compliance problems arise from emissions estimates using these emission factors. Additionally, these sources make up only about 4% of the total NOx emissions at the facility. For the remaining NOx emitting sources, the melter, the three smelting furnaces, and the refining kettles, manufacturer's data was used to estimate the NOx emissions. The CX (Breaker) plant and slag warehouse PM emissions were estimated using AP-42 emission factors developed for Crushed Stone Processing and Pulverized Mineral Processing (AP-42, Chapter 11.19.2). The CX plant will utilize a scrubber to control Particulate Matter (PM) emissions; the slag warehouse will be controlled using a baghouse and HEPA filter system. The Department has determined these emission factors are appropriate. Stack testing will be conducted to verify PM emission estimates from the CX plant and the slag warehouse. It should be noted that the commentor did not supply any information as to what would be a more appropriate emission factor to use.

e. The emissions were estimated using untested engineering estimates. Emission estimates should be used from information from the other secondary lead smelters permitted around the country, most of which are major sources of emissions despite employing more sophisticated emission control equipment than what is proposed.

   Response: Please see responses "b" and "c" of this section for further discussion on why other lead smelters may be PSD major and Johnson Controls can be classified as a synthetic minor source and for a discussion on the CO and NO_X emissions.

Based on comments received, Johnson Controls reviewed emissions and control technologies from other secondary lead smelting operations across the U.S.

- EnviroFocus, which started up operations in the 1960s, and is currently undergoing a modification, uses baghouses for PM and lead control, an afterburner for CO control, a desulfurization process for sulfur dioxide (SO_2), and controls NOx by using oxygen for combustion and good combustion practices. The facility does not have an SO_2 scrubber. This facility smelts lead using blast and reverberatory furnaces, while Johnson Controls uses only rotary furnaces.

- East Penn started operations in the early to mid 1980s and was modified in 2003. This facility uses baghouses and HEPA filters for PM and lead control, a scrubber for SO_2 control, an afterburner for CO control, and low-NOx burners are used on some of the combustion operations at this facility. The annual capacity for this facility is a bit larger than Johnson Controls. This facility smelts lead using blast and reverberatory furnaces, while Johnson Controls uses only rotary furnaces. East Penn also uses various scrap materials as their feed which includes lead containing soils.

- Exide started operations in 1994 and is classified as a synthetic minor source. This facility uses baghouses for PM and lead control and a scrubber for SO_2 control. This facility refines lead using reverberatory and rotary furnaces. The paste is processed in the reverberatory furnace. The rotary furnace is used for further slag processing.

- Gopher started operations in 1990. Modifications were made in 2003. This facility uses baghouses for PM and lead control and an afterburner for CO and Volatile Organic Compounds (VOC) control. The facility does not have HEPA filtration or an SO_2 scrubber. This facility smelts lead using blast and reverberatory furnaces, while Johnson Controls uses only rotary furnaces.

- Quemetco started operations in 1959. Its annual capacity is much greater than Johnson Controls. This facility uses baghouses for PM and lead control and an afterburner for CO and VOC control. The facility does not have an SO_2 scrubber. A wet ESP is used to reduce metal HAP emissions. This facility smelts lead using reverberatory furnaces and an electric arc furnace to further process slag, while Johnson Controls uses only rotary furnaces.

- Revere started operations in the early 1970s. This facility uses baghouses for PM and lead control and some sources are equipped with a HEPA filter. An afterburner is used for CO and VOC control, low NOx burners control NO_X emissions and a scrubber is used for SO_2 control. This facility smelts lead using blast and rotary furnaces, while Johnson Controls uses only rotary furnaces. The rotary furnace at this facility is used to further process slag.

Emission estimates vary from these facilities due to:

- the type of furnaces used: blast, reverberatory, or rotary and if further processing of slag is employed at the facility;
- desulfurization process: desulfurization is a process of removing sulfur from lead paste. It is important to remove the sulfur from the lead paste before it is charged into the smelting furnaces. Any sulfur that is not removed could potentially form SO2 in the smelters. The sulfur is removed from the lead paste by using sodium carbonate to convert the lead sulfates to sodium sulfates. Secondary lead smelters attempt to remove the sulfur from one degree to another. However, Johnson Controls will employ a process they refer to as "super" desulfurization. This process will include three batch reactors, two filter presses, and two polishing filters using washing and chemical reactions to mechanically and chemically separate sulfur from the lead paste. The sodium sulfate is recycled as a saleable product. Scrubbers will be used to control emissions from the desulfurization process and to control SO2 emissions from the smelting processes;
- the control devices used – many of the facilities use only baghouses and scrubbers for PM and lead control. Johnson Controls will also use HEPA filters for additional control from the outlet of the baghouses;
- Age of facility and technology used – being the newest facility for secondary lead processing, Johnson Controls will use the latest technology not currently in use at other, older facilities.

Based on the information presented on emissions, other facilities, etc., the Department has determined the methodology used by Johnson Controls to estimate emissions is appropriate and they have adequately explained emissions differences between their facility and other secondary lead smelting facilities.

f. There is not enough information to justify the afterburner CO destruction efficiency.

Response: CO emissions are formed from the incomplete combustion of organic materials with oxygen. CO emissions may also be formed from the incomplete combustion of the natural gas and the anthracite in the facility's smelting furnaces, Johnson Controls will utilize integral afterburners on each smelting furnace to reduce CO emissions. Johnson Controls has predicted 50% of the CO emissions will be controlled. The controlled emission rate for CO was estimated to be 4.79 lbs/hr per smelting furnace. The emission rate used was based on the furnace and afterburner manufacturers' information, which was developed from a review of other similar manufacturing operations constructed by the vendors. The controlled emission rate of 4.79 lbs/hr is more conservative than the uncontrolled AP-42 factors for burning natural gas and anthracite (a reducing agent used in the lead smelting process). Using the AP-42 factors gives an uncontrolled result of 3.32 lbs/hr. One commentor questioned how the CO emission estimate compared with Johnson Controls other operations. A facility that also uses rotary furnaces is a facility Johnson Controls operates in Mexico, which has no CO controls. The

stack test in Mexico yielded uncontrolled CO concentrations of approximately 1165 mg/m^3. This is comparable to the manufacturer's uncontrolled CO estimates of 1500 mg/m^3. This additional information about CO emissions was provided to the Bureau of Air Quality on December 9, 2009, in a letter named "Supplement Basis Information for Carbon Monoxide Emissions JCBGI". The facility will also be required to verify emissions with a stack test and install and operate a CO Continuous Emissions Monitoring System (CEMs) on the smelting furnaces. Additionally, the facility will be required to develop a minimum operating temperature for the afterburners, which will be used to ensure proper destruction efficiency.

g. Did the facility use sulfur, niter and other alloying material in the emissions analysis? Sulfur and niter should have limits in the permit for the kettle treatments. Does the facility plan to use red phosphorus?

Response: Johnson Controls will be permitted to use Caustic Soda, Sodium Nitrate ($NaNO_3$ or niter), Sulfur, Magnesium, Zinc, Sawdust, and Calcium in the refining process. The permit specifically lists the raw materials taht may be used in the refining process. These materials may be added to the refining kettles to remove impurities such as tin (Sn), Arsenic (As), and Antimony (Sb). The amount of the niter added depends on the concentration of the impurities in the molten lead. The facility has stated there are no plans to use red phosphorus. The addition of any new material would have to be analyzed through a permit review.

Nitrogen Oxides (NOx) can be formed during combustion by two different mechanisms. The most common way NOx is formed is by nitrogen in the ambient air reacting with oxygen at very high temperatures. This is called "thermal NOx". Johnson Controls utilizes low NOx burners in their refining kettles to reduce the formation of thermal NOx. Low NOx burners work by reducing the temperature of the combustion and restricting the amount of oxygen available. The other way NOx is formed is referred to as fuel NOx or feed NOx. Fuel NOx formation happens when nitrogen that is a component of the fuel reacts with oxygen during combustion. The refining kettles will only use natural gas as a heat source. The natural gas has a negligible amount of fuel nitrogen. These NOx emissions have been accounted for within the emission calculations.

There were concerns expressed that the niter would also form NOx emissions. Based on information submitted by Johnson Controls, other secondary lead smelting facilities have assumed that during the chemical reaction in the kettles, the niter converts to NOx. Assumptions vary from 7 – 70% conversion. However, Johnson Controls submitted information on the temperature dependence of NOx generation. The refining kettles are indirectly fired and operated at temperatures between 310 ºC and 630 ºC, which is less than the 1000ºC at which NOx is generated in combustion processes. The refining process is a chemical reaction process rather than a combustion process and Johnson Controls believes nitrogen gas will be emitted from the process rather than NOx.

These furnaces will be tested to verify the emission factor for NOx and equipped with CEMs.

Sulfur dioxide emissions can result from excess use of sulfur in the refining process. Johnson Controls estimated their SO_2 emissions to be 4.52 lb/hr using manufacturer's data. Based on comments received Johnson Controls reviewed SO_2 emission factors from other facilities. Two secondary lead smelting facilities used an emission factor of 0.133 pounds SO_2 per pound of sulfur to estimate the SO_2 emissions from their refining kettles. This factor was based on a stack test at the Quemetco facility and was applied to emissions at the Exide facility. Applying this factor, to the Johnson Controls facility, results in SO_2 emissions of 2.76 lb/hr. However, Johnson Controls has estimated their SO_2 emission to be 4.52 lb/hr which is more conservative after applying a safety factor. These sources will also be tested to verify the emission factor for SO_2.

h. The permit should contain sulfur limits from natural gas combustion. Did the natural gas supplier certify the sulfur in the natural gas?

Response: On January 15, 2010, Johnson Controls provided information from the local natural gas supplier. The supplier stated a sulfur concentration of 2010 grains/million standard cubic feet (scf). The AP-42 emission factor for SO_2 emissions from natural gas combustion assumes a concentration of 2000 grains/Million scf. Based on facility-wide natural gas usage, the difference in sulfur concentration accounts for only 27 pounds of SO_2 emissions per year. The SO_2 emissions from combusting natural gas is about 1% of Johnson Controls facility wide controlled SO_2 emissions. These emissions are insignificant compared to the other SO_2 emitting sources at the facility. The facility will be required to use all available information in estimating its annual SO_2 emissions and should include this supplier information in the emission calculations. The additional 27 pounds of SO_2 should not impact the less than 100 TPY limit.

i. All potential toxic emissions were not accounted for.

The facility estimated emissions for fifteen toxic air pollutants (TAPs). The metal TAPs antimony, arsenic, cadmium, and chromium were estimated based on the percentage of each material being a contaminant in the lead processed. These percentages were based on toxic release inventories of other secondary lead smelting facilities with a margin of safety added. The facility will burn up to 10% of recycled plastic in the smelting furnaces. TAP emissions from plastic combustion were accounted for in the emission estimates for the Johnson Controls facility. Information provided by Johnson Controls on November 17, 2009 details the potential dioxin emissions and the butadiene emissions. The remaining organic TAPs and acids all originated from the polypropylene extrusion process and were estimated using factors developed by the Air and Waste Management Association ("Development of Emission Factors for Polypropylene Processing", ISSN 1047-3289, J. *Air & Waste Management Assoc.* 49:49-56). Other toxic air

pollutants such as chloroform, beryllium, ethyl benzene, vinyl chloride, and nickel were mentioned in comments as being potential emissions. The facility had not listed nickel or beryllium as potential emissions. Johnson Controls reviewed other secondary lead smelting facilities to determine if they had these types of emissions. One facility did not report any of these as potential emissions. Stack test results from the Quemetco facility supplied by one commentor indicated beryllium emissions below the detectable limit. Further review of the test results from the Quemetco facility indicated other toxics detected during the test. These toxics are: selenium, manganese, styrene, toluene, chloroform, ethyl benzene, vinyl chloride, nickel, and xylene. Johnson Controls has attributed these pollutants in the emission from Quemetco to this facility's use of various scrap materials as their feed, whereas Johnson Controls will only use batteries. Stack tests will be conducted to verify these toxics are not present. Should a toxic be present, the facility will be required to perform an air dispersion modeling analysis to demonstrate compliance with the standard.

j. Emissions from plastic combustion are not accounted for.

Response: The facility is permitted to burn plastic up to 10% of the capacity of each smelting furnace. The plastic must be generated on site. The amount of plastic burned will displace the anthracite used as a reducing agent. One of the emissions that could potentially be released from the combustion of plastic is butadiene. Additional information submitted by the facility on November 17, 2009, examined the types of plastics that may be charged into the smelting furnaces as reducing agents. Although there were no emission factors for rotary furnaces for butadiene emissions, an EPA factor for blast furnaces was used to estimate potential butadiene emissions. The factor relates the butadiene emitted to the total hydrocarbons emitted. In this facility's case, the melter, smelting furnaces, and kettles emit 2.53 pounds per hour of VOCs which results in a butadiene emission rate of 1.74 pounds per day. A stack test will be required to verify the emission factor for butadiene. The butadiene emissions met the air toxics standards de minimis levels, and no further modeling was required.

Emissions of metal HAPs are not expected from the combustion of plastic. By basing emissions on the maximum amount of metals to be expected in the lead the facility has accounted for the worst case pollutants for each smelting furnace. Stack testing will verify metal HAP emissions from this process.

k. Dioxin emissions were not accounted for.

Response: Dioxins may be formed from combustion of chlorinated plastics and from other sources such as the combustion of natural gas. The battery cases, which are made of polypropylene, will be recycled and pelletized. None of the pellets will be used in the smelting furnaces. Batteries may also contain a plastic separator which is usually made of polyethylene, also called heavy plastic. This heavy plastic is used as a raw material in the smelting furnaces as a carbon source.

These separators have contained polyvinyl chloride (PVC), a chlorinated plastic, in the past. In most batteries produced today, the separators are only made of polyethylene and contain no PVC. Johnson Controls has stated they will not receive batteries that contain chlorinated plastics.

The original application included an emission calculation for hydrochloric acid assuming that some chlorinated plastics may inadvertently enter the raw materials stream. Johnson Controls has stated that the batteries produced at other Johnson Controls facilities do not contain chlorinated plastics and the use of chlorinated plastics has long been eliminated in the industry. However, to err on the conservative side Johnson Controls estimated chlorine and dioxin emissions. The emission rate for 2,3,7,8 Tetrachloro Dibenzo-p-dioxin was below the State de minimis level and air dispersion modeling for hydrochloric acid demonstrated compliance with Standard 8. No dioxin emissions are expected to result from the combustion of the plastic at the Florence facility. The permit will also indicate no chlorinated plastics can be used in their operations.

l. Assumptions made for estimating uncontrolled and controlled potential emissions are made without adequate explanation.

Response: As noted in the Statement of Basis for the permit and discussed above, emissions from the various operations/processes at this facility were estimated using a variety of sources. The Statement of Basis has been updated to provide sample calculations for controlled and uncontrolled emissions.

m. Are the emissions consistent with Johnson Controls' other operations?

Response: Johnson Controls does not currently operate any secondary lead smelters in the United States. However, Johnson Controls purchased and operates an existing facility in Cienga de Flores, Mexico. This is an older facility. This facility differs from the proposed Johnson Controls facility in the following ways:

- The facility in Mexico does not have afterburners on their rotary smelting furnaces
- The proposed facility will use a baghouse in series with a HEPA filter on most lead processes while the facility in Mexico only uses baghouses.
- Different burner technologies are used for the smelting furnaces and the refining kettles at the facility in Mexico.
- The facility in Mexico is not equipped with a scrubber to control SO_2.

Johnson Controls was able to use CO emissions data from the Mexican plant's rotary furnaces to help verify their predicted estimations for the proposed facility. This provided useful data because rotary furnaces are not widely used in the United States. The rotary furnaces that do operate in the United States usually are used to process slag from reverberatory furnaces. Johnson Controls utilizes rotary

furnaces to process lead bearing materials. They do not process slag from other furnaces in their operation.

n. Combustion and process PM emissions need to be accounted for in the refining area.

Response: PM emissions from the refining kettles were obtained from the manufacturer. These emissions were based on a review of other similar manufacturing operations constructed by the vendor. The PM emissions do take into account the materials added during the refining process. The PM emissions are estimated to be primarily lead, other metal HAPs, and other non-metal HAPs which are mostly generated from the process. The kettles are indirectly heated using natural gas. PM estimates, using AP-42 for natural gas combustion at the rated capacities of the refining kettles, show the PM emissions from combustion (0.6 lb/hr) are not a significant portion of the total PM emissions (14.74 lb/hr) from this process. Hood air and kettle exhausts are combined prior to exhausting to the baghouse and HEPA filter control devices. The facility will be permitted to add the following materials to the refining process: Caustic Soda, Sodium Nitrate, Sulfur, Magnesium, Zinc, Sawdust, and Calcium. The facility has also accounted for the SO_2 emissions due to the usage of sulfur. The facility will need permission and a permit review will be conducted before using any other materials in the refining process. Limits on the usage of sodium nitrate and sulfur usage are included in the permit. The facility is required to monitor the baghouse and HEPA filters for proper operation. Stack testing to verify the PM emission factor for the refining kettles is required in the permit. The facility currently has no plans to use red phosphorus or metals as additives.

o. HEPA filter manufacturers claim their equipment can control PM, PM_{10}, and $PM_{2.5}$ with equal efficiencies. Is this information consistent with the applicant's other operations?

Response: The HEPA filter capture efficiency is defined in the MACT standard. The standard states that a HEPA filter "means a filter that has been certified by the manufacturer to remove 99.97 percent of all particles 0.3 micrometers and larger." A condition has been added to the permit for the facility to supply this certification. Johnson Controls does not have this information on its facility in Mexico as that operation does not have HEPA filter controls.

p. The permit should rely on real world examples of lead emissions estimates on the applicant's other facilities.

Response: The control efficiency for lead and PM are the same. Johnson Controls provided information that the HEPA filter controls PM emissions by 99.97% down to 0.3 microns. The filter manufacturer's data on the emissions from the control device indicates a lead concentration of 1 mg/Nm^3. This concentration is half of what the MACT standard allows.

Based on comments received, Johnson Controls prepared a site wide emission comparison with available emissions from other secondary lead smelting facilities. They compared capacity to emissions to develop an estimated emission factor. EnviroFocus, Exide, and the Johnson Controls facility in Mexico all have similar facility wide lead estimates rates to the proposed Johnson Controls facility.

Further, lead emissions from the Toxic Release Inventory (TRI) from several other secondary lead smelting facilities (Exide, Gopher, and EnviroFocus) were compared to the controlled potential estimates for that facility. The TRI is a publicly available EPA database that contains information on toxic chemical releases and waste management activities reported annually by certain industries as well as federal facilities. The actual emissions from these facilities ranged from 13% to 38% below those facilities potential controlled estimates. These three facilities use mostly baghouses or fabric filters for controlling lead. Johnson Controls will not only use baghouses to control lead, but will also use HEPA filters in series with the baghouses for additional lead removal. Like most other facilities, these results indicate that the actual lead emissions from Johnson Control facility should be less than the predicted controlled emissions.

q. How did facility go from 72 to 12 pounds per year mercury in its emission estimates?

Response: Johnson Controls' original application indicated a mercury emission rate of 72 pounds per year. The mercury emissions were based on the assumption that the exhaust gases contained 0.7% mercury from each source that processed lead. This estimate came from TRI data from the East Penn facility. This facility was used because they reported the highest ratio of mercury in lead; this would provide the most conservative mercury emission estimate. This high emission estimate still allowed Johnson Controls to be in compliance with the maximum allowable mercury concentration limits in the State's air toxic regulation.

Due to concerns about the amount of mercury estimated in the original application, Johnson Controls re-evaluated the mercury emission estimates. On August 6, 2009, Johnson Controls submitted additional information revising mercury emission estimates resulting in an annual emission rate of 12 pounds per year. Johnson Controls recognized that using East Penn TRI data was overly conservative due to the fact that this facility accepts various scrap metal, batteries other than lead acid, and contaminated soils as feed. Johnson Controls will only accept lead acid batteries for recycling. Johnson Controls then reviewed several mercury study reports to conclude that mercury emissions would be lower than they had originally estimated.

To obtain a more accurate mercury emissions estimate, Johnson Controls obtained stack test data from a secondary lead smelter in Minnesota (Gopher). Johnson

Controls used the stack test's concentration from Gopher and applied it to expected flow rates. 1.1 pounds per year of mercury will also be emitted from the use of anthracite coal. The result was an annual mercury emission rate of 12 pounds per year after applying a safety factor. Mercury data varies from TRI reporting of actual emissions to facility source tests (Gopher) to more general reports on mercury emissions for the industry as a whole. The Department has determined that Johnson Controls used an appropriate methodology to re-estimate mercury emissions. Stack testing will verify the emission factor used and will be used to calculate and verify compliance with the annual mercury limit.

r. Other sources of emissions appear to be ignored completely. The permit needs to accurately consider all emissions from the Florence Plant's operations.

Response: The facility has estimated emissions for all equipment and operations detailed in the construction application. The commentor did not provide any information on sources that may be operated that were not accounted for. The Department has determined all sources of emissions have been accurately accounted for in the application provided by Johnson Controls. Please see the other comments in this section for further discussion on the emission estimates for the Johnson Controls facility.

3. PERMITTING METHODOLOGY

a. The numbers the limits are based on are too "round" and not based in science.

Response: The PSD emission thresholds of 100 tons per year are based on the Clean Air Act (CAA). All other emission limits are based on the New Source Performance Standards (NSPS), Maximum Achievable Control Technology (MACT) or State regulations. NSPS emissions limits are based on best demonstrated technology; MACT emission limitations are based on the emission limit achieved in practice by the best controlled similar source. These methodologies are prescribed by the CAA.

b. The metric system should be used to relay measurements.

Response: The units expressed in the emission limits in the permit are the units expressed in the state and federal regulations. Regulations often express limits in different units; there is no uniform unit format for all regulations. If a regulation calls for an emission to be less than 100 tons per year, the units in "tons per year" will be used in the permit. This is also the units in which compliance is determined.

c. The emission numbers cannot be trusted because the company created them or bought and paid for them.

Response: South Carolina's permitting regulations require that a facility estimate emissions from their processes when applying for a construction permit. The applications must be signed by a professional engineer registered in the State. Facilities regularly use EPA emission factors, manufacturer data and stack test data to develop emission estimates. The Department reviews the emission estimates and determines if the methodology used is appropriate. Issued permits contain requirements to verify the emission estimates. It is the facility's responsibility to design, construct, operate and maintain the facility to meet the regulatory requirements. It is the responsibility of the Department to issue enforceable permits and use all available information to determine if the facility is in compliance.

d. All of the facility's numbers are assumptions so if they do not meet the standards after startup does DHEC change their standards or does the company have to comply or shutdown?

   Response: If an emissions stack test or other method shows that a facility cannot meet an emission limit or standard, the facility will have to install additional control devices, decrease production, or change their operation in some manner that will allow them to comply. DHEC does not change their standards and limits to accommodate a facility's non-compliance. If a facility requests to change a limit, a full permit review will be required and the facility will have to demonstrate that it can comply with all State and Federal air regulations before a new permit is issued. Please see the "Malfunctions" section for further discussion.

e. Johnson Controls says their mercury emissions will be four to six pounds a year, arsenic to be 26, lead to be 450 pounds. The permit should show more actual numbers rather than the large (potential to emit) numbers. There is too much leeway for emissions over and above what the facility expects to emit.

   Response: Air permits reflect the state and federal air regulatory requirements. As an example, this permit contains short term limits (pounds per hour) [see Attachment A of the permit] for air dispersion modeling, longer-term limits (tons per year) for PSD avoidance and concentration limits (grains of per dry standard cubic foot) for MACT. The facility meets all the regulatory limits.

   The Department will not know the actual emissions at the facility until it starts operations and performs the required stack tests. Based on the information submitted, the Department has determined that the methodology used to estimate emissions is appropriate. It is a regular practice for facilities to include a safety factor in their calculations to help assure compliance. Emissions in applications are based on potential maximum emissions, meaning operating at maximum production for 8760 hours per year (24 hours a day, 365 days per year) as required by state and federal air quality regulations.

Additionally, in accordance with S.C. R. 61-62.1 Section II(J), all official correspondence, plans, permit application forms, and written statements are an integral part of the permit. The facility is held to the design and operation they have submitted in the application and that is reflected in the permit. They must certify that they constructed the source as indicated in the permit. Should the facility wish to modify a source, a new permit review will be required.

4. REGULATORY REVIEW

a. A Prevention of Significant Deterioration (PSD) construction permit should be required.

Response: Please see the "Emissions" section for a discussion on emissions estimates. A Prevention of Significant Deterioration (PSD) permit is required for the construction of a new major stationary source or major modification to an existing source that is located in an area that is meeting the national ambient air quality standards. A major stationary source for a secondary metal production plant, such as Johnson Controls, is one where the facility has the potential to emit an amount greater than or equal to 100 tons per year of any of the PSD regulated pollutants (particulate matter, sulfur dioxide, carbon monoxide, ozone (measured as volatile organic compounds) and nitrogen oxide). A PSD permit does not prevent the source from emitting major amounts of a pollutant.

Potential emissions from the source must be calculated to determine if a PSD permit is required. Potential emissions are calculated based on 8760 hours of operation per year at maximum production. Control devices or other limitations, such as production restrictions or limits on the hours of operation, can be considered in the emission calculations as long as there are enforceable limits in the permit on these restrictions. An enforceable limit is one where the limit is clearly stated and the permit contains appropriate associated monitoring, recordkeeping and reporting requirements. A facility may elect to request a synthetic minor construction permit which limits emissions to below the PSD emission thresholds. Johnson Controls has requested a synthetic minor construction permit to avoid being defined as a PSD major source. This permit contains emission limits of less than 100 tons per year per PSD pollutant and testing, monitoring, recordkeeping and reporting to show compliance with these limits. This permit also contains emission limits based on other regulatory requirements; these limits may be more stringent and reflect short-term emissions (as opposed to a long term tons per year limit). The air construction permit is designed to reflect all the air quality regulatory limits that apply.

The Johnson Controls permit contains a less than 100 tons per year limit for each of particulate matter and particulate matter less than 10 micrometers; sulfur dioxide; carbon monoxide; volatile organic compounds and nitrogen oxide. The permit contains requirements to perform an initial stack test and then periodic

stack tests to verify emission factors used to estimate emissions in the application and emission factors used in the compliance calculation to demonstrate that the facility's actual emissions are less than 100 tons per year of each PSD pollutant. For emission sources that have a continuous emission monitor, the data from these monitors will be used in calculating actual emissions. The permit contains requirements to monitor control device performance. The facility must use all available information to calculate a 12 month rolling sum on the amount of actual emissions for each of the above pollutants and report these actual emissions to the Department. Therefore, the permit satisfies the synthetic minor permit requirements in limiting the potential to emit to below PSD thresholds.

The Department conducted a thorough review of the control technology proposed and the modeling demonstration conducted to ensure the PSD thresholds will not be triggered and all applicable state and federal air quality regulations can be met.

b. DHEC should require Johnson Controls to perform more rigorous modeling to demonstrate the accuracy of the emission levels to verify the New Source Review is not required.

Response: An air dispersion model does not determine if PSD is triggered. An air dispersion model is used to determine compliance with a NAAQS. The emission estimates are used to determine if a facility's potential emissions trigger PSD. See the "Emissions Estimates" section for further discussion on how emissions were estimated.

c. The relationship between the recycling plant and the battery distribution center in Florence, SC, should be evaluated for collocation. The two facilities are close enough to satisfy the EPA's interpretation of adjacent. There should be an analysis whether a support relationship exists between the two facilities.

Response: The Department conducted a collocation determination as part of the permit application review. For PSD (Parts C and D of Title I of the CAA) "a major plant means ....any building, structure, plant or installation.... which belong to the same industrial grouping, and located on one or more contiguous or adjacent properties, and under the control of the same person (or persons under control)...." The intent of this definition is to require multiple facilities that were operating in support of one another to be considered one source for PSD applicability. The facilities must meet all three criteria to be determined one source under PSD.

- Criteria one-same industrial grouping: The industrial grouping is based on the first two digits of the Standard Industrial Classification (SIC) code. The SIC code must classify a facility by its primary activity. The battery distribution center has the industrial grouping of "36 – Electronic and Other Electrical Equipment and Components" and "50 – Wholesale Trade – Durable Goods."

The battery recycling operation has the industrial grouping of "33 – Primary Metal Industries." To be considered part of the same industrial group, the first 2-digits of the SIC code must match, unless the second facility is a support facility. The SIC codes do not have to match for support facilities. Support facilities are typically those that store, or otherwise assist in the production of the principal product. Neither of these two facilities assists the other with the production of its primary products, nor supply raw materials to the other facility. The distribution facility fills new, empty batteries and distributes them while the proposed recycling center will receive used batteries from customers and, after processing, will ship the recycled lead, and other materials, to other facilities. There is no exchange of materials between the two facilities. Therefore, these facilities are not considered a support facility for each other, and are not in the same industrial grouping.

- Criteria two-contiguous or adjacent properties: contiguous refers to properties that "touch." "Adjacent" properties are separated and can be miles apart. According to EPA documents, however, 20 miles is too far to be considered adjacent. When properties are separated, even over a distance of one mile, there must be a relationship between the facilities to be considered adjacent, such as sharing of water supply lines, access roads, fuel or water pipelines or a dedicated railroad line or conveyer system between them. The two facilities are located approximately 10 miles apart and do not share any water supply, dedicated rail lines, utilities, or roads. Therefore, these facilities are not considered to be adjacent or contiguous.
- Criteria three-common Control: Johnson Controls is the owner of both the battery distribution facility and the proposed battery recycling facility. Therefore, the facilities are under common control.

According to the definition of major plant in the PSD regulation, all three criteria must be met for facilities to be considered collocated. The distribution facility and the proposed recycling facility met only one of the criteria to be considered collocated, "common control." Therefore, the battery distribution facility and proposed battery recycling facility are not considered collocated for PSD.

d. The Clean Air Act requires a case-by-case determination of MACT for the Applicant's industrial boiler under Subpart B of 40 CFR 63.

Response: 40 CFR 63 Subpart B, also referred to as case-by-case MACT, applies to new or reconstructed major sources of hazardous air pollutants (HAPs) for which a MACT standard has not been finalized. A major source of HAPs is one that has the potential to emit over 10 tons per year of a single HAP and/or 25 tons per years of total HAPs. In the instances where a facility's potential emissions trigger the major source threshold, and there is no final MACT standard for the process, a facility must go through a case-by-case technology review for the HAPs emitted. Similar to the PSD, a facility can request federally enforceable permit conditions to limit the potential emissions below the case-by-case MACT emissions thresholds and be issued a synthetic minor permit. Potential HAP

emissions, taking into account the use of the controls, are below the major source threshold. The permit restricts HAP emissions to less than the major source threshold through the use of the air pollution control devices, parametric monitoring and recordkeeping. Because the facility will not be a major source for HAP emissions, a case-by-case MACT analysis does not apply.

Despite being a minor source of HAP emissions, the proposed Johnson Control's facility is subject to an existing MACT standard for secondary lead smelting. This standard applies to both major sources of HAP and non-major sources of HAP.

e. Greenhouse gases: More analysis is needed in the permit with respect to greenhouse gas emissions, especially in light of EPA's new final rule addressing GHG reporting beginning in 2010.

Response: On October 30, 2009, EPA finalized the Mandatory Reporting of Greenhouse Gases Final Rule. The EPA has stated that the purpose of this rule is to require facilities that emit greenhouse gas (GHG) emissions to report actual emissions and for EPA to use that data to make future decisions about GHG emissions. Many facilities whose actual GHG emissions meet the reporting thresholds (generally 25,000 tons per year) are required to report these emissions to the EPA on an annual basis. In accordance with 40 CFR 98.2, the GHG reporting requirements and related monitoring, recordkeeping, and reporting requirements apply to any lead production facility in any calendar year starting in 2010 that emits 25,000 metric tons CO2e or more per year. Applicability to the GHG reporting rule does not create a requirement to regulate GHGs through the permitting process, the rule only requires that applicable facilities calculate and report GHG emissions. The EPA stated in the Mandatory Reporting of Greenhouse Gases Rule that "as currently written, the definition of ''applicable requirement'' in 40 CFR 70.2 and 71.2 does not include a monitoring rule such as today's action…" However, to clarify Johnson Control's applicability to the GHG reporting rule, The Department has added a requirement that Johnson Controls shall comply with all the applicable requirements of this rule to the permit.

Greenhouse gases, as a collective, or as a singular GHG, such as carbon dioxide (CO_2), are not considered to be regulated pollutants under the Clean Air Act (CAA) and thus, are not subject to the CAA's permitting requirements. On December 18, 2008, the EPA issued "EPA's Interpretation of Regulations That Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program" memo. This memo clarified what pollutants were "regulated NSR pollutants" as defined in 40 CFR 52.21(b)(50) and SC R. 61-62.5 (b)(44) and thus subject to PSD review for major new construction or major modifications to existing sources. EPA stated that, "as of the date of this memorandum, EPA will interpret this definition of "regulated NSR pollutant" to exclude pollutants for which EPA regulations only require monitoring or

reporting but to include each pollutant subject to either a provision in the CAA or regulation adopted by EPA under the CAA that requires actual control of emissions of that pollutant." Furthermore, the memo affirms that the regulation of a pollutant under an EPA-approved state implementation plan, the finding of endangerment, and the granting of a Section 209 waiver does not trigger that pollutant to be regulated under PSD. Currently, neither CO_2 nor any other GHG meets any of these criteria and is therefore nor considered to be a regulated pollutant under PSD. EPA has affirmed this in a recent Title V Petition in which they denied petitioners request to object to Title V/PSD permits because the permits did not regulate GHGs from the plant.

On December 15, 2009, EPA finalized the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule. In this final rule, EPA determined that GHG emissions did threaten the public health and welfare. EPA has stated that GHGs are the "primary driver to climate change," which can lead to higher levels of ozone. The EPA has proposed three additional rules to address GHG emissions and/or permitting of GHGs: the September 28, 2009, Proposed Rulemaking To Establish Light- Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; the October 07, 2009, Prevention of Significant Deterioration (PSD): Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by the Federal PSD Permit Program; and the October 27, 2009, Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Proposed Rule. These rules will determine which greenhouse gases will be regulated, how they will be regulated under the PSD program and when they will be regulated under the PSD program. Once these rules are finalized, Johnson Controls and other facilities throughout the state must comply with all the applicable requirements.

f. North Carolina coal plant has been classified a major emitter, and then thanks to the Governor's pen, suddenly became a minor emitter,

Response: The Department has not classified the Johnson Controls facility as a major emitter of HAP emissions.

g. The Draft Permit does not appear to address the Subpart X requirement for maintaining negative pressure of monitoring the pressure at the smelter. Most smelters have a continuous negative pressure monitor to meet this requirement, but the Draft Permit appears to lack this requirement.

Response: Under section 63.554 of the MACT, facilities are given the option to either maintain the building below ambient pressure or install enclosure hoods over each process. Johnson Controls has chosen to install the process enclosure hoods. The requirement to install, operate and monitor these hoods is in the permit. Additionally, the permit states that the process buildings are under negative pressure. Johnson Controls will have to certify that the facility was

constructed in accordance with the permit when requesting the operating permit, which includes the negative pressure building design.

h. Were other federal hazardous waste regulations evaluated with respect to the plastic combustion? Provide additional information on the applicability of Regulation 61-62.5, Standard 3 to the burning of the plastic.

Response: The combustion of waste such as the recycled plastic is regulated by South Carolina's Standard 3. Facilities are allowed to burn on-site generated waste up to 10% of each furnaces capacity without further requirements as long as they keep records of the material being burned and the firing rate. There are several New Source Performance Standards (NSPS) that could potentially apply to the smelting ovens since they burn waste plastic. NSPS Subpart EEEE only applies to facilities that are institutional facilities or burn municipal solid waste. The on-site generated plastic does not meet the definition of municipal solid waste. NSPS Subpart CCCC applies to facilities that burn over 35 tons per day of commercial or industrial waste. The furnaces do not have the capacity to combust that amount of plastic. All of the other NSPS apply to municipal solid waste incinerators of which the melter, smelting furnaces, and kettles do not meet the definition.

i. Since all this technology is in use elsewhere, it is likely that the EPA will strengthen its control requirements for new sources under Subpart X pursuant to the CAA section 112(d)(6)

Response: We assume the commentor was referring to the wet electrostatic precipitator (WESP) as the technology in use for this comment. Please refer to the "Technology Requirements" section of this document for further discussion the WESP. Section 112(f) CAA requires the EPA to set health-based standards eight years after a MACT standard is developed for each regulated source category to address any residual (or remaining) risk after MACT has been applied to provide an "ample margin of safety to public health." Section 112(d)(6) requires EPA to "review and revise as necessary (taking into account developments in practices, processes, and control technologies), emission standards…no less than every 8 years. The EPA has not yet proposed the 112(f) standard for secondary lead smelting or any additional revisions under 112(d)(6). EPA has taken into account the 112(d)(6) technology review at the same time it performs its 112(f) review. EPA also takes into account factors such as cost of controls in applying the technology review and the risk review. Once proposed and finalized, Johnson Controls will be required to comply with all applicable requirements under 112(f) and 112(d)(6).

j. Opacity limits should be at least the same as surrounding manufacturers.

Response: All emission sources at this facility are required to maintain their opacity at 20% or less. The surrounding facilities are most likely also subject to

the 20% opacity limit although some sources may have a 40% limit based on their age. The opacity limits depend on the type of source, the age of the source and any applicable federal standard.

5. AIR TOXICS HEALTH EFFECTS AND COMPLIANCE WITH STANDARDS

a. Emissions from this facility may cause health problems, especially in light of the type of HAPs emitted. Standards are not protective of public health.

i. National Ambient Air Quality Standard (NAAQS) for Lead

Response: The Clean Air Act (CAA) requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards - primary standards and secondary standards. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare, such as protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Recognizing that lead is persistent in the environment and accumulates in soils and sediments through deposition from air sources, EPA initiated a phase out of lead in gasoline for automobiles effective in 1976. EPA then adopted primary and secondary lead NAAQS in 1978 for protection of human health and welfare. After additional research, on November 12, 2008, the EPA revised the primary and secondary lead NAAQS to improve health protection for children. EPA strengthened the primary standard from a quarterly average concentration of 1.5 micrograms per cubic meter ($\mu g/m^3$) to 0.15 $\mu g/m^3$, a level ten times more stringent that the older standard. The standard takes into account multiple exposure pathways, including inhalation and ingestion; therefore, deposition was accounted for in the development of the standard.

The air dispersion modeling conducted for the Johnson Controls facility indicates that emissions of lead from the proposed project will not result in ambient lead concentrations that exceed the revised NAAQS. Ambient monitoring is planned to document potential impacts.

The lead NAAQS requires the State to conduct ambient lead monitoring of sources that emit more than 1 tons per year of lead. The EPA has proposed revisions to the lead NAAQS that would require the State to add sites that emit 0.5 tons per year to the ambient monitoring network. This proposal, if finalized, will not effect any requirements to monitor the Johnson Controls site. The monitor will be placed where the maximum expected lead concentration would be expected to occur.

ii. National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Source Categories, Maximum Achievable Control Technology (MACT) for Secondary Lead Smelting

Response: The air toxics section of the CAA was revised in 1990 to further protect health and the environment by quickly reducing HAPs through a control technology approach. The CAA requires the EPA to reduce HAP emissions by regulating industrial categories rather than regulating on a pollutant-by-pollutant approach. The EPA was required to list the major source categories, and apply a Maximum Achievable Control Technology (MACT) standard under section 112(d) of the CAA for each source category. Through the application of controls and work practice standards, HAP emissions are reduced, and therefore, so are exposures to those HAPs.

In 1997, the EPA finalized the MACT standard for secondary lead smelting. EPA's rule applies to major and minor secondary lead smelting sources. EPA included secondary lead smelters to protect communities from HAP exposure. The MACT standard limits lead emissions from these operations; lead is a surrogate for the all metal HAPs emitted by these sources. These metals include mercury, cadmium and arsenic.

In addition to the control technology standards of Section 112(d), Section 112(f) of the CAA requires the EPA to set health-based standards eight years after a MACT standard is developed for each regulated source category to address any residual (or remaining) risk after MACT has been applied to provide an "ample margin of safety to public health." The EPA has not yet proposed the 112(f) standard for secondary lead smelting. Once proposed and finalized, Johnson Controls will be required to comply with all applicable requirements.

iii. State Air Toxics Regulation

Response: There are no national ambient standard for HAP metals, with the exclusion of lead; there are no national ambient standards for the additional air toxics emitted by the facility. South Carolina is one of the few states across the country with state air toxics standards. The Department's air toxics standard (S.C. Regulation 61-62.5 Standard No. 8- Toxic Air Pollutants) requires a facility emitting one or more of the listed toxic air pollutants to demonstrate compliance with a maximum allowable concentration (MAC) at the fenceline and beyond into the community. Air dispersion modeling is not required if the emissions are below an established de minimis rate. Standard No. 8 is an inhalation standard only and does not address exposures through ingestion. The air dispersion modeling submitted by Johnson Controls was reviewed by the Department and the results demonstrate compliance with the standard.

b. Emissions of toxics are very large. Cadmium damages DNA. Arsenic is a potent poison.

Response: The MACT standard for secondary lead smelting requires the facility to control and monitor lead emissions as a surrogate for other HAP metals. EPA found that lead was the most prevalent HAP metal in the secondary lead smelting process and by controlling lead, the other HAP metals would also be controlled. EPA's MACT lead emission limits "ensure that controls are designed and operated to achieve effective control of lead compounds and other metal HAPs that are found in the smallest size fractions of PM, regardless of the overall control efficiency of PM."

Air dispersion modeling was performed for cadmium and arsenic. Results showed cadmium was 8% of the standard and arsenic was 1% of the standard.

c. The monitoring of lead once per year is inadequate and the facility can manipulate the monitoring. Testing should be done every month for 12 months to capture emissions at different operating conditions. Lead emissions should be continuously monitored.

Response: An ambient lead monitor will be placed in a location that will measure the maximum lead concentration in the ambient air resulting from emissions from the Johnson Control's facility. The Department will operate and maintain the monitor. The monitor will collect a sample of any particulate over 24 hours, no less than every 6^{th} day. By sampling every six days, the Department will collect samples every day of the week every seven weeks, which captures the facility's operation under all conditions, including weekends. If the sample results show concentrations approaching the lead standard, the facility will be required to reduce the lead emissions from the facility.

The permit contains multiple other requirements for lead emission monitoring. The emission sources from the melting, smelting and refining operations will be tested initially and then every 12 or 24 months, depending on the tested lead emission concentration. The allowance to test every 12 months or 24 months is based in the MACT regulation. These tests will be used to demonstrate compliance with the secondary metal MACT standard, to confirm emission estimates, to confirm emissions used in the air dispersion modeling. The Department's stack testing regulation requires that the tests be conducted "while the source is operating at the maximum expected production rate or other production rate or operating parameter which would result in the highest emissions for the pollutants being tested." Therefore, as long as the tests are representative of the highest emissions, then operation at other normal operating conditions, such as lower production, should not result in higher emissions. Johnson Controls must submit a protocol for the test which describes how the conditions of the test represent the highest emissions. This protocol must be

approved by the Department prior to the test. Department representatives may also be present during the test to assure the protocol is being followed. The Department has the right to limit operations if the tests are not conducted at worst case operating conditions.

The permit requires the air pollution control devices (baghouses and HEPA filters) for lead to be operated and monitored. Pressure drop parameters will be monitored to ensure control device efficiency. The secondary lead smelting MACT addresses fugitive and source-specific lead emissions. For fugitive emissions, the facility must prepare and operate in accordance with a standard operating procedures manual to control fugitive dust emissions. To address proper control device operation, the facility must prepare and operate in accordance with a standard operating procedures manual that requires an inspection, maintenance and corrective action plan for all the baghouses used to control process or fugitive emissions. An operation, inspection, maintenance and repair plan is also required for the HEPA filter. These plans must be submitted to the Department for review and approval.

The permit requires the facility to record production. Production levels can be compared to production during a stack test and production levels can be reviewed if there are any elevated readings of lead based on ambient monitoring samples.

The Department could not find any data from a continuous lead stack emission monitor operated in the secondary lead processing industry. Lead stack testing and control device monitoring are appropriate compliance demonstration methods and will be required to determine compliance with the lead standards.

As described above, the MACT standard prescribes the manner in which the facility must test, operate, monitor and report to determine compliance with the lead emissions standard. Periodic stack testing, regular monitoring of control devices, and the ambient monitor will be used to determine compliance with the lead NAAQS. The Department does not believe that monthly stack testing is warranted at this time.

d. The facility could smelt iron instead of lead on the day monitoring is required.

Response: The facility is permitted for lead acid battery recycling, not for iron smelting. Johnson Controls has stated that the rotary furnaces are not designed for and are not physically capable of smelting iron. In order to smelt a metal, it must be heated and changed to a liquid. Iron has a melting point temperature much higher than lead. The furnaces are not capable of operating at a temperature high enough to melt iron. Since iron has a melting point significantly higher than lead, iron smelting furnaces use shell cooling to protect the furnace; these rotary furnaces will not have shell cooling. Melting iron would result in severe damage to the rotary furnaces.

e. The lead monitor needs to be placed in the worst impact location. There should be an ambient air monitor outside of the facility, close to the affected area and accessible to the public. The permit did not detail where the monitor would be placed.

Response: It is the State's responsibility to place the ambient monitor and conduct the monitoring. Regulations require facilities with lead emissions greater than 1 ton per year demonstrate that impacts to the ambient air are not above the standard by either modeling or monitoring. The actual collection of samples, ambient monitoring, is the most definitive and accurate method to determine possible impacts. Based on an air dispersion model incorporating the maximum emissions and local weather, the monitor location has been chosen in the area around the facility that is predicted to have the highest concentration of lead. The location of the expected maximum impact and planned monitor site is inside the facility property boundary along a public road adjacent to the facility, west of Paper Mill Road. Although this area is within the facility boundary, this area is considered to have ambient air because the public uses this road. Lead emission concentrations at other nearby locations are expected to be lower than at the location selected for the ambient monitor. Please see the combined modeling discussion in the "Modeling and Deposition" section.

f. Mercury: The area has mercury-impaired waters, how can we allow an additional 12 pounds per year in the area? Mercury is locally deposited, not by emissions in China or elsewhere. Seven states have established mercury emission standards that are substantially stronger than EPA standards and ten additional states are in the process of doing so. This type of routine is simply taking one step forward and two backward.

Response: HAP emissions are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Mercury is a persistent, bioaccumulative toxic metal, which is a chemical that is toxic, persists in the environment and bioaccumulates in food chains and, thus, poses risks to human health and ecosystems. Mercury is released by industrial, commercial and natural activities; however, electric power utilities make up the largest percentage of mercury released into the atmosphere. Although mercury exposure can occur from inhalation, the most common way people in the Unites States are exposed to mercury is by eating fish containing methylmercury.

Mercury emissions from this project are governed by the Secondary Lead Smelting MACT regulation and the State's air toxics standard. The MACT regulation reduces the public health and environmental impacts from mercury and other toxic metals, using lead as a surrogate, through the application of control technology, in this case, through the use of baghouses, HEPA filters and control of fugitive emissions. Mercury emissions were less than 1 percent of the State

standard. The Department's air quality regulations do not address water quality, soil, or other impacts. Johnson Controls has voluntarily conducted and submitted a mercury deposition study in response to the concerns raised. See "Modeling and Deposition" section for discussion on the deposition model.

The Agency recognizes the potential health and environmental effects from mercury and has committed to assessing and addressing mercury emission impacts in South Carolina. The Agency has developing a mercury monitoring and reduction strategy, entitled *South Carolina Mercury Reduction Strategy*, is in draft form. This goal of the strategy is to recognize and reduce exposure through collaboration with the public, industry, interested groups and government. All mercury sources will be reviewed, including industrial, commercial and natural sources. This plan is in its initial stages of reviewing baseline emissions inventories and assessing risk to South Carolinians. The results of this strategy could require mercury reductions from industrial, commercial, and institutional sources statewide, including metal facilities. This document is on public notice and comments are requested. The next step after comment review is to develop the stakeholder group for further actions.

On December 01, 2008, a Memorandum of Agreement (MOA) between SC DHEC and the South Carolina Electric Utilities was signed on December 01, 2008. This MOA is an agreement where each electric utility will use continuous mercury emission monitors or testing to develop unit specific emission data. The MOA also supports a deposition study to gather information on how mercury is impacting our state and from what sources. This study is being updated to determine the most appropriate location of mercury monitors.

6. MODELING AND DEPOSITION

a. Emissions modeling for PM, PM_{10}, and $PM_{2.5}$ is not robust enough or explained in sufficient detail to ensure that the NAAQS levels will be met and that particulate deposition and re-entrainment will not affect the surrounding area.

Response: The modeled emission rates account for all the facility emissions. The maximum potential controlled rates were used in the air dispersion model. These rates were based on the facility operating 24 hours a day, 365 days a year. Please see the "Emissions Estimates" section for discussion on emission estimates. The dispersion model as run with the regulatory defaults assumes all PM is re-entrained. The air modeling results indicate that the facility will comply with the NAAQS. While current regulations do not require $PM_{2.5}$ modeling, Johnson Controls submitted a modeling analysis for $PM_{2.5}$. The $PM_{2.5}$ modeling analysis was performed assuming that $PM_{2.5}$ emissions from the facility were equal to total PM_{10} and PM. This is a conservative approach and helps reduce the possibility that $PM_{2.5}$ impacts were underestimated.

b. The modeling information showing acceptable lead emissions is suspect based on the lack of reliable emission estimates going into the modeling. Given how close the modeling comes to predicting a lead NAAQS violation, extra sensitivity is required.

Response: Please see the "Emissions" section for discussion on emission estimates for lead. The maximum potential controlled rates were used in the air dispersion model. These rates were based on the facility operating 24 hours a day, 365 days a year. Conservatively, the background monitoring data from the Greenville monitoring station, which is currently the highest in the State, was used in the modeling for the Johnson Control facility. The facility will be required to conduct stack tests to verify these emission estimates. If the testing results indicate emissions are higher than estimated, the facility will be required to revise the modeling and demonstrate compliance with the standard at the higher rates. An ambient monitor will be placed in the area where there is expected to be the highest impact and where there is public access.

c. A study should be done on the cumulative effect of air quality with other manufacturers in the area.

Response: The Department is required to evaluate each facility's individual impact to determine compliance with the state and federal air quality regulations. However, due to community concerns the Department reviewed air dispersion modeling submitted by other large emission sources in the area and performed a cumulative modeling study. Facilities chosen for the cumulative study were based on the amount of permitted emissions and proximity to the proposed Johnson Controls location. Sources included were Smurfit Stone Container and Dupont Teijin Films. Air dispersion modeling was reviewed for toxic metals and PM_{10}. These pollutants were chosen for the study because PM_{10} modeling for the proposed Johnson Control facility was closer to the standard than other pollutants and toxics metals (lead, antimony, arsenic, cadmium, chromium (+6), and mercury) were of greatest community concern based on the comments received. The results of the study indicate that off-site concentrations will remain below applicable standards for all seven modeled pollutants as seen in the tables below. The location of the maximum concentration for each pollutant was on or very near the property boundary of one of the facilities as follows: PM_{10} concentrations (annual and 24-hr) were nearest to DuPont Teijin Films; lead and antimony concentrations were nearest to Johnson Controls; and arsenic, cadmium, chromium and mercury concentrations were nearest to Smurfit Stone Container.

Roche Carolina was also considered, but was determined to have no impact on cumulative effects of air quality with respect to Johnson Controls' estimated emissions. Roche Carolina does not emit any of the metals of concern and it was determined that the distance of the Roche Carolina facility, approximately greater than 5 kilometers from proposed Johnson Controls site, and the location of Roche Carolina (North to Northwest) in proximity to the proposed Johnson Controls site

did not impact the cumulative effects analysis. The potential controlled PM_{10} emissions from Roche Carolina are of a small magnitude and would have no effect on the overall PM_{10} concentrations compared to the other facilities in the study. Also, the wind patterns in this area tend to be along a Southwest to Northeast axis, minimizing the chances that Roche Carolina would contribute to higher pollutant concentrations around the Johnson Controls facility.

STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS COMBINED MODELING ANALYSIS							
Pollutant	**Averaging Time**	**Model Used**	**Maximum Modeled Concentration ($\mu g/m^3$)** (1)	**Background Concentration ($\mu g/m^3$)**	**Total ($\mu g/m^3$)**	**Standard ($\mu g/m^3$)**	**% of Standard**
PM_{10}	24 Hour	AERMOD	81.8	34	116	150	77
	Annual	AERMOD	11.9	17.9	30	50	60
Lead	3 Month (2)	AERMOD	0.095(3)	0.006	0.10	0.15	67
1) The highest-first-high modeled concentration was used for annual averaging period and the highest-second-high was used for 24-hour averaging period.							
2) Lead is the maximum 3-month rolling average over the modeling period.							
3) The highest monthly concentration was compared to the standard. This is a conservative approach.							

STANDARD NO. 8 - TOXIC AIR POLLUTANTS COMBINED MODELING ANALYSIS					
POLLUTANT	**CAS NUMBER**	**MODEL USED**	**MAXIMUM MODELED CONCENTRATION ($\mu g/m^3$)**	**STANDARD ($\mu g/m^3$)**	**% OF STANDARD**
Antimony	---	AERMOD	0.03	2.50	1
Arsenic	7440-38-2	AERMOD	0.03	1.00	3
Cadmium	7440-43-9	AERMOD	0.03	0.25	12
Chromium(+6)	---	AERMOD	0.06	2.50	2
Mercury	7439-97-6	AERMOD	0.004	0.25	2

d. Deposition. There were many comments received questioning the amount of emissions, particularly HAP metals, such as mercury and lead, emissions that would deposit on the soil and in the river and cause harm.

Response: The toxic metal emissions from this project are governed by the Secondary Lead Smelting MACT regulation, the lead NAAQS standard and the State's air toxics standard. The MACT regulation reduces the public health and environmental impacts from toxic metals through the requirements for application of control technology, in this case, through the use of baghouses, HEPA filters and control of fugitive emissions. The NAAQS is set to be protective of public health and welfare with an ample margin of safety. The Department's air quality regulations do not address water quality, soil, or other impacts. Note that the lead

NAAQS, as discussed earlier, took into consideration deposition in development of the standard; therefore, compliance with the lead NAAQS addresses potential impacts due to deposition.

Based on community concerns, Johnson Controls voluntarily performed and submitted a deposition analysis for lead and mercury. The analysis was conducted for short and long term impacts to the Great Pee Dee River, and conducted for soil in the vicinity of the proposed facility (at the roadside, 1.5 miles from the plant, 3 miles from the plant). Short and long term analyses were conducted because the impacts of deposition can be both acute and chronic. The vicinities chosen are appropriate because EPA has stated that "lead emissions…deposit relatively short distances from the proximity of their initial source…" Mercury and lead were chosen for the deposition model since these were the metal toxics of greatest concern. For short and long term river impacts, concentrations of each pollutant were compared to SC DHEC surface and ground water standards; the ground water standards are more conservative than the SC DHEC drinking water standards. For short and long term soil impacts, EPA Regional Screening Levels were used to compare with predicted concentrations. The predicted impacts from Johnson Controls were well below these allowable levels as shown in the table below.

Johnson Controls Florence Deposition Analysis

Pollutant	Scenario	Maximum Predicted Concentration	Background Concentration	Total Predicted Concentration	Allowable Concentration	% of Allowable Level
Pb	Short-term River	0.02 ug/L	< min. detect	0.02 ug/L	14 ug/L(1)	0.1
	Long-term River	0.0005 ug/L	< min. detect	0.0005 ug/L	0.54 ug/L(1)	0.1
	Long-term Soil – Worst Case	74 ug/g	NA	74 ug/g	400 ug/L(2)	18.5
Hg	Short-term River	0.00002 ug/L	< min. detect	0.00002 ug/L	1.6 ug/L(1)	0.001
	Long-term River	0.00000036 ug/L	< min. detect	0.00000036 ug/L	0.050 ug/L(1)	0.001
	Long-term Soil – Worst Case	0.051 ug/g	NA	0.051 ug/g	5.6 ug/g(2)	0.9

Note: The facility did not provide information on background concentrations in its analysis. The Department included its own background data in the review. Background soil measurements were not available.

1. Department surface and ground water standards used to compare with predicted concentrations, which are more conservative than the Department drinking water standards.
2. USEPA Regional Screening Levels used to compare with predicted concentrations.

7. MALFUNCTIONS

a. If a control device fails, the facility needs to shut down until repairs are made. If a control device malfunctions, the facility needs to shut down until repairs are made.

Response: The facility is expected to operate its pollution control equipment to meet the emission limitations as required in the permit and in accordance with any applicable state and federal air regulation. If a control device fails, the facility shall shutdown process operations controlled by that air pollution control system. A condition reflecting that requirement has been added to the permit.

The permit also reflects the requirements of SC Regulation 61-62.1 Section II(J), which states the procedures a facility must follow in the event of any malfunction or upset to air pollution control equipment or system or other equipment failure "which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application." This process would apply to malfunctions and upsets. The facility is expected to assess the situation, determine the emissions and take corrective action as soon as possible. Should the emissions exceed a permit limit, the facility shall shutdown process operations controlled by that air pollution control system. A condition reflecting that requirement has been added to the permit.

Also, the secondary lead smelting MACT requires an inspection, maintenance and corrective action plan for all the baghouses used to control process or fugitive emissions. Please see section entitled "Toxics" for further discussion.

b. It is not clear in the permit that emissions occurring during malfunctions will be measured or counted in any way towards compliance with any numerical limits in the permit.

Response: All emissions are required to be accounted for in determining compliance with emission limits. The Department will use all data to assess compliance with applicable regulatory and permit limitations. Permit conditions have been modified to clarify that emissions during malfunctions and upsets need to be quantified and included in the calculations. State and Federal regulations require the facility minimize emissions during malfunction events.

c. Are there any standards to regulate prevention of leakage of battery acid during transport to site or potential heavy metal runoff into the river and ground water contamination?

Response: State and federal air regulations do not address emissions or any other issues that may occur due to leakage of batteries during transportation. The Department's Bureau of Air Quality does not have the authority to regulate waste

transportation or issues that occur during transporting waste. However, the RCRA provides guidelines for waste management. The hazardous waste program, under RCRA Subtitle C, establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal – in effect, from "cradle to grave." 40 CFR Part 263 contains standards for transporters of hazardous wastes.

Currently, unbroken, non-leaking, intact batteries are considered a non-hazardous waste by the EPA and thus are not subject to the RCRA hazardous waste transportation standards. However, if during transporting, a leak should occur, it is the responsibility and requirement of the transporter to assess the leak (is it hazardous or not) and handle accordingly to the assessment made. Should an accident occur and batteries become broken and leaking, the transporter would then need to make a hazardous waste determination and clean up the accident site appropriately per the requirements of S.C. R.61-79.263.31.

Johnson Controls has stated that it is their intention to only receive non-leaking, intact batteries.

d. Catastrophic Disasters

Response: Johnson Controls is subject to the Emergency Planning and Community Right-To-Know Act (EPCRA). These sections require that the owner or operator of a subject facility submit a material safety data sheets (MSDS) for each hazardous chemical which meets or exceeds a specified threshold quantity at the facility to various government entities, including SC DHEC, the local emergency planning committee (LEPC) and the local fire department with jurisdiction over the facility. EPCRA also requires emergency planning and emergency release notifications. Additionally, the Occupational Safety and Health Administration (OSHA) requires an Emergency Action Plan under 29 CFR 1910.120.

8. PERMIT CONTENT

a. Even though monitors on scrubbers are not required because PM levels are less than the limit, water flow to scrubber should be monitored.

Response: The permit requires the facility to install, operate and maintain liquid flow meters, liquid exit pH meters and liquid to gas ratio meters on the scrubbers.

b. Further assurances are needed that the baghouse equipment is used to return particulate matter back to the process.

Response: Johnson Controls has stated that the PM collected in the baghouses will be recycled back into the process. The facility has designed the process in this manner because the baghouse contents contain lead, which the facility will further recycle to maximize the amount of lead to be produced. The permit states

that the baghouse control system is closed-loop. Johnson Controls will have to certify that the facility was constructed in accordance with the permit when requesting the operating permit, which includes the closed-loop baghouse system design.

c. Where it is practicable to mechanically monitor emission control parameters continuously, and to set alarms that will alert the responsible personnel immediately when there is a malfunction, more frequent monitoring should be required

Response: The permit requires the facility to monitor the air pollution control devices at the facility. For the baghouses and HEPA filter systems used to control the lead processes, the permit requires the facility to establish a pressure drop range based on the stack test and vendor certification and record that range once per shift. This is more stringent than the MACT regulation, which requires pressure drop to be monitored once per day. Measured ranges outside of the established range require corrective action. This action may include filter inspection, replacement of filter media, sealing off a defective control device by routing air to other control devices or shutting down the process producing the particulate emissions. The EPA stated in the MACT rule that the "use of a bag leak detector on such a system [HEPA] would likely provide little if any additional protection over proper inspection and monitoring of operating parameters (such as pressure drop)." The temperature of the afterburner will be recorded every 15 minutes to ensure the minimum operating temperature is at or above the temperature established during the stack test. The scrubbers' parameters will be monitored once per shift. The Department has determined that the frequency of the monitoring will ensure proper operation of the control devices. The facility will report on each parameter that went outside the ranges and report on what corrective actions were taken. Johnson Controls has stated that they plan to monitor control device parameters and their ranges continuously and set up warning and alarm levels for personnel to take immediate corrective action. This monitoring will be used internally for Johnson Controls personnel and will not be reflected in the permit.

d. Johnson Controls CO and NO_X annual emissions are so close to the PSD threshold that monitoring for compliance or noncompliance will be dangerously critical

Response: The Department has added the requirement to utilize a continuous emissions monitor (CEM) on processes with the highest projected emissions of NO_x and CO. NO_x CEMS will be placed on the melter and charge preparation area, smelting furnaces and refining kettles and casting area. A CO CEMS will be placed on the melter and charge preperation area and smelting furnaces. The CEMS data, testing on the majority of sources without CEMS and monitoring of the control devices will be used to determine compliance with the PSD avoidance limit.

e. The permit should require specific measures to control fugitive emissions.

Response: The permit requires the facility to minimize fugitive emissions inside and outside the buildings. All operations at the proposed Johnson Controls site will be completely enclosed in buildings. All process buildings will be under negative pressure and venting to a HEPA filter system. Specifically, 40 CFR 63, Subpart X (Secondary lead smelting MACT Standard) requires the facility to install enclosure hoods to capture fugitive process emissions from the melter, smelting furnaces, and the refining kettles. These hoods exhaust to a control device and shall be limited to a specified lead outlet concentration. Also required by Subpart X, the facility must control emissions from the Foundry, Refining, and Slag Warehouse buildings and meet a specified lead outlet concentration. The facility is also required by Subpart X to pave all roads on the facilities property and clean the pavement twice a day. The facility must prepare and operate in accordance with a standard operating procedures manual to control fugitive dust emissions. This manual must be submitted to the Department for review and approval. The facility must certify they have designed and constructed the buildings under negative pressure as part of the request to obtain an operating permit. Based on all these requirements, the Department has determined fugitive emissions have been addressed in the permit.

9. ATTAINMENT

a. Commentors expressed concern about the impact the plant would have on the area's on-going ability to meet the NAAQS.

Response: Ozone and NO_2: In March, 2008, the 8-hour ozone standard was revised from 0.08 parts per million (ppm) to 0.075 ppm. The March 2008, standard is currently in effect and the Florence area is currently attaining this ozone standard. On January 6, 2010, the EPA proposed a revision to the 2008 ozone standard from 0.075 ppm to a range of 0.060 ppm to 0.070 ppm. The EPA should announce a final standard by August 2010. These proposed ozone ranges could result in areas being classified non-attainment or resulting in areas having less cushion to maintain attainment across the state. Final designations for the proposed ozone standard are expected by August, 2011. The most recent regional ozone modeling performed accounted for industry growth. It is impossible to predict the future attainment status of any area. Many factors affect attainment status including weather and meteorological conditions, and emissions from mobiles sources, natural sources, and other stationary sources.

EPA made revisions to the NO_2 NAAQS on January 22, 2010. EPA established a 1-hour daily maximum concentration of 100 parts per billion (188 $\mu g/m^3$). No changes were made to the current annual standard. This change becomes effective 60 days after being published in the *Federal Register*. It has not been published as of today. Understanding there would be concerns about Johnson Controls'

compliance with the new standard, the Department reviewed the modeling to determine if there would be an issue with demonstration of compliance. The modeling indicated compliance with the newly revised standard. Please note that the background concentration is a Department interpretation of the regulation. The results are indicated in the table below:

STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS MODELING ANALYSIS							
Pollutant	**Averaging Time**	**Model Used**	**Maximum Modeled Concentration ($\mu g/m^3$) (1)**	**Background Concentration ($\mu g/m^3$)**	**Total ($\mu g/m^3$)**	**Standard ($\mu g/m^3$)**	**% of Standard**
NO_2	1 Hour	AERMOD	12.9	75.8(2)	89	188	47%

1) NO_2 is the highest 8th high. This is more conservative than how the standard is actually calculated.
2) Based on Department interpretation of the newly promulgated regulation.

BACKGROUND MONITORING DATA ($\mu g/m^3$)									
Pollutant	**Site Name**	**County**	**Year**	**1-Hr**	**3-Hr**	**8-Hr**	**24-Hr**	**Qtr**	**Annual**
NO_2	Jenkins Fire Station	Charleston	2007-2009	75.8*					

The NO_2 1 hour background concentration is the average of the three year 98th percentile maximum daily 1-hour values.
*Based on Department interpretation of the newly promulgated regulation.

Currently, the State is attaining the NO_2 NAAQS. Due to the proposed revisions, it is unlikely that the Florence area will violate the new standards. However, until the Department has been able to evaluate the final NO_2 NAAQS, this finding, along with any nonattainment area designations, will be uncertain. However, the modeling submitted by Johnson Controls showed compliance with the current NO_2 NAAQS, the revised NO_2 NAAQS and the class II PSD increment. The increment is the amount of pollution that an area is allowed to increase. Johnson Controls' emissions were 17% of annual NAAQS and 3% of annual class II increment.

SO_2: EPA proposed revisions to the SO_2 NAAQS on December 08, 2009. EPA proposed to establish a new 1-hour standard within a range of 50 parts per billion to 100 parts per billion. The EPA also proposed to revoke the existing 24-hour and annual standards. Currently, the State is attaining the SO_2 NAAQS. Furthermore, the Florence area is anticipated to continue meeting the SO_2 NAAQS once those revisions are finalized by the EPA. However, until the Department has been able to evaluate the new SO_2 NAAQS, this finding will be uncertain. The modeling submitted by Johnson Controls showed compliance with the current SO_2 NAAQS and the class II PSD increment. The increment is the amount of pollution that an area is allowed to increase. Johnson Controls'

emissions were 6% of the 3-hour standard, 5% o the 24-hour standard, 5% of the annual standard and annual NAAQS and 1% of annual class II increment.

Lead: Please see the "Toxics" section for a discussion on the lead NAAQS. The results of the air dispersion model indicate compliance with the lead NAAQS. The ambient lead monitor will be used to determine that area's attainment status with the lead NAAQS. The standard is based on a 3-month rolling average. The Department will regularly analyze the data from this monitor. The Department is in the process of developing a protocol to alert appropriate staff if there is any concern or elevated lead levels. This protocol will be in place prior to start of operation of the monitor. If there are any concerns based on our review of the data, the Department will investigate operations of all lead emitting sources in the area.

For all NAAQS, the states generally have up to one year after promulgation of a new or revised NAAQS to submit initial non-attainment boundary recommendations. Generally, the EPA then has one year to finalize the non-attainment boundaries with the option to extend final designations by one year if they need additional data. Timelines, which are prescribed by the Clean Air Act for boundary determinations, will be published in the final rule.

Based on the air dispersion modeling review, the Department has determined that the emissions from the Johnson Control's facility should not degrade the air quality in the area and should not interfere with our maintenance of a NAAQS. Johnson Controls has demonstrated compliance with the NAAQS and with the Class II increments. Increments are more stringent than the NAAQS and are designed to keep air quality in an area from degrading.

b. Permit issuance should be held off until EPA has revised their standards. Holding off on the permit will also reduce confusion and litigation that was experienced with the recent coal plant permit. Additionally, if there are no standards for mercury and arsenic, then the permit issuance should wait until a study was conducted and standards established.

Response: The Department issues its permits based on applicable state and federal air regulations that are in effect at the time of permit issuance. The EPA proposes and finalizes new air quality regulations and changes to existing regulations on a regular basis. Additionally, EPA is required to review the NAAQS every five years and propose changes as necessary. The Department does not believe that the emissions from this facility will interfere with attainment of any NAAQS. Should the Florence area become part of a non-attainment area for any of the NAAQS, then a plan will be developed to bring the area into compliance with the NAAQS. This plan will include a control strategy for new and existing air emission sources in the area. See the "Regulatory Review" section for discussion on greenhouse gases. EPA has set technology-based standards for HAP metals under the MACT standard. The Department has set state air toxics standards for

HAP metals including mercury and arsenic. The EPA has not yet proposed the residual risk standards under CAA section 112(f). However, once those standards are finalized, Johnson Controls will be required to comply with all applicable requirements

c. There should be a baseline monitor for air quality in this area before operations begin.

Response: The lead monitor associated with the facility will be in place and operating prior to Johnson Controls starting operation, so ambient lead levels will be assessed prior to start of operations. Currently, the Florence area has monitoring for ozone and $PM_{2.5}$. The concentrations for both pollutants meet the NAAQS for their respective pollutant. There is currently no monitoring for CO or NO_2 in Florence. EPA sets minimum monitoring requirements based on the population of metropolitan statistical area and the severity of the measured pollution concentrations in the area. The Florence MSA (which includes, Florence and Darlington Counties), does not currently have a population large enough to trigger mandatory monitoring under EPA regulations. Each year, the Department reviews the current regulations, air quality data and population estimates and determines if a modification of the network (to remove , add or relocate monitors) is appropriate based on EPA Network Design regulations (40 CFR Part 58, Appendix D). Currently, there are minimum monitoring requirements for ozone, PM2.5, PM10, lead and NO2. The Department may also operate special purpose monitors to meet specific Air Program needs. Those monitors may be part of long term surveillance or part of special studies designed to answer specific questions. At this time, the Department does not believe a special purpose monitor for CO or NO_2 is needed based solely on the predicted impact of the Johnson Controls facility. Air dispersion modeling indicates the facility will be in compliance with the NAAQS for both of these pollutants, including the latest revision of NO_2standard.

d. There should be a public website to be able to monitor PM levels.

Response: The Department has operated an air quality monitoring network in South Carolina since 1959. The monitoring network currently comprises over 96 monitors and samplers at 41 sites across the state. These monitors and samplers are used to assess South Carolina's air quality and determine compliance with the NAAQS and state ambient air quality standards. South Carolina currently monitors for PM_{10} in 10 locations and 17 locations for $PM_{2.5}$. Data from these PM monitors indicate the state is in attainment for the PM NAAQS.

Information relating to our monitoring network is available on the DHEC website http://www.dhec.sc.gov/environment/baq/ambientairmonitoring.aspx. The Department is continuing to review and revise its website to better serve the community. The Department is in the process of redeveloping the aforementioned website to have the monitoring data available quicker and in a

more readable fashion. The Department is expecting this to be complete by the end of the year. Another website to locate up-to-date PM information is *AIRNow* at http://www.airnow.gov. This website was developed by EPA, state and local agencies and others government agencies to provide easy access to air quality information to the public.

In addition to obtaining data from the aforementioned websites, the public can also request the information through a Freedom of Information (FOI) request. The South Carolina Freedom of Information Act entitles anyone to request inspection and/or copies of documents in the Department's possession, including any permit decisions that exist at the time of the request, unless an exemption applies. Within fifteen working days of receipt of a written FOI request, the Department must, in accordance with Section 30-4-30(c), make a determination in writing to the requestor regarding the release of the requested records. If the records are available, the requestor will be notified and instructed to contact the FOI Center to schedule a time and place where the records may be inspected or copied and will be advised of any charges that apply.

10. RCRA PERMIT

a. The proposed Johnson Controls facility is required to obtain a Resource Recovery and Conservation Act (RCRA) permit. The permitting process for RCRA and for air construction must be coordinated.

Response: The proposed RCRA permitted unit for the Johnson Controls facility is the battery storage area. The location of the battery storage area is physically separate from the proposed battery recycling process; there is no air flow connection or physical connection to the battery recycling process. The battery storage area, is not a source of air emissions and there are no air standards applicable to this source. Therefore, the two permits are independent of one another.

While a RCRA permit is required for the battery storage area, a RCRA review or an issued RCRA permit is not required for the issuance of an air construction permit. The Department's Environmental Protection Fees regulation establishes time schedules for timely action on permit applications for construction permits. Therefore, the Department may not hold a permit application indefinitely when a facility has submitted all the required information and the Department has reviewed such information and complied with the regulatory requirements for public participation. In accordance with Section 48-1-100(A) of South Carolina Pollution Control Act, the Department must issue a permit if an applicant submits an application that meets all applicable Department standards. The Department's Bureau of Air Quality and Bureau of Land and Waste Management have coordinated all efforts to date regarding public participation and responses to comments.

11. TECHNOLOGY REQUIREMENTS

a. A synthetic minor permit does not require every available control technology, but a PSD permit does.

Response: The synthetic minor provisions do not explicitly require any type of controls; these provisions require a facility to limit their actual emissions to below PSD thresholds in an enforceable permit. However, a facility may need to design their operations to include a control device to show the potential emissions are below that threshold. Johnson Controls has to install baghouses, HEPA filters, scrubber systems and low NO_x technology to meet these emission limitations. The PSD provisions do not require the application of every available control technology. It requires the application of Best Available Control Technology (BACT), which is an emission limitation "…based on the maximum degree of reduction for each regulated NSR pollutant … taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source…" Control technologies can be eliminated from consideration of BACT if they are technically or economically infeasible. It should be noted that a facility that does go through the PSD permitting process will be required to apply BACT; however, after controls are installed, emissions from that facility can be greater than 100 tons per year. A PSD analysis does not include limits on such air toxics such as mercury, cadmium or arsenic; therefore, a BACT analysis would not specifically address these pollutants.

The synthetic minor emission limit is only one of the regulations that apply to this operation. The facility is subject to the MACT standard for secondary lead smelting, the NSPS standard for secondary lead smelters (Subpart L), NAAQS, the state air toxics regulation and other state air regulations. The control devices proposed by Johnson Controls are needed and must be operated to meet the emission limitations specified in the permit.

b. Johnson Controls should be required to obtain PSD permits, despite a minor source status. This would be more protective of health and welfare. Additionally, since the facility's potential emissions are so close to the PSD threshold, we should require a PSD. Emissions of criteria pollutants should be controlled, not just minimized to avoid major source status.

Response: A PSD permit is required when a facility, such as a secondary metal production plant, has the potential to emit 100 tons per year of a PSD pollutant. In determining potential to emit, a facility can opt to take a physical or operational limitation (such as use of pollution control equipment) in determining these emissions. Johnson Controls has elected to take federally enforceable limits of less than 100 tons per year for each PSD pollutant. The permit reflects the air pollution controls required to be used to meet these limits as well as testing,

monitoring, recordkeeping and reporting requirements so that the facility can demonstrate compliance with these limits.

The Department does not have the authority to require any facility to obtain a PSD permit for construction activities where, based on our review of the emission calculations, emissions are below the PSD regulatory thresholds; based on the Department's review of the application submitted, the Department believes that Johnson Controls can maintain emissions levels below the PSD thresholds. However, if emission tests and other required monitoring show that the facility does exceed the PSD thresholds, the facility will be required to submit a PSD application as part of the enforcement process.

c. The amount of controlled emissions were over 90 tons per year and close to the PSD threshold. Therefore, since the difference between the PSD threshold and predicted maximum emissions is so small, PSD should be required as a public health protection.

Response: As discussed above, the trigger for a PSD review is potential emissions above 100 tons per year for a PSD pollutant. As long as the facility's actual emissions are below 100 tons per year for each PSD pollutant, the Department has no basis for requiring a PSD permit. In response to comments that Johnson Controls may not be operating using the best air control technology, the facility submitted an analysis to demonstrate its controls were comparable to what would be required under a best available control technology (BACT) review. The following table summarizes the emissions controls employed by other facilities.

Pollutant	Control Device	Process/Source
CO	Afterburner	Melt Furnace
CO	Clean fuel, good combustion practices	Annealing, Melting Furnaces, Boilers
CO	Recuperative Thermal Oxidizer	Shaft Furnace
NOx	Good combustion practices and good combustion unit design	Annealing Furnaces, Melt Furnaces
NOx	Low NOx burner	Boilers, Coating Line, Melters, Heating Furnace
PM	Baghouse	Mold cooling, Shakeout, Casting
PM	Good combustion practices and good combustion unit design	Melter, Holder, Fluxer
PM	Afterburner	Scrap Dryer
PM	Baghouse and Secondary filters	Electric Arc Furnace
PM	Clean fuel, good combustion	Boilers

The following is a discussion of the control devices used at other secondary lead smelting facilities:

- EnviroFocus, which started up operations in the 1960s, and is currently undergoing a modification, uses baghouses for PM and lead control, an afterburner for CO control, a desulfurization process for SO_2, and controls NOx by using oxygen for combustion and good combustion practices.

- East Penn started operations in the early to mid 1980s and was modified in 2003. This facility uses baghouses and HEPA filters for PM and lead control, a scrubber for SO2 control, an afterburner for CO control, and low-NOx burners are used on some of the combustion operations at this facility. The annual capacity for this facility is a bit larger than Johnson Controls. East Penn also uses various scrap materials as their feed which includes lead containing soils.

- Exide started operations in 1994 and is classified as a synthetic minor source. This facility uses baghouses for PM and lead control and a scrubber for SO_2 control. This facility refines lead using uses reverberatory and rotary furnaces. The rotary furnace is used for further slag processing.

- Gopher started operations in 1990. Modifications were made in 2003. This facility uses baghouses for PM and lead control and an afterburner for CO and VOC control. The facility does not have an SO_2 scrubber.

- Quemetco started operations in 1959. Its annual capacity is much greater than Johnson Controls. This facility uses baghouses for PM and lead control and an afterburner for CO and VOC control. A wet ESP is used to reduce metallic HAPs. The wet ESP was required through a compliance order. The facility does not have an SO_2 scrubber. This facility refines lead using reverberatory furnaces and an electric arc furnace to further process slag.

- Revere started operations in the early 1970s. This facility uses baghouses for PM and lead control and some sources are equipped with a HEPA filter. An afterburner is used for CO and VOC control, low NOx burners control NO_X emissions and a scrubber is used for SO_2 control.

The analysis involved reviewing the available information for control device technical feasibility, control efficiency and costs. Johnson Controls selected the most efficient technically feasible control technology for their operations, as shown in the table below.

Process Controlled	Control Device	Pollutant(s) Controlled	Efficiency
Battery Breaking/ Paste Desulfur-ization	Plate Scrubber	H2SO4 – sulfuric acid	90%
Charge Preparation and Melting	Baghouse/ HEPA Filter	PM / PM10 / PM2.5, Pb	99% / 99.97%
Smelting Furnaces	Baghouse/	PM / PM10 / PM2.5,	99.7%

– rotary furnaces	HEPA Filter	Pb	
	Afterburner	CO	50%
	Scrubber	SO2	90%
Foundry	Baghouse/ HEPA Filter	PM / PM10 / PM2.5, Pb	96.7%
Refining Kettles and Casting	Baghouse/ HEPA Filter	PM / PM10 / PM2.5, Pb	96.7%
Slag Warehouse	Baghouse/ HEPA Filter	PM / PM10 / PM2.5, Pb	99%

Based on the information submitted, the Johnson Controls facility has similar control technology for PSD pollutants as to what is being operated at other secondary lead smelting operations and what would be considered acceptable under PSD.

Based on the estimated amount of NO_x and CO emissions compared to the PSD threshold, the Department has added the requirement to utilize a continuous emissions monitor (CEM) on processes with the highest projected emissions of NO_x and CO. NO_x CEMS will be placed on the melter and charge preparation area, smelting furnaces and refining kettles and casting area. A CO CEMS will be placed on the melter and charge preperation area and smelting furnaces. This data will be used to determine compliance with the PSD avoidance limit. The CEMS data, testing on the majority of sources without CEMS and monitoring of the control devices will be sufficient federally enforceable monitoring to determine compliance with the PSD avoidance limit.

d. The MACT standard for secondary lead smelting is old (1997). The permit should require controls for air toxics that are as stringent as those already installed at some existing lead facilities. Require the use of a wet electrostatic precipitation (WESP) for mercury, given the mercury issues in the area.

Response: The facility must demonstrate compliance with the Secondary Lead Smelting MACT and the State Air Toxics mercury maximum allowable concentration (MAC), the two air regulations that govern mercury emissions under this permit. The facility has chosen to install a baghouse and HEPA filter control device system to demonstrate compliance with the MACT standard. Air dispersion modeling has demonstrated compliance with the State mercury MAC. The Department must issue the permit if the facility has demonstrated they can comply with applicable state and federal air regulations. However, due to the concerns over mercury, Johnson Controls did conduct an analysis of mercury controls for secondary lead smelting operations including an analysis of the WESP.

Based on a mercury stack test at the Gopher facility, the majority of the total mercury is expected to be in the particle bound form, which will be captured and controlled by the baghouses and HEPA filter systems. The facility reviewed

available control technologies and found that sorbent injection was a control technology that could have potential for use in secondary lead smelting operations. However, they identified technical problems with its usage that would have to be overcome. The sorbent could be injected into the existing baghouse to capture mercury. The baghouse is a closed loop system, meant to capture and recycle lead back into the process for reprocessing and recovery. The additional mercury would be captured and recycled back into the process, in effect adding more mercury to the process. Sorbent could be injected downstream of the baghouse, which would require another baghouse to control the additional mercury emissions. The cost analysis showed the addition of another baghouse would be very costly (over 15 million dollars to purchase and install the additional baghouse and sorbent injection equipment, and over 400,000 dollars per pound of mercury removed) resulting in an unknown mercury reduction efficiency. Additionally, the facility has stated that additional research is needed to confirm the technical feasibility of using sorbent injection to control mercury in the secondary lead smelting industry.

Based on comments received, Johnson Controls supplied an analysis of the use of the WESP. A WESP was installed at an existing California secondary lead smelting operation. We could not locate any other secondary smelting operation that has employed this type of technology. The WESP was installed, along with a regenerative thermal oxidizer, as part of a settlement agreement. The facility could not demonstrate compliance with a South Coast Air Quality Management District Rule. The facility employs a rotary dryer to dry the paste (equipped with a baghouse), a reverberatory furnace (equipped with a baghouse and scrubber/adsorber) and an electric slag furnace (equipped with a baghouse and scrubber/adsorber). This is a different process operation than that proposed by Johnson Controls. The intent of the system was to remove condensable PM and metallic HAPs from the process exhaust stream at the California facility. Johnson Controls has estimated the installation costs of the wet ESP to be 15 million dollars. It should be noted that in July, 2008, the system did experience a fire which destroyed the WESP and the stack. The unit was rebuilt using stainless steel walls and restarted in October, 2008. Johnson Controls questions the technical feasibility of a control device having had issues with a fire and only being in operation since late 2008.

e. Require a “zero” emissions of mercury. Cost should not be a factor in requiring mercury controls.

The facility must demonstrate compliance with all applicable air standards. Johnson Controls submitted additional information detailing the costs and technical issues with installing additional mercury controls. The Department has determined that the control devices proposed by Johnson Controls can demonstrate compliance with applicable air regulations. No air quality regulation requires “zero” emissions.

f. Some sources that could be effectively controlled with readily-available control technology will not be controlled at all because total emissions are deemed below the PSD limit.

Response: The commentor did not supply any information as to what processes were uncontrolled and what that control technology may be. The facility has supplied an analysis to compare its control system to what may be required under a BACT analysis.

12. HEALTH AND ENVIRONMENTAL IMPACTS

a. What harm will come to the people in the area due to the plant? Health of children is most important.

Response: Federal and State air quality standards are protective of human health. The Clean Air Act, which was last amended in 1990, requires the EPA to set NAAQS for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national ambient air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called "criteria" pollutants: particulate matter, nitrogen dioxide, sulfur dioxide, ozone, carbon monoxide and lead. Johnson Controls has demonstrated that it can meet these standards. Please see the “Toxics” section for further discussion on protection from lead and other HAP metals.

b. Consider the protection of health over economics.

Response: The Department does not direct economic development; the Bureau of Air Quality assesses whether or not the applicant has demonstrated that federal and state air quality standards can be met for the proposed project. The Department is responsible for ensuring the NAAQS are met in this state. If these standards are not met, then more stringent air quality requirements may be required.

c. Comments were made on the large amount and types of criteria and HAP emissions that were estimated from this facility.

Response: Federal and State air pollution regulations are designed to minimize emissions to levels that reduce the air quality impact and are health protective. The amount and type of emissions determines the appropriate type of permit and will determine the regulatory requirements the facility must meet.

13. EXPEDITED REVIEW

a. The expedited process for obtaining an air permit should not have been used.

Response: The facility requested entrance into the Bureau of Air Quality's Expedited Review Program. At the time the application was submitted, it met all the criteria to qualify for an expedited review and it was admitted into the program. Expedited review only means that the Department dedicates staff to prioritize the application review; it does not guarantee a permit will be issued. All public participation requirements are followed. After the Department determined that a public hearing was necessary because of the public interest, the application was removed from the expedited review program as outlined in the Department's expedited review standard operating procedures.

14. GENERAL OPPOSITION OR SUPPORT FOR THE PLANT

In accordance with Section 48-1-100(A) of South Carolina Pollution Control Act, the Department must issue a permit if an applicant submits an application that meets all applicable Department standards. The Department does not make permit decisions based on the number of individuals or groups that support or oppose a project. The Department's decision is based on the Department's technical review of an applicant's application and the regulatory requirements in place at the time of the Department's review. The Department welcomes and appreciates all comments made regarding the Johnson Controls facility.

15. PUBLIC COMMENT

a. There were requests to extend the public comment period for the draft permit an additional 30 days.

Response: Consistent with S.C. Regulation 61-62.1 the Department provided for adequate notice and review to the public of the draft air permit and notice of the public hearing. On August 20, 2009, the Department noticed the draft air permit and issued notice of the Question & Answer session/public hearing. This notice was published in *The Florence Morning News* newspaper and was also available on the Department website. A flier was mailed to citizens who lived on the road in which the facility was to be built. The Question & Answer session/public hearing was held on September 22, 2009, and the public comment period closed on September 29, 2009. We received several requests to extend the public comment period. Based on these requests, on October 01, 2009, the Department noticed an extension of the public comment period until October 29, 2009. This notice was published in *The Florence Morning News* newspaper and was also noticed on the Department website.

b. The Bureau should create a webpage dedicated to information concerning Johnson Controls as it did for the Santee Cooper Pee Dee plant project.

Response: The Bureau made the application, draft permit and Statement of Basis available during the public comment period and the extended public comment period. The Department Decision on Johnson Controls will remain on the website indefinitely. The Department Decision includes the final permit, final Statement of Basis and response to comments. The website address is http://www.scdhec.gov/environment/baq/Comments.aspx. The Santee Cooper webpage was established because there was an enormous amount of material submitted on the project. The website was used to help notify the public of any meetings and hearings, and to help minimize the number of FOI requests."

c. DHEC should provide a revised draft permit and/or additional comment period when draft permit conditions change in response to the public comments received.

Response: The regulatory requirements state that the public comment period for a draft synthetic minor permit is 30 days; however, the Department did grant an additional 30-day comment period because the community requested more time to review the permit and application. The Department has provided for public notice and comment through the public participation process as required in the regulation. Public comments were considered for technical merit. No significant revisions were made to the emission limitations. Any changes, such as the requirement of the NO_X and CO CEMS, would be considered more stringent. The Department has met the requirements to notice the draft permit and consider public comments; therefore, no further notice of the permit is required.

16. JOHNSON CONTROLS COMMITMENTS

a. Johnson Controls is making solemn and sincere commitments to us now, let there be one change in personnel at the top and all those promises are as chaff before the wind.

Response: The owner/operator is responsible for constructing, operating and maintaining the facility so that all the permit requirements are met. A change in personnel or ownership does not alter the requirements in the permit, which are federally enforceable. Should the facility wish to change a requirement in the permit, a permit review will be required.

17. GLOBAL WARMING

a. Carbon monoxide will, over time, convert to carbon dioxide, which contributes to global warming.

Response: CO emissions will be reduced by an afterburner. The Department expects CO_2 emissions to be regulated nationally in the future.

18. WATER ISSUES

a. Metal-containing particulates will be deposited on the ground and washed into the waterways. This is a potential source of groundwater contamination and health hazard to area residents using well water.

Response: Johnson Controls was asked to respond to how they intend to handle stormwater issues at the facility. They stated the stormwater will be collected and managed on site and the facility has no plans to discharge stormwater into the river. Although the storm water management design has not been finalized, the following conceptual design has been developed:

- First flush of storm water will be captured from impervious surfaces.
- Captured first flush storm water runoff will be treated by a physical/chemical treatment system for plant reuse.
- Post first flush rainfall will be separately contained, monitored, and treated if necessary for plant reuse and/or irrigation which may require a "no discharge permit" from SCDHEC for land application.

Based on their final plans the facility will have to go through the appropriate permit process with the Bureau of Water.

b. There is a potential health hazard to area residents using well water.

Response: Johnson Controls has agreed to support sampling and testing of local wells if requested by individual residents in the area. If sampling is agreed upon by all parties, wells will be sampled by the SC DHEC and analyzed for the appropriate constituents prior to construction of the facility. If you live within one mile of the proposed Johnson Controls site in Florence County and wish to have your private well water tested, please contact the Florence Environmental Quality Control Office at 843-661-4825 for assistance. Johnson Controls also plans to install and sample wells on the facility footprint prior to construction.

19. ROLE OF DHEC

a. SC DHEC position is very difficult when consideration are given to prosper while at the same time protect the health of the public and the environment.

Response: The Department does not direct economic development; the Bureau of Air Quality assesses whether or not the applicant has demonstrated that federal and state air quality standards have been met for the proposed project.

b. DHEC should do better than what is required in the regulations.

Response: The Department has added several requirements to the Johnson Control permit and other permits that are more stringent than the regulatory requirements when deemed necessary and appropriate. Several additional conditions have also been added to the permit in response to comments received from the public.

20. SUMMARY OF SUBSTANTIAL CHANGES MADE FROM THE DRAFT PERMIT

- Requirement to utilize the super desulfurization process in ID 01
- Requirement for processes to be enclosed in negative pressure building
- Requirement that the baghouse system be designed in a closed-loop process
- Requirement that IDs 07, 08, 09, 11 be equipped with low NO_X technology.
- Addition of a 10% opacity requirement for ID 11 to comply with NSPS Subpart L
- Addition of a 10/25 TPY facility-wide HAP limit with recordkeeping and reporting requirements.
- Addition of a 12 pound per year mercury limit with testing, recordkeeping and reporting
- Addition of a CEMS for CO for IDs 06, 07, 08, 09; removed every two year testing
- Addition of a CEMS for NO_X for IDs 06, 07, 08, 09, 11; removed every two year testing
- Addition of initial testing for Antimony, Arsenic, Beryllium, Cadmium, Chromium, Nickel, Selenium, Manganese
- Addition of initial and every two year PM testing for ID 01, 06, 10, 11, 12, and 14
- Addition of initial testing for Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Propionaldehyde, HCl, Chloroform, 1,3 Butadiene, Vinyl Chloride, Xylene, Styrene, Toluene
- Clarifying language that if a control device fails, the facility shall shut down process operations controlled by that air pollution control system in a manner consistent with safe operating practices.
- Clarifying language that stack test results will be used to verify and establish emission factors, verify emissions used in air dispersion modeling, and demonstrate compliance with any facility wide PSD avoidance.
- Requirement to comply with the GHG Mandatory Reporting Rule
- Addition of a condition that requires corrective action when any parametric range goes outside the established range.
- Sulfuric Acid stack testing
- ID 10 – removed lead testing exempted in the MACT