

# **Outstanding Air Quality Business/Industry of the Year #6**

**1. Explain why you are nominating this program, project or person. Only include activities implemented during the July 1, 2007 to June 30, 2008 timeframe. (This is required, but no points are assigned.)**

In 2007, our management team began an initiative to reduce its environmental footprint, and become a local leader in air quality. The team looked hard at its operation from the type of fuel we use to innovation leading technologies that would be at the forefront of dust suppression systems. From our analysis and experimentation, we moved forward with initiatives such as switching to different types of fuel sources, adding technology to existing dust suppression systems, and participating in a state programs that use our used oil in a responsible and environmentally friendly way. I am nominating this facility for its voluntary initiative in taking the lead forward for big industry in the Charleston area to be environmentally responsible!

**2. Provide a measure of the nominee's success during the July 1, 2007 to June 30, 2008 timeframe. This may include air quality improvements obtained through behavioral changes observed and quantified; participation rate; policy changes/implementation; materials disseminated and/or customers served. (40 POINTS)**

Below explains how each area we changed our fuel or power sources and the results from our success:

During our analysis, we found that we could have a profound impact on air quality emissions by placing our two Gottwald 330 HK cranes on electrical power, and by switching the fuel type used for our boilers and mobile equipment. Over a three month period, we converted our crane operations from using a high sulfur diesel engine that runs a generator to a pure electrical operation. Each crane last year burned 52,920 gals for a total of 105,840 gals. The cranes have the potential of actually burning over 105,000 gallons each for a total of 210,000 gallons during a busy year. The emissions of last year's diesel consumption produced 21.03 tons of NOx, 1,672 lbs of particulate matter (PM), 1,892 lbs of hydrocarbons (HC), 8,712 lbs of Carbon monoxide (CO), and 1,112.08 tons of Carbon Dioxide (CO<sub>2</sub>). The \$1,000,000 investment in an electric substation by us basically reduced all of these emissions to zero which would be equivalent to Charleston County adding 29 CARTA buses running 13,200 miles per year without further degradation of air quality! This was a significant breakthrough since both cranes run off 13.8 kV power and are on floating barges. The difficulty in design, the handling of high voltage, and dealing with the floating barge created both challenges in practicality and safety, but the desire to drastically reduce our use of diesel and find a cleaner source of energy was a source of motivation for our team.

Since technology is not yet available for electric or compressed natural gas powered heavy mobile equipment, we have found ways to reduce the impact of burning

diesel. On our site we have many vehicles and heavy equipment that use diesel: ten loaders, two ACERT D10T bulldozers that are Tier 3 compliant, two additional dozers, a water truck, a CAT maintenance truck, and four locomotives. On the average, we will burn 120,000 gals of diesel per year which results in a significant amount of emissions, specifically PM. The locomotives alone burn 27,840 gals of diesel per year. With this in mind we began our first step in our two step process. We immediately worked with CAT to switch from Regular Diesel (+500 ppm of sulfur) to ULSD (15 ppm of sulfur). This reduction alone yielded a 10% reduction in PM emissions, and a 97% reduction in SO<sub>2</sub>. We believe this is the right and responsible course of action. For the second step in the process, we have been working with CAT to upgrade our equipment to utilize a bio-diesel mix with ULSD to reduce the emissions even further. We are hoping to complete this action by next spring which will drop our emissions by another 20% in PM, 20% in HC, and 15% in CO.

Finally, our last project to reduce emissions from diesel involves two heaters that are used to heat asphalt tanks and transfer lines. This project was broken into two phases. Phase One was an immediate action with immediate results; we switched from using 390,000 gals per year of HSD to ULSD. From this immediate action, we gained an additional 97% reduction in SO<sub>2</sub> emissions. Still we recognized this to be only a temporary improvement as we now continue forward on upgrading our heaters to use natural gas instead of diesel. This will further reduce our SO<sub>2</sub>, PM, HC, CO, and CO<sub>2</sub> emissions to near minimal.

In 2007, we spent in excess of \$250,000 in upgrades to an industry standard dust suppression system. First, we started with our coal train loading station where we load over one million tons of coal per year. We designed an automatic dust suppression system that activates 32 misting nozzles for 20 seconds per dump. This creates a wall of mist that captures particulate matter from escaping the area. We also spent funds to upgrade the rainbird sprays and pumps that are a part of the existing coal pile dust suppression system that can saturate the area with a 60,000 gals of water hour. The marquee of the system is a weather station that tracks wind speed, wind direction, and rainfall which integrates into a self-designed software program that monitors and controls the suppression system. The ingenuity takes the possibility of human error out of the system and provides a 24/7 response to any possible meteorological condition. This top tier system is at the forefront of our industry.

### **3. Describe the educational methods and awareness efforts used by the nominated program, project or person during the July 1, 2007 to June 30, 2008 timeframe. (30 POINTS)**

As we marched forward through our initiative to change fuel sources and look hard at our air quality emissions, we taught classes to our workforce to show the improvements and their effects, and we educated the community through public meetings that were held monthly. These community meetings were made up of the community representatives such as Rosemont, Checora, and other Park Circle communities. We also took opportunities to listen to community suggestions which have helped us in our bio-diesel initiative in finding local and affordable ways to create a sustainable program.

**4. Project or program summary. If submitting an existing program, explain the impact the program has achieved thus far, and describe any new aspects of the program or project for review. Describe how the program was expanded during the July 1, 2007 to June 30, 2008 timeframe. (10 POINTS)**

**OR**

**If this is a new project, describe the impact this program is having and how the employees or community are benefiting from the change. Describe plans for expanding this program in the future. (10 POINTS)**

All in all, we drove an initiative to improve air quality above and beyond that of industry in the local area. We understand that there is only so much in emissions that are allotted for an area through attainment. We understand the need for industry to do its part in being as efficient as possible to allow the potential to add more public transportation or increase industry in stagnant areas. Regardless of the State's needs, we want to do our part for the community. To do this our approach was to look at how we conducted business, how our operations impact air quality, and how our by-products of running the operation contribute to air quality (i.e. the burning of used oil). We conducted a two prong attack focusing energy and resources amounting in total of \$1.7 million in upgrades and significant changes to our operation. These actions resulted in a drastic 35% reduction in PM emissions and an overall reduction of SO<sub>2</sub> by 97% on all diesel operating machinery. State of the art dust suppression systems have reduced PM emissions to nearly zero. Overall, our proactive response to air quality issues in 2007 has reduced emissions by 1,149 tons. A further reduction of 20 tons is anticipated upon the completion of our bio-diesel initiative. We are excited to put forth these new initiatives while continuing to research and implement new environmentally friendly initiatives for 2009.

**5. Describe any partnerships that have been developed or existing partnerships that have supported the nominated program, project or person in during the July 1, 2007 to June 30, 2008 timeframe. (20 POINTS)**

Throughout this initiative, we developed relationships with the local community, EPA Region IV and SCDHEC helped us understand and capture our data, and an unique partner in our efforts. At the end of this year we began looking into the smaller facets of our operation that would reduce our environmental footprint, and determine more ways to be responsible for our air quality. Albeit a unique approach, one team member looked at how we disposed of our used oil. Often times, the facility had to pay to remove the used oil which went to burners in small businesses like local cement plants. After further research, we determined that there could be a possibility these burners may not be as environmentally friendly or as regulated as a power plant. With further research, this facility found the GOFER program and began its partnership providing an initial 175,000 gals of oil with 2,000 gals more yearly. In addition, we opened our used oil tanks to our employees if they want to personally participate in the program. The goals of finding a responsible place to recycle the oil and the participation in an nvironmentally responsible program were accomplished with this non-profit organization. The boilers used in peak power usage at the Jefferson plant uses state of the art emission reduction



**2008 "Spare the Air" Awards Program Cost**

Seawell's (facility and catering service)	\$ 2,167.47
Brass Plates	74.90
Imaging Technologies (Banner)	43.34
It's Paper (award bags, envelopes, cards envelopes)	41.26
Awards (paid for by Myra Reece)	0.00
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<b>Total Expense</b>	<b>\$ 2,326.97</b>

