# Clarify and update air quality rules

Columbia Riverkeeper/NEDC/Neighbors for Clean Air:

DEQ should provide additional information and analysis before removing state regulations for neutral sulfite semi-chemical pulp mills, sulfite pulp mills, primary aluminum plants, laterite ore production of ferronickel, and charcoal producing plants. DEQ should provide a detailed analysis showing that existing rules are not more stringent than federal rules.

Second, all of the regulations that DEQ is proposing to delete do not have thresholds and apply to all sources within their respective industrial categories. Both the triggering of New Source Review/Prevention of Significant Deterioration and the application of Maximum Achievable Control Technology have threshold, triggering values; below those levels, these programs do not apply. It is therefore possible, or even likely, that new source in one of the industrial categories could be located in Oregon and not subject to these federal programs.

Third, while New Source Performance Standard regulations generally do not have thresholds on the size of the source, some of the industrial categories do not have New Source Performance Standard regulations, or Oregon’s regulations appear to be more stringent than the federal New Source Performance Standards.

*Response:*

*DEQ proposed to repeal the following rules for which sources no longer exist in Oregon:*

|  |  |
| --- | --- |
| ***Rules*** | ***Adoption Date*** |
| *Primary Aluminum Standards* | *1973* |
| *Laterite Ore Production of Ferronickel* | *1972* |
| *Neutral Sulfite Semi-Chemical (NSSC) Pulp Mills* | *1990* |
| *Sulfite Pulp Mills* | *1971* |
| *Charcoal* | *1978* |

*DEQ agrees with the commenter that all of the regulations proposed for repeal do not have thresholds and apply to all sources within their respective industrial categories. DEQ also agrees that applicability of New Source Review/Prevention of Significant Deterioration and Maximum Achievable Control Technology have threshold triggering values; below those levels, these programs do not apply. The table below shows the Plant Site Emission Limits in tons per year for the facilities that have shut down in Oregon in the categories of the rules DEQ is proposing to repeal. Assuming new facilities would have similar Plant Site Emission Limits; the requirements of New Source Review/Prevention of Significant Deterioration would apply to every new facility in those industrial categories because their emissions are greater than the major source threshold. Any new facility in any of these industrial categories would also trigger Maximum Achievable Control Technology for hazardous air pollutants these sources would be major hazardous air pollutant sources, except for Royal Oak. Since there is no Maximum Achievable Control Technology standard for charcoal production, the fact that Royal Oak was not a major source of hazardous air pollutants has no consequences.*

| ***Applicability of New Source Review/Prevention of Significant Deterioration to Industrial Categories of Proposed Repealed Rules*** | | |
| --- | --- | --- |
| ***Source*** | ***Emissions*** | ***Major Source Threshold*** |
| *Reynolds Metals* | *CO – 13,138 tpy*  *NOx - 59 tpy*  *PM – 956 tpy*  *PM10 – 956 tpy*  *SO2 – 4,701 tpy*  *VOC - 86 tpy*  *F – 171 tpy*  *HAPs – 1,796* | *100 tpy of any regulated pollutant* |
| *Northwest Aluminum* | *CO – 15,414 tpy*  *NOx - 63 tpy*  *PM – 421 tpy*  *PM10 – 421 tpy*  *SO2 - 484 tpy*  *VOC - 209 tpy*  *F – 51 tpy*  *HAPs – 490 tpy* | *100 tpy of any regulated pollutant* |
| *Weyerhaeuser North Bend* | *CO – 1,282 tpy*  *NOx - 287 tpy*  *PM – 550 tpy*  *PM10 – 550 tpy*  *SO2 - 173 tpy*  *VOC - 297 tpy*  *HAPs – 143 tpy* | *250 tpy of any regulated pollutant* |
| *Glenbrook Nickel* | *CO – 3,416 tpy*  *NOx - 3,684 tpy*  *PM – 1,574 tpy*  *PM10 – 1,574 tpy*  *SO2 - 534 tpy*  *VOC - 165 tpy*  *HAPs – 43 tpy* | *250 tpy of any regulated pollutant* |
| *Royal Oak* | *CO – 27 tpy*  *NOx - 182 tpy*  *PM – 185 tpy*  *PM10 – 185 tpy*  *SO2 - NA*  *VOC – 38 tpy*  *HAPs - < 25 tpy* | *100 tpy of any regulated pollutant* |

*Congress established the New Source Review permitting program as part of the 1977 Clean Air Act Amendments. New Source Review is a preconstruction permitting program that serves two important purposes:*

* *First, it ensures that air quality is not significantly degraded from the addition of new and modified factories, industrial boilers and power plants. In areas with unhealthy air, New Source Review assures that new emissions do not slow progress toward cleaner air. In areas with clean air, especially pristine areas like national parks, New Source Review assures that new emissions do not significantly worsen air quality.*
* *Second, the New Source Review program assures people that any large new or modified industrial source in their neighborhoods will be as clean as possible, and that advances in pollution control occur concurrently with industrial expansion.*

*When a new facility triggers New Source Review, one component of the application process is to do a control technology evaluation. The owner/operator of the proposed facility must review similar facilities to see what the latest control technologies are being used and determine if that control technology can be used at their facility. If the facility is located in a nonattainment area, Lowest Achievable Emission Rate is applied as the most stringent emission limitation derived from either of the following:*

* *The most stringent emission limitation contained in the implementation plan of any State for such class or category of source; or*
* *The most stringent emission limitation achieved in practice by such class or category of source.*

*If the facility is located in an attainment area, Best Available Control Technology is an emissions limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental and economic impact. Best Available Control Technology can be add-on control equipment or modification of the production processes or methods.*

*A review of EPA’s Reasonably Achievable Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate Clearinghouse was performed to identify the corresponding emission limits that have been established on any new primary aluminum plant, sulfite pulp mill, neutral sulfite semi-chemical pulp mill, ferronickel smelter, and charcoal manufacturing facility. While a direct emission limit comparison is not possible in every case due to the unique terms of some of the limits, these facilities were qualitatively determined to have emissions that are lower than the current DEQ standards. Additionally, Best Available Control Technology and/or Lowest Achievable Emission Rate must be at least as stringent as any New Source Performance Standards or Maximum Achievable Control Technology. Results from the clearinghouse are included below in the following tables for each facility type.*

*In the tables below, DEQ has also identified specific requirements, both New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, which would apply to new sources in these industrial categories. The New Source Performance Standards for these industrial source categories do not have thresholds but are triggered by the date a facility commences construction or modification. The National Emission Standards for Hazardous Air Pollutants for these source categories apply to major sources of hazardous air pollutants and would apply to all of the following facilities in the industrial categories except charcoal manufacturing for which there is no corresponding standard.*

| ***NSSC OAR*** | | ***CFR – NSPS Subpart BBa*** | | ***CFR – NESHAP Subpart MM*** | |
| --- | --- | --- | --- | --- | --- |
| ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** |
| ***Neutral Sulfite Semi-Chemical Pulp Mills***  ***OAR 340-234-0300***  *Existing and new sources*  *Spent Liquor Incinerator* | *Particulate matter 7.2 lbs/ton black liquor solids as a daily arithmetic average*  *35 % opacity*  *SO2 shall not exceed 10 ppm*  *TRS 10 ppm and 0.14 lb/ton black liquor solids* | ***Subpart BBa—Standards of Performance for Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013***  *new or reconstructed recovery furnace where kraft pulping combined with neutral sulfite semi-chemical pulping* | *particulate matter 0.015 gr/dscf*  *straight kraft recovery furnace TRS 5 ppm*  *cross recovery furnace TRS 25 ppm*  *20% opacity with ESP* | ***Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semi chemical Pulp Mills*** *(04/15/98)* | *PM 0.020 gr/dscf* |
| *Acid Absorption Tower.* | *SO2 emissions shall not exceed 20 ppm* |  |  |  |  |
| *All NSSC sources, except spent liquor incinerators* | *20% opacity* |  |  |  |  |

*The table above compares DEQ’s Neutral Sulfite Semi-Chemical (NSSC) Pulp Mill rules adopted in 1990 with EPA’s New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, rules which would apply to any new neutral sulfite semi-chemical pulp mill in the state. As can be seen, the DEQ particulate matter for spent liquor incinerators is 7.2 pounds per ton of black liquor solids. The New Source Performance Standard and National Emission Standards for Hazardous Air Pollutants are much more stringent and require a 0.015 gr/dscf and a 0.020 gr/dscf limit, respectively, which calculate to 0.46 and 0.61 pounds per ton of black liquor solids using source test data from the Weyerhaeuser spent liquor incinerator. The New Source Performance Standard opacity limit from a cross recovery furnace (20%) is lower than the DEQ limit (35%). SO2 emissions are not regulated by the New Source Performance Standard or National Emission Standards for Hazardous Air Pollutants.*

*The DEQ total reduced sulfur emission limit for spent liquor incinerators is 10 ppm. The New Source Performance Standard total reduced sulfur limit from a straight kraft recovery furnace is 5 ppm and from cross recovery furnace is 25 ppm. When EPA promulgated 40 CFR part 60 subpart BB—Standards of Performance for Kraft Pulp Mills in February of 1978, the cross recovery total reduced sulfur limits were included. The data collected from EPA’s Information Collection Request indicated that there were no cross recovery furnaces subject to Subpart BB, so EPA was not provided any total reduced sulfur emissions data to analyze for these units. The reasons used in the original rule (and the ones referenced in the docket for Subpart BBa) for higher total reduced sulfur limits for cross recovery furnaces are as follows:*

* *The sulfur content of semi-chemical liquor is higher than traditional kraft liquor;*
* *The heat content of the liquor is lower because it contains less organic material that kraft pulping liquor (higher pulping yields); and,*
* *The heavier sulfur loading and lower operating temperature puts a restriction on the amount of excess oxygen available to oxidize sulfur compounds.*

*The only cross recovery furnace in Oregon is at Georgia Pacific in Toledo. Georgia Pacific staff indicated their semi-chemical liquor has the same sulfur content of their kraft liquor so there would be no difference in total reduced sulfur emissions from their cross recovery furnace in relation to a straight kraft recovery furnace. Therefore, the total reduced sulfur limit from a straight kraft recovery furnace regulated by the New Source Performance Standard (5 ppm) is more stringent that DEQ’s limit (10 ppm).*

*DEQ did not find any neutral sulfite semi-chemical pulp mills in the Reasonably Achievable Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate Clearinghouse but the control technology would probably be similar to other types of pulp mills. Therefore, repealing the Neutral Sulfite Semi-Chemical (NSSC) Pulp Mill rules will not weaken DEQ’s air permitting program.*

| ***Primary Aluminum Plant Rule Comparison*** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Primary Aluminum OAR*** | | ***CFR – NSPS Subpart S*** | | ***CFR – NESHAP Subpart LL*** | | ***Prevention of Significant Deterioration*** | |
| ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** |
| ***Primary Aluminum Standards***  ***OAR 340-236-0110 Applicability***  *all sources at each primary aluminum plant constructed after January 1, 1973* | *Total fluoride 1.2 pounds per ton of aluminum (monthly);*  *1.0 pound per ton of aluminum (annual); and*  *12.5 tons per month from any aluminum plant*  *particulate matter 7.0 pounds per ton of aluminum (monthly); and*  *5.0 pounds per ton of aluminum (annual)* | ***Subpart S—Primary Aluminum Reduction Plants***  *commences construction or modification after October 23, 1974* | ***§ 60.192***  ***Standard for fluorides.***  *total fluorides 2.0 lb/ton of aluminum (Soderberg)*  *1.9 lb/ton of aluminum (prebake)*  *0.1 lb/ton of aluminum equivalent (anode bake)* | ***Subpart LL—Primary Aluminum Reduction Plants***  *primary aluminum production (09/26/96)* | ***§ 63.844.***  *(a) Potlines:*  *(1) TF 1.2 lb/ton of aluminum*  *polycyclic organic matter limit (Soderberg) 0.63 lb/ton of aluminum*  *Anode bake furnaces:*  *TF 0.02 lb/ton of green anode; and*  *polycyclic organic matter 0.05 lb/ton of green anode* | *Primary aluminum ore reduction Best Available Control Technology limit* | *Total fluoride 0.0400 pounds per ton of aluminum*  *Particulate matter 0.0050 grains/dry standard cubic foot*  *10% opacity* |
| ***340-236-0120(1)(c)***  *any source* | *10 % opacity at any time* | ***§ 60.193***  ***Standard for visible emissions*** | *potroom group 10 % opacity*  *anode bake plant 20 % opacity* | ***§63.845 Potroom groups*** | *10 % opacity* |  |  |

*The table above compares DEQ’s primary aluminum rules adopted in 1973 with EPA’s corresponding New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, rules which would apply to any new primary aluminum smelter in the state. As can be seen, the total fluoride limits for Soderberg potlines are comparable across the three standards but the limits for the anode bake furnaces are dramatically lower in the New Source Performance Standard (0.1 lb/ton of aluminum) than DEQ’s rules (1.2 lb/ton of aluminum). The New Source Performance Standard opacity limit for anode bake plants (20%) is higher than the DEQ and National Emission Standards for Hazardous Air Pollutants limits (10%).*

*Also included in the table are limits for an aluminum smelter that triggered Prevention of Significant Deterioration in South Carolina in 2002. The Best Available Control Technology limit for total fluoride is 0.0400 pounds per ton of aluminum, 0.0050 grains per dry standard cubic foot and 10 percent opacity, by far more strict than DEQ’s existing rules, the New Source Performance Standard Subpart S, and the National Emission Standard for Hazardous Air Pollutants Subpart LL. Any new aluminum smelter in Oregon would also trigger PSD and would be subject to standards at least as restrictive as those for the South Carolina facility. Therefore, repealing the Primary Aluminum Standards**will not weaken DEQ’s air permitting program.*

| ***Laterite Ore Production of Ferronickel Rule Comparison*** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Laterite Ore Production of Ferronickel OAR*** | | ***CFR – NSPS Subpart Z*** | | ***CFR – NESHAP Subpart XXX*** | | ***Prevention of Significant Deterioration*** | |
| ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** |
| ***Laterite Ore Production of Ferronickel***  ***340-236-0210***  ***Applicability***  *all sources of laterite ore production of ferronickel* | *particulate matter 3.5 pounds per ton of dry laterite ore produced* | ***Subpart Z—Ferroalloy Production Facilities***  *Electric submerged arc furnaces produce silicon metal, ferrosilicon, calcium silicon, silicomanganese zirconium, ferrochrome silicon, silvery iron, high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, ferromanganese silicon, or calcium carbide; commences construction after October 21, 1974* | *particulate matter 0.99 lb/MW-hr while producing silicon metal, ferrosilicon, calcium silicon, silicomanganese zirconium*  *particulate matter 0.51 lb/MW-hr while producing high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, calcium carbide, ferrochrome silicon, ferromanganese silicon, silvery iron* | ***Subpart XXX—Ferroalloys Production: Ferromanganese and Silicomanganese***  *New and reconstructed submerged arc furnaces (05/20/99)* | *0.51 pounds per hour per megawatt, or*  *0.015 grains per dry standard cubic foot*  *Crushing and screening equipment— particulate matter 0.022 gr/dscf* | *Electric Arc Furnace Best Available Control Technology limit* | *particulate matter 0.0018 gr/dscf* |
|  | *20 % opacity* |  | *15 % opacity* |  | *20 % opacity* |  |  |

*The table above compares DEQ’s Laterite Ore Production of Ferronickel rules adopted in 1972 with EPA’s New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, rules which would apply to any new Ferroalloy Production Facility in the state. Glenbrook Nickel was the only ferronickel smelter in the country. EPA was working on a National Emission Standards for Hazardous Air Pollutants, specifically for Glenbrook Nickel but withdrew the proposed rule. The following information is from the Technical Document for Promulgation of Standards: National Emission Standards for Ferroalloys Production: Ferromanganese and Silicomanganese Comment and Response Summary (April 13, 1999):*

*At the time of publication of the proposed rule (August 1998), the only existing facility in the United States producing ferronickel (Glenbrook Nickel Company) had suspended operations. Since that time, the company has said that they will permanently close the facility. The EPA has decided to exercise its authority to withdraw the proposed rule because there is no major source currently operating or expected to begin operating that would emit the HAP associated with ferronickel production. Should a new major source of ferronickel production commence operation after promulgation, the EPA will evaluate at that time how and whether to set a Maximum Achievable Control Technology standard. In any case, in the unlikely event a new ferronickel furnace were to be built, it would likely be subject to new source review requirements for particulate matter and section 112(g) preconstruction review for HAP.*

*The National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese is the closest standard available and is much more stringent with a 0.015 grains per dry standard cubic foot limit, which calculates to 0.66 pounds per ton of dry laterite ore produced from the electric arc furnace. The emission factor used in the Glenbrook Nickel permit for the electric arc furnace baghouses was 1.786 pounds per ton of dry Laterite ore produced, almost three times higher than the National Emission Standards for Hazardous Air Pollutants limit. The National Emission Standards for Hazardous Air Pollutants also includes a grain loading limit for crushing and screening equipment (0.022 grains per dry standard cubic foot) which is lower than the OAR limit for this type of equipment (0.1 grains per dry standard cubic foot). The New Source Performance Standard opacity limit for Ferroalloy Production Facilities (15%) is lower than the DEQ and National Emission Standards for Hazardous Air Pollutants limits (20%).*

*The table above also includes a Best Available Control Technology limit for an electric arc furnace that triggered Prevention of Significant Deterioration in Arkansas in 2004. The Best Available Control Technology limit of 0.0018 grains per dry standard cubic foot was set for particulate matter emissions, even lower than the National Emission Standards for Hazardous Air Pollutants limit of 0.015 grains per dry standard cubic foot. Any new electric arc furnace producing ferronickel from laterite ore in Oregon would also trigger PSD and would be subject to standards at least as restrictive as those for the Arkansas facility. Therefore, repealing the Laterite Ore Production of Ferronickel rules will not weaken DEQ’s air permitting program.*

| ***Charcoal Producing Plant Rule Comparison*** | | | | | |
| --- | --- | --- | --- | --- | --- |
| ***Charcoal Producing Plant OAR*** | | ***CFR – NSPS Subpart Y*** | | ***Prevention of Significant Deterioration*** | |
| ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** |
| ***340-240-0170***  ***Charcoal Producing Plants***  *charcoal producing plant sources including, but not limited to, charcoal furnaces, heat recovery boilers, and wood dryers using any portion of the charcoal furnace off-gases as a heat source,* | *Particulate matter 10.0 pounds per ton of char excluding char storage, briquette making, boilers not using charcoal furnace off-gases, and fugitive sources*  *Charcoal producing plants exempt from 0.1 gr/dscf for sources after June 1, 1970 and process weight in division 226.* | ***Subpart Y—Standards of Performance for Coal Preparation and Processing Plants***  *charcoal briquet manufacturing plants that process over 200 tons of coal a day and meet definition of "coal preparation plant"*  *commenced construction after May 27, 2009: Thermal dryers, pneumatic coal-cleaning equipment, coal processing and conveying equipment (breakers and crushers), coal storage systems, transfer and loading systems, and open storage piles* | *10 % opacity except equipment for loading, unloading, and conveying operations of open storage piles.*  *particulate matter 0.010 gr/dscf from thermal dryer; pneumatic coal-cleaning equipment; mechanical vent*  *fugitive coal dust control plan for open storage pile, includes loading, unloading, and conveying operations* | *Best Available Control Technology limit for charcoal furnaces, heat recovery boilers, and wood dryers using any portion of the charcoal furnace off-gases* | *particulate matter 1.6200 pounds per ton of dry wood (converted to 4.187 pounds per ton of char) for thermal oxidizer from rotary wood dryer, charcoal retort furnace and solvent treated briquette operations*  *0.3000 pounds per ton of dry briquettes limit for briquette coolers and dryers*  *Adding these two BACT limits to obtain 4.487 pounds per ton of briquettes* |

*The table above compares DEQ’s charcoal producing plant rules adopted in 1978 with EPA’s New Source Performance Standards rules which would apply to any new charcoal producing plant in the state. DEQ’s rules exempt new charcoal producing plants from the grain loading standard of 0.1 grains per dry standard cubic foot. The New Source Performance Standard requires a 0.010 grains per dry standard cubic foot limit, much more stringent that DEQ’s rules. If the New Source Performance Standard grain loading limit of 0.010 grains per dry standard cubic foot applied, emissions from Royal Oak’s heat recovery boiler would be effectively limited to 15 tons per year of particulate matter rather than the permitted 106 tons per year using the limit in OAR 340-240-0170 (10.0 pounds per ton of char produced).*

*The table above also includes Best Available Control Technology limits for a briquette manufacturing facility that triggered Prevention of Significant Deterioration in Mississippi in 2004. Adding the two Best Available Control Technology limits to obtain 4.487 pounds per ton of briquettes would make it comparable to the OAR limit of 10.0 pounds per ton of char produced. Any new briquette manufacturing facility in Oregon would also trigger PSD and would be subject to standards at least as restrictive as those for the Mississippi facility. Therefore, repealing the Charcoal Producing Plants rules will not weaken DEQ’s air permitting program.*

| ***Sulfite Pulp Mill Rule Comparison*** | | | |
| --- | --- | --- | --- |
| ***Sulfite Pulp Mill OAR*** | | ***CFR – NESHAP Subpart MM*** | |
| ***SOURCE*** | ***LIMIT*** | ***SOURCE*** | ***LIMIT*** |
| ***Sulfite Pulp Mills***  ***OAR 340-234-0400***  *existing and new sulfite pulp mills*  *recovery furnace stacks* | *PM shall not exceed 4 pounds per air dried ton of unbleached pulp* | ***Subpart MM—Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semi-chemical Pulp Mills***  *(04/15/98)* | *PM less than or equal to 0.020 gr/dscf* |

*The table above compares DEQ’s Sulfite Pulp Mills adopted in 1971 with EPA’s National Emission Standards for Hazardous Air Pollutants which would apply to any new sulfite pulp mill in the state. A direct emission limit comparison is not possible since the limits are in different terms and conversions would be specific to the individual facility. If one assumes that the DEQ rule for sulfite pulp mills is comparable to the statewide DEQ particulate matter standard of 0.1 grains per dry standard cubic foot (the more restrictive limit for sources built after 1970), the Subpart MM limit of 0.020 grains per dry standard cubic foot would be much more restrictive.*

*DEQ found no sulfite pulp mills in the Reasonably Achievable Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate Clearinghouse but the control technology would probably be similar to other types of pulp mills. Therefore, repealing the Sulfite Pulp Mill rules will not weaken DEQ’s air permitting program.*