

US EPA ARCHIVE DOCUMENT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FEB 15 1989

Mr. John W. Boston
Vice President
Wisconsin Electric Power Company
Post Office Box 2046
Milwaukee, Wisconsin 52301

Dear Mr. Boston:

This is a revised final determination, on reconsideration, regarding the applicability of the Clean Air Act's New Source Performance Standards (NSPS) and Prevention of Significant Deterioration (PSD) provisions to the proposed life extension project at the Port Washington steam electric generating station, which is owned and operated by Wisconsin Electric Power Company (WEPCO). This determination supplements the determination set forth in an October 14, 1988 letter to you from Lee M. Thomas, which in turn incorporated my September 9, 1988 memorandum. I find it necessary to reconsider EPA's original determination and issue this revised determination in part to address matters raised by, and new information submitted by, WEPCO representatives since the October 10 letter. WEPCO believes that these new aspects call into question the accuracy of EPA's prior determination.

For the following reasons, EPA today reaffirms, with limited exceptions detailed below, its earlier findings regarding the Port Washington life extension project. I hereby incorporate by reference the October 14 letter and the September 9 memorandum, and reaffirm the findings and conclusions in those two documents except where they are specifically superseded below.

This action constitutes final agency action for purposes of judicial review under section 307(b) of the Clean Air Act, 42 U.S.C. Section 7607(b).

I. CAPITAL EXPENDITURE

EPA explained in its earlier determination that under the General Provision of the NSPS regulation, a physical or operational change which increases emissions at an affected facility is a modification subject to NSPS. See 40 CFR 60.14(a). However, 40 CFR 60.14(e) provides certain exceptions to that general rule. In particular, section 60.14(e) (2) provided that an increase in production rate at an affected facility would not, by itself, be considered a modification if that increase is accomplished without a capital expenditure.

As has been discussed in recent meetings between WEPCO and EPA, the October 14, 1988 letter from Lee M. Thomas was based in

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part on information supplied by WEPCO in a letter dated October 11, 1988 which indicated that the increase in production rate at each of the five units would be accomplished with a capital expenditure. On October 13, 1988, and November 22, 1988 WEPCO submitted revised capital expenditure calculations. EPA has carefully reconsidered its earlier determination based on those two additional submissions (see Footnote 1). However, as explained below, they provide no grounds on which to alter EPA's earlier finding on capital expenditure.

The modification provisions are designed in part to subject to NSPS those emissions increases caused by an increase in production rate that is in turn attributable to a significant investment in improvements to the capital stock. Consistent with this intent, capital expenditure calculations employ the total, as opposed to annual, cost of a given

project at each affected facility.

Thus, the December 16, 1975 preamble to the promulgated definition of capital expenditure states that "the total cost of increasing the production or operating rate must be determined. All expenditures necessary to increasing the facility's operating rate must be included in this total" (40 FR 58416) (emphasis added). The total cost of the planned work at each facility is then compared to the product of the existing facility's basis and the annual asset guideline repair allowance percentage used by the Internal Revenue Service for taxation purposes. If the total project cost for each facility exceeds the product of the basis and repair percentage for each facility, there is a capital expenditure at that facility. See 40 CFR 60.2.

It is appropriate to accumulate, for capital expenditure purposes, the cost of the renovations necessary to increase the facility's production rate, because the overall work necessary to increase a facility's production rate pursuant to a particular renovation project is the same whether the work is performed in one calendar year or during two (or more) years. The use of annual costs could encourage sources to distort normal business planning by artificially stretching out costs over time as a means of evading a finding of capital expenditure and consequent NSPS coverage (see Footnote 2).

(Footnote 1) October 13, 1988 submission was not received in time to be considered in issuing EPA's letter of October 14, 1988.

(Footnote 2) Indeed, it appears that WEPCO may have extended the planned length of the Port Washington life extension project for precisely this purpose after being informed by EPA in the October

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Rather, the purpose of the exemption in 40 CFR 60.14(e) (2) is to exclude from NSPS coverage increases in production rate that are accomplished without "an expenditure for long-term additions or improvements." See 39 FR 36948 (preamble to proposed NSPS regulations). Where the economic realities of the case are that increased production and, hence, emissions, are due to normal fluctuations in the business cycle rather than a considered decision to invest in substantial capital improvements, the NSPS do not apply.

The letter submitted on October 13 from Neil Childress of your staff to Gary McCutchen of EPA presented updated basis figures (determined by multiplying the original capital investment in the facility by a coefficient representing the inflation in construction costs between the year of the investment and the year in which the capital expenditure calculation is made) for each of the emissions units at Port Washington. These figures included costs of repair or replacement of equipment, such as steam turbines, that is not part of the existing affected facility for NSPS purposes. Since applicability determinations under the NSPS modification provisions are based on the existing affected facility, capital expenditure determinations likewise are limited to costs associated with the affected facility. For NSPS Subpart Da, the affected facility is the steam generating unit as defined at 40 CFR 60.40a. Therefore, EPA staff requested WEPCO to limit the basis figures to the steam generating unit.

The November 22, 1988 letter from Neil Childress to Walt Stevenson of EPA presented revised cost figures on the renovation work on steam generating units 1 - 4 related to the capital expenditure calculations. These November 22 basis figures are understood to be limited to costs associated with the affected facility. The November 22 letter also presented a revised and extended schedule for the renovation work, under which the costs of repairs in any one year would not exceed the product of the annual asset guideline repair allowance percentage, which is 5% for electric utility steam generating units, and the basis of each unit. Mr Childress' letter concluded that since 5% of each

14, 1988 letter that there would be a capital expenditure using the

original schedule. The unit 1 renovations have been extended from four years to five; unit 2 has been extended from four years to six; unit 3 had been extended from three years to six; unit 4 has been extended from two years to four. (Compare Telecopier Transmission, Neil Childress, WEPCO, to Gary McCutchen, EPA, October 11, 1988 (table attached to Response to Question No. 4) with Letter, Neil Childress, WEPCO, to Walt Stevenson, EPA, November 22, 1988, at page 2.)

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unit's updated basis is not exceeded by the cost of renovation work in any one year, there would not be a capital expenditure at any of the units. The revised figures also show that the total costs for each unit over the entire renovation period would exceed the 5% basis figure by 50% to 325%.

As explained above, it is the total cost, not the annual cost of a renovation project that determines whether a capital expenditure has occurred. Accordingly, based on the calculations and total project costs in WEPCO's November 22, 1988 letter, the proposed project would result in a capital expenditure at each of the five Port Washington units, and those units would not qualify for the exemption in the NSPS modification provisions at 40 CFR 60.14(e) (2) (see Footnote 3). As to unit 5, WEPCO did not submit cost data limited to the affected facility. Thus, I have no reason to alter EPA's original determination that WEPCO has not demonstrated that the increase in production rate at unit 5 can be accomplished without a capital expenditure.

In addition, I have determined that it is more appropriate to utilize the original basis of each affected facility (as adjusted to reflect past capital improvements), expressed in nominal dollars, rather than the updated basis, expressed in current dollars, in determining NSPS applicability. Thus, even if WEPCO were correct that annual renovation costs, rather than total costs, should be used in capital expenditure calculations, in this case a comparison of annual renovation costs and the

(Footnote 3) WEPCO has argued that since the definition of capital expenditure at 40 CFR 60.2 refers to the IRS "annual asset guideline repair allowance percentage" (emphasis added), EPA is bound by the literal language of its own regulations to use annual rather than total project costs in making capital expenditure calculations. However, the regulations do not dictate such a result. Instead, on their face they call for a comparison between total renovation costs and the annual asset guideline. Had EPA intended the result suggested by WEPCO, it would have explicitly called for comparison of annual costs of the change for project, exceeding one year with the annual asset guideline. This it did not do. In addition, as indicated above, the purpose of the capital expenditure provision would not be served by annualizing project costs for capital expenditure purposes.

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(adjusted) original basis of each affected facility shows that a capital expenditure would still occur (see Footnote 4).

In making a more detailed inquiry into the capital expenditure matter in response to WEPCO's request, I have found that neither the NSPS General Provisions nor the preamble thereto contain any discussion of the matter of original versus updated basis, and that EPA has rarely been called upon to address this issue. However, upon review of EPA's past practice in this area, I have found that in developing performance standards for particular industries, EPA has provided the regulated community a mechanism to calculate the original basis in making capital expenditure calculations. See, e.g., "Equipment Leaks of VOC in Petroleum Refining Industry -- Background Information for Promulgated Standards," EPA-450/3-81-015b, December 7, 1983 (see Footnote 5). This suggests that EPA intended the original basis to be utilized to determine whether a capital expenditure is going to be made.

Moreover, I believe that the use of original basis is consistent with the overall purpose of the NSPS modification regulations in general, and

the capital expenditure provisions in particular. The effect of using original basis is that the greater the age of an affected facility, the more likely it is that a given investment resulting in increased production will be deemed a capital expenditure and trigger NSPS. This is consistent with Congress' intent in adopting new source performance standards. Older facilities are more likely to use outdated equipment which does not reduce pollution to the extent more current technology does. Congress included modified sources within the new source performance standards of section 111 to ensure the use of new technology on such sources. See CAA Sections 111(a) (2) , 111(a) (4);

II. AIR HEATER RENOVATIONS AT UNIT 1

In January 1989, WEPCO asked EPA to determine whether replacement of the heat transfer surface elements on the unit 1 air heater would trigger PSD or NSPS applicability. However, in a letter dated February 3, 1989, WEPCO withdrew this request,

(Footnote 4) It is worth noting in this regard that if EPA were to adhere to a literal reading of IRS guidelines as urged by WEPCO, it would have no choice but to use original basis as well as annualized costs in making capital expenditure calculations for Port Washington. Using this formula, WEPCO would exceed the repair allowance percentage at units 1 - 5 for most years, and NSPS would still apply.

(Footnote 5) This Background Information Document provides an alternative to the method prescribed in the General Provision when it is difficult to determine original costs. The formula uses replacement costs and an inflation index to "approximate the original cost basis of the affected facility."

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asserting that it could not receive approval in the time necessary, while reserving the right to renew it at a later time as to unit 1 or any other unit at Port Washington. Because this issue may arise again, and because I believe it bears upon the project as a whole, I find it appropriate to address the matter of air heater element replacement. Based on the information submitted regarding this new plan, as well as the earlier information submitted regarding air heater replacement work, I conclude that if WEPCO were to proceed under its revised and now withdrawn plan, it would not alter EPA's earlier finding that PSD and NSPS would apply. In order to explain this finding, it is useful to first summarize the relevant facts.

Originally, WEPCO advised EPA that it planned to replace the air heaters at units 1 - 4 in their entirety. As WEPCO explained:

Air heaters are subject to the erosive and corrosive effects of the flue gas passing through them and require regular maintenance of the heat transfer surfaces.

The plate-type air heaters on Units 1 - 4 do not lend themselves to replacement of the individual elements. Worn sections have been patched and blocked, where accessible, over the years. Now, however, overall corrosion and perforation has passed beyond the practical point of repair, and replacement of the air heaters is the economical way to maintain the air preheater system.

The air heaters on Port Washington Unit 5 and the other units on the Wisconsin Electric system [other than Port Washington units 1 - 4] are of the Ljungstrom basket design, which allows the heat transfer surfaces (baskets) to be replaced easily. ***

See, e.g., List of Port Washington Projects, p. 6 (Attachment to April 21, 1988 letter from John W. Boston, WEPCO, to Gary McCutchen, EPA).

On January 11, 1989, WEPCO informed the State of Wisconsin that it was considering replacing all the plate elements at unit 1. In a letter to the State of Wisconsin, WEPCO described this project as routine repair work, "necessary to halt the continuing decrease in the capability of Unit 1," and submitted a list of 40 generating units where significant portions of the air heater have been replaced. See Letter, with attachment, from Mark P. Steinberg, WEPCO, to Dale Ziege, Wisconsin Department of Natural Resources, January 11, 1989.

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In a telephone conversation with EPA staff the next day, WEPCO indicated that it desired to perform the unit 1 plate replacement work during a current unit outage; that it intended to replace only half, not all, of the elements, at a cost of approximately \$500,000; that it intended to later scrap this work and replace the entire air heater as described in the original scope of work, at a cost of \$2,600,000; and that it was considering performing the same work at unit 4 also. See Record of Telephone Conversation between David Schulz, EPA, and Mark Steinberg, Neil Childress, and Walter Woelfle, WEPCO, January 12, 1989.

In a meeting on January 17, 1989, WEPCO related that if it replaced half of the plate elements now, it probably would replace the remainder as part of the total renovation project at a later date and not replace the air heater in whole. WEPCO also related that complete replacement of the plate elements should increase unit 1's capability to the original design capacity. Finally, WEPCO stated in response to questions from EPA staff that none of the air heaters or plate elements at units 1 - 4 had ever been replaced in the past. See Memorandum, Meeting with WEPCO regarding the Port Washington Generating Station, from David Schulz, EPA, to Files, January 27, 1989.

In addition to the above information, I note that WEPCO's list of 40 units at which air heater element replacements have occurred include no units containing plate elements such as those on units 1 - 4 at Port Washington. Instead, all of the examples submitted are of the Ljungstrom basket type or the tubular type. I conclude that those examples are too dissimilar to the plate-type elements in use at units 1 - 4 to support WEPCO's contention that the work in question is routine (see Footnote 6).

Based on all of the foregoing, I find no reason to depart from EPA's earlier conclusion that PSD and NSPS would apply to the air heater work on unit 1. It appears that despite WEPCO's recent recharacterization of this work as a separate project, it is properly viewed as an integral part of the overall Port Washington life extension project. WEPCO cannot evade PSD and NSPS applicability by carving out, and seeking separate treatment of, significant portions of an otherwise integrated renovation program. Such piecemeal actions, if allowed to go unchallenged, could readily eviscerate the clear intent of the Clean Air Act's

(Footnote 6) Further, even the list of air heater replacement work submitted by WEPCO did not establish this as routine repair work. Those 40 units comprise only a small fraction of total operating utility units, and even at the 40 units, air heater repair or replacement appears to have been a one-time occurrence, not routine repair.

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new source provisions. Accordingly, if seen as part of WEPCO's previously proposed renovation project, the recent recharacterization of the unit 1 air heater work does nothing to alter the factors determinative of PSD and NSPS coverage.

III. CAPACITY TESTING FOR UNITS 1 - 4

A. Impact of Test Results on NSPS Applicability.

In Lee Thomas' October 14, 1988 letter, EPA stated that baseline emissions for NSPS purposes are determined by hourly maximum capacity just

prior to the renovations. EPA relied on actual operating data to determine that current maximum capacity at units 1 - 4 has significantly deteriorated, such that the restoration of original design capacity through the life extension project would result in corresponding emissions increases. As to unit 5, EPA stated that current capacity at unit 5 is zero because it is physically inoperable. EPA rejected WEPCO's unsupported assertions that all five units could be operated at high capacities, but held open the possibility of further discussions on that point. Subsequently, in November and December of 1988, following discussions with EPA, WEPCO conducted capacity tests to determine current actual capacity.

Based on its review and analysis of the test data, EPA finds that the tests adequately demonstrate that units 2 and 3 can be operated at their original design capacity on a sustained basis. Accordingly, I hereby supersede EPA's earlier determination and find that NSPS would not apply to units 2 and 3 by virtue of the proposed renovations so long as the capacity of these units after completion of the work is no higher than demonstrated in the recent tests (694,000 and 690,000 pounds of steam per hour, respectively). As discussed in more detail below, this revised NSPS determination does not affect our determination that the PSD provisions would be applicable to the proposed work on these two units.

During the tests on units 1 and 4, WEPCO was able to operate these units at 497,000 and 586,000 pounds of steam per hour, respectively, representing 72% and 89% of these units' respective original design capacities. These tests are adequate to confirm EPA's original determination that units 1 and 4 are not capable of operating at their original design capacities, and that restoration of the lost capacity through the life extension will trigger NSPS coverage. EPA today also determines that these tests are not adequate to show that current actual capacity for purposes of establishing the NSPS baseline is as high as the levels achieved during the recent tests. Rather, I reaffirm that baseline for those units is determined by the lower capacities reflected in recent actual operating data as set forth in Lee Thomas' October 14 letter. EPA must reject the tests for

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purposes of establishing actual NSPS baselines because during the testing discussed above, there were significant, measured exceedances of the applicable particulate mass emission limit, and several measured exceedances of the applicable opacity limit contained in the Wisconsin State Implementation Plan. One of the purposes of these tests was to determine the maximum actual capacity of the Port Washington units that can be achieved in a lawful manner. As a consequence of the measured exceedances, WEPCO's tests cannot be relied on to demonstrate that the company could lawfully sustain the levels achieved during the testing.

Regarding unit 5, I find that by declining to conduct or schedule capacity tests, WEPCO has effectively conceded that unit 5 is at present inoperable. Therefore, I reaffirm that its baseline for NSPS purposes is zero.

B. Impact of Test Results on PSD Applicability.

In its February 3, 1989 letter, WEPCO asserted that EPA's October 14, 1988 determination assumed that the emission rate of each unit would increase following the renovations. Thus, WEPCO claims, EPA did not address the question whether units that are not increasing their emission rates following renovation can be deemed to trigger PSD. WEPCO is incorrect on both counts.

EPA's prior determination explained that under the PSD program, unlike NSPS, baseline emissions are determined by representative actual emissions prior to the physical or operational change. Accordingly, the results of testing conducted by WEPCO, intended to determine current maximum hourly capacity, have no impact on the existence of a significant net emissions increase for PSD purposes. Hence, those test results provide no reason to alter EPA's prior determination regarding PSD applicability.

Actual emissions are the product of the emission rate (amount of

pollution per unit of production or throughput, e.g., pounds of sulfur dioxide per ton of coal combusted), the production rate or capacity utilization (amount of production or throughput per hour, e.g., tons of coal combusted per hour), and the hours of operation (e.g., hours per year). In its prior determination, EPA explained that an increase in any one of these three factors, if attributable to a physical or operational change, can trigger an emissions increase for PSD purposes, and rejected WEPCO's contention that only increases in the emission rate were determinative. In so doing, EPA explicitly assumed that emissions increases at Port Washington would come not from an increase in emission rate, but rather from increases in production rate or hours of operation. Sec Memorandum from Don R. Clay, September 9, 1988 at 8.

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WEPCO further implies in its February 3, 1989 letter that the demonstration that units 2 and 3 can operate now at maximum design capacity means that there will be no increase in production rate for PSD purposes following the renovations. This is not the case because PSD baseline emissions are determined by representative actual emission rate, production rate, and hours of operation prior to the physical change. Representative actual emissions are determined by examining the actual emissions during a representative two year period, (See 40 CFR 52.21(b) (21) (ii)) which in this case the Administrator determined to be 1983 and 1984 (See Lee Thomas' Oct. 14 letter, at 5) . The hourly capacity demonstration for NSPS purposes is not relevant to the PSD analysis.

IV. NSPS OPERATIONAL LIMITATIONS

In my September 9, 1988 memorandum, I pointed out that an affected facility cannot avoid NSPS applicability by offsetting, through the use of fuel with a lower sulfur content, an increase in the emission rate that would otherwise occur due to a physical or operational change. As I explained at that time, 40 CFR 60.14(e) provides that use of an alternative fuel or raw material -- such as higher-sulfur coal -- which an existing facility was designed to accommodate before a physical or operational change does not constitute a modification for NSPS purposes. It follows that the facility cannot avoid NSPS by switching to lower-sulfur fuel to counteract a prospective increase in emission rate because, under the regulations, the facility would always have to option to switch back to a higher-sulfur fuel at a later date without triggering NSPS.

Subsequent to the issuance of EPA's October 14, 1988 letter, WEPCO inquired whether it might be able to utilize lower-sulfur coal to avoid NSPS at Port Washington, notwithstanding the regulatory provision explained above, by agreeing to federally enforceable permit conditions that would bar the company from switching back to higher sulfur coal in the future. Restrictions of this nature are acceptable for netting transactions under the Act's PSD provisions. However, the statute reflects a basic political decision that fossil fuel-fired sources not rely only on natural occurring less-polluting fuels to comply with the NSPS. Instead, Congress declared that compliance must depend in part upon the application of flue gas treatment or other pollution control technologies. Thus, section 111(a) (1) (A) (ii) defines "standard of performance" for fossil fuel-fired sources as

requiring the achievement of a percentage reduction in the emissions from such category of sources from the emissions which would have resulted from the use of

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fuels which are not subject to treatment prior to combustion

Congress further clarified this point in a later paragraph of section 111(a) by adding:

For the purpose of subparagraph (1) (A) (ii), any cleaning of the fuel or reduction in the pollution characteristics of the fuel after extraction and prior

to combustion may be credited ... to a source which burns such fuel.

This core policy judgment is reflected as well in the legislative history of the 1977 Clean Air Act amendments. For example, the Conference Report states:

The Senate concurs in the House provision with minor amendments. The agreement requires (1) that the standards of performance for fossil fuel-fired boilers be substantially upgraded to require the use of the best technological system of continuous emission reduction and to preclude use of untreated low sulfur coal alone as a means of compliance; ... (3) that for fossil fuel-fired sources, the new source performance standards must be comprised of both a standard of performance for emissions and an enforceable requirement for a percentage reduction in pollution from untreated fuel.

H.R. Rep. No. 95-564, 95th Cong., 1st Sess. 130.

Because the will of Congress is so clear that lower-sulfur fuels alone will not suffice to comply with NSPS, it would be inconsistent with the legislative intent for EPA to allow sources to use lower-sulfur fuel to avoid coverage of NSPS in the first instance in the manner suggested by WEPCO. If EPA were to follow such a course, numerous modifications to existing facilities could escape coverage in a manner contrary to the statutory purpose.

V. THE TIMING OF THE LIFE EXTENSION PROJECT

In discussions with EPA, WEPCO has challenged, on grounds of timing, EPA's position on baseline emissions for NSPS purposes. In its prior determination, EPA explained that under the NSPS regulations, baseline emissions are determined by hourly maximum capacity just prior to the renovations. Thus, the baseline for unit 5 at Port Washington is zero because the unit has been shut down for several years due to safety concerns. In response,

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WEPCO has presented the hypothetical question whether EPA would still have found a zero baseline if unit 5 had been shut down on a Friday due to some unexpected or catastrophic failure of a major component previously in good working order, and WEPCO had sought to replace that component on the following Monday. WEPCO asserts that in such circumstances, EPA should have established baseline emissions using the emissions rate just prior to the breakdown.

I find it unnecessary to engage in speculation by addressing the hypothetical situation presented by WEPCO, because it is far removed from the true circumstances surrounding the proposed Port Washington life extension project. In fact, unit 5 has been shut down for over four years, not a weekend, and that is the foundation of EPA's analysis and determination.

In conclusion, with limited exceptions, EPA today reaffirms the decisions reached in the October 14 determination. In addition, EPA has concluded that the work on each unit constitutes a capital expenditure and that the proposed air heater plate replacement work on unit 1 would trigger PSD and NSPS. As a result of the capacity test demonstration, however, I find that units 2 and 3 at Port Washington can be operated at their design capacity on a sustained basis. Therefore EPA's earlier determination with respect to NSPS applicability is superseded and NSPS would not apply to units 2 and 3 by virtue of the proposed renovations so long as the capacity of these units after the completion of this work is no higher than demonstrated in the recent tests. This determination does not affect PSD applicability for these two units. If you should have any questions about the foregoing, please feel free to contact me. Thank you for your cooperation in this matter.

Sincerely,

Don R. Clay
Acting Assistant Administrator
for Air & Radiation