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Thomas R. Benke
Managing Member

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Ms. Jill Inahara
DEQ NW Region
700 NE Multnomah St Ste 600
Portland, OR 97232

Re: Proposed Rules for Colored Art Glass Manufacturing Facilities

Dear Ms. Inahara,

Proposed rules for regulation of toxic air emissions from Colored Art Glass Manufacturing facilities presented to the Environmental Quality Commission by the Oregon Department of Environmental Quality on March 15, 2016 would be another huge FAIL for the Department if promulgated as drafted. Drafted in a rush and without the usual outside vetting, the rules assume that an "emission control device" that removes 99% of particulate matter from furnace emissions will solve the air quality problems in NE Portland that first became evident with recent moss testing. Under the rules as drafted, the colored art glass manufacturing ("CAGM") facilities Bullseye and Uroboros would be allowed to continue charging their furnaces with arsenic, cadmium, and hexavalent chromium in uncontrolled amounts so long as they install a baghouse or similar particulate (smoke) control device. And, there would be no requirement that these manufacturers actually test their stack emissions or conduct appropriate dispersion modeling to ensure that the local population is protected from exposure to those carcinogenic elements.

The problem with this approach is the fact that several toxic and carcinogenic heavy metals volatilize (enter the gaseous state) at temperatures as low as 150 degrees Centigrade. Glass melts at around 500 degrees Centigrade, so you can see the problem. Studies have shown that depending on which heavy metal salt, or oxide, is at issue that between 10 to 50% of the heavy metal introduced to the furnace as raw material will volatilize ("partition to") the furnace exhaust and will bypass any filter designed only to remove solid particulate matter. I encountered this same technical issue when I drafted RCRA Part B permits for several commercial hazardous waste incinerators in 1989. The following year, as a result of what we had learned in Texas and other RCRA-authorized states, the USEPA proposed new rules for Hazardous Waste incinerators. In its April 27, 1990 proposal (55 FR 17862, 17868) USEPA wrote:

> *The existing regulations control metal and some organic emissions through the performance standard for particulates. Metals can be contained in particulates or condense out onto particulates and are then captured by air pollution control devices. The present particulate standard of 180 milligrams per dry standard cubic meter may not provide adequate protection if a substantial percentage of the particulate is composed of toxic metals. Further, in the case of volatile metals such as arsenic, mercury, and chlorides of lead and cadmium, the particulate standard may provide little control.* (emphasis added)

In a recent post Bullseye Glass stated that it has "already begun the process of installing 99% efficient baghouses on furnaces that melt glasses with chromium" and will "test these filtration devices to make certain they operate correctly." I spoke with you today and you admitted that ODEQ had not made any independent inquiry as to whether or not the baghouse being installed by Bullseye will do anything to control toxic metal emissions from the Bullseye's furnaces. ODEQ just took Bullseye's word for it. Bullseye promises to "test the filtration devices", but for what? Particulate? There is nothing in ODEQ's proposed rules that will require testing for nickel (Ni), lead (Pb), mercury (Hb), antimony (Sb), arsenic (As), cadmium (Cd) or

any other carcinogenic or toxic heavy metal emissions from these glass-making furnaces. Hexavalent chromium (CrVI) emissions would only be monitored in relation to the use of chromium (Cr) as a raw material – but oddly not if hexavalent chromium is the raw material! The last paragraph of the proposed rules mentions "other metals", and states that

> *If DEQ determines that ambient concentrations of a metal in the area of a CAGM pose an unacceptable risk to human health and that emissions from an uncontrolled furnace at the CAGM are a contributing factor, then DEQ must limit the CAGM's use of the metal of concern in uncontrolled furnaces...*

Really? Given the "funding" problems experienced by the Department, why should the public have any faith that DEQ would make that determination? Why, instead, shouldn't the facility be required to at least measure and/or monitor its emissions and conduct dispersion modeling to make that determination itself before it is allowed to continue operations?

Bullseye Glass initially refused to discontinue using chromium as a raw material and then bent to concerns that chromium in the non-toxic, trivalent state, could be converted to hexavalent chromium in the combustion chamber. In its recent post titled "No more Green Glass from Bullseye – Bullseye Needs Your Help", Bullseye calls this concern "speculation" and argues that "scientific evidence" indicates that its furnaces won't turn trivalent chromium into hexavalent chromium. Bullseye references an explanation provided by Dr. William LaCourse who gives a plausible but limited explanation of why the production of *green* glass requires the manufacturer to take steps to keep chromium in its safe trivalent state. First of all, Bullseye doesn't just manufacture green glass. More to the point, Dr. LaCourse's explanation is limited to "the glass batch", but concern about oxidation relates to the vaporized chromium in the furnace headspace and flue gasses which, given sufficient time and temperature in an oxidizing environment, will convert to hexavalent chromium. Remember, hexavalent chromium has been found in moss, ambient air and soil samples in alarmingly high concentrations around the Bullseye facility. The question is not *whether* hexavalent chromium is being generated and emitted from the Bullseye

facility but *at what rates*. I agree that conditions in the glass furnace can be managed to limit or preclude the generation of hexavalent chromium, but that has not apparently been the case in the past and Bullseye should be required to establish that it will not happen in the future before it renews its operations.

There are quite a few other problems with ODEQ's draft rule, but the assumption that a particulate control device will have any effect on toxic metals emissions, and the failure to limit the use of any heavy metals other than chromium, are the two biggest issues. No matter what the actual rate of partitioning or volatilization of heavy metals may be occurring in Bullseye's and Uroboros' furnaces, putting a baghouse on the furnace won't change that production rate, and it won't change in the least the amount of metals discharged to the atmosphere. Bullseye knows this already, and ODEQ should know it. So what's really going on here?

Bullseye has repeatedly complained that concerns about its emissions caught it off guard, "hit us like a ton of bricks", and has always equated its compliance with regulations as a measure of whether it was actually protecting the people who live around its facility. ODEQ is afraid that it may not have authority to place any limits on Bullseye, so it has rushed to reach a compromise with Bullseye that will allow the State to proclaim "Mission Accomplished" but won't impair Bullseye's operations to any great extent. ODEQ may respond that the proposed rules, however flawed, are only temporary (180 days). But here's the rub: The temporary rules will probably be all we get for a long time. In part because it will take a long time to sort this all out and to draft proper air toxics rules and in part because any effort by the Department to adopt meaningful and protective permanent regulations will likely be challenged by Bullseye or other polluters in the courts. Meanwhile, east Portland will continue to be gassed by "Colored Art Glass Manufacturing" facilities indefinitely. In my opinion it is better to rely on existing statutes and rules to limit operation of these facilities until they can establish that their operations are not creating nuisance conditions in the surrounding community or otherwise presenting a serious danger to the public health, safety or the environment. As the regulatory authority charged with

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protecting public health, ODEQ would have the advantage in any court challenge to such reasonable limitations. After adoption of a temporary rule? Maybe not so much.

Sincerely,

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