**Why are you letting Bullseye and Uroboros use metals when you know the levels were too high?**

The levels found in the air samples near Bullseye for cadmium and arsenic were 50 to 150 times DEQ’s ambient benchmark concentrations. The levels near Uroboros for cadmium was XXX times the ambient benchmark concentrations. The data also shows nickel at levels above the benchmark concentrations but to a much lesser degree. DEQ is allowing these companies to start using only chromium III on a limited basis. Cadmium and chromium VI cannot be used until baghouses are installed on the stained glass melting furnaces. NEED TO TRY AND TIE REALLY HIGH Cr AND Cd DAYS TO HIGH PRODUCTION FROM BULLSEYE. CAN WE USE THOSE PRODUCTION RATES TO “CALCULATE” WHAT AMBIENT CONCENTRATIONS MIGHT BE AT THE ALLOWABLE REDUCED PRODUCTION RATES?

**How do we know if levels of metals in the air quality are safe after they start using chromium again?**

Bullseye and Uroboros will not be allowed to use chromium III until after baghouses are installed on the glass melting furnaces. Both companies will be required to measure particulate emissions from the baghouses to determine the amount of particulate reduced by the baghouses. DEQ will continue to monitor for heavy metals near Bullseye and Uroboros. Monitoring data will be available two weeks after sampling. DEQ will post ambient air data to the [Portland Metals website](http://www.deq.state.or.us/nwr/metalsemissions.htm) as soon as it is available. If ambient levels of metals are high, DEQ has built reduction strategies into the Air Emissions Compliance Agreements that were signed with both Bullseye and Uroboros that will make them reduce use of metals until ambient concentrations are acceptable. NEED TO TALK ABOUT REDUCE USE AND STOP USE LEVELS.

For metals that have carcinogenic effects (hexavalent chromium, cadmium, nickel, and arsenic), DEQ has decided to multiply the Ambient Benchmark Concentration (ABC) for each of these metals by 20 to obtain a Stop Use Level. The *Stop Use Level* is then divided by 2 to obtain the lower *Reduce Use Level*.

For metals that have non-carcinogenic health effects (cobalt, lead, manganese), the ABCs are based on a non-cancer Hazard Quotient limit of 1. Therefore, an exceedance of a non-cancer ABC (and hence an exceedance of a Hazard Quotient of 1) indicates that health effects will almost certainly occur. Therefore, for metals with non-cancer effects, the *Stop Use Level* is set equal to the ABC. Again, this Stop Use Level is divided by 2 to obtain the *Reduce Use Level*.

The one exception to this protocol is related to lead. In this particular case, the Reduce Use Level for lead, and the Stop Use Level for lead are both set at the ABC for lead. The ABC level matches the primary level set by EPA for lead as a National Ambient Air Quality Standard, or NAAQS value. This level has been determined to be protective of neurological health effects due to exposure to lead in air.**How can 20 times the benchmark be safe? For children?**

The multiplier of 20 is associated only with carcinogenic compounds. But all of our Ambient Benchmark Concentrations have layers of conservatism (protection) built into them. For example, the ABCs assume a person will be exposed to a particular concentration for an entire lifetime, which doesn’t usually occur. The ABCs are also protective of sensitive groups such as children and the elderly. During the Portland Air Toxics Solution work circa 2009 to 2012, when a particular chemical was documented as exceeding its ABC by 10 times, this concentration became a *de facto* level of concern that caused the agency to target its resources toward assessing those chemicals. If the ABC is related to a carcinogenic risk of 1 cancer occurrence in a population of 1 million people (1 x 10-6), then 10 x the ABC would be related to a carcinogenic risk of 10 occurrences of cancer in a population of one million people (1 x 10-5).

DEQ chose a multiplier of 20 for calculating *Stop Use Levels* for carcinogenic compounds in order to utilize a concentration exceedance that is very different from a 10X exceedance, and that DEQ does not want to see exceeded, under any circumstances. It is a policy decision, but it is also protective.

**What is a baghouse?**

A baghouse or fabric filter is an air pollution control device that removes particles out of gas released from commercial or combustion processes. Most baghouses use long, cylindrical bags made of woven or felted fabric as the filter medium. Dust-laden gas enters the baghouse, is drawn through the bags and a layer of dust accumulates on the bag surface until air can no longer move through it. When sufficient pressure drop occurs (see explanation about pressure drop in the question below), the cleaning process begins. Cleaning can take place while the baghouse is filtering or is in isolation. When the compartment is clean, normal filtering can resume. Baghouses are very efficient particle collectors because the dust cake formed on the surface of the bags acts as a filter.

**How do you know a baghouse will make the air safe?**

Baghouses typically have a particle collection efficiency of 99% or better, even when particle size is very small. [DO WE WANT TO CALCULATE WHAT THE AMBIENT IMPACT WOULD BE USING 99% AND THE MONITORED VALUES? THAT WOULD ASSUME ALL METALS ARE FROM BULLSEYE]

\_\_\_\_\_\_\_\_\_\_\_ has a baghouse installed to control emissions from a stained glass furnace. The baghouse \_\_\_\_\_\_\_\_\_\_\_\_\_\_running well?

**How do you know if the baghouse is working?**

Inlet and outlet gas temperature and pressure drop are the two most important factors that affect baghouse performance:

* Gas Temperature – Fabrics are designed to operate within a certain range of temperature. Fluctuation outside of these ranges even for a small period of time, can weaken, damage, or ruin the bags. Bullseye and Uroboros must install their baghouses to ensure that the exhaust gases are within the temperature ranges of the fabric bags for optimal operation. DEQ will require Bullseye and Uroboros to continuously monitor the baghouse inlet temperature to ensure the baghouses are operating in the optimum temperature range.
* Pressure Drop - Pressure drop describes the resistance to air flow across the baghouse: the higher the pressure drop, the higher the resistance to air flow. The pressure drop of a baghouse is determined by measuring the difference in total pressure at two points, usually the inlet and outlet. Baghouses operate most effectively within a certain pressure drop range. Operation outside the desired pressure drop range is an important factor when diagnosing and troubleshooting issues with the baghouse system. When the dust cake builds up to a significant thickness, the pressure drop will become exceedingly high. At this time the filter must be cleaned. DEQ will require Bullseye and Uroboros to continuously monitor the baghouse pressure drop to ensure the baghouses are operating in the optimum pressure drop range.

**How often will the baghouse be cleaned?**

**What do you do with the material collected from the baghouses?**

The materials collected by the baghouse can be reused in the glass furnaces so disposal is not needed.

**What happens if the levels are still high after the baghouse is installed?**

As mentioned above, if ambient levels of metals are still high after baghouse installation, DEQ has built reduction strategies into the Air Emissions Compliance Agreements that will make Bullseye and Uroboros reduce or stop use of metals until ambient concentrations are acceptable.

DEQ is working on a health based air toxics program that will address air toxics impacts from industrial sources around the state. DEQ does not yet know what the air toxics program will look like but is looking at existing programs in California and Washington. If ambient levels of metals are still high after the baghouses are installed, DEQ will regulate these emissions under the health based air toxics program.

**What else could be used instead of a baghouse?**

Wet scrubbers and electrostatic precipitators are other pollution control devices that could also be used to control metals emissions from stained glass furnaces.

* Wet scrubbers remove dust particles by capturing them in liquid droplets. Any droplets that are in the scrubber inlet gas must then be separated from the outlet gas stream by means of another device such as a mist eliminator. Also, the resultant scrubbing liquid must be treated prior to any ultimate discharge or being reused in the plant. Wet scrubbers that remove gaseous pollutants are referred to as absorbers. Good gas-to-liquid contact is essential to obtain high removal efficiencies in absorbers. If the gas stream contains both particles and gases, wet scrubbers are generally the only single air pollution control device that can remove both pollutants. Wet scrubbers can achieve high removal efficiencies for either particles or gases and, in some instances, can achieve a high removal efficiency for both pollutants in the same system. However, in many cases, the best operating conditions for particles collection are the poorest for gas removal.

Some advantages of wet scrubbers over baghouses or electrostatic precipitators are as follows:

* Wet scrubbers have the ability to handle high temperatures and moisture.
* In wet scrubbers, flue gases are cooled, resulting in smaller overall size of equipment.
* Wet scrubbers can remove both gases and particulate matter.
* Wet scrubbers can neutralize corrosive gases.

Some *disadvantages* of wet scrubbers include corrosion, the need for mist removal to obtain high efficiencies and the need for treatment or reuse of spent liquid. The treatment of spent liquid makes a wet scrubber infeasible for Bullseye and Uroboros.

* Electrostatic precipitators collect most of the dust from hot exhaust dust-laden gases. Precipitators function by electrostatically charging the dust particles in the gas stream. The charged particles are then attracted to and deposited on plates. When enough dust has accumulated, the collector plates are shaken to dislodge the dust, causing it to fall to hoppers below. The dust is then removed by a conveyor system for disposal or recycling. Cleaned gas then passes out of the precipitator and through a stack to the atmosphere. Electrostatic precipitators typically collect 99.9% or more of the dust from the gas stream.

Electrostatic precipitators have several advantages when compared with other control devices. They are very efficient collectors of dry materials, fumes, or mists, even small particles. Because the collection forces act only on the particles, ESPs can treat large volumes of gas. Electrostatic precipitators can also operate over a wide range of temperatures and generally have low operating costs. Possible disadvantages of ESPs include high capital costs, large space requirements, inflexibility with regard to operating conditions, and difficulty in controlling particles with high resistivity to electrical conduction. Because of the high capital costs and large space requirements, electrostatic precipitators are infeasible for Bullseye and Uroboros.

**Why don’t you make Bullseye and Uroboros shut down?**

Installation of baghouses can control metal emissions from stained glass furnaces up to 99%. This level of control should reduce ambient impacts of cadmium and chromium to acceptable levels. Bullseye has committed to not using arsenic and Uroboros has not used arsenic for over 20 years. These companies employ 140 and XX people respectively. NEED TO TALK ABOUT BALANCING ENVIRONMENT AND ECONOMICS……DO WE DO THAT?

**What are the results of the soil sampling?**

**What are the results of the air sampling?**

**Why are the air sampling results so high when Bullseye was not using cadmium?**

**What could other sources of high cadmium be and what are you doing to control them?**

**Why does it take so long to get results?**

**What if Bullseye or Uroboros break the agreements?**

The Air Emissions Compliance Agreement signed by Bullseye contains stipulated damages of $1,600 for each day that the company violates any compliance requirements and $800 for each violation of any of the production requirements or any other provision of the agreement. For Uroboros, the stipulated damages are $XXX and $XXX respectively. Even with the Air Emissions Compliance Agreements signed by Bullseye and Uroboros, DEQ still has the right to proceed against these companies for any past or future violations not addressed in the agreements. DEQ could also revoke Bullseye’s Air Contaminant Discharge Permit. Operating without a permit would result in a penalty of $\_\_\_\_\_\_\_\_\_\_.

**What happens if they don’t install the baghouses?**

Bullseye and Uroboros cannot use cadmium chromium III in the stained glass furnaces without a baghouse.

**How did you come up with the usage levels?**

DEQ evaluated the usage levels of metals by Bullseye and Uroboros in the October, 2015 ambient air monitoring time period. Based on those usage levels, DEQ estimated the usage levels that would result in ambient air impacts from metals less than 20 times the DEQ Ambient Benchmark Concentrations and included them in the Air Emissions Compliance Agreements.

**How will these companies know when to reduce or stop usage?**

DEQ will notify Bullseye and Uroboros immediately upon receipt of ambient air quality data that shows cadmium, chromium III, cobalt, lead, manganese or nickel above the reduce or stop usage levels in the Air Emissions Compliance Agreements.

**And how long will it take for them to reduce or stop usage?**

The requirement to reduce or stop usage applies to the calendar week following the calendar week in which notification was given to Bullseye or Uroboros and all following calendar weeks until DEQ provides further notification.

**Why do you have so many steps to reduce usage before you make them stop?**

**Why don’t you make them start out really low production and metal usage rates and work their way up?**

**Why are you giving them so many chances to stop metal usage before making them stop permanently?**

**When these companies stop metal usage, of course the metals levels are going to go down. Why would you let them start up again?**

**Why are you calculating a rolling two-calendar week average?**

**Why aren’t you making these companies monitor emissions?**

DEQ has the regulatory authority to require continuous monitoring of specified air contaminant emissions or parameters. DEQ can only require ambient air quality monitoring for businesses that trigger the Prevention of Significant Deterioration permitting program and that monitoring would be for “regulated air pollutants” such as nitrogen oxides, particulate matter, sulfur dioxide, carbon monoxide, and lead; not for metals. The ambient monitoring network that DEQ operates measures impacts from a variety of sources that usually cannot be assigned to a single business.

**How long will DEQ monitor air quality near these companies?**

**What will happen when you take down those monitors?**

DEQ will have data from the ambient monitors while Bullseye and Uroboros were using cadmium and chromium III in the stained glass furnaces. This data will help determine if any type of production or usage requirements are needed to ensure ambient metal concentrations remain below the Ambient Benchmark Concentrations. If such requirements are needed, DEQ will modify Bullseye’s Air Contaminant Discharge Permit and will require that Uroboros obtain a permit that contain any production or usage requirements.

**How will we know the air is safe if there aren’t any monitors?**

Bullseye and Uroboros will be required to continuously monitor operation of the baghouses (pressure drop and inlet temperature) to ensure optimum operation. DEQ may require periodic source tests of metals emissions.

**Why don’t you make Uroboros get a permit?**

Urobos may be required to obtain an air permit under the health based air toxics program that is currently under development.