May 23, 2000

R-19J

Henry Nickel
Counsel for the Detroit Edison Company
Hunton & Williams
1900 K Street, N.W.
Washington D.C. 20006-1109

Dear Mr. Nickel:

I am responding to your request on behalf of the Detroit Edison Company for an applicability determination regarding the proposed replacement and reconfiguration of the high pressure section of two steam turbines at the company's Monroe Power Plant, referred to as the Dense Pack project. Specifically, you requested that the United States Environmental Protection Agency (EPA) determine whether the Dense Pack project at the Monroe Power Plant would be considered a major modification that would subject the project to pollution control requirements under the Prevention of Significant Deterioration (PSD) program.

We have reviewed your original request, dated June 8, 1999, and the supplemental information you submitted on December 10, 1999, and March 16, 2000. We provisionally conclude that the Dense Pack project would not be a major modification. Thus, Detroit Edison may proceed with the project without first obtaining a PSD permit. Although the Dense Pack project would constitute a nonroutine physical change to the facility that might well result in a significant increase in air pollution, Detroit Edison asserts that emissions will not in fact increase due to the construction activity, and EPA has no information to dispute that assertion.

As you know, nonroutine changes of any type, purpose, or magnitude at an electric utility steam generating unit -- ranging from projects to increase production efficiency to even the complete replacement of entire major components -- are excluded from PSD coverage as long as they do not significantly increase emissions from the source. Thus, Detroit Edison has been free to proceed at any time with the Dense Pack project without first obtaining a PSD permit as long as it adheres to its stated intention to not increase emissions as a result of the project. Indeed, EPA encourages the company to proceed with the project on this basis, since it appears to both reduce emissions per unit of output and not increase actual air pollution.

As you are also aware, under the applicable new source review regulations, in determining if a physical change will result in a significant emissions increase at an electric utility plant, companies may use an “actual” to “representative actual annual emissions” test for emissions from the electric utility steam generating unit, under which a calculation of baseline emissions and a projection of future emissions after the change is needed. Our determination of nonapplicability is provisional because Detroit Edison has not, to our knowledge, provided a calculation of baseline emissions or projected future emissions to the permitting agency, and this should be done prior to the start of construction. The basis for this determination is summarized below and is set forth in full in the enclosed detailed analysis.

In determining whether an activity triggers PSD, the Clean Air Act and EPA’s regulations specify a two-step test. The first step is to determine if such activity is a physical or operational change, and if it is, the second step is to determine whether emissions will increase because of the change. The statute admits of no exception from its sweeping scope, but EPA’s regulations contain some narrow exceptions to the definition of physical or operational change. In particular, Detroit Edison claims that the Dense Pack project is eligible for the exclusion for routine maintenance, repair, and replacement. The determination of whether a proposed physical change is “routine” is a case-specific determination which takes into consideration the nature, extent, purpose, frequency, and cost of the work, as well as other relevant factors. After carefully reviewing all the information you submitted in light of the relevant factors, EPA has determined that the proposed project is not “routine.”

The purpose of the Dense Pack project, to significantly enhance the present efficiency of the high pressure section of the steam turbine, signifies that the project is not routine. An upgrade of this nature is markedly different from the frequent, inexpensive, necessary, and incremental maintenance and replacement of deteriorated blades that is commonly practiced in the utility industry. For instance, past blade maintenance and replacement of only the deteriorated blades at Detroit Edison has never increased efficiency over the original design. Accordingly, because increasing turbine efficiency by a total redesign of a major component is a defining feature of the proposed Dense Pack project, it clearly goes significantly beyond both historic turbine work at Detroit Edison, and what would otherwise be considered a regular, customary, or standard undertaking for the purpose of maintaining the existing steam turbine units. The project also goes well beyond routine turbine

maintenance, repair, and replacement activities for the utility industry in general.

The nature and extent of the work in question -- replacement of the entire high pressure sections of the steam turbines for Units 1 and 4 at Monroe -- suggests that the Dense Pack project is not routine. It would result in greater efficiency above the level that can be reached by simply replacing deteriorated blades with ones of the same design and, in addition, will substantially increase efficiency over the original design. Specifically, the Dense Pack upgrade would not only restore the 7 percent of the efficiency rating lost over the years at each unit but would improve the unit's efficiency by an additional 5 percent over its original design capacity. Accordingly, the proposed project represents a significant and major redesign and replacement of the entire high pressure sections of the steam turbines at Units 1 and 4 at the Monroe facility.

The frequency with which utilities have undertaken turbine upgrades like the Dense Pack project also indicates the nonroutine nature of the changes. The information provided by Detroit Edison, regarding past history at the Monroe facility, describes what is characterized as necessary maintenance, repair, and replacement of deteriorated turbine blades approximately every 4 years. During these overhaul periods, it is not uncommon for the company to replace up to several turbine blades at one time. It is common among other utilities to also perform similar turbine maintenance. However, Detroit Edison has not provided any information to suggest that a complete replacement and redesign of the high pressure section of a steam turbine is conducted frequently at Monroe or at any other individual utility. Instead, Detroit Edison relies on its claim that projects "similar" to the Dense Pack project have been performed at a number of utilities. This information does not indicate that the replacement of the high pressure section of the steam turbine is frequent at the typical utility source; to the contrary, the only available information reflects that projects like the Dense Pack project have been performed only one time, if ever, at individual sources.

The cost of the Dense Pack project is significant and tends to indicate that this project is nonroutine. Detroit Edison expects the Dense Pack replacement to cost approximately $6 million for each turbine unit, for a total of $12 million. The EPA has rejected claims of routineness in past cases where the cost was substantially less than this figure. Moreover, Detroit Edison intends to capitalize the entire cost of this project, and EPA believes that a $12 million project that is 100 percent capital improvement indicates that it is a major undertaking.

Beyond the clearly significant absolute cost of this project, available information suggests that this expenditure far exceeds the cost typically associated with turbine blade maintenance activity. Detroit Edison provided only a summary of the total project costs for past maintenance and inspections at the facility, the total costs of which ranged from less than $1 million to a little more than $6 million. Although Detroit Edison did not provide any detail regarding what specific activities comprise these aggregated amounts, it acknowledges that it spent only $18,700, $33,100, and $7,900 to replace high-pressure rotors in three turbine projects in 1981 and 1982. Further, the project is significantly more costly than simply replacing deteriorated blades today; Detroit Edison acknowledges that the Dense Pack upgrade would cost three times more than its alternative blade repair and replacement project. Accordingly, it appears that the costs associated with the Dense Pack project greatly exceed the amounts spent previously by Detroit Edison or that it would spend presently for the replacement of deteriorated turbine blades or rotors.

For the reasons delineated above, we conclude that the changes proposed by Detroit Edison are not routine. Detroit Edison's submissions do not demonstrate that projects such as the Dense Pack project are frequent, inexpensive, or done for the purpose of maintaining the facility in its present condition. Instead, the source relies on two principal arguments: (1) it claims that this project is less significant in scope than was the activity in question in the 1988 applicability determination for the Wisconsin Electric Power Company (WEPCO); and (2) it alleges that EPA has interpreted the exclusion for routine activity expansively to exempt all projects that do not increase a unit's emission rate. EPA rejects both of these arguments, the former because both EPA and the U.S. Court of Appeals for the Seventh Circuit viewed WEPCO's activity as "far from" routine and thus this attempted comparison to WEPCO is unsuitable, and the latter because it is demonstrably incorrect. The attached analysis addresses these points in significant detail.

When nonroutine physical or operational changes significantly increase emissions to the atmosphere, they are properly characterized as major modifications and are subject to the PSD program. In general, a physical change in the nature of the Dense Pack project, which provides for the more economical production of electricity, would be expected to result in the increased utilization of the affected units, and thus, increased emissions. Notwithstanding the fact the Monroe units may be high on the dispatch order, the Dense Pack project would allow Detroit Edison to produce electricity more cheaply per unit of output, thereby creating an incentive to run Units 1 and 4 above current

levels. Even a small increase over current normal levels in the utilization of the affected units would result in a significant increase in actual emissions of criteria pollutants. For example, in 1997, at the Monroe facility Unit 1 emitted approximately 14,000 tons of nitrogen oxides (NO_x) and 41,000 tons of sulfur dioxide (SO_2), and Unit 2 emitted 12,000 tons of NO_x and 35,000 tons of SO_2. Based on this information, if a one to five percent increase in operation were to result from the Dense Pack project, increases on the order of 160-800 tons of NO_x and 400-2000 tons of SO_2 would occur.

Detroit Edison, however, maintains that emissions will not increase as a result of the Dense Pack project. Specifically, the company contends that representative actual annual emissions following the change will not be greater than its pre-change actual emissions, because the Dense Pack upgrade will not result in increased utilization of the units. As you are aware, the PSD regulations (under the provisions commonly known as the "WEPCO rule") allow a source undertaking a nonroutine change that could affect emissions at an electric utility steam generating unit to lawfully avoid the major source permitting process by using the unit's representative actual annual emissions to calculate emissions following the change if the source submits information for 5 years following the change to confirm its pre-change projection. In projecting post-change emissions, Detroit Edison does not have to include that portion of the unit's emissions which could have been accommodated before the change and is unrelated to the change, such as demand growth.

Under the WEPCO rule, Detroit Edison must compute baseline actual emissions and must project the future actual emissions from the modified unit for the 2-year period after the physical change (or another 2-year period that is more representative of normal operation in the unit's modified state). As noted above, Detroit Edison has not provided these figures to verify its projection of no increase in actual emissions, and should submit them to the Michigan Department of Environmental Quality prior to beginning construction. In addition, Detroit Edison must maintain and submit to the permitting agency on an annual basis for a period of at least 5 years (or a longer period not to exceed 10 years, if such a period is more representative of the modified unit's normal post-change operations) from the date the units at the Monroe Plant resume regular operation, information demonstrating that the renovation did not result in a significant emissions increase. If Detroit Edison fails to comply with the reporting requirements of the WEPCO rule or if the submitted information indicates that emissions have increased as a consequence of the change, it will be required to obtain a PSD permit for the Dense Pack project.

Finally, regardless of whether PSD review is triggered due to the Dense Pack project, Detroit Edison must meet all other applicable federal, state, and local air pollution requirements.

This determination will be final in 30 days unless, during that time, Detroit Edison seeks to confer with or appeal to the Administrator or her designee regarding it. If you have any questions regarding this determination, please contact Laura Hartman, Environmental Engineer, at (312) 353-5703, or Jane Woolums, Associate Regional Counsel, at (312) 886-6720.

Sincerely,

/s/

Francis X. Lyons
Regional Administrator

Enclosure

cc: Peter Marquardt, Esq., Special Counsel
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Russell Harding, Director
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ENCLOSURE
DETROIT EDISON APPLICABILITY DETERMINATION
DETAILED ANALYSIS

I. Introduction

If a company intends to construct a major source or a major modification at a source, that source is required to obtain a major new source review permit before beginning construction. If a source questions whether a change is subject to major new source review, the source can request an applicability determination. In this case, Detroit Edison Company has requested an applicability determination from the United States Environmental Protection Agency (EPA). This analysis outlines EPA's decision on the applicability determination for Detroit Edison's proposed project.

II. Summary of Request and Brief Conclusion

Detroit Edison Company is proposing to replace and reconfigure the high pressure portion of two steam turbines at its Monroe Power Plant. The company refers to this project as the "Dense Pack" project. In general, the Dense Pack project would consist of replacing and reconfiguring all of the blades in the high-pressure section of two turbines to substantially increase plant efficiency and reduce maintenance costs. On June 8, 1999, Henry Nickel, Hunton & Williams, submitted on behalf of Detroit Edison a request that EPA determine whether the Dense Pack project would be a "major modification" to the Monroe source, subject to the Prevention of Significant Deterioration (PSD) requirements of the New Source Review (NSR) program. An activity is a major modification and requires a PSD permit if it constitutes a nonexempt physical or operational change and if it results in a significant net increase in emissions. Detroit Edison claimed that the proposed Dense Pack project at two units in Detroit Edison's Monroe Power Plant would not be a "physical change," as the PSD regulations use that term, but instead would qualify for an exemption from the definition of "physical change" under the exclusion for routine maintenance, repair, and replacement. In the alternative, Detroit Edison maintained that the change would not result in an emissions increase that would trigger PSD.

In a letter dated June 25, 1999, EPA wrote Mr. Nickel acknowledging receipt of the request. In another letter to Mr. Nickel dated July 12, 1999, EPA requested more information regarding the proposed Dense Pack project and Detroit Edison's arguments in order to proceed with the review. On December 10, 1999, Mr. Nickel submitted information in response to EPA's July 12th request. In addition, on March 16, 2000, Detroit Edison submitted another letter, along with additional supporting materials. The following summarizes EPA's review of the proposed Dense Pack project based upon these submissions.

EPA has provisionally determined that PSD would not apply at this time if Detroit Edison were to construct the Dense Pack upgrade as described. The project would entail substantial, infrequently performed, and costly construction for the purpose of increasing the source's generating capacity both beyond its prior design and its current capacity. Accordingly, EPA finds that the upgrade is a "physical change," as that term is used in the Clean Air Act (CAA) and its implementing regulations. The Agency rejects Detroit Edison's claim that the project qualifies for the exemption for routine maintenance, repair, and replacement, because our analysis of the

nature, extent, purpose, frequency, and cost of the work, as well as other relevant factors, leads us to conclude that the project is not "routine" as EPA has historically interpreted that regulatory term. In addition, because the Dense Pack project will substantially increase the operational and economic efficiency of the Monroe facility, EPA finds that the project provides an incentive to significantly increase utilization, and thus, emissions. Detroit Edison has stated, however, that emissions at the plant will not in fact increase as a result of the Dense Pack upgrade, and EPA has no specific information to dispute that assertion. Accordingly, EPA provisionally accepts Detroit Edison's assertion of no emissions increase. However, to establish that no emissions increase will result and that PSD does not apply, the regulations applicable to electric utility steam generating units call for a calculation of baseline actual emissions and a projection of future actual emissions. Thus, before beginning construction on the project, Detroit Edison should provide this calculation and projection to the permitting agency to affirm its assertion of no emissions increase.

III. Factual Background

A. Current Conditions

Detroit Edison's Monroe Power Plant contains four coal-fired boilers, along with four associated steam turbines. The turbines convert the steam generated in the boilers into electric energy, using a system of blades or buckets to convert the energy stored in the steam from the boilers into mechanical energy. This mechanical energy is then transferred to an electric generator. The Dense Pack project is being proposed for two of the four turbines, Units 1 and 4. Units 1 and 4 began operating in 1971 and 1974, respectively. Both units have nominal ratings of 750 megawatts. Currently, the units at Detroit Edison's Monroe Plant, along with those at its Belle River Power Plant, are very high in the loading order for fossil fuel generation in the Detroit Edison system. Detroit Edison claims that, as a result, it has operated Units 1 and 4 at or near maximum capacity over the past five years. Specifically, between 1995 and 1998, the capacity factors for Unit 1 and Unit 4 have been 82.8%, 62.7%, 87.8%, 83.5%, and 63.0%, 82.2%, 79.6%, 87.4%, respectively.

According to submitted information, Detroit Edison shuts down the electric generating units and performs inspections approximately every four years. In addition to other work on other portions of the facility, Detroit Edison performs necessary maintenance, repair, and replacement of individual deteriorated turbine blades at that time. Historically, the source has not had to repair or replace blades in the high pressure section of the turbines every time it inspected them, but such maintenance, including piecemeal repair or replacement, occurs periodically. Detroit Edison states that these scheduled outages typically last a minimum of six weeks, but does not specify how much of this time is devoted to the repair and replacement of worn blades. In general, repair or replacement of the turbine blades could be to maintain fuel efficiency, reliability, safety, or generating capacity, or to comply with regulatory requirements, insurance company requirements, corporate practices, or other reasons. It appears from individual inspection reports that maintaining efficiency was the stated reason for most inspections and maintenance.

According to Detroit Edison, the turbines at Units 1 and 4 currently are operating at 7% below their original efficiency ratings due to accumulated deterioration in the high-pressure turbine blades. Replacement of the deteriorated blades with blades of the same design would replace only 2% of the lost efficiency, leaving the units 5% below their original efficiency rating. Detroit Edison estimates the cost of replacing only the currently deteriorated blades to be approximately $2 million per unit. Detroit Edison provided only a summary of the project costs for past maintenance and inspections at the facility, the total costs of which ranged from less than $1 million to a little more than $6 million. Detroit Edison spent $18,700, $33,100, and $7,900 to replace high-pressure rotors in three projects in 1981 and 1982. Detroit Edison has not provided other specific cost information regarding the cost of on-site blade repair and replacement or similar information for the utility industry as a whole.

B. Proposed Dense Pack Project

Detroit Edison is proposing to replace the entire high-pressure sections of two turbines to allow for the use of a new type of turbine blade and to reconfigure the design in order to improve efficiency and reduce maintenance costs. To install the Dense Pack, Detroit Edison must shut down the units. Detroit Edison expects the installation to take approximately 44 days, and plans to complete the installation during the time normally allotted for turbine outages. Installation of the Dense Pack would involve replacement and reconfiguration of blades in the high-pressure sections of the two units, using rotors and casings to support the new blade configuration. In addition, the Dense Pack would use a newer, substantially improved type of blade than is currently in use at the Monroe facility.

As noted above, Detroit Edison states that the high pressure sections of the turbines at Units 1 and 4 are operating at 7% below their original efficiency ratings due to accumulated deterioration in the high-pressure section of the turbines. The Dense Pack project would increase efficiency of the high-pressure sections of the turbines over current levels by 12%, restoring the 7% lost efficiency at the high pressure section and improving the efficiency of the high-pressure section by 5% over the original design. This increased efficiency in the high-pressure sections would increase the overall efficiency of each of the turbines by 4.5%. In addition, the new Dense Pack configuration could reduce efficiency deterioration by 70%. Therefore, Detroit Edison expects the inspections and needed repair or replacements to occur once every 10 years, instead of once every 4 years.

Detroit Edison expects the Dense Pack project to cost approximately $12 million. Detroit Edison plans to capitalize 100% of the cost of the Dense Pack project.

IV. Physical Change/Change in the Method of Operation

Before providing its analysis of whether the Dense Pack project would constitute a physical or operational change, EPA believes it would be useful to review what the statute and regulations require and how they have been applied historically. Thus, the following discussion provides a context for the analysis of the project that follows.

A. Statutory and Regulatory Requirements

1. Overview

Both the CAA and the NSR regulations require a physical or operational change to occur before any particular activity is considered a "modification" which triggers new source requirements. The applicable provisions do not, however, define what constitutes a physical or operational change. EPA historically has acknowledged -- in view of these undefined broad statutory and regulatory terms -- that they could "encompass the most mundane activities at an industrial facility (even the repair or replacement of a single leaky pipe, or a change in the way that pipe is utilized)." 57 Fed. Reg. 32314, 32316 (July 21, 1992). Recognizing that Congress did not intend everything undertaken at a stationary source to be subject to new source requirements, id., EPA has long exempted certain narrow classes of activities from being considered physical or operational changes. Accord Alabama Power Co. v. Costle, 636 F.2d 323, 400 (D.C. Cir. 1980) (although "the term 'modification' is nowhere limited to physical changes exceeding a certain magnitude," EPA possesses the authority to provide exemptions from the definition where they are of de minimis benefit or where administratively necessary). There are several such exclusions, but only one is at issue in the present case[1] – the exclusion for "routine"

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1. Detroit Edison suggests that the Dense Pack replacement project is also exempt from PSD as a pollution control project, see, e.g., 40 C.F.R. § 52.21(b)(2)(iii)(*h*), because the source anticipates that the project will decrease the units' emissions on a per-unit-of-output basis. December 10 Letter at 2; March 16 Letter at 3. This claim is not substantiated in any of Detroit Edison's correspondence with the Agency. Our analysis above accordingly focuses on Detroit Edison's primary claim -- that its activity is routine. At the same time, however, EPA does not want to give the impression that it tacitly agrees with Detroit Edison's claimed exemption; to the contrary, the Dense Pack replacement project does not meet the definition of "pollution control project" in the regulations. See 40 C.F.R. §52.21(b)(2)(iii)(*h*), (b)(32). Moreover, virtually any major capital improvement project at an existing source is designed in part to increase efficiency of production, and this will in turn almost always have the collateral effect of reducing emissions per unit of production, even though it may provide an economic incentive to increase total production, with the net result that actual emissions of air pollution to the atmosphere could increase significantly. There is nothing in the statutory terms or structure or in EPA's regulations which suggests that such major changes should be accorded exempt status under the NSR program. To the contrary, major capital investments in industrial equipment, where they could

(continued...)

activity.

2. Scope of Exclusion for Routine Activity

a. Statutory and Regulatory Text

The starting point for analysis of any exemption is the language of the statute and governing regulations. Section 111(a)(4) of the CAA reads as follows:

> The term "modification" means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted.

CAA § 111(a)(4). The CAA requires a PSD permit prior to "construction" of a major stationary source of any pollutant for which the area in which the source is located is designated attainment or unclassifiable, id. § 165(a), and it defines "construction" as including modifications (as defined in section 111) to existing facilities. Id. § 169(2)(C). EPA's regulations generally track the statute:

> (2)(i) *Major modification* means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase. . . .

E.G., 40 C.F.R. §52.21(b)(2).[2] The plain language of these statutory and regulatory requirements

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1. (...continued)
result in an increase in emissions, appear to be precisely the type of change at an existing source that Congress intended should be subject to PSD and nonattainment area NSR permitting. See Prevention of Significant Deterioration and Nonattainment New Source Review; Proposed Rule, 61 Fed. Reg. 38250, 38262 (July 23, 1996) ("NSR Reform" proposed rulemaking). See also Puerto Rican Cement Co. v. EPA, 889 F.2d 292, 297-98 (1st Cir. 1989) (modification of emissions unit that decreases emissions per unit of output, but may result in sufficient production increase such that actual emissions will increase, is subject to PSD). Conversely, nonroutine and otherwise nonexcluded changes of any type, regardless of whether they are projects such as the Dense Pack intended to increase production efficiency, or even the complete replacement of an entire industrial plant, are excluded from PSD coverage so long as they do not result in significant emissions increases. See infra note 4.

2. In this determination, EPA refers interchangeably to the "PSD" and "NSR" programs. There are multiple sets of PSD and NSR regulations, governing the general (or "minor") program (continued...)

indicates their sweeping scope. Both the CAA and its implementing regulations define "modification" as including any physical or operational change. See 42 U.S.C. § 7411(a)(4), CAA § 111(a)(4); see also, e.g., 40 C.F.R. § 52.21(b)(2)(i). In light of that breadth, any regulatory exemption from the statutory and regulatory requirements should be interpreted in a limited way. See Wisconsin Electric Power Co. v. Reilly, 893 F.2d 901, 908-09 (7th Cir. 1990) ("WEPCO") ("courts considering the modification provisions of NSPS and PSD have assumed that 'any physical change' means precisely that").[3]

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2. (...continued)
and the programs for major sources in attainment and nonattainment areas, and governing those programs where EPA is the permitting authority and those where the state is the permitting authority. For ease of use, this document refers to only the applicable requirements here, 40 C.F.R. § 52.21. Those requirements apply where, as here, the state does not have an approved PSD program in its state implementation plan and the federal PSD program regulations apply instead. See id. § 52.1180. EPA has delegated implementation of the PSD program to Michigan, which issues federal PSD permits on EPA's behalf. See id. § 52.21(u). It bears noting, however, that EPA regulations governing approved PSD programs and NSR programs for nonattainment areas also contain an identically worded exclusion for routine activity. In addition, the regulations governing EPA's new source performance standards (NSPS) contain a similar exemption for routine activity. Accordingly, the discussion below does not differentiate between the two programs, and relies upon relevant NSPS precedents as instructive in the NSR program. See 57 Fed. Reg. at 32316 (noting that physical/operational change step "is largely the same for NSPS and NSR"). The most significant difference between the programs' definition of "physical change" is that the NSR regulations do not require a source to affirmatively seek an applicability determination to be exempt as a routine change, id. at 32332, but the NSPS regulations plainly do. 40 C.F.R. § 60.14(e)(1) (activity is exempt if it is "[m]aintenance, repair, and replacement which the Administrator determines to be routine for a source category"). In all respects relevant to this determination, however, the regulations are identical.

3. There is a rule of law that exclusions from generally applicable regulations should be construed narrowly. See Auer v. Robbins, 519 U.S. 452, 462-63 (1986) (recognizing general rule of construction for regulations); see also O'Neal v. Barrow County, 980 F.2d 674, 677 (11th Cir. 1993) (where statute does not provide for exemption, regulations providing for one should be narrowly construed). Similarly, regulatory provisions should be read in conjunction with the statutes from which they are derived and with other similar provisions. Thus, just as other exclusions from the new source provisions are limited to narrow circumstances, one should read the exclusion for routine activity similarly. See, e.g., 40 C.F.R. §§ 52.21(b)(2)(iii)(*b*)-(*e*) (governing the use of alternative fuels when the source is ordered to do so pursuant to certain federal laws, when the fuel is derived from municipal solid waste, when allowed by existing permit, or when the source was capable of accommodating it before January 6, 1975 and is not prohibited from using it by a subsequent federally enforceable permit term); 52.21(b)(2)(iii)(*g*) (excluding changes in ownership of the stationary source).

The requirement that a source both make a physical or operational change and increase emissions to be considered a modification further suggests that the physical or operational change prong of the test should be broadly construed. The statute grandfathers existing facilities from the expense of state-of-the-art controls, but not permanently. Rather, the CAA effected a balance of concerns; if plants were modified – i.e., physically or operationally changed in a manner that increased emissions – the grandfather status would be lost, and NSR would apply. The requirement that there be a net increase in emissions at a source before a modification is deemed to have occurred, however, makes the grandfather provision potentially quite broad.[4] Indeed, this limitation on the modification rule has been viewed by EPA as open-ended – the grandfather status can be permanent so long as emissions do not increase – and environmental groups have long complained of this NSR "loophole."[5]

It is against that statutory and regulatory backdrop that EPA adopted the exclusion for routine activity. It provides:

> (iii) A physical change or change in the method of operation shall not include:
> *(a)* Routine maintenance, repair, and replacement. . . .

40 C.F.R. § 52.21(b)(2). The text of the routineness exclusion itself conveys the narrowly limited scope of the exemption. Because the regulations provide no definition of "routine," nor does the preamble of the notice promulgating the exclusion contain a discussion that would give the exemption a particular meaning for the NSR program, the regulatory term should be used in its ordinary sense. Webster's defines "routine" as "of a commonplace or repetitious character"; "of, relating to, or being in accordance with established procedure." These definitions suggest that determining routineness appropriately involves considering whether the activity is frequent (is it "repetitious"), whether it is of significant scope (is it "commonplace"), and whether it is for a customary purpose or is being accomplished in a customary fashion (is it "in accordance with established procedure").

b. Applicability Determinations and Other EPA Actions Construing Routineness

In formal NSR applicability determinations, EPA has consistently interpreted the exclusion for "routine" activities narrowly. The Agency's most comprehensive discussion of the exclusion came as part of an applicability determination for WEPCO's Port Washington utility life extension

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4. See, e.g., Alabama Power Co. v. Costle, 636 F.2d 323, 401 (D.C. Cir. 1979) (requiring EPA to allow replacement of depreciated capital goods without a PSD permit where no increase in emissions at the source would result, due to offsetting decreases, because "Congress wished to apply the permit process . . . only where industrial changes might increase pollution in an area, not where an existing plant changed its operations in ways that produced no pollution increase)."

5. See, e.g., Comments of NRDC on NSR Reform proposed rulemaking (63 Fed. Reg. 39857, Notice of Availability, July 24, 1998), EPA Docket No. A-90-37, Oct. 8, 1998.

project, which was upheld by the United States Court of Appeals for the Seventh Circuit. As in the present case, EPA's analysis began with the breadth of the modification provision, turning next to "the very narrow exclusion provided in the regulations," that is, the exclusion for "routine" activity. See Memorandum from Don R. Clay, Acting Assistant Administrator for Air and Radiation, to David A. Kee, Air and Radiation Division, Region V, at 3 (Sept. 9, 1988) (Clay Memo). EPA then described the core test for meeting this exclusion: "In determining whether proposed work at an existing facility is 'routine,' EPA makes a case-by-case determination by weighing the nature, extent, purpose, frequency, and cost of the work, as well as other relevant factors, to arrive at a common-sense finding." Id. Applying these commonsense factors, the Agency concluded that the WEPCO project was "far from being a regular, customary, or standard undertaking for the purpose of maintaining the plant in its present condition." Id. [6]

The WEPCO determination and subsequent court case led to significant national attention, Congressional hearings, and statutory and regulatory changes, but neither the provisions regarding routine activity nor EPA's interpretation of those provisions were affected.

Beyond the WEPCO decisions, EPA has given further guidance in other NSR and NSPS applicability determinations and related actions which elaborate on the preceding factors.[7] For example, in a 1987 applicability determination regarding the reactivation of a roaster/leach/acid plant at the Cyprus Casa Grande Corporation's copper mining and processing facilities, EPA determined that the proposed project would constitute a "major modification," and did not fall into the "narrow and limited set of exclusions" from PSD, including the exclusion for routine activity. See Letter from David P. Howekamp, Director, Air Quality Management Division, Region IX, to Robert T. Connery, Esq., at 3-4 (Nov. 6, 1987). In particular, EPA concluded that because the project called for the replacement of integral components and would entail significant

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6. Specifically, WEPCO proposed to modify its facility in a way that would replace numerous major components of the facility (including the steam drums), would require pre-approval from the state utility commission, would significantly enhance the efficiency and current production capacity of the plant and extend its useful life, would rarely be repeated during a unit's life, and would cost a substantial amount of money, over half of which was designated as capital costs. Id. at 4-6. On review, the Seventh Circuit upheld this portion of EPA's determination in its entirety. See WEPCO, 893 F.2d at 910-13.

7. In addition to the guidance discussed above, EPA's narrow interpretation of the exclusion for routine activity is evident from a passage in its brief to the Seventh Circuit in WEPCO. That brief generally reiterates the points addressed in the applicability determination that was the subject of the litigation, but elaborates with a helpful example. EPA analogized industrial facilities to automobiles, emphasizing that the "regulatory exception for routine, maintenance, repair and replacement was meant to cover such things as an oil change, replacing a broken headlamp or worn-out tires, changing the sparkplugs, or other similar activities," rather than permitting the replacement of such items as the engine or transmission. Respondent's Brief at 51, WEPCO v. Reilly, 893 F.2d 901 (7th Cir. 1990) (Nos. 88-3264 & 89-1339).

time (4 months) and cost (an absolute cost of $905,000, which constituted 10 percent of the cost of replacing the repaired unit), it was not routine. Id. at 5-6. The agency also noted that certain activities, although they would be routine "if performed regularly as part of standard maintenance procedure while the plant was functioning or in full working order," were being performed as part of an extensive rehabilitation project and, thus, were properly considered non-routine. Id. at 6; see also In re: Monroe Electric Generating Plant, Petition No. 6-99-2 at 11, 19 & n. 19 (Adm'r 1999) (in grant of CAA § 505(b)(2) veto petition, stating principle that a non-routine collection of activities, considered 'as a whole,' is not exempt under routine exclusion, even if individual activities could be characterized as routine). In another case, in 1975, EPA Region X determined that the upgrade of boilers at a pulp mill was non-routine under NSPS, in that it called for the addition of additional pressure parts previously not included in the boilers to increase the superheater surface of the boilers, even though the additional parts were contemplated under the original boiler design. Request for Ruling Regarding Modification of Weyerhaeuser's Springfield Operations, Reg. Counsel, Reg. X (Aug. 18, 1975). When reviewing whether a project was routine, other applicability determinations have considered whether the project involved: (1) the addition of certain parts previously not included in the units; (2) the expansion of parts of a unit; or (3) the replacement of an entire emissions unit. For copies of these actions and other applicability determinations and guidance documents, please see EPA's publicly-available databases, available at: http://www.epa.gov/ttn; http://www.epa.gov/region07/programs/artd/air/nsr/nsrpg.htm; and http://www.epa.gov/oeca/eptdd/adi.html, or contact the staff members named in the cover letter.

In sum, in these actions and elsewhere, EPA has assessed routineness by considering the following factors:

Nature

- Whether major components of a facility are being modified or replaced; specifically, whether the units are of considerable size, function, or importance to the operation of the facility, considering the type of industry involved
- Whether the change requires pre-approval of a state commission, in the case of utilities
- Whether the source itself has characterized the change as non-routine in any of its own documents
- Whether the change could be performed during full functioning of the facility or while it was in full working order
- Whether the materials, equipment and resources necessary to carry out the planned activity are already on site

Extent

- Whether an entire emissions unit will be replaced
- Whether the change will take a significant time to perform
- Whether the collection of activities, taken as a whole, constitutes a non-routine effort, notwithstanding that individual elements could be routine
- Whether the change requires the addition of parts to existing equipment

Purpose

- Whether the purpose of the effort is to extend the useful life of the unit; similarly, whether the source proposes to replace a unit at the end of its useful life
- Whether the modification will keep the unit operating in its present condition, or whether it will allow enhanced operation (e.g., will it permit increased capacity, operating rate, utilization, or fuel adaptability)

Frequency

- Whether the change is performed frequently in a typical unit's life

Cost

- Whether the change will be costly, both in absolute terms and relative to the cost of replacing the unit
- Whether a significant amount of the cost of the change is included in the source's capital expenses, or whether the change can be paid for out of the operating budget (i.e., whether the costs are reasonably reflective of the costs originally projected during the source's or unit's design phase as necessary to maintain the day-to-day operation of the source)

These categories are interrelated. Many facts could be relevant to both nature and extent, while others could overlap with purpose. Moreover, none of these factors -- standing alone -- conclusively determines a project to be routine or not. Instead, a permitting authority should take account of how each of these factors might apply in a particular circumstance to arrive at a conclusion considering the project as a whole.

3. Analysis of Detroit Edison's Objections to EPA's Longstanding, Narrow Interpretation of the Exclusion for Routine Activity

In support of its request, Detroit Edison has submitted a number of documents in which members of the electric utility industry claim that EPA has recently changed its interpretation of the routineness exclusion by narrowing it and that EPA's prior interpretation was expansive. See, e.g., Supplemental Comments of the Utility Air Regulatory Group, EPA Air Docket No. A-90-37 (Oct. 8, 1999) (UARG Comments).[8] As discussed below these arguments lack merit. Moreover, it bears noting that if companies have specific questions about the scope of the exclusion, EPA has long encouraged sources to seek guidance from their permitting authorities, see New Source Review Workshop Manual at A.33-34 (Draft Oct. 1990).

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8. The UARG comments submitted by Detroit Edison in support of its applicability determination request pertain to the ongoing "NSR Reform" rulemaking. See 61 Fed. Reg. 38250 (1996). The views expressed here regarding the UARG Comments pertain only to this applicability determination and are without prejudice to the ultimate outcome of the pending rulemaking.

a. Claim that Construction that Does Not Increase Unit's Emission Rate Is Routine

Among Detroit Edison's contentions is the assertion that the routine activity exclusion is properly read (and historically has been read by EPA) to cover all "capital projects to replace degraded components without increasing the design capacity or maximum achievable hourly emission rates." See UARG Comments at 43. This interpretation would leave NSR to cover only "those activities that would create 'new air pollution' by significantly increasing the pollutant emitting capabilities of the source as designed and built." Id. at 13. In essence, this argument holds that extensive construction activity at a source is exempt from new source requirements, even if actual emissions to the atmosphere increase, where the source's potential to emit does not increase. This contention does not withstand scrutiny. EPA's regulations have since 1980 explicitly required keying NSR applicability for modifications to the actual emissions consequences of a particular change. See, e.g., 40 C.F.R. §§ 52.21(b)(2)(i) (defining "major modification" as a change resulting in a significant "net emissions increase"); 52.21(b)(3)(i) (defining "net emissions increase" based on "actual emissions"); see also 45 Fed. Reg. 52676, 52700 (Aug. 7, 1980) (explaining EPA's adoption of actual emissions baseline for modifications). Industry has understood this facet of the NSR program from the outset; indeed, it was one of the central points on which industry sought review of the 1980 regulations. See Brief for Industry Petitioners on Actual Emissions Definition of Net Increase, Chemical Mfrs. Ass'n v. EPA (D.C. Cir.) (No. 79-1112). Accepting Detroit Edison's proffered interpretation of the routine activity exemption, however, would moot this longstanding and contentious quarrel and would make meaningless the provisions in the regulations governing the actual emissions baseline for modifications. This runs counter to the general presumption that interpretations that render part of a regulation superfluous are to be avoided. See, e.g., U.S. v. Larson, 110 F.3d 620, 626 (8th Cir. 1997); accord WEPCO, 893 F.2d at 909 (rejecting WEPCO's proffered definition of "physical change," because it "would open vistas of indefinite immunity from the provisions of NSPS and PSD").[9]

b. Mary Nichols Representation that "Restoration" Activity Can Be Routine

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9. The argument that only changes that increase a unit's emissions rate can trigger the NSR modification provisions has been rejected by two courts of appeals. As noted, see supra note 1, in Puerto Rican Cement, the First Circuit rejected a claim that modifications to a cement kiln, which made production more efficient and decreased the hourly emissions rate but could increase the plant's utilization rate, such that actual emissions to the atmosphere might increase, were exempt from PSD. The company argued that the project fell under the PSD regulatory exclusion for changes that result in an "increase in the hours of operation or in the production rate." See 889 F.2d at 298. Similarly, in WEPCO, where the company was making "like-kind" replacements of components to restore the original design capacity of the plant, there was no increase in emissions per unit of output; rather, for PSD purposes, the emissions increase was attributable to increased utilization. The Seventh Circuit rejected the company's reliance on the exclusion for increased hours of operation/rates of production. See 893 F.2d at 916 n. 11.

In the submitted materials, utility representatives claim that EPA has previously indicated that the utilities may undertake facility restorations without considering NSR. In 1995, industry encouraged EPA to propose to amend the NSR rules to include a "restoration" exclusion for any change that enabled a deteriorated unit to increase its emissions, as long as the unit did not exceed its highest recent (i.e., in the last 5 years) achievable capacity. EPA responded by saying that it intended to propose a number of flexible mechanisms to allow sources to make changes without triggering NSR. The Agency also said, "EPA believes that the routine maintenance exclusion already included in the existing NSR regulations also has the effect of excluding 'routine restorations.'" Letter from Mary D. Nichols, Assistant Administrator for Air and Radiation, to William R. Lewis, Morgan, Lewis and Bockius, attachment at 19 (May 31, 1995). Some in industry quarters suggest that this sentence indicates EPA's interpretation that restoration activities are, by definition, exempt. See UARG Comments at 17 ("In 1995, [EPA] confirmed that no special rule was needed for industrial 'restoration' projects because such projects were covered already under the 'routine maintenance' exclusion."). These claims are incorrect. Rather, EPA's statement says merely that "routine restorations," not all "restorations," are exempt. Thus, EPA's remark simply is tautological; it says that to the extent the restoration is itself "routine," the current exclusion for "routine" activity will exempt it from review.[10]

c. Assertion that EPA Expects No Change to Trigger NSPS Modification Provision

Detroit Edison also maintains that several EPA documents indicate that the Agency believed until recently that utility modifications would generally avoid NSR, and that these documents therefore reveal an expansive understanding of the exemption for routine activity. In particular, the UARG Comments highlight a General Accounting Office (GAO) report created when Congress was considering the acid rain program,[11] a letter to Senator Byrd from EPA regarding a proposed NSPS, and the preamble to the proposed NSPS.[12] Although none of these documents discuss the scope of the routine maintenance, repair, and replacement exemption,

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10. For example, past piecemeal repairs and replacement of individual rotor blades at Monroe presumably restored some portion of the efficiency lost since the last scheduled outage. While not the subject of this determination, it appears that those activities – which as explained above were far different from the proposed Dense Pack upgrade – are more likely to be properly characterized as excluded "routine restorations."

11. UNITED STATES GENERAL ACCOUNTING OFFICE, PUB. NO. GAO/RCED-90-200, ELECTRICITY SUPPLY: OLDER PLANTS' IMPACT ON RELIABILITY AND AIR QUALITY (1990).

12. The submissions also refer to an article written by EPA staff. This document warrants no discussion; it does not represent Agency opinion, as noted in the cited article. See James DeMocker et. al, Extended Lifetimes for Coal-fired Power Plants: Effect Upon Air Quality, PUBLIC UTILITIES FORTNIGHTLY at 30 n.* (Mar. 20, 1986). Moreover, the article is silent on the question at issue here -- when certain activity is routine -- and therefore would not be relevant even if it did speak for EPA.

industry points to them as evidence that EPA believed that NSR would apply to electric utilities only rarely.

The cited documents do not remotely suggest a broad EPA interpretation of the routineness exemption. First, although the GAO report contains a number of statements that suggest that EPA did not expect many utilities to trigger the NSPS or PSD modification rules, it does not suggest how broadly or narrowly the exclusion for routine activity has been interpreted; further, some statements in the report are best read as reflecting a narrow scope to the exclusion. GAO Report at 28, 30 (acknowledging that "life extension projects involve physical or operational changes to power plants" and distinguishing between projects aimed at restoring generating capacity and those which prevent plant deterioration). In addition, as noted above, the PSD regulations provide broad leeway for sources to avoid new source requirements by making offsetting emissions reductions at the source even when undertaking extensive physical or operational changes that, standing alone, would result in emissions increases. In many circumstances, such "netting out" of review is a more cost-effective strategy than obtaining a PSD permit. Moreover, at the time of the 1990 CAA Amendments, any statement or assumption EPA made regarding whether electric utilities could trigger NSR was based on information provided by industry at that time. The power plant undertaking a physical or operational change is responsible for obtaining the necessary regulatory approvals from each agency that regulates it. State and federal environmental agencies do not regularly review submissions to public utility commissions, the Federal Energy Regulatory Commission, a pipeline authority or a local zoning board; nor are those agencies charged with the authority to require CAA permits. As a result, EPA, as well as states, were unaware that activities that were under way at utilities would in fact increase emissions and thus trigger NSR. Although EPA's conclusions were reasonable based on the information EPA had at the time, EPA's statements might have been different based on more complete information, including information from facilities requesting applicability determinations.

Second, the utilities point to a letter to Senator Byrd from OAQPS Director John Seitz regarding potential revisions to the NSPS for steam generating units and to the preamble to a 1997 proposed rule on the same topic. Both documents indicate that EPA expected few, if any, existing units to become subject to the proposed NSPS as a result of being modified. Again, these documents do not suggest that the reason EPA had such an expectation was because of a broad interpretation of the exemption for routine activity. Indeed, the preamble to which industry refers has a lengthy discussion of the reasons why existing units would avoid the NSPS for modifications, but notably omits the "routine" exclusion. See 62 Fed. Reg. 36947, 36957 (July 9, 1997).[13]

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13. In addition, the UARG Comments claim that a "key" factor in the D.C. Circuit's recent vacatur of the fossil-fuel boiler NSPS for modified units was that some EPA offices viewed quite a bit of "maintenance" activity as potentially covered by the modification provision and others thought that few, if any, changes would trigger the NSPS. UARG Comments at 3 n.8. Research has revealed no support for this assertion. The court's order in the case is brief and

(continued...)

d. Assertion that Industry Practice Defines Routineness

The submitted materials also seem to contend that if a particular industry sector has an established practice of undertaking certain construction activity, no matter how infrequent, costly, or major, that industry practice is "routine." See UARG Comments at 37 ("[E]lectric utilities undertake maintenance, repair and replacement activities pursuant to their legal obligation to provide a safe and reliable source of electricity. This defines what is 'routine' for this industry.") It is true that EPA has stated that the "determination of whether the repair or replacement of a particular item of equipment is 'routine' under the NSR regulations, while made on a case-by-case basis, must be based on the evaluation of whether that type of equipment has been repaired or replaced by sources within the relevant industrial category." 57 Fed. Reg. at 32326. However, this statement merely recognizes that a piece of equipment may be more integral, costly, or less frequently replaced at one kind of facility than at another. Accordingly, although it may not be routine for one industry to replace or repair certain equipment or undertake certain maintenance activity, similar construction might be routine in a different industry. As a result, EPA has historically considered whether a typical source in the relevant industry undertakes the proposed activity as a routine matter. See, e.g., 40 C.F.R. §60.14(e)(1) (NSPS regulations require EPA determination that activity is "routine for a source category" to be exempt). This does not mean, however, that whatever activity members of a particular industry have done – no matter how infrequent, costly, sizable, or capable of expanding the source's operations or extending its useful life – is necessarily routine.

B. Analysis of "Routine" Maintenance, Repair or Replacement at the Monroe Plant

Looking at the nature, extent, purpose, frequency and cost of the project, along with other relevant factors in light of the framework discussed above, EPA concludes that the proposed Dense Pack project is a non-routine physical change. In sum, although utilities typically perform maintenance, repair and replacement of individual deteriorated turbine blades about once every four years, the reconfiguration and upgrade of a turbine's entire high-pressure section (including all of the blades) is a significant departure from necessary maintenance operations aimed at keeping the turbine in ordinary working condition, and is rarely performed at a typical utility. Detroit Edison expects the new Dense Pack configuration to substantially increase the unit's ability to convert steam to electricity over its original design and the project will reduce the rate of blade efficiency deterioration by 70%. Moreover, the new blades will alter the inspection and replacement program of worn blades, allowing inspection and replacement to occur every 10 years instead of 4 years. Finally, the project requires a significant capital expenditure of $12

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13. (...continued)
does not suggest a reason for its disposition of the matter, except that the court believed that the NSPS for modified boilers was "seriously deficient." Lignite Energy Council v. EPA, No. 98-1525 (D.C. Cir. Sept. 21, 1999).

million, which Detroit Edison states is triple the cost of replacing the worn blades with ones of the same design, and which vastly exceeds prior blade and rotor maintenance costs. A more detailed application of the relevant factors to the information that Detroit Edison has submitted regarding the Dense Pack project follows.

Nature and Extent

Detroit Edison seeks to replace the entire high-pressure section of two turbines to allow for use of a new type of turbine blade and to reconfigure the design to improve efficiency. This includes reconfiguration of blades in the high-pressure sections of the two units, including new parts and additional stages. The turbine – in particular the high-pressure section – is an integral and major component of an electric generating facility. Furthermore, the proposed change will be of considerable importance to the operation of the facility because, among other options, it will enable the units to produce more electricity with the same coal usage, boiler heat input and steam flow, and allows operation of the units with less maintenance. In addition, by making operation of the affected units more efficient, the Dense Pack upgrade will provide an economic incentive to increase operations at the plant.

Several other facts that EPA has found telling in past decisions and guidance also indicate that the Dense Pack upgrade would not be routine. First, the project cannot be performed during the full functioning of the plant and instead would require the affected units to be shut down. Second, the project would involve the addition of parts not previously used. Third, the project could not be completed with parts typically stored on site. Finally, Detroit Edison plans to capitalize 100% of the cost of the project.

Purpose

Replacement of currently deteriorated blades with blades of the same design would restore only 2% of the efficiency that has been lost as the equipment has aged, leaving the units 5% below their original efficiency rating. The Dense Pack project, however, would increase efficiency of the high-pressure sections of the turbines over current levels by 12%, and overall efficiency of the turbines by 4.5%. The new configuration could reduce efficiency deterioration by 70%.

Thus, the Dense Pack project will not simply maintain the equipment at the current state, but will enhance the operation of the Monroe Power plant by recovering the accumulated lost efficiency, increasing the efficiency over the original design, and decreasing the rate of turbine blade deterioration in the high pressure section. This efficiency enhancement and decrease in deterioration rate would in turn substantially enhance the operational capabilities of the affected units, by providing an economic basis for increased utilization. As discussed below, Detroit Edison claims that it does not intend to use the unit more in the future as a result of the Dense Pack project, but that does not change the fact that the project would enable it to do so.

Frequency

Turbine upgrades like the Dense Pack project are performed rarely, if ever, in the course of a utility source's life. Detroit Edison has not provided any information to suggest that individual facilities in the industry frequently conduct a complete replacement of the high pressure section of a utility steam turbine, relying instead on two claims: (1) that utilities commonly perform turbine maintenance activity; and (2) that it estimates that projects "similar" to the Dense Pack have been performed at a number of utilities. Neither of these claims addresses the central question – whether it is industry practice that a typical facility will frequently conduct the project in question. The only available information -- Detroit Edison's experience – suggests that projects like the Dense Pack are performed infrequently at individual sources; this project has never been performed previously at Monroe and will greatly increase the time between "overhauls" of the high pressure section.

Cost

Detroit Edison expects the Dense Pack project to cost approximately $12 million. Detroit Edison has estimated that replacement of the current blades with blades of the same design would cost approximately $2 million per unit. Generally speaking, a new plant costs approximately $2,000 per kilowatt. Therefore, a new 750 megawatt unit would cost about $1.5 billion.

An absolute cost of $12 million constitutes a significant cost, which tends to make this project non-routine. Detroit Edison argues that the cost of the Dense Pack project is significantly less than the cost of the Port Washington project at issue in the WEPCO case. In WEPCO, the estimated cost of the life extension project was $87.5 million, at least $45.6 million of which was capital costs. Clay Memo at 6. EPA acknowledges that this cost is well in excess of the proposed Dense Pack project, especially considering inflation. However, as the Agency noted in 1988, WEPCO's activity was "far from" routine, id. at 3, and the facts of that case should be considered in that context. By contrast, EPA has determined that a proposed project costing $905,000 was non-routine. Letter from Howekamp to Connery at 5. Considering these two precedents, EPA believes that the $12 million expenditure in this case, all of which is capital in nature, supports a determination that the proposed project is non-routine.

Although the relative cost of the Dense Pack project, when compared with replacing the entire electric generating facility, is small, it is orders of magnitude larger than other blade maintenance activity Detroit Edison has conducted in the past. For instance, it appears that the company spent $18,700, $33,100, and $7,900 to replace high-pressure rotors in three projects in 1981 and 1982. Further, the project is significantly more costly than simply replacing deteriorated blades today; Detroit Edison acknowledges that the Dense Pack upgrade would cost three times more than its alternative blade repair and replacement project.

V. Emissions Increase

Since the Dense Pack project constitutes a physical change, EPA must consider whether it would result in a significant net emissions increase. Before providing its analysis, once again EPA will review what the regulations require. Thus, the following discussion provides a context for the analysis of the project that follows.

A. Regulatory Requirements

If a physical change or change in the method of operation is not "routine," it still does not trigger PSD unless it results in a significant net emissions increase. This involves comparing recent pre-change, or "baseline", actual emissions to a projection of future actual emissions following the change. A source's pre-change level of actual emissions from a given unit is "the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the [date of the change] and which is representative of normal source operation." Id. § 52.21(b)(21)(ii). This figure must be compared to the source's post-change emissions; however, because NSR is a preconstruction program, one must project the unit's future emissions. For units that are not "electric utility steam generating units," EPA's rules require that for units that have "not begun normal operations," i.e., units that will undertake a non-excluded physical or operational change, the post-change emissions "shall equal the potential to emit of the unit," which is the "maximum capacity of a stationary source to emit a pollutant under its physical and operational design," but which also accounts for pollution controls and permit restrictions that limit lawful emissions to a level below the maximum physical capacity. Id. § 52.21(b)(4).[14] If a particular change would, standing alone, increase actual emissions by more than a "significant" amount, see id. § 52.21(b)(23), the change is subject to PSD, unless other activity at the source renders the net emissions effect of the change insignificant when considered together with contemporaneous (generally within the past five years) emissions increases and decreases at the source. See id. § 52.21(b)(3) (defining "net emissions increase").

For electric utility steam generating units, the post-change emission increase calculation is

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14. Under current regulations, changes to a unit that are not routine nor subject to one of the other NSR exemptions are considered to be of such significance that pre-change emissions should not be relied on in projecting post-change emissions. For such units, "normal operations"refers to operations after the change, and are deemed not to have begun. The regulations initially presume that such units will operate year-round at full capacity, but a source owner is free to overcome the presumption by agreeing to limit its potential to emit to any level desired through enforceable restrictions on operations or the use of pollution controls. For example, if limiting the potential to emit results in an insignificant change in emissions, the source can avoid PSD applicability. See 63 Fed. Reg. 39858 (July 24, 1998) (Notice of Availability); see also 45 Fed. Reg. 52676, 52688-89. If business plans later change and the owner desires to relax those restrictions and obtain a PSD permit at that later time, it may do so. See 45 FR 52689; 54 FR 27274, 27280.

governed by regulations adopted in 1992 (57 Fed. Reg. 32314, July 21, 1992), commonly referred to as the "WEPCO rule." Although the WEPCO rule did not change the regulatory provision that establishes a unit's pre-change emissions, EPA announced that it would view any consecutive two-year period during the preceding five years as presumptively reflective of "normal source operations." See 57 Fed. Reg. at 32324-25. In addition, EPA amended the regulations regarding a utility unit's post-change emissions in two ways. First, the rules allow utilities to project future emissions resulting from a particular change without committing to a permit restriction limiting the unit's potential to emit to a level below its maximum capacity to emit a pollutant,[15] and they provide that emissions increases independent of the physical or operational change may be discounted from the post-change emissions of the unit. A utility making a particular change, instead of accepting permit restrictions on the potential of the changed unit to emit a particular pollutant, may avoid PSD if its projection of "representative actual annual emissions" following the change is not significantly greater than its pre-change emissions, but only if the source "maintains and submits to the Administrator [or relevant state permitting authority] on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase." E.g., 40 C.F.R. § 52.21(b)(21)(v). Second, in evaluating the source's claimed exemption from PSD, the permitting authority must "[c]onsider all relevant information, including, but not limited to, historical operational data, the company's own representations, filings with the State or Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act. . . ." Id. § 52.21(b)(33)(i). The permitting authority must discount any increase "that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole." Id. § 52.21(b)(33)(ii). Nevertheless, if an emissions increase could not have occurred "but for the physical or operational change," the increase must be considered to result from the change. See 57 Fed. Reg. at 32327.

Where the end result of an emissions increase analysis for electric utilities is a projection accepted by the permitting authority that emissions would not increase as a consequence of a particular change, the rules call for an initial determination that the change would not be a major modification subject to PSD. See Letter from David P. Howekamp, Air Division, Reg. IX, to

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15. We are aware, as Detroit Edison states in its initial applicability determination request, that EPA Region VII previously has suggested that a utility undertaking a change to a part of the source other than the boiler may not be entitled to take advantage of the provision that allows for a forecast of future emissions without committing to a present limitation on the source's potential to emit. We have reviewed Region VII's discussion of the matter and the applicable regulations, and we conclude that Detroit Edison may use this provision to calculate future emissions from the boilers, even though it is making changes at the turbines. The plain language of the regulation is categorical; irrespective of where a change takes place, the post-change emissions of the electric utility steam generating unit – which certainly includes the boiler – must be determined using the "representative actual annual emissions" approach. See 40 C.F.R. § 52.21(b)(21)(v).

Richard K. McQuain, HEI Power Corp., at 1-2 (undated) (describing WEPCO rule as conferring conditional exemption from PSD where projected emissions increase is insignificant). However, if the information that the source must submit for the requisite number of years following the change demonstrates that emissions have in fact increased as a result of the change, the source becomes subject to PSD at that time. See 40 C.F.R. § 52.21(b)(21)(v); 57 Fed. Reg. at 32325 ("If . . . the reviewing authority determines that the source's emissions have in fact increased significantly over baseline levels as a result of the change, the source would become subject to PSD requirements at that time.")

B. Analysis of Significant Net Emissions Increase at the Monroe Plant

Because the Dense Pack project would be a physical change to a major stationary source, Detroit Edison must estimate whether the change would result in a significant net emissions increase to determine whether it must undergo PSD review. 40 C.F.R. § 52.21(b)(2)(i). According to the submission, Detroit Edison asserts that emissions will not increase as a result of the project. As discussed below, EPA accepts for purposes of this determination Detroit Edison's representation that emissions will not increase as a result of the project, and concludes that the Dense Pack upgrade will not trigger PSD, provided that, prior to beginning construction, the company validates its representation by developing and submitting to the permitting agency a calculation of "baseline" actual emissions and a projection of future actual emissions following the project.

Detroit Edison maintains that emissions will not increase as a result of this project because it concludes that one of two consequences will follow the upgrade. First, Detroit Edison claims that because the change would increase efficiency, it would allow increased electricity generation using the same amount of coal, boiler heat input and steam flow while producing the same level of emissions as currently emitted. Alternatively, Detroit Edison claims the project would enable it to generate the same amount of electricity it currently generates using less coal, boiler heat input and steam flow, resulting in reduced emissions. Detroit Edison rejects the third possibility -- that it would use the units more, and increase emissions at the plant, as a result of the blade replacement. Detroit Edison states that these units already are at the top of the loading order and had a capacity factor of approximately 85% for 1998. Thus, the company asserts, any increase in use would be the result of demand or unforeseen outages, which could and would have occurred regardless of whether or not Detroit Edison proceeds with the Dense Pack project. The company has not, however, provided any specific projections of future operations and emissions to EPA to support its claims regarding emissions levels.

EPA disagrees that the dispatch position of the Monroe plant necessarily means that the Dense Pack project would not result in increased use, and hence, increased emissions. Given the information provided by the company showing that there is some fluctuation in annual use and that Units 1 and 4 are not operated at their maximum physical capacity, the fact that Monroe is at the top of the loading order is insufficient to demonstrate that the significant increase in efficiency associated with the Dense Pack project, and the corresponding decrease in the cost of producing

electricity, would not result in increased use and emissions. The possibility that Detroit Edison would take advantage of Monroe's increased efficiency to sell additional power in deregulated utility markets beyond its regular service area is an additional reason that the Dense Pack project may well lead to increased emissions. Accordingly, based on the information provided, EPA cannot agree at this time that any future increased emissions at the Monroe plant due to increased use should be attributed to demand growth (as that term is used in the PSD regulations) or other factors not causally related to the Dense Pack project.

EPA notes in this regard that the large size of the Monroe units means that only a small increase in use could result in emissions increases that are significant for PSD purposes. For example, if Detroit Edison decides to run the Monroe plant even 1% more due to the improved efficiency, the resulting increase in emissions would be well above the significance threshold. If a one to five percent increase in operation were to result from the Dense Pack project, increases on the order of 160-800 tons of NOx and 400-2000 tons of SO2 would occur, each of which would be considered "significant," and trigger PSD absent sufficient offsetting contemporaneous emission reductions. See 40 C.F.R. § 52.21(b)(23)(i) (defining 40 tons per year emission increases for sulfur dioxide and nitrogen oxides as "significant").

In determining whether a nonexempt physical or operational change at an electric utility steam generating unit will result in a significant net emissions increase, the applicable PSD regulations at 40 C.F.R. § 52.21(b)(21)(v) and (b)(33) call for a calculation of pre-change "baseline" actual emissions and a projection of future actual emissions for the two year period after the change (or another two year period that is more representative of normal post-change operations). Detroit Edison has not supplied such a projection, perhaps in reliance on its position that the Dense Pack project would be exempted as routine. The company has represented, however, that "the Dense Pack would not result in an increase in the number of hours these units are expected to be operated." EPA has no specific information disputing that assertion, and so is willing to accept Detroit Edison's representation. Nevertheless, until the company provides the calculation and projection called for by the regulations to verify its projection of no increase in actual emissions, our determination is provisional. Detroit Edison should submit these figures to the Michigan Department of Environmental Quality prior to the beginning of construction.

The PSD regulations also require Detroit Edison to maintain and submit to the delegated permitting agency, for a period of 5 years from the date the units resume regular operation following completion of the Dense Pack project, information demonstrating that the project did not result in an emissions increase. To adequately track post-change emissions, EPA expects that this information must include records on annual fuel use, hours of operation, and fuel sulfur content. In making these calculations, Detroit Edison may exclude emissions increases that are caused by other factors, for example, emissions increases that it demonstrates are due to variability in control technology performance or coal characteristics. In addition, when calculating emission increases, under current regulations Detroit Edison may exclude that portion of its emissions attributable to increased use at the unit due to the growth in electrical demand for the utility system as a whole since the baseline period. See 40 C.F.R. § 52.21(b)(33)(ii).

Finally, EPA notes that regardless of whether PSD review is triggered due to the Dense Pack project, Detroit Edison remains responsible for compliance with all other applicable federal, state, and local air pollution regulations.

VI. Conclusion

For the reasons delineated above, EPA concludes that the changes proposed by Detroit Edison would not be routine. Detroit Edison's submissions do not demonstrate that projects such as the Dense Pack are frequent, inexpensive, or done for the purpose of maintaining the facility in its present condition. Therefore, the Agency determines that the Dense Pack upgrade would be a "physical change," as that term is used in the NSR regulations. EPA disagrees with Detroit Edison's claims that the Dense Pack project is eligible for the exclusion from PSD permitting for routine maintenance, repair, and replacement. The determination of whether a proposed physical change is "routine" is a case-specific determination which takes into consideration the nature, extent, purpose, frequency, cost of the work, as well as other relevant factors. After carefully reviewing all the available information, in light of the relevant factors, EPA has determined that the proposed project would not be "routine."

The PSD regulations (under the provisions commonly known as the "WEPCO rule") allow a source undertaking a nonroutine change that could affect emissions at an electric utility steam generating unit to lawfully avoid the major source permitting process by using the unit's representative actual annual emissions to calculate emissions following the change. Detroit Edison contends that representative actual annual emissions following the Dense Pack project will not be greater than its pre-change actual emissions, because the project will not result in increased use of the units. Therefore, Detroit Edison may avoid major PSD permitting to the extent it documents its pre-change baseline emissions and submits information following the change to confirm its pre-change projection. If Detroit Edison fails to comply with the reporting requirements of the WEPCO rule or if the submitted information indicates that emissions have increased as a consequence of the change, it will be required to obtain a PSD permit for the Dense Pack project.