

## NSR EQUIPMENT REPLACEMENT RULE

*The U.S. EPA has been working to improve the New Source Review (NSR) permitting program (also known as NSR reform) for over a decade. In December 2002, the U.S. EPA finalized a rule to improve the NSR program and proposed a rule to provide a regulatory definition of routine maintenance, repair and replacement (RMRR) that would be excluded from NSR. On October 27, 2003, the U.S. EPA promulgated the Equipment Replacement Provision (ERP), a part of RMRR, and decided not to take action on routine maintenance and repair at this time.*

*The NSR ERP is very important to industry. With this rule, projects that meet the new definition of routine replacement will be automatically excluded from the NSR permitting requirements.*

### Background

The NSR program is established under the Clean Air Act to authorize construction of new major air emission sources. As the name implies, the NSR program is designed for new sources rather than existing sources. However, if an owner or operator of an existing source plans to make a "modification" as defined in the NSR rule, the modification may be subject to NSR. Then again, the NSR rule excludes RMRR from the definition of modification. Although NSR provides the RMRR exclusion, the rule is not clear on what activities will be classified as RMRR. The RMRR exclusion has been applied exclusively on a case-by-case basis. The lack of clear and practical regulatory definition of RMRR has been one of the problematic areas of the NSR program.

### Implementation and Effective Date

For areas where the U.S. EPA is the reviewing agency, the ERP will take effect on December 26, 2003.

For areas where state or local agencies have delegation of the NSR program, the state or local agencies must submit revised State Implementation Plans (SIP) no later than December 27, 2006. Before the SIP is revised, the owners/operators have to follow the current regulations.

### NSR before the ERP Is Implemented

Until the ERP is implemented, the RMRR exclusion will continue to be applied exclusively on a case-by-case basis. Some owners/operators make the case-by-case determination based on their interpretation of the rule without involving the permitting authority. If they determine a replacement project "routine", they initiate and complete the project. There is a significant risk associated with this approach due to lack of a clear regulatory definition and guidance for "routine replacement". If the permitting authority becomes aware of the project and does not agree with the determination made by the owners/operators after project commencement, the permitting authority may consider the project a violation of the NSR regulations.

To reduce this risk, other owners/operators choose to formally request either a determination from the permitting authority or concurrence with the determination made by owner/operator. This approach is time-consuming and expensive for both owners/operators and regulators. Its outcome is uncertain and sometimes is still challenged later in the context of source compliance status. The uncertainty may discourage owners/operators from replacing old equipment, an activity that often provides environmental benefit.

### NSR after the ERP Is Implemented

The ERP will significantly reduce the uncertainty associated with equipment replacement within the context of the RMRR exclusion. According to the ERP, a replacement activity will automatically qualify for the RMRR exclusion if the following conditions are met:

1. Components of a process unit to be replaced are identical or functionally equivalent;
2. The cost of replacing the components falls below 20 percent of the replacement value of the process unit of which the components are a part;
3. The replacement does not change the unit's basic design parameters; and

4. The replacement does not cause the process unit to exceed any enforceable emission and operational limitations.

The frequency of replacement does not affect the applicability of this rule. The ERP rule provides further clarifications in the following areas:

After the ERP is implemented, the case-by-case RMRR determination will still be available to owners/operators if they choose to use it.

#### **Clarification of Condition No. 1**

*Boundary of a process unit.* A process unit is “any collection of structures and/or equipment that processes, assembles, applies, blends, or otherwise uses material inputs to produce or store an intermediate or a completed product.” Pollution control equipment is not part of the process unit, unless it serves as a dual function as both process and control equipment. The rule has delineated the process unit boundary for the following specific industries:

- Steam electric generating facilities;
- Petroleum refineries; and
- Incinerators.

The preamble offered delineation for the following additional process units:

- Natural gas compressor stations,
- Flat glass manufacturing plants,
- Fiberglass production facilities,
- Precipitated amorphous silica production facilities, and
- Chemical manufacturing plants.

Other process units need to be defined by owners/operators using the definition in the rule.

*Functional equivalency.* A component that serves the same purpose as the replaced component is a functionally equivalent component. If a facility must replace a component in order to produce a new product, the component is not functionally equivalent.

#### **Clarification of Condition No. 2**

The 20% threshold is determined by dividing the cost of replacing components by the value of the process unit.

*Cost of replacing components.* Costs include equipment purchase; direct installation; site

preparation and buildings; indirect installation (e.g., engineering, construction, field expenses, contractors’ fees, startup and performance tests, contingencies); land for the process equipment; and working capital for the process equipment. Costs also include non-replacement activities such as maintenance and repair that are part of the larger replacement activity. Components shared between two or more process units are proportionately allocated based on capacity. Certain ancillary costs (e.g., cost of purchasing power for customers while a power plant is shutdown for replacement) do not need to be included. The cost for pollution control equipment can be excluded.

*Value of a process unit.* The value must be within the boundary of the process unit as discussed in the previous section under Condition No.1. The following options can be used to determine the process unit value:

1. An estimate of the fixed capital cost of constructing a new process unit;
2. Investment value adjusted for inflation;
3. Insurance value (must be insurance that covers complete replacement of the process unit rather than, for example, lost revenue replacement); or
4. Another accounting procedure, if such procedure is based on Generally Accepted Accounting Principles (GAAP).

For Options 3 and 4, a notice must be submitted to the regulator. The initial notice can be submitted at any time, but any subsequent notice to change the valuation method may be submitted only at the beginning of the unit’s fiscal year. The regulators will continue to use the valuation method until the owner/operator files a notice to change.

*The 20% threshold.* The threshold is on a per-activity (or aggregation of activities) basis, not an annual basis or a 5-year period basis. Related activities must be aggregated. Activities are not necessarily related just because they occur at the same time.

#### **Clarification of Condition No. 3**

*Basic design parameters of a process unit.* Basic design parameters are generally design values for process throughput or capacity. They can be based on either input (e.g., fuel consumption, heat input, etc.) or output (e.g., steam production, electric output, etc.). By allowing owners/operators to choose between inputs and outputs, the final rule

offers a mechanism to improve efficiency and still qualify for the RMRR exclusion. The preamble also clarified that owners/operators can define the averaging period for the basic design parameters. If the design data is not available, the maximum value in the most recent five years can be used.

#### **Clarification of Condition No. 4**

Traditionally one important aspect of determining NSR applicability is assessing emission changes from "past actual" emissions to "future potential" emissions (future potential emissions are usually permit limits). In comparison, Condition No. 4 is easier to meet because the source is only required to remain within enforceable emission and operational limitations.

#### **Remaining Issues in the RMRR Proposal**

Through the ERP rule, the EPA has offered a solution to the equipment replacement problem. However, it does not address the entire RMRR issue. In its December 2002 proposed RMRR rule,

EPA offered two cost-based proposals. One of them relied on equipment replacement cost threshold to determine whether a replacement activity was routine. The ERP rule discussed in this article is the finalization of that proposal. The other proposal relied on a facility-wide annual maintenance, repair, and replacement allowance (based on an industry-specific percentage). Activities within the allowance would be deemed routine and therefore qualified for RMRR exclusion. The U.S. EPA decided not to take any action on the facility-wide allowance proposal at this time.

In the December 2002 proposed RMRR rule, the U.S. EPA also solicited comments on a capacity based RMRR rule and an equipment age based RMRR rule. According to the preamble of the ERP rule, the U.S. EPA decided not to promulgate rules based on capacity and age. It also decided not to promulgate rules based on either industry-specific lists of RMRR and non-RMRR or energy efficiency.

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*For further questions concerning these rules and other air quality management issues, please contact Yousheng Zeng, Ph.D., P.E. using the following contact information.*



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