IN RE GENERAL MOTORS, INC.

PSD Appeal No. 01-30

ORDER REMANDING IN PART AND DENYING REVIEW IN PART

Decided March 6, 2002

Syllabus

On September 6, 2001, the Michigan Department of Environmental Quality ("MDEQ"), pursuant to a delegation from the United States Environmental Protection Agency Region V (the "Region"), issued a federal Clean Air Act ("CAA") prevention of significant deterioration ("PSD") permit to General Motors Corporation ("GM"), authorizing the construction of a new vehicle assembly plant in Delta Township, Eaton County, Michigan (the "Permit").

The Ecology Center and the Michigan Environmental Council ("EC/MEC" or "Petitioners") filed a Petition for Review seeking Board review on the following grounds: (1) MDEQ improperly rejected controls with average costs within the range deemed acceptable by MDEQ in the past and gave excessive weight to incremental costs in its best available control technology ("BACT") determination; (2) MDEQ inappropriately declined in its BACT determination to quantify the engineering costs associated with determining the technical practicability of controlling waterborne paints, as well as the projected secondary impacts of increased nitrogen oxide ("NO_x") emissions that allegedly could be expected if add-on controls were utilized in the basecoat portion of GM's paint shop; and (3) MDEQ failed to group basecoat and clearcoat emissions units for purposes of its BACT analysis.

Held: The Board remands the Permit in part and denies review in part, as follows:

(1) Although MDEQ has asserted that its analysis of cost-effectiveness considered both average and incremental costs, its cost-related justification for its decision not to require add-on controls to abate volatile organic compound ("VOC") emissions for the basecoat portion of its paint shop appears to rest entirely on incremental costs considerations. MDEQ offers no explanation of how it considered average cost-effectiveness. Therefore, the Board concludes that the cost-effectiveness analysis is incomplete and MDEQ has failed to provide an adequate explanation on the record of its decision to reject the top control alternatives identified in its BACT determination. Accordingly, the Board remands this issue for further analysis.

(2) MDEQ's argument that no other facility has been required to control waterborne basecoat spray booth exhaust fails to address adequately the actual range of costs borne by other facilities under recent BACT determinations, particularly in the face of evidence in the record demonstrating that the costs of controlling waterborne basecoat spray booth exhaust at the GM facility is significantly lower than the cost of such controls at other facili-

ties. Neither the absence of controls of waterborne basecoat at other facilities nor MDEQ's 1999 BACT determination at a similar facility is by itself dispositive because the cost-effectiveness of controls may vary greatly from facility to facility, and control technologies evolve and generally become more cost-effective over time. Accordingly, the Board remands this issue for further analysis.

(3) MDEQ has not pointed to any evidence in the record that verifies its assumption that there will be significant engineering costs associated with utilizing add-on controls to abate VOC emissions. MDEQ's failure to provide sufficient data to substantiate its claim that the control technologies under review are economically unachievable is fatal to its BACT analysis. Thus, the Board remands this issue for further analysis to the extent that MDEQ's BACT determination continues to rest in whole or in part on this consideration.

(4) MDEQ's secondary impacts argument, which is two-fold, fails for lack of support. First, MDEQ asserts that control of VOCs from waterborne basecoat spray booth exhaust would result in increased NO_x emissions from the increased usage of natural gas, despite its admission that GM submitted no quantification of NO_x emissions. Similarly, MDEQ asserts that recent cost increases, supply limitations, and potential future shortages of natural gas justifies its decision to reject the use of add-on controls for its basecoat process, although it fails to offer any evidence that natural gas is, indeed, likely to be a scarce fuel in Michigan. In view of these deficiencies in the record, the Board remands this issue for further analysis to the extent that MDEQ's BACT determination continues to rest in whole or in part on these considerations.

(5) The Board finds unpersuasive MDEQ's argument that its application of low-VOC coatings satisfies the obligation to meet all applicable BACT requirements because it is an "inherently lower polluting process." The fact that a given production technology may be "inherently" lower polluting than other technologies does not end a BACT analysis; nothing in the CAA or PSD regulations indicates that facilities utilizing lower polluting technologies should not be required to meet all applicable BACT requirements.

(6) Review of the issue of whether MDEQ failed to group basecoat and clearcoat emissions units for purposes of its BACT analysis is denied. Petitioners have not met their burden of demonstrating that review of this issue is warranted. Petitioners' argument is based on an MDEQ policy memorandum that, by its terms, did not apply to the Permit; GM's permit application was submitted 11 months prior to the issuance of the memorandum; and Petitioners offer no support for their assertion that MDEQ, in fact, applied the policy outlined in the memorandum to the Permit.

Before Environmental Appeals Judges Scott C. Fulton, Edward E. Reich, and Kathie A. Stein.

Opinion of the Board by Judge Fulton:

I. *INTRODUCTION*

The Ecology Center and the Michigan Environmental Council ("EC/MEC" or "Petitioners") have filed a Petition for Review seeking review of a final prevention of significant deterioration ("PSD") permit decision (the "Permit") issued to the General Motors Corporation ("GM") by the Michigan Department of Environ-

mental Quality ("MDEQ"). Pursuant to 40 C.F.R. § 52.21(u), MDEQ was delegated authority by the Regional Administrator for Region V of the U.S. Environmental Protection Agency ("EPA" or "Agency") to administer the federal PSD program on September 10, 1979. *See* 45 Fed. Reg. 8348 (Feb. 7, 1980). Accordingly, MDEQ administers the federal PSD permit program found in 40 C.F.R. § 52.21 for Michigan[1]in accordance with the permit review requirements in 40 C.F.R. Part 124 Sub parts A and C.[2] As the relevant permitting authority, MDEQ has filed a response to the petition defending the Permit. *See* Response of the Michigan Department of Environmental Quality to the Petition of the Ecology Center and Michigan Environmental Council (Dec. 17, 2001) ("MDEQ Br.").

In addition to Petitioners and MDEQ, there are two other participants in this proceeding. GM, the permittee, was granted intervenor status and has filed a brief in support of the Permit. *See* Response of General Motors Corporation to the Ecology Center and Michigan Environmental Council's Petition for Review of General Motors Corporation's PSD Permit (Dec. 17, 2001) ("GM Br."). EPA's Office of General Counsel ("OGC"), on behalf of EPA Region V and EPA's Office of Air and Radiation as *amicus curiae*, has filed a brief highly critical of the record supporting the permit and recommending that we remand the Permit to MDEQ. *See* Amicus Brief of EPA Region V and EPA Office of Air and Radiation (Jan. 15, 2002) ("Amicus Br.").

As discussed fully below, we conclude that remand of the Permit is in order. In so concluding, we are mindful of the importance of resolving PSD permits expeditiously and of the fact that a remand will further lengthen the permit issuance process. Nevertheless, we remain convinced that a remand here is the appropriate outcome, based principally on the dearth of evidence in the record to support MDEQ's determination of best available control technology in this case.

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[1] 40 C.F.R. § 52.1180.

[2] Because MDEQ acts as EPA's delegate in implementing the Federal PSD program, the permit is considered an EPA-issued permit for purposes of federal law, and is subject to review by the Board pursuant to 40 C.F.R. § 124.19. *See In re Zion Energy, L.L.C.*, 9 E.A.D. 701 n.1 (EAB 2001); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 123 (EAB 1999); *In re W. Suburban Recycling & Energy Ctr., L.P.*, 6 E.A.D. 692, 695 n.4 (EAB 1996) ("For purposes of part 124, a delegate State stands in the shoes of the Regional Administrator [and must] follow the procedural requirements of part 124. * * * A permit issued by a delegate is still an 'EPA-issued permit' * * *.") (quoting 45 Fed. Reg. 33,413 (May 19, 1980)).

II. *BACKGROUND*

A. *Statutory and Regulatory Background*

The Clean Air Act ("CAA") established the PSD program to regulate air pollution in certain areas, known as "attainment" areas, where air quality meets or is cleaner than the national ambient air quality standards ("NAAQS"),[3] as well as in unclassifiable areas that are neither "attainment" nor "non-attainment." CAA §§ 160-169, 42 U.S.C. §§ 7470-7479. The statutory PSD provisions are carried out through a regulatory process that requires preconstruction permits for new major stationary sources, such as GM's proposed facility. *See* 40 C.F.R. § 52.21.

The CAA and the PSD regulations require, among other things, that major new stationary sources employ the "best available control technology" ("BACT") to limit emissions of certain pollutants. CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j)(2). BACT is defined in the PSD regulations as follows:

> Best available control technology means an emission limitation * * * based on the maximum degree of reduction for each pollutant subject to regulation under [the] Act which would be emitted from any proposed major stationary source * * * which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source * * * through application of production processes or available methods, systems, and techniques * * * for control of such pollutant.

40 C.F.R. § 52.21(b)(12); *accord* CAA § 169(3), 42 U.S.C. § 7479(3).

As the Board has noted on prior occasions, "[t]he requirements of preventing violations of the NAAQS and the applicable PSD increments, and the required use of BACT to minimize emission of air pollutants, are the core of the PSD regulations." *In re Steel Dynamics*, 9 E.A.D. 165, 172 (EAB 2000); *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 247 (EAB 1999); *accord In re Haw. Elec. Light Co.*, 8 E.A.D. 66, 73 (EAB 1998). The BACT analysis is one of the most critical elements of the PSD permitting process and, as such, "should be well-documented in the administrative record." *In re Knauf Fiber Glass, GmbH*,

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[3] The NAAQS are "maximum concentration 'ceilings'" for particular pollutants, "measured in terms of the total concentration of a pollutant in the atmosphere." U.S. EPA Office of Air Quality Planning, New Source Review Workshop Manual (1990) at C.3. NAAQS have been set for six criteria pollutants: sulfur oxides, particulate matter, nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, and lead. 40 C.F.R. §§ 50.4-.12.

8 E.A.D. 121, 131 (EAB 1999); *see also Steel Dynamics, Inc.*, 9 E.A.D. at 206-07 (remanding permit, in part, due to incomplete cost-effectiveness analysis in record). While BACT is to be determined on a case-by-case basis, *see* 42 U.S.C. § 169(3), the permitting authority's analysis must in all circumstances give effect to the purpose of BACT, which is to promote the use of the best technologies as widely as possible. *See Knauf*, 8 E.A.D. at 140. In this regard, the CAA contemplates the use of a less effective control technology only when source-specific energy, environmental or economic impacts or other costs prevent a source from using a more effective technology. *See In re World Color Press, Inc.*, 3 E.A.D. 474, 479-81 (Adm'r 1990).

EPA's Office of Air Quality Planning and Standards has issued a guidance document, the New Source Review Workshop Manual (Draft, Oct. 1990) ("Draft NSR Manual"), that is widely used in PSD reviews to lend some consistency and a framework to BACT determinations being made by permit-issuing authorities, such as MDEQ.

Under the guidance of the Draft NSR Manual, permit issuers use a "top-down" method for determining BACT:

> The top-down process provides that all available control technologies be ranked in descending order of control effectiveness. The PSD applicant first examines the most stringent — or "top" — alternative. That alternative is established as BACT unless the applicant demonstrates, and the permitting authority in its informed judgment agrees, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case.

Draft NSR Manual at B.2. As the Board recognized recently in *In re Three Mountain Power*, 10 E.A.D. 39, 42-43 n.3 (EAB 2001), the Draft NSR Manual provides for a five-step procedure for implementing the top-down analysis.[4]

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[4] The first step in the BACT top-down analysis is to identify all "available" control options. Draft NSR Manual at B.5. Here the term "available" is defined to mean "those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation." *Id.*

The second step is to eliminate "technically infeasible" options. *Id.* at B.7. This step involves first determining for each technology whether it is "demonstrated," that is, installed and operated successfully elsewhere. *Id.* at B.17-18. A control technology that is "demonstrated" for a given type or class of sources is assumed to be technically feasible unless source-specific factors exist and are documented to justify technical infeasibility. *Id.* at B.21. If a technology is not "demonstrated," then it will be deemed technically feasible only if it is "available" and "applicable" to the equipment under consid-

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Under the Draft NSR Manual, '[a]verage and incremental costs[5] are the two economic criteria that are considered in the BACT analysis.' Draft NSR Manual at B.30. The principal purpose of the cost analysis is to determine if there are significant cost differences between the applicant and other sources that have adopted the control technology under review. *See id.* at B.31. However, the cost analysis also shows whether the costs of controls "are disproportionately high when compared to the cost of control for that particular pollutant and source in recent BACT determinations." *Id.* at B.32, B.45.

The Draft NSR Manual recognizes that the permitting authority may also consider energy and environmental impacts in making its BACT determination. Typically, any energy implications associated with the use of a control technology should be quantified and factored into the economic impacts analysis. *Id.* at B.30. In addition, the permitting authority may take into account in its analysis "concerns over the use of locally scarce fuels" which may not be reasonably available to the source. *Id.* at B.31; *see In re Kawaihae Cogeneration Project*, 7 E.A.D. 107, 131 (EAB 1997). In assessing the environmental impacts associated with a control technology, any significant or unusual environmental impacts

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eration. *Id.* Under the second step of the top-down analysis, the term "available" is used to refer to whether the technology is commercially available. *Id.* at B.17. An available technology is considered "applicable" if it can be installed and operated on the source type under consideration. *Id.* Applicability is generally assumed in cases where a commercially available control option has been or is soon to be deployed on the same or a similar source type. *Id.* at B.18. Technologies identified in step one that are not demonstrated and either not available or not applicable are eliminated under step two from further analysis.

Notably, if a permit applicant asserts that a particular control option is technically infeasible, the applicant should provide factual support for that assertion. Such factual support may address commercial unavailability or difficulties associated with application of a particular control to the permit applicant's project. *Id.* at B.19. A control option is not considered infeasible simply based upon the cost of applying that option to the proposed project. Rather, economic feasibility is evaluated in a subsequent step of the BACT process. *Id.* at B.20.

In step three of the top-down analysis, the remaining control technologies (not eliminated in step two) are ranked and then listed in order of control effectiveness for the pollutant under review, with the most effective alternative at the top. *Id.* at B.7.

In step four, the energy, environmental, and economic impacts are considered. The consideration of these collateral impacts is used to either confirm the top BACT option as appropriate or to demonstrate that it is inappropriate. *See Knauf*, 8 E.A.D. at 131.

Finally, under step five of the analysis, the most effective control alternative not eliminated in step four is selected as BACT. *Id.* at B.53.

[5] As we will discuss fully below, the Draft NSR Manual defines "average cost" as the "total annualized costs of control divided by annual emission reductions, or the difference between the baseline emission rate and the controlled emission rate * * *." Draft NSR Manual at B.36. The "incremental cost" effectiveness calculation compares the costs and emissions performance level of a particular control option to those of the next most stringent option. *Id.* at B.41

should be identified, and the mass and composition of any discharges assessed and quantified to the extent possible. Draft NSR Manual at B.47-48.

The Draft NSR Manual is not accorded the same weight as a binding Agency regulation and, as such, a strict application of the methodology described in the NSR manual is not mandatory. Nevertheless, in evaluating the rationality and defensibility of BACT determinations by permitting authorities, the Board has required an analysis that reflects a level of detail in the BACT analysis comparable to the methodology in the NSR Manual. *In re Three Mountain Power*, 10 E.A.D. at 42; *see also In re Steel Dynamics*, 9 E.A.D. 165, 183 (EAB 2000) ("This top-down analysis is not a mandatory methodology, but it is frequently used by permitting authorities to ensure that a defensible BACT determination, involving consideration of all requisite statutory and regulatory criteria, is reached."); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 134 n.25 (EAB 1999) ("A strict application of the methodology described in the NSR Manual is not mandatory, but we expect an analysis that is as sufficiently detailed as the model in the NSR Manual."); *id.* at 129-30 n.14 ("We would not reject a BACT determination simply because the permitting authority deviated from the Draft NSR Manual, but we would scrutinize such a determination carefully to ensure that all regulatory criteria were considered and applied appropriately.").

We note in this regard that MDEQ has observed in the context of this permit that, in implementing its delegated authority for PSD permits, it follows "the new source review guidance document which has been provided to the State, including the guidance with respect to making best available control technology determinations known as the 'top down method' * * *." *See* Memorandum from Lynn Fiedler, Permit Section Supervisor, Air Quality Division, to Sue Bracciano, Engineer, General Motors Corporation (Oct. 25, 2000) (quoting EPA's delegation to the State of Michigan); *see also* 45 Fed. Reg. 8348 (Feb. 7, 1980). Given the apparent importance that the State attaches to the methodology set forth in the Draft NSR Manual, the Manual necessarily serves as an important reference point in assessing whether MDEQ has acted rationally in the context of a given permit.

B. *Factual and Procedural Background*

On June 20, 2000, GM submitted a permit application to MDEQ for authority to construct a new vehicle assembly plant, in Delta Township, Eaton County, Michigan (Permit to Install application No. 209-00). In addition, GM submitted an application on August 11, 2000, for the proposed installation of four 80 million British Thermal Units per hour ("MMBtu/hr") hot water boilers in the same building (Permit to Install application No. 272-00).

The proposed new plant for which GM sought the permit consists of a body shop, a paint shop, and a general assembly area. The permitted facility would include liquid storage tanks, an electrodeposition painting process, the application

of sealers and adhesives, a guidecoat painting process, a topcoat painting process, a foam process, a sound dampener process, the use of miscellaneous solvents, spot repair/final repair painting processes, natural gas burning, fuel fill operations, and vehicle testing operations. *See* Fact Sheet, General Motors Corporation Permit Applications 209-00 and 272-00 (July 5, 2001) ("Fact Sheet") at 1. The topcoat painting system would consist of a waterborne basecoat color paint operation, as well as a solvent-borne basecoat clearcoat operation. *See id.*

Eaton County, Michigan is designated attainment for all criteria pollutants. *See* 40 C.F.R. § 81.323. GM's proposed facility is subject to PSD review because it will have the potential to emit more than 250 tons per year of pollutants such as volatile organic compounds ("VOCs"), nitrogen oxides ("NO_x") and particulate matter less than 10 microns in diameter ("PM_{10}"). *See* 40 C.F.R. § 52.21(b)(1)(i)(b) (defining major stationary source to include "any stationary source which emits, or has the potential to emit, 250 tons per year or more of any air pollutants subject to regulation under the Act."); *see also* Fact Sheet at 1. As such, GM is required to employ BACT to minimize emissions of pollutants that may be emitted in amounts greater than applicable "significant" levels established in the PSD regulations.[6] CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j)(2).

MDEQ approved both permit applications and, accordingly, issued the Permit to GM. The Permit was dated September 26, 2001, and was to become effective on October 30, 2001 ("GM Permit").[7] The BACT levels in the Permit were based on: (1) the use of waterborne electrodeposition primer with thermal oxidizer control of the dip tank and curing oven exhaust streams; powder guidecoat (primer surfacer); topcoat system with waterborne basecoat/solvent-borne clearcoat and extensive use of electrostatic applicators to control VOCs; (2) the use of low NO_x burners and flue gas recirculation to control NO_x; and (3) the use of dry filters and/or water wash to control PM_{10}. *See* GM Permit. The Permit did not require add-on controls to abate VOC emissions from the waterborne color paint basecoat portion of the topcoat painting system. *Id.*

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[6] The relevant significance levels are as follows:

POLLUTANT	SIGNIFICANCE LEVEL
NO_X	40 tons per year ("tpy")
PM_{10}	15 tpy
Ozone (as VOCs)	40 tpy

See 40 C.F.R. § 52.21(b)(23).

[7] The GM Permit is not yet actually in effect since Petitioners filed the appeal prior to the effective date and the Board has not yet disposed of the appeal. *See* 40 C.F.R. § 124.15(b)(2) and 124.19(f)(1).

The evidence in the record shows that GM considered the following pollution control technologies to abate VOC emissions at the basecoat portion of the topcoat painting system: (1) direct thermal oxidation controls; (2) complex concentrator media; and (3) common control of the solvent-borne clearcoat and waterborne basecoat. *See* Fact Sheet at 3; Letter from Rusty Helm, Staff Environmental Engineer, GM, to Lynn Fiedler, Permit Section Supervisor, MDEQ 4-6 (Aug. 15, 2001) ("Fiedler Memo"); *see also* MDEQ Br. at 5-7. According to GM and MDEQ, these pollution control technologies were rejected for the following reasons: (1) direct thermal oxidation controls would have an increased secondary environmental impact due to its associated NO_x emissions, and would require increased natural gas usage, which was impractical given the potential for future natural gas shortages; (2) complex concentrator media would require significant engineering effort to research, design, test and construct; and (3) common control of the solvent-borne clearcoat and waterborne basecoat would exact high incremental costs. *See* Fact Sheet at 3; Fiedler Memo at 4-5; *see also* MDEQ Br. at 5-7. Consequently, MDEQ selected a waterborne basecoat system coupled with electrostatic applicators as BACT for basecoat operations, and rejected add-on controls to abate VOC emissions.

In their petition, EC/MEC argue that MDEQ failed to properly apply BACT to limit VOC emissions from the basecoat portion of the topcoat painting system at the GM facility. *See* Petition for Review (Oct. 30, 2001) ("Petition"). In particular, Petitioners maintain that MDEQ: (1) improperly rejected controls with average costs within the range deemed acceptable by MDEQ in the past and gave excessive weight to incremental costs in its BACT determination; (2) inappropriately declined to quantify the engineering costs associated with determining the technical practicability of controlling waterborne paints, as well as the secondary impacts of increased NO_x emissions from controlling the basecoat section in its BACT determination; and (3) failed to group basecoat and clearcoat emissions units for purposes of its BACT analysis.

On November 14, 2001, MDEQ filed a motion in which it sought a fourteen-day extension of the December 3, 2001 deadline for filing a response to the Petition. *See* Motion of Michigan Department of Environmental Quality For an Extension of Time to File a Response (Nov. 14, 2001). In an order issued on November 19, 2001, the Board granted MDEQ's motion and directed MDEQ to file its response addressing the issues raised in the Petition by no later than December 17, 2001. *See* Order Granting Motion of Michigan Department of Environmental Quality For an Extension of Time to File Response (Nov. 19, 2001).

GM filed a motion to intervene in these proceedings and requested the identical fourteen-day extension granted to MDEQ to file its response to the Petition, *see* Motion of General Motors Corporation to Intervene (Nov. 21, 2001), which was granted by the Board on November 26, 2001. *See* Order Granting Motion of

General Motors Corporation To Intervene (Nov. 26, 2001). MDEQ and GM thereafter timely filed their briefs. *See* MDEQ Br.; GM Br.

In addition, on December 6, 2001, the Board issued an order requesting that OGC prepare an amicus brief on the issues presented in the Petition, as well as in MDEQ's December 17, 2001 Response to the Petition, by no later than January 4, 2002. *See* Order Directing Briefing (Dec. 6, 2001). On December 20, 2001, OGC filed a motion in which it sought a ten-day extension of the January 4, 2001 deadline for filing an amicus brief. *See* Motion of U.S. EPA's Office of General Counsel For an Extension of Time in Which to File an Amicus Brief (Dec. 20, 2001). OGC's motion for an extension of time to file an amicus brief was granted by the Board on December 21, 2001. *See* Order Granting Motion of U.S. EPA's Office of General Counsel for an Extension of Time to File an Amicus Brief (Dec. 21, 2001). In that Order, the Board directed OGC to file its amicus brief addressing the issues raised in the Petition by no later than January 14, 2002. *Id.*

OGC and the Office of Regional Counsel for Region V, on behalf of the Office of Air and Radiation and Region V, submitted an amicus brief in response to EC/MEC's Petition for Review and the responses of MDEQ and GM on January 15, 2001. *See* Amicus Br. Significantly, OGC concurs with Petitioners in a number of material respects. In particular, OGC argues that MDEQ: (1) failed to explain how it considered average cost; (2) failed to consider the range of costs being borne by other automotive facilities as a result of recent BACT determinations; (3) failed to quantify the engineering costs to control waterborne basecoat spray booth exhaust; and (4) failed to quantify the secondary impacts of using add-on controls to abate VOC emissions. *See* Amicus Br. at 7-24. Accordingly, OGC urges the Board to remand the Permit for further processing.

III. *DISCUSSION*

A. *Standard of Review*

The Board's review of PSD permitting decisions is governed by 40 C.F.R. part 124, which "provides the yardstick against which the Board must measure" petitions for review of PSD and other permit decisions. *In re Maui Elec. Co.*, 8 E.A.D. 1, 7 (EAB 1998). Pursuant to those regulations, a decision to issue a PSD permit will ordinarily not be reviewed unless the petitioner shows that the permit condition in question is based on: (1) a finding of fact or conclusion of law that is clearly erroneous; or (2) an exercise of discretion or an important policy consideration that the Board should, in its discretion, review. 40 C.F.R. § 124.19(a); 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); *In re Steel Dynamics, Inc.*, 9 E.A.D. 740, 743 (EAB 2001); *In re Sutter Power Plant*, 8 E.A.D. 680,

686 (EAB 1999).[8]

B. *BACT Issues*

We must decide whether Petitioners have made a sufficient showing that MDEQ's BACT determination for the basecoat portion of the topcoat painting system is clearly erroneous or involves an important matter of policy or exercise of discretion warranting review. In the discussion that follows, we examine, in turn: (1) whether MDEQ improperly rejected controls with average costs within the range deemed acceptable by MDEQ in the past and gave excessive weight to incremental costs in its BACT determination; (2) whether MDEQ inappropriately declined to quantify the engineering costs associated with determining the technical practicability of controlling waterborne paints, as well as the secondary impacts of increased NO_x emissions from controlling the basecoat section, in its BACT determination; and (3) whether MDEQ erred in its "logical grouping" of emissions units for purposes of BACT analysis.

As discussed more fully below, we find MDEQ's cost analysis, as reflected in the record, insufficient to support MDEQ's decision to forego requiring add-on controls for the basecoat portion of GM's topcoat painting system. Moreover, we likewise find lacking in the record support the other bases proffered by MDEQ as independent grounds on which its decision to forego add-on controls might be justified. For these reasons, we remand the permit to MDEQ for further processing. In so doing, we are not holding that BACT for the basecoat portion of the topcoat painting system must include add-on controls; rather, we are finding that the record, in its current form, provides insufficient support for MDEQ's conclusion to reject such controls. On the issue of "logical grouping" of portions of the coating process raised in the petition, we find Petitioners' argument non-meritorious and deny review accordingly.

1. *Cost-Effectiveness Analysis*

a. *Incremental and Average Costs*

Petitioners contend that MDEQ's rejection of add-on controls of the waterborne basecoat zones of the topcoat spray booths was erroneous because MDEQ improperly relied on incremental costs in its BACT determination. *See* Petition at 8.

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[8] There are also procedural predicates for the filing of a petition for review, all of which have been met here. *See In re Haw. Elec. Light Co.*, 8 E.A.D. 66, 71-72 (EAB 1998); *In re Kawaihae Cogeneration Project*, 7 E.A.D. 107, 114 (EAB 1997); *In re EcoEléctrica, L.P.*, 7 E.A.D. 56, 60-61 (EAB 1997).

According to the Draft NSR Manual, the economic impacts component of a BACT analysis may include an examination of both the average cost and the incremental cost-effectiveness of a control option. *See* Draft NSR Manual at B.41. The Draft NSR Manual defines "average cost" as the "total annualized costs of control divided by annual emission reductions, or the difference between the baseline emission rate and the controlled emission rate * * *." *Id.* at B.36. Average cost-effectiveness is calculated as shown by the following formula:

$$\frac{\text{Control option annualized cost}}{\text{Baseline emissions rate — Control option emissions rate}}$$

See id. at B.37.

According to the Draft Manual, "[t]he *incremental* cost-effectiveness calculation compares the costs and emissions performance level of a control option to those of the next most stringent option, as shown in the following formula:

$$\text{Incremental Cost (dollars per incremental ton removed)} = \frac{\text{Total costs (annualized) of control option — Total costs (annualized) of next control option}}{\text{Next control option emission rate — Control option emissions rate}}$$

Id. at B.41 (emphasis added). Together, the average cost and incremental cost analyses should demonstrate that an option that is technically and economically feasible "is nevertheless, by virtue of the magnitude of its associated costs and limited application, unreasonable or otherwise not 'achievable' as BACT in the particular case." Draft NSR Manual at B.45; *see also In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 205 (EAB 2000); *In re Masonite Co.*, 5 E.A.D. 551, 564-69 (EAB 1994).

In terms of the interplay between average and incremental cost, the Draft NSR Manual, while allowing for both average and incremental cost-effectiveness analysis, places primary stress on the average cost measure. *See* Draft NSR Manual at B.31 (BACT cost-effectiveness analysis turns on the average and, *where appropriate*, incremental cost-effectiveness of the control alternative). Moreover, the Draft Manual cautions that:

> [U]ndue focus on incremental cost[-]effectiveness can give an impression that the cost of a control alternative is unreasonably high, when, in fact, the cost[-]effectiveness, in terms of dollars per total ton removed, is well within the normal range of acceptable BACT costs.

Id. at B.46. This caution against allowing incremental cost calculations to unjustifiably inflate the cost component of the BACT analysis is in keeping with the objective of the CAA that less effective control technologies be employed on-

lywhen the source-specific economic impacts or other costs prevent a source from using a more effective technology. *See generally* Senate Debate on S. 252 (June 8, 1977) *reprinted in* 3 Senate Committee on Environmental and Public Works, A Legislative History of the Clean Air Act Amendments of 1977, p. 729 (statement of Sen. Edmund Muskie, sponsor of S. 252, stating that BACT, while allowing for flexibility based upon source specific factors, is intended to "maximize the use of improved technology").

Significantly, in keeping with this thinking, MDEQ has accepted as a premise that "[i]t is inappropriate to eliminate a control option solely on the basis of incremental cost." *See* Fiedler Memo at 4. Nevertheless, based on the record in the matter at hand, while MDEQ has asserted that its analysis of cost-effectiveness considered both average and incremental costs, its cost-related justification for its decision not to require add-on controls for the basecoat portion of the topcoat painting system appears to rest entirely on incremental cost considerations. In particular, MDEQ has offered the following rationale for its decision to reject add-on controls:

> The AQD [Air Quality Division of the MDEQ] has based the VOC effectiveness determination on GM's cost analysis data. The cost-to-control values are excessive when considering the incremental cost. However, the AQD has not based their BACT determination solely on costs alone. The AQD has considered other factors as follows: secondary impacts, engineering effort required to address technical applicability of controlling waterborne paints; and the inherent pollution prevention technology that waterborne coatings already provide. * * * To simply use the same cost[-]effectiveness standards for solvent-borne as compared to waterborne coatings is inappropriate for a VOC BACT analysis.

MDEQ Response to Comments 6 and 10.

The average cost-effectiveness of the control option selected by MDEQ as BACT — a waterborne basecoat system coupled with electrostatic applicators, and without add-on controls to abate VOC emissions — is $1,637 per ton of VOCs abated. *See* MDEQ Br. at 5-6. As stated previously, the two additional control alternatives MDEQ rejected as BACT would have provided for greater control of VOC emissions from some or all of the automated waterborne basecoat zones of the topcoat spray booths. *Id*. at 6.[9] The more stringent of the two addi-

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[9] In addition, the add-on controls would have reduced VOC emissions from all of the automated solvent-borne clearcoat zones of the topcoat spray booths.

tional control alternatives would have reduced VOC emissions at an average cost of $5,554 per ton and an incremental cost of $21,349 per ton. *Id.*; Petition at 7. The second control alternative rejected by MDEQ would have reduced VOC emissions at an average cost of $3,604 per ton and an incremental cost of $10,709 per ton. MDEQ Br. at 6; Petition at 7.[10]

Cost-Effectiveness Summary

Pollution Control Technology	**Decrease in VOC Emissions**	**Average Cost of VOC Reduction**	**Incremental Cost of VOC Reduction**
Regenerative Thermal Oxidizer ("RTO"): Automatic Basecoat	107 tons per year	$3,604 per ton of VOC Reduction	$10,709 per ton of VOC reduction
RTO: All Waterborne Basecoat Zones	297 tons per year	$5,554 per ton of VOC Reduction	$21,349 per ton of VOC reduction

See Cost-Effectiveness Summary; *see also* MDEQ Br. at 5-6, Fact Sheet at 1.

MDEQ asserts in its response brief that it duly considered both average and incremental cost-effectiveness in making its BACT determination. MDEQ Br. at 5. Yet, as OGC points out, MDEQ offers no explanation of how it considered *average* cost-effectiveness. *See* Amicus Br. at 10. Both in response to comments challenging MDEQ's decision to reject controls of the waterborne basecoat zones of the topcoat spray booths due to high incremental costs, as well as in its brief in response to the Petition, MDEQ focuses on the issue of incremental cost, while failing to address the issue of average cost. *See, e.g.,* MDEQ Response to Comments 6 & 10; *see also* MDEQ Br. at 6-8. Thus, MDEQ has failed to provide an adequate explanation on the record of its decision to reject the top control alternatives presented in the BACT determination. *See* Amicus Br. at 10.

As previously noted, reliance on only incremental cost can in some circumstances "give an impression that the cost of control alternative is unreasonably high." Draft NSR Manual at 46. This is precisely what MDEQ has done. Specifically, by failing to explain its rejection of controls with an average cost-effectiveness that apparently fall well within the cost range for VOC controls

[10] In its brief, MDEQ mistakenly identified the average cost-effectiveness of reducing VOC emissions from all of the clearcoat zones and one basecoat zone containing the air stream with the highest concentration of VOCs as $3,338. *See* MDEQ Br., Exh. 2.

that MDEQ has found acceptable in previous BACT determinations,[11] MDEQ has left pregnant the question whether the incremental cost analyses undergirding this permit decision overstates the costs of add-on controls. *See Id.*; MDEQ Response to Comment 10; GM Br. at 12.

Although a permitting authority may take incremental costs into account in rejecting a control technology, *see In re Genesee Power Station*, 4 E.A.D. 832, 847-48 (EAB 1993) (an additional $5 million to reduce emissions by 23 tons per year was found not to be cost-effective), such a determination must ordinarily be supported by a reasoned explanation, including some consideration of average cost-effectiveness. MDEQ's response, however, is simply not sufficiently detailed to support its determination in this case. *See* Draft NSR Manual at B.45; *see also In re Inter-Power of N.Y., Inc.*, 5 E.A.D. 130, 136 (EAB 1994) ("[A] cost-effectiveness evaluation (both average and incremental) must be based on 'objective' economic data taken from other facilities and * * * the analysis must be sufficiently detailed to support the determination."); *see also In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 206-07 (EAB 2000) (remanding permit due to incomplete cost-effectiveness analysis); *In re Masonite Co.*, 5 E.A.D. 551, 564-69 (EAB 1994) (remanding permit due to incomplete cost-effectiveness analysis). Thus, we find that MDEQ has failed to provide an adequate explanation on the record of its decision to reject the top control alternatives presented in the BACT determination.

Petitioners further argue that MDEQ's BACT analysis was flawed because the incremental costs associated with the two alternative control options are not relevant "given the average cost is well within the MDEQ historic cost-effective range." Petition at 8. However, as GM correctly notes, if accepted, this argument "would essentially eliminate the consideration of incremental cost in any BACT analysis." *See* GM Br. at 12. Indeed, GM's argument is supported by the Draft NSR Manual, which provides that both average and incremental costs should be "factored into this type of analysis." Draft NSR Manual at B.45. Accordingly, we reject Petitioners' argument that incremental costs are irrelevant.

However, MDEQ, by failing to explain its analysis of average cost in its treatment of cost-effectiveness, violated one of the primary principles behind the economic component of a BACT analysis — it failed to demonstrate that the rejection of an apparently more effective technology was truly justified by the economic impacts or other costs.[12] *See* Draft NSR Manual at B.26-29 ("[i]n the event

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[11] *See* GM Br., Exh. 1 (referencing MDEQ's guidance of $8,000 per ton); *see also* MDEQ Response to Comment 10 (not refuting commentor's suggestion that MDEQ's policy has been "that costs between $6,000 and $8,000 per ton of pollutant removed are acceptable.").

[12] As we have observed in other cases,

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that the top candidate is shown to be inappropriate, due to energy, environmental or economic impacts, the rationale for this finding needs to be fully documented in the public record"); *see also In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 206-07 (EAB 2000); *In re Masonite Co.*, 5 E.A.D. 551, 564-69 (EAB 1994) (remanding PSD permit decision in part because BACT determination for one emission source was based on an incomplete cost-effectiveness analysis); *In re Columbia Gulf Transmission Co.*, 2 E.A.D. 824, 830 (Adm'r 1989) (permit applicant and permit issuer must provide substantiation when rejecting the most effective technology); *In re Pennsauken County, N.J., Res. Recovery Facility*, 2 E.A.D. 667, 672 (Adm'r 1988) (remanding PSD permit decision because "[t]he applicant's BACT analysis * * * does not contain the level of detail and analysis necessary to satisfy the applicant's burden [of showing that a particular control] technology is technically or economically unachievable").

Thus, we find MDEQ's conclusory statements regarding the incremental cost-effectiveness of add-on controls for the waterborne basecoat zones of the topcoat spray booth insufficient to support rejection of those controls, and remand the BACT determination to MDEQ to provide further analysis of this issue, and to make any revisions to the BACT determination that the additional analysis may warrant.

b. *Cost of Control Technologies Demonstrated In Other Facilities*

MDEQ argues that an independent basis for its BACT determination can be found in the fact that other facilities in the auto industry have not been required to bear the costs of add-on controls to abate VOC emissions from either waterborne basecoat booth spray exhaust or from waterborne coatings. *See* MDEQ Br. at 6-7, *see also* MDEQ Response to Comment 5.

As the Draft NSR Manual recognizes, information bearing on the type of controls used at similar facilities can be relevant in a BACT analysis. *See* Draft NSR Manual at B.44. For example, the fact that VOC emissions from waterborne basecoat spray booth exhaust at other automotive facilities are not controlled may

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> the cost of employing a particular technology may be so obviously excessive in relation to the removal efficiency of the technology that the [permitting authority] need not perform a detailed, comprehensive calculation of cost-effectiveness to determine that the technology should be rejected.

In re Masonite Corp., 5 E.A.D. 551, 566 (EAB 1994). However, given that the average cost-effectiveness figures at play in this case appear to fall within the range of costs found acceptable by MDEQ in other BACT determinations, the record does not, in its current form, support the conclusion that the cost of employing add-on controls is "obviously excessive."

tend to corroborate the conclusion that such controls are not economically feasible. *See id*. However, the fact that such considerations might be *corroborative* does not mean that they are by themselves *determinative*. That is precisely, however, what MDEQ appears to assert. Specifically, reduced to its essence, MDEQ's argument is that because it determined that no automotive painting operations have been required to bear the costs of add-on controls to abate VOC emissions from waterborne basecoat spray booth exhaust, this determination alone, without supporting cost comparisons, justifies the conclusion "that the costs of add-on controls for waterborne basecoat booths were not within the range of costs being borne by other sources of the same type to control." *Id*.[13]

MDEQ's argument ignores the fact that BACT is facility-specific, and that while information concerning control technologies used — or not used — at other facilities can be useful, the primary focus is on the emission levels achievable by the proposed facility under review. *See generally In re Metcalf Energy Ctr.*, PSD Appeal Nos. 01-07 & 01-08, at 14 (EAB, Aug. 10, 2001) ("the hallmark of any BACT analysis is the process of comparing one facility with another, in terms of pollution control technologies employed, [and] costs of compliance" but "[t]he comparisons focus primarily on the emission levels achievable by a proposed facility").

Although MDEQ and GM assert that the BACT analysis undergirding this permit was based on the type of control technologies in use at other facilities, they have not demonstrated that the analysis took into account the differences in cost-effectiveness of these control technologies. In other words, while they argue that no other facility has been required to control waterborne basecoat spray booth exhaust, *see* GM's Br., Exh. 1, they do not address in a meaningful way the actual range of costs borne by these facilities under recent BACT determinations. *Id*.[14] In fact, evidence in the record demonstrates that the costs of controlling

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[13] We note that this Board's decision in *In re Inter-Power of N.Y., Inc.*, 5 E.A.D. 130, 149 (EAB 1994), cited by MDEQ as support for the argument that evidence that other similarly situated sources have not utilized a particular technology indicates that the technology is not cost-effective for such sources, does not beg a different conclusion. While in *Inter-Power* the Board upheld a BACT determination not to require a control option that had not been deployed elsewhere in the relevant industry in a circumstance in which comparative cost analysis was largely unavailable, the relevant facts of that case are distinguishable from the facts of the matter at hand. *In Inter-Power*, the cost analysis was made extremely difficult due to the unique features associated with the control technology at issue. *See Inter-Power*, 5 E.A.D. at 149. There, the Board stipulated that its decision was based on "the specific facts presented in the case and * * * future permit issuers would be well-advised to include some total cost-effectiveness comparisons in their BACT analysis." *Id.* at 150 n.33. Here, neither GM nor MDEQ has asserted that the cost analysis was made difficult due to the particular control technologies under consideration.

[14] While GM offers recent BACT determinations for six facilities, these determinations are either vague or do not clearly support the BACT determination in this case. For example, the only

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waterborne basecoat spray booth exhaust at the GM facility is significantly *lower* than the cost of such controls at other facilities.

For example, the average costs of controlling the waterborne basecoat spray booth exhaust at the Ohio Chrysler facility was $15,000/ton of VOC removed, and $78,264/ton for the Alabama Honda facility. *See* GM Br., Exh. 1. In contrast, the average costs of controlling the waterborne basecoat spray booth exhaust at the GM facility is between $3,604 and $5,555/ton of VOC removed. Neither GM nor MDEQ has demonstrated that a permitting authority has rejected technologies to control the waterborne basecoat spray booth exhaust based on costs similar to GM's facility in this case. Thus, MDEQ has failed to document that the control options considered were outside the range of costs being borne by similar sources.

Moreover, contrary to MDEQ's assertion, the BACT analysis for the GM Grand River assembly plant in Lansing, Michigan does not, without further explanation, support the BACT determination in this case. *See* Amicus Br. at 14; *see also* MDEQ Br. at 6-7. As OGC points out, while the Grand River plant provides some indication of the range of costs that MDEQ has previously found to be excessive for the control of VOC emissions from waterborne basecoat spray booth exhaust,[15] the relevance of the Grand River BACT determination to this case is not clear, because the average and incremental cost-effectiveness of controls at the two facilities are not directly comparable.

According to OGC, the $3,604/ton average cost of the second alternative considered and rejected by MDEQ in the Permit at hand is significantly less than the $7,000/ton average cost for the control of the waterborne basecoat spray booth exhaust considered at the Grand River facility. *See* Amicus Br. at 14-15. Similarly, the $5,554/ton average cost of the top alternative rejected in this case falls below the average cost of controls considered in the prior permit decision. *Id.*

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reason offered for the rejection of add-on controls at the South Carolina BMW facility and the Oklahoma GM facility, is that such controls are not in use at similar facilities. GM's Br., Exh. 1. Similarly, the only reason offered for the rejection of add-on controls for the Michigan Ford facility and the Lansing Grand River GM facility is that they were not cost-effective. However, no quantification of these costs has been provided, making impracticable any meaningful comparison. *Id.* In addition, as discussed in the text below, the cost figures at play in the Ohio Chrysler and Alabama Honda facility are far greater than the $3,604 and $5,555/ton of VOC removed considered at GM's facility and, as such, do not, at least without further explanation, support MDEQ's BACT analysis in this case.

[15] MDEQ Br. at 6-7. We note that a finding that certain incremental or average costs of control were considered economically infeasible in a single, previous permit does not establish that similar costs are *per se* unreasonable in a subsequent BACT determination (even for a very similar facility) and should not end the analysis of whether the proposed controls are BACT for the source under review. *See* Draft NSR Manual at B.45 ("[a]verage and incremental cost-effectiveness numbers * * * should be coupled with a comprehensive demonstration, based on objective factors, that the technology is inappropriate in the specific circumstance").

Moreover, even the $10,709/ton incremental cost of the second alternative is less than the $12,000 incremental cost rejected in the Grand River determination. *Id.* As a result, it is not clear, at least without further explanation, that MDEQ's conclusion that the costs of controlling the waterborne basecoat spray booth exhaust at the Grand River facility were excessive would extend to this case.

BACT must be determined on a case-by-case basis, specific to the particular source under review. *See* 42 U.S.C. § 169(3). In addition, the purpose of BACT is to promote the use of the best control technologies. *In re Knauf Fiber Class, GmbH*, 8 E.A.D. 121, 140 (EAB 1999). As such, the absence of controls of waterborne basecoat at other facilities, or the MDEQ's 1999 BACT determination at a similar facility (even if it were analogous), is not by itself dispositive because the cost-effectiveness of a control may vary greatly from facility to facility, and control technologies evolve and generally become more cost-effective over time. *See In re Metcalf Energy Ctr.*, PSD Appeal Nos. 01-07 & 01-08, at 15 (EAB Aug. 10, 2001) ("Because improvements in the pollution reduction capabilities of technologies frequently occur with the passage of time, emission limitations for older facilities may be less stringent than emissions limitations achievable using more modern technologies."). Accordingly, we remand this issue so that MDEQ may provide further analysis of this issue and make any revisions to its BACT determination that the additional analysis may warrant.

c. *Engineering Costs*

Petitioners argue that MDEQ erroneously based its BACT determination, in part, on the unsupported assertion that the engineering effort required to install the add-on controls makes the control technology less cost-effective. *See* Petition at 10. Specifically, Petitioners argue that the engineering costs have not been quantified in a way that can be relied upon in a BACT analysis. *See id.* at 12. In response, MDEQ asserts that it had determined that "the implementation of either of the two alternatives would require a significant engineering effort." *See* MDEQ Br. at 8. Noticeably, however, MDEQ makes no attempt to quantify those costs. *See id; see also* MDEQ Response to Comment 6. Similarly, in its response to the Petition, GM maintains that:

> MDEQ considered data that established GM would have to expend increased engineering efforts to install and utilize zeolite adsorption and thermal oxidation in the waterborne basecoat booth. These engineering efforts, and resulting costs, would be in addition to the actual cost of the zeolite adsorption and thermal oxidation units.

See GM Br. at 15.

Like its arguments regarding incremental cost and the cost of control technologies demonstrated in other facilities, MDEQ's argument with respect to the engineering costs associated with utilizing add-on controls to abate VOC emissions cannot, based on the record before us, by itself support MDEQ's BACT determination. MDEQ has simply not provided sufficient data to substantiate its conclusion. As stated previously, a failure to provide a certain level of detail and analysis to substantiate a claim that a particular control technology is technically or economically unachievable is fatal to a BACT analysis. *See* Draft NSR Manual at B.26-29 ("[i]n the event that the top candidate is shown to be inappropriate, due to energy, environmental or economic impacts, the rationale for this finding needs to be fully documented in the public record"); *see also In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 206-07 (EAB 2000) (remanding permit due to incomplete cost-effectiveness analysis); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 131 (EAB 1999) (remanding permit for permitting authority's failure to adequately document all possible control options, a discussion of emission control technologies and limits for similar facilities, or a technical feasibility analysis); *In re Masonite Co.*, 5 E.A.D. 551, 564-69 (remanding permit due to incomplete cost-effectiveness analysis); *In re Columbia Gulf Transmission Co.*, 2 E.A.D. 824, 830 (Adm'r 1989) (permit applicant and permit issuer must provide substantiation when rejecting the most effective technology); *In re Pennsauken County, N.J., Res. Recovery Facility*, 2 E.A.D. 667, 672 (Adm'r 1988) (remanding PSD permit decision because "[t]he applicant's BACT analysis * * * does not contain the level of detail and analysis necessary to satisfy the applicant's burden of showing that a particular control technology is technically or economically unachievable").

Thus, we find MDEQ's argument regarding the engineering cost of utilizing add-on controls of the waterborne basecoat zones of the topcoat spray booth insufficient to support their rejection, and remand the BACT determination to MDEQ in the interest of obtaining further analysis of this issue.

2. *Energy and Environmental Impact Analysis*

a. *Secondary Impacts*

MDEQ also cites as support for the rejection of add-on controls to abate VOC emissions, the "secondary impacts" from controlling VOC emissions from the waterborne basecoat spray booth exhaust. The issue then, is whether the control technology's assumed secondary impacts justified its rejection as BACT for VOC emissions.

MDEQ argues that it is an "uncontroverted fact" that the control of VOCs from waterborne basecoat spray booth exhaust would result in increased NO_x emissions. *See* MDEQ Br. at 12. However, we note that in its Response to Comments document, MDEQ acknowledged that it has "not received any specific cal-

culations or quantities for secondary impacts," *see* MDEQ Response to Comment 3, and that "[n]o quantification of NO_x emissions were submitted by GM." *See* MDEQ Response to Comment 7. Nevertheless, MDEQ "recognize[d] and agree[d] that the increased secondary environmental consequences would be increased nitrogen oxides (NO_x) emissions from the increased usage of natural gas and consider[ed] this an increased secondary impact." *See* MDEQ Response to Comment 3. Petitioners object to MDEQ's failure to quantify these secondary emissions, which Petitioners estimate to be "roughly 3.5 tons of NO_x per year." Petition at 14-15.

The secondary impacts of control technologies on the emission of other pollutants should be considered in a BACT analysis.[16] *See* Draft NSR Manual at B.47-.48; *see also In re N. County Res. Recovery Assocs.*, 2 E.A.D. 229, 230 (Adm'r 1986) (If the application of a control system results directly in the release (or removal) of other pollutants, that may be taken into consideration in making the BACT determination.). Such assessments should be based on quantified estimates of the actual levels of the secondary impacts to the extent possible. *See* Draft NSR Manual at B.47-.48.

As we have recognized, it is appropriate to "temper the stringency of the technology requirements whenever one or more of the specified collateral impacts — energy, environmental or economic — renders use of the most effective technology inappropriate." *See In re Kawaihae Cogeneration Project*, 7 E.A.D. 107, 116-17 (EAB 1997) (citing *In re Old Dominion Elec. Coop.*, 3 E.A.D. 779, 792 (EAB 1992) ("While collateral environmental impacts are relevant to the BACT determination, their relevance is generally couched in terms of discussing which available technology, among several, produces less adverse collateral effects, and, if it does, whether that justifies its utilization even if the technology is otherwise less stringent.")).

As the Draft NSR Manual observes, however, without estimates of levels of secondary impacts, it is difficult to evaluate their actual effect and to determine whether there is clearly "an overriding concern over the formation and impact of the secondary pollutant." Draft NSR Manual at B.50; *see also In re CertainTeed Corp.*, 1 E.A.D. 743, 747-49 n.11-12 (Adm'r 1982) (PSD permit decisions must be based on detailed, accurate, and site-specific information). Thus, general unquantified concerns about collateral impacts, without more, do not justify the rejection of a more stringent technology. *See In re Knauf Fiber Glass. GmbH*, 8 E.A.D. 121, 134-142 (EAB 1999) (remanding permit for permitting authority's

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[16] Consideration of secondary impacts is authorized by the so-called "collateral impacts clause" of the CAA, which requires that BACT determinations take into account a technology's "energy, environmental and economic impacts or other costs." 42 U.S.C. § 7479(3).

failure to substantiate, among other things, the collateral environmental impacts of the top control option).

In this case, Petitioners provide a rough calculation that the secondary NO_x impacts would be only a few tons per year. Based on the record before us, MDEQ has neither posited a contrary, more worrisome projection of increased NO_x emissions, nor explained why a small increase in NO_x emissions should drive MDEQ's BACT analysis. MDEQ's summary statement in support of its BACT determination that the controls at issue "would result in increased NO_x emissions" is not, by itself, particularly meaningful.

The CAA contemplates the use of a less effective control technology only when source-specific energy, environmental or economic impacts or other costs constrain a source from using a more effective technology. *See In re World Color Press, Inc.*, 3. E.A.D. 474, 479-81 (Adm'r 1990) (remanding PSD permit decision on the basis that alleged negligible collateral impacts did not justify the rejection of more stringent technologies as BACT). Based on the record before us, MDEQ has failed to substantiate such impacts in the matter at hand.

MDEQ also cites "recent cost increases, supply limitations, and potential future shortages of natural gas" as further support for its decision to reject add-on controls of the waterborne zones. MDEQ Br. at 12. However, MDEQ offers no factual support for the claim that natural gas is likely to be a scarce fuel in Michigan. *See id.*; *see also* Fact Sheet at 3; MDEQ Response to Comment 3. A permitting authority may take into account concerns over the use of a locally scarce fuels in its BACT analysis. *See In re Kawaihae Cogeneration Project*, 7 E.A.D. 107, 131 (EAB 1997). However, in the absence of evidence in the record that natural gas is, indeed, likely to be a scarce fuel in Michigan, this supposition cannot bear the full weight of MDEQ's BACT determination.[17]

b. *Inherently Lower Polluting Processes*

MDEQ's final argument in support of its rejection of add-on controls to abate VOC emissions is that "the application of low-VOC coatings is an inherently lower polluting process." MDEQ Br. at 8. In responding to comments, MDEQ also noted that "[t]o use the same cost-effectiveness standards for solvent-borne and waterborne coatings is inappropriate." MDEQ Response to Comments 6 & 10. We interpret MDEQ's argument as suggesting that the application of an inherently lower polluting process by itself satisfies the obligation to meet all applicable BACT requirements.

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[17] We note that, in addition, MDEQ has not explained why price and availability is of concern with respect to control of waterborne basecoat emissions, but not elsewhere at the plant.

According to the Draft NSR Manual, there are instances where, in the permitting authority's judgment, the consideration of alternative production processes is warranted and appropriate for consideration in the BACT analysis. *See* Draft NSR Manual at B.13. However, the fact that a given production technology implemented is "inherently" lower polluting than other technologies does not end a BACT analysis. As we have previously explained, "the option to utilize an inherently lower-polluting process does not, in an of itself, mean that no additional add-on controls need be included in the BACT analysis." *In re Masonite*, 5 E.A.D. 551, 568 (EAB 1991) (remanding PSD permit, in part, because add-on controls to abate VOC emissions were rejected on the basis that utilizing waterborne coatings at the permittee's siding and paneling manufacturing facility was inherently lower-polluting).[18]

Moreover, as OGC correctly notes, nothing in the CAA or PSD regulations indicates that facilities utilizing lower polluting technologies should not be required to meet all applicable BACT requirements. *See* Amicus Br. at 20. Similarly, there is nothing to suggest that such technologies should be subject to a different cost-effectiveness standard. *Id*. Accordingly, we reject MDEQ's suggestion that GM's application of an inherently lower polluting process obviates the need for a complete BACT analysis.

3. "*Logical Grouping*" *of Portions of the Coating Process*

Petitioners argue that MDEQ is initiating a major BACT policy change by not requiring applicants to analyze a wide variety of paint process groupings to determine cost-effectiveness. *See* Petition at 16. According to Petitioners, this new policy establishes "a precedent that a 'logical grouping' does not exist between basecoat and clearcoat emission units [in the automobile coating industry] when water-based paints are used." *Id*. Petitioners' argument on this issue is based on a policy memorandum issued by the Director of MDEQ, Russell Harding. *See* Memorandum from R. Harding, Director, MDEQ, to D. Drake, Chief, Air Quality Division (May 24, 2001) ("Harding Memorandum").[19]

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[18] *See also* Draft NSR Manual, which provides that "[c]ombinations of inherently lower-polluting processes/practices * * * and add-on controls are likely to yield more effective means of emissions control than either approach alone." Draft NSR Manual at B.14. Thus, according to the Draft NSR Manual, the top-down BACT analysis (at step one) should include consideration not only of add-on controls and inherently lower-polluting processes, but also combinations of these controls. *Id*. at B.l0.

[19] According to the Harding Memorandum:

> In consideration of the above information, the DEQ will conduct cost-effectiveness BACT analysis on each step of the painting process and will only group those process steps where like paint formulations, volumes and methods of application are being employed.

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As reflected by Draft NSR Manual, the current EPA policy is that "each new or modified emission unit (or logical grouping of new or modified emissions units) subject to PSD is required to undergo BACT review." Draft NSR Manual at B.10. Permitting authorities are encouraged by the Draft Manual to evaluate "logical grouping" of emission units in each industry on a reasonable case-by-case basis, focused on analysis of technical feasibility and control effectiveness. *See id*.

Notably, as Petitioners concede, the Harding Memorandum did not by its terms apply to the Permit, because GM's permit application was submitted 11 months prior to the memorandum. *See* Petition at 16-17. Moreover, Petitioners offer no support for their assertion that MDEQ, in fact, applied the policy outlined in the Harding Memorandum to its BACT determination in this case. Indeed, both MDEQ and GM assert that, to the contrary, MDEQ grouped waterborne basecoat clearcoat zones *together* as an emission unit in performing its BACT analysis. *See* MDEQ Br. at 13; GM Br. at 23. Under these circumstances, we conclude that Petitioners have not met their burden of demonstrating that review of this issue is warranted. *See* 40 C.F.R. § 124.19(a); *see also In re Knauf Fiber Glass. GmbH*, 9 E.A.D. 1,5 (EAB 2000). Accordingly, we deny review of this issue.

IV. *CONCLUSION*

As discussed above, we find MDEQ's cost analysis, as reflected in the record, insufficient to support MDEQ's decision to forego requiring add-on controls for the basecoat portion of GM's coating system. We, likewise, find lacking in record support the other bases to which MDEQ points as independent grounds on which its decision to forego add-on controls might be justified. The permit is accordingly remanded to MDEQ. On remand, MDEQ must provide further analysis of: (1) the average cost component of its BACT cost-effectiveness analysis; and (2) the range of costs being borne by other automotive facilities as a result of recent BACT determinations. In addition, should MDEQ chose to base a decision not to require add-on controls in whole or in part on costs associated with the engineering effort of implementing the other pollution control alternatives, concerns regarding secondary NO_x emissions, or the scarcity of natural gas as a fuel source in Michigan, MDEQ shall provide further analysis on these points as well, consistent with this decision. Moreover, to the extent warranted by the additional analysis, MDEQ shall make any necessary adjustments to its BACT determina-

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(continued)
Harding Memorandum at 2.

tion. On the issue of "logical grouping" of portions of the coating process raised in the petition, review is denied.

So ordered.