

# ENVIRONMENTAL REGULATION OVERVIEW WASTEWATER DISCHARGES AND AIR EMISSIONS

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Are you feeling good? Check those vital signs. Is your pulse up in anticipation of applying that new piece of information you've gleaned from this annual meeting. Well let's quicken that pulse and raise your blood pressure by reviewing a couple of environmental regulation topics.

We will start with a brief overview of wastewater discharges and what the Environmental Protection Agency (EPA) expects from sawmill, planing mill, and lumber drying operations. Then we will review which EPA air pollution regulations your facility may be subject to when you make the next physical or operational change.

## Wastewater Discharges

Congress and the EPA wrote the law known as the Clean Water Act in response to our nation's polluted lakes, rivers, and streams. The goal of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters" and make "reasonable further progress toward...eliminating the discharge of all pollutants." <sup>1</sup> To reach this goal, EPA established discharge limitations and standards for new and existing sources of wastewater discharges. <sup>2</sup> EPA grouped industries by their standard industrial classification to administer these limitations and standards.

The Timber Products Processing Point Source Category <sup>3</sup> regulates the wood based building material manufacturers. Subcategories include Sawmills and Planing Mills<sup>4</sup>, and Finishing<sup>5</sup>. The Finishing Subcategory includes lumber drying, end sealing, and more. There are 13 other subcategories within the timber products category.

The general discharge limitation for the sawmill, planing mill, and finishing subcategories is "**no discharge of process wastewater pollutants into navigable waters.**"

My unofficial paraphrase of this prohibition is: An industrial wastewater which contains the characteristic(s) of a raw material, intermediate product, finished product, by-product, or waste product shall not be discharged into any sized lake, stream, or tributary used by people. If you would like to make your own interpretation, see reference 6 for some of the meanings and regulation citations.

Examples of industrial process wastewaters that might contain wood product characteristics include: Saw cooling water; Coffee from previous shift!; Wash down or clean up water; Wet-scrubber or pollution control water; and the free water from lumber.

Wastewaters exempt from this prohibition, but require a discharge permit, are: Non-contact cooling water (e.g., from water cooled compressors, hydraulic units, or bearing); Boiler blowdown; Storm water run off from material storage yards; and Fire control water.<sup>7</sup> Other wastewaters allowed to be discharged to the ground or offsite ditch, albeit under the authority of a permit, include: Demineralizer backflush water and Vehicle wash water.

Discharging industrial process wastewater (pollutants) to a publicly owned sewage treatment works (POTW) is allowed by the Subcategory limitations provided your wastewater: contains no flammable substances (<140 degrees F); does not interfere with operation of the treatment plant or distribution system; has a pH of 5.0 or higher; is not too hot; contains no toxic material that will evolve a toxic gas, vapor, or fume; and meets the pretreatment standards and requirements set by the treatment plant operator.<sup>8</sup>

If you have industrial process wastewaters that you need to discharge and do not have access to a POTW, you are left with providing your own treatment. Robert Zwick, Paul Bicho, et al presented their results of treating lumber free water effluent from radio frequency / vacuum drying units at last year's annual meeting.<sup>9</sup> Treatment will depend on the characteristics of each process wastewater and the regulatory limits set by the environmental agency(ies) as pointed out by these authors.

### **Wastewater Conclusions**

Industrial process wastewater that has not gone through sufficient treatment is prohibited from being discharged directly to a lake, river, stream or tributary. Discharge to a publicly owned sewage treatment works is allowed if the federal pretreatment standards as well as the conditions set by the treatment works operator are met.

Wastewaters that are exempt from the above prohibition may be discharged under a permit and include: Non-contact cooling water, Boiler blowdown, Storm water run off from material storage yards, and Fire control water.

### **Air Emissions**

How are your pulse and blood pressure? Let's shift gears and review how proposed changes at your facility might become subject to three air pollution control regulations.

The Clean Air Act is implemented similar to the Clean Water Act starting off with a goal, then criteria to measure the nation's progress towards achieving the goal, and then regulations that control the level of pollution coming from existing, new, and modified facilities.

The goal of the Clean Air Act is "to protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and productive capacity of it's population." The EPA developed the National Ambient Air Quality Standards as the criteria to measure the nation's progress towards achieving the goal of the Clean Air Act. There are six National Ambient Air Quality Standards:

Particulate matter 10 microns or less; Ozone; Carbon monoxide; Nitrogen dioxide; Sulfur dioxide; and Lead.<sup>10</sup>

The states are required to implement programs to meet these national ambient air quality standards. A State Implementation Plan incorporates these federal regulations or programs: New Source Performance Standards and New Source Review (Title I); Federal Operating Permits (Title V); National Emission Standards for Hazardous Air Pollutants (Title III); Mobile Source Control (Title II); Acid Deposition Control (Title IV); and Stratospheric Ozone and Climate Protection Act (Title VII). My presentation will briefly cover the first three in this list.

### **New Source Performance Standards**

Given a proposed change, our first step is to determine if your proposed change is subject to the New Source Performance Standards. There are two New Source Performance Standards that may effect dry kiln facilities: Small Industrial Steam Generators (Boilers) and Large Industrial Boilers.<sup>11</sup>

The small industrial boiler performance standard applies to your boiler if:

- The maximum design heat input is greater than 10 million British Thermal Units (BTU)/hour but less than or equal to 100 million BTU/hour;
- It burns wood, natural gas, oil, or coal; and
- Was constructed, modified, or reconstructed (rebuilt) after June 9, 1989.

Emission limitations for particulate matter, opacity, and sulfur dioxide may also apply if your boiler meets the above criteria and it burns wood, oil, or coal. Boilers that can only burn natural gas and are subject to the small industrial boiler performance standard are not subjected to these emission limitations.

#### **Example of a change to a small industrial boiler:**

Natural gas fired boiler with fuel oil backup rated at 50 million BTU maximum design heat input (approximately 40,000 lbs steam/hour @ 80% combustion efficiency). It was installed new in 1985 before the effective date of the performance standard; but, you plan to modify the boiler to increase its steaming rate to 60,000 lbs/hr.

This boiler is subject to the small industrial boiler performance standard because particulate and sulfur dioxide hourly emissions increased, the heat input falls within the specified range, and the modification date is later than June 9, 1989.

Requirements include: Notifying the EPA and local environmental agency of the proposed and actual startup dates; complying with the sulfur dioxide and particulate performance standards including testing requirements; monitoring fuel usage, startups, shutdowns, and malfunctions; and keeping records.

The large industrial boiler performance standard applies to your boiler if:

- The maximum design heat input is greater than 100 million BTU/hour;
- It burns wood, natural gas, oil, or coal; and
- Was constructed, modified, or reconstructed after June 19, 1984.

Emission limitations, for applicable fuels, include particulate matter, opacity, sulfur dioxide, and nitrogen oxides.

### **New Source Review**

The second step is to determine if your proposed change is subject to the New Source Review regulations.<sup>12</sup> Similar to the New Source Performance Standards, the New Source Review regulations are used to prevent significant deterioration of the National Ambient Air Quality Standards or to ensure progress is made towards attainment with these standards.

The New Source Review regulations require construction permits and emission control requirements when a physical change or change in method of operation is made that increases potential emissions above established thresholds. Your facility becomes a major source when a change increases your facility's yearly emissions to 250 tons or higher for one or more air pollutants.

If your facility is an existing major source, emits any air pollutant at 250 tons per year, then a physical change or change in method of operation must only increase potential emissions at or above a pollutant's significant emission rate. Such an increase would be considered a major modification.

#### **Let's take our previous example.**

Assuming the natural gas (fuel oil backup) boiler in conjunction with the rest of the facility isn't capable of emitting an air pollutant at or above 250 tons per year with the proposed increase in steaming rate, the boiler modification would not be subject to New Source Review construction permitting or additional emission controls.

#### **Now let's propose two new dry kilns with this boiler modification:**

Potential volatile organic compound (VOC) emissions raise the facility VOC yearly emissions 45 tons, but this is still less than 250 tons. The proposed dry kilns would not classify the facility as a major source and the increase of yearly VOC emissions from this physical change would not be a major modification. New Source Review construction permit or additional emission controls are not required.

#### **If you are located in Oregon**

The boiler modification is unlikely to increase the facility's yearly emissions above Oregon's significant emission rates which define a major source or major modification. Therefore the boiler modification is not subject to the Oregon New Source Review construction permit or emission control requirements.<sup>13</sup>

However, the proposed kiln installation is subject to the Oregon New Source Review requirements with some possible exemptions. The 45 tons per year increase in potential VOC emissions define this proposal as both a major source and a major modification.

Some physical changes and changes in method of operation are exempt from the New Source Review construction permit and emission control requirements. Routine maintenance, repairs, and replacements are exempt physical changes. Increases in hours of operation or production rates that do not violate a permit condition are also exempt.

### **New Source Review Conclusions**

New Source Review construction permitting and emission control requirements are triggered by a yearly emission increase above an established threshold, e.g., 250 tons per year and 40 tons per year, and is associated with a physical change or a change in the method of operation.

In contrast, New Source Performance Standards are triggered by constructing, modifying, or reconstructing a listed process or device, e.g., small industrial boiler. Modifications under New Source Performance Standards are any increase in hourly emissions (hourly emission rate) associated with a physical or operational change to a listed process or device.

### **Title V - Federal Operating Permits**

For purposes of this presentation, our third and last stop is to determine if your proposed change is subject to any requirements in your Title V Federal Operating Permit. Located in the General Conditions of Oregon's Title V Permits, in fine print, are the notification and permit modification requirements. These include: Construction notifications; Off-permit changes; Section 502(b)(10) changes; Administrative amendments; Minor permit modifications; and Significant permit modifications.<sup>14</sup>

Oregon's construction notification rule requires a Title V facility to notify and receive approval from the Department of Environmental Quality (DEQ) prior to: installing a new air emission source or new air pollution control equipment; or replacing an air emission source or air pollution control equipment that increases the maximum hourly emissions.

The boiler modification we have been discussing would not require this type of notification. However, installation of the dry kilns would require construction notification to the DEQ.

Off-permit changes, under Title V, are those changes that: Are not addressed or prohibited by the permit; does not violate an existing permit term, condition, or applicable requirement; and is not subject to New Source Performance Standards, New Source Review, or Acid Rain regulations.

Examples of off-permit changes may include installation of a boiler economizer, bag filter, outdoor conveyor with a drop point, or natural gas flow valve. Our boiler

modification and kiln installation would likely be subject to a significant permit modification.

Section 502 (b)(10) of the Clean Air Act is invoked when a change is made contrary to or contradicts a permit term or condition provided it does not violate an applicable rule or requirement, is not contrary to a federally enforceable permit term or condition, and is not subject to a New Source Performance Standard or New Source Review.

Examples of a Section 502(b)(10) change are hard to conceive because most of Oregon's Title V permit conditions are federally enforceable. The DEQ provided these: Incorporate a monitoring condition that was inadvertently omitted; and Control additional exhausts with existing equipment.

Administrative amendments to Title V permits are used to: Change the name of your facility's responsible official; Correct typographical errors; Correct baseline or site emission limits; Increase monitoring or reporting frequency; and Incorporate New Source Review requirements into the permit.

Minor permit modifications are made when a change does not: Violate an applicable rule or requirement; Significantly change existing monitoring, record keeping, or reporting requirements; Increase emissions over the plant site emission limits; and does not invoke New Source Performance Standards or New Source Review construction permitting and emission controls.

Examples of minor permit modifications might include changing a cumbersome emission calculation to an emission factor based calculation or changing visual observation methods (EPA Method 9 to Method 22) so non-certified observers can help with the facility's monitoring requirements.

Last but not least are significant permit modifications. These modifications apply to: Changes that don't qualify under administrative or minor permit modifications; A new or modified air emission source subject to a New Source Performance Standard or a New Source Review permit; Relaxation of reporting or record keeping permit conditions; or a significant change to monitoring conditions.

Examples of significant permit modifications might be to: Incorporate New Source Performance Standards notification, testing, monitoring, recordkeeping, and reporting requirements for the modified boiler; and Incorporate New Source Review emission limitations and monitoring requirements for the new dry kilns.

### **Conclusions**

How are those vital signs? Keep your enthusiasm for applying those valuable insights you've learned at this meeting. Just be sure to evaluate the impact of any change to your facility's water discharges and air emissions, and then follow the regulatory requirements that apply to that change.

## References

1. January 26, 1981, Federal Register Vol. 46, No. 16.
2. 40 Code of Federal Regulations (CFR), Subchapter N - Effluent Guidelines and Standards.
3. 40 CFR, Subchapter N Part 429 - Timber Products Processing Point Source Category.
4. 40 CFR, Subchapter N, Part 429 - Subpart K
5. 40 CFR, Subchapter N, Part 429 O Subpart L
6. See General Definitions in the federal regulations 40 CFR 401.11 and 40 CFR 429.11.

"The term process wastewater pollutants means pollutants present in process wastewater."

"The term process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product."

"The term pollutant means ....industrial....waste.

"The term navigable waters includes: Sorry, too long; see regulation."

7. 40 CFR, Subchapter N, Part 429.11(c)
8. 40 CFR, Subchapter N, Part 429, Subparts K and L; 40 CFR, Subchapter N, Part 403.
9. Robert L. Zwick, Paul A. Bicho, et al. 1997. Effluent from radio frequency/vacuum drying of softwoods. Characterization and Treatment. Proceedings of the 48<sup>th</sup> Annual Meeting of the Western Dry Kiln Association, Reno, Nevada, May 7.
10. Clean Air Act, Section 109; and 40 CFR, Subchapter C, Part 50.
11. 40 CFR, Subchapter C, Part 60.40c and 60.40b, respectively.
12. 40 CFR, Subchapter C, Part 52 (Prevention of Significant Deterioration - Part 52.21; Statutory Restriction on New Sources - Part 52.24.)
13. Oregon Administrative Rules 340-28-1900 to 2000.
14. Oregon Administrative Rules 340 - 28 - 2220 to 2270.