

August 26, 2002

Dennis Drake, Chief
Air Quality Division
Department of Environmental Quality
P.O. Box 30260
Lansing, MI 48909

Re: General Motors – Delta Township Assembly Plant, Permit No. 209-00

Dear Mr. Drake:

On behalf of the Michigan Environmental Council and the Ecology Center, we would like to thank you for this opportunity to review the proposed final action regarding Delta Township Assembly Plant, Permit No. 209-00. We hope your offer to receive input is genuine, and the comments that follow will be seriously considered before taking any final action. A number of the issues that we have raised will require additional analysis of the seven facilities permit files reviewed, and a number of additional facilities. It is our hope that a more thorough and well-conceived review of the issue will result in a permit decision supported by sound data.

As presented, we think MDEQ's proposed final action fails to comply with the remand of the EPA Appeal Board (Board) and the requirements of the Clean Air Act (CAA) in the following respects:

A. MDEQ's proposed action fails to explain, as required by the EPA Appeal Board Ruling, its rejection of VOC controls at this facility that have average cost that do not exceed costs required at other facilities

Fails to Fulfill EPA Appeal Board Remand Instruction

The EPA Appeal Board Ruling (Ruling) stated in part:

“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.” (Ruling, p.21)

“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 that MDEQ has found acceptable in previous BACT determinations, MDEQ has left pregnant the question whether the incremental cost analyses undergirding this permit decision overstates the costs of add-on controls” (Ruling, p.20)

“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 make any revisions to the BACT determination that the additional analysis may warrant.” (Ruling, p.22)

The MDEQ in its fact sheet states that it is required by the EPA Appeal Board to do further analysis of the following three points:

- 1) The average cost component of its BACT cost-effectiveness analysis;
- 2) The range of costs being borne by other automotive facilities as a result of recent BACT determinations; and optionally,
- 3) The costs associated with the engineering efforts of implementing the other pollution control alternatives.

MDEQ notes GM has submitted more information on point 3, but states it was not evaluated or considered, and the decision is based solely on points 1 and 2.

In our judgment, the MDEQ’s analysis also fails to address point 1, focusing solely on point 2. Specifically, it includes no discussion of the average costs of controlling VOC from the waterborne basecoat zones, and how those costs compare with historic range of VOC controls that have been considered cost effective by the MDEQ. In addition, the MDEQ has proposed that cost be compared to the average cost of recent decisions. The MDEQ has done this despite specific direction from the EAB to look at "the cost range for VOC controls that the MDEQ has found acceptable in previous BACT determinations".

No Discussion of the Historic Range of Cost Effective Control

MDEQ’s historic range for finding VOC controls cost effective is between \$6,000-\$8,000 per ton. This range is referenced in the Ruling and by both the MDEQ and GM. MDEQ’s analysis contains no explanation of why control technologies at this facility, having average costs of controlling VOC below \$2400 per ton, are not being required. Thus, it fails to explain why GM should not be required to control VOC emissions at a cost per ton that has been required of other Michigan businesses.

B. MDEQ Has Proposed An Alternative BACT Comparison Which Fails To Comply With New Source Review Requirements

In an effort to address its second point, MDEQ attempted to compare its decision to other permits issued around the country for control of VOC emissions from water borne paint booths. We think that the MDEQ's analysis is faulty and fails to support the decision to reject the add-on controls for the abatement of VOC from the waterborne basecoat spray booth.

MDEQ errs by relying solely on comparisons with other facilities

The EPA Appeal Board Ruling stated in part:

“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.” (Ruling, p.22)

“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.**” (Ruling, p.23)

The only analysis conducted by the MDEQ to support its conclusion was comparison data with other facilities around the country. The analysis ignores the Appeal Board's directive that this information may be supportive, but not the primary basis for a decision.

MDEQ mischaracterizes the costs used as the basis for permitting agencies' decisions

The EPA Appeal Board Ruling stated in part:

“Neither GM or 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.” (Ruling, p.24)

In the “Results” section of the MDEQ Fact Sheet (Fact Sheet), it states:

“The cost for the next rejected level of control is also consistent with the \$2309 per ton average costs rejected by other permitting agencies.” (Fact Sheet, p. 6)

This misleading statement makes it appear that control costs averaging \$2309 per ton were rejected by other permitting agencies. Actually, the figures used to derive the \$2309 figure were calculated long after the decisions were made by the MDEQ using the EPA Cost Control Manual. The actual lowest average cost number that served as a basis for a rejection by a permitting agency was \$7000 per ton (that was rejected by the MDEQ

at the GM Grand River facility); the next closest average cost rejected by a permitting agency exceeded \$10,000 per ton and climb all the way to over \$78,000 per ton.

The Board directs MDEQ and GM to demonstrate that other permitting authorities rejected technology “based on costs similar to GM’s Facilities.” Therefore, the focus needs to be on the “average costs” as they actually appeared before the decision maker.

The MDEQ analysis is based on the flawed assumption that if they can show that other permitted agencies miscalculated cost effectiveness data, it supports their decision not to require controls. The BACT provisions of the CAA require the focus be on the facility in question. This fact that other permitting agencies did a poor job at conducting BACT analysis and issuing permits does not relieve the MDEQ of its duty to follow the CAA. GM and MDEQ still have not demonstrated that another permitting agency *rejected technologies* to control the waterborne basecoat spray booth exhaust *based on costs similar to GM’s facility in this case*.

The CAA acknowledges that costs drop over time and that what may not have been cost effective in the past may become cost effective at some point in the future. Before the MDEQ is a record that demonstrates that emissions from waterborne paint can be controlled at a cost below that historically required in the control of VOCs.

The data used by the department is not accurate enough to support the conclusions being drawn.

In its fact sheet, the MDEQ admits the following deficiencies in its database:

- The reported cost-effectiveness data available from the files was not complete.
- That different permitting agencies used different calculation methodologies to arrive at control cost-effectiveness values.
- That a standardized calculation methodology was used for comparison purposes – but that actual costs may vary substantially for each facility.
- That certain other technical data was not available and therefore assumptions were made by the department.

The database regarding other facilities has several major flaws.

Fails to Properly Consider Margin of Error

The cost estimates themselves are rough estimated that the MDEQ admits may “vary substantially for each facility”. MDEQ makes completely unsupported claims given the rough nature of the cost estimates. The MDEQ Fact Sheet “Results” section states:

“Perhaps more important, the average cost of \$2356 per ton for the next level of control rejected by the department is **significantly greater** than the \$1884 per ton average costs being borne by other facilities.” (Fact Sheet, p.6)

The numbers in the MDEQ’s Table 3 on other facilities are derived using the EPA Cost Control Manual. It states clearly in the “Purpose of the Manual” section that it is a rough

order of magnitude estimating tool, accurate only to a level of plus or minus thirty percent. (EPA Air Pollution Control Cost Manual, 6th Edition, 2002, p.1-4)

Given the margin of error, virtually any value on the table could be higher than the top value or lower than the lowest value. Using the margin of error, the MDEQ costs number for rejected controls falls somewhere between \$1650 and \$3062 per ton. The costs being borne by other facilities are between \$1319 and \$2449 per ton. Therefore, the ranges actually overlap between \$1650 and \$2449.

In addition, the EPA Draft NSR Manual clearly states that the variation being cited by MDEQ as "significantly greater" is in fact within the margin or error, which is common for these types of estimates.

"Study cost estimates used in BACT are typically accurate to ± 20 to 30 percent. **Therefore, control cost options which are within ± 20 to 30 percent of each other should generally be considered to be indistinguishable when comparing options.**" (Draft NSR Manual, B. 44)

As shown by the numbers above, the amount rejected by the MDEQ is not "significantly greater" than other facilities' controls costs, and could actually be lower. The rest of MDEQ's numbers are flawed in the same way. The end result is that the MDEQ decision is not supported by the data presented.

Fails to acquire a statistically accurate sample

In order to use an "average" of a data set for decision-making purposes, a sample size has to be of a sufficient size to insure accuracy. Without a sufficient sample size it is impossible to determine whether the sample represents a normal distribution or not. As a general rule, statisticians have found that for many population distributions, a sample size of at least 30 is necessary to insure distribution of the mean will be approximately normal. The MDEQ uses only seven other facilities, a sample size that falls far short of the required level.

The MDEQ Uses An Incorrect Comparative Standard

The Draft NSR Manual states that "values above the levels experienced" at other sources or that are "disproportionately high" may indicate that controls may not be cost effective.

"Cost effectiveness (dollars per ton of pollutant reduced) values above the levels experienced by other sources of the same type and pollutant, are taken as an indication that unusual and persuasive differences exist with respect to the source under review....To justify elimination of an alternative on these grounds, the applicant should demonstrate to the satisfaction of the permitting agency that costs of pollutant removal for the control alternative are **disproportionately high when compared to the cost of control for that particular pollutant and source in recent BACT determinations.**" (Draft NSR Manual, B. 31)

“Specifically, the applicant should document that the cost to the applicant of the control alternative **is significantly beyond the range of recent costs** normally associated with BACT for the type of facility (or BACT control costs in general) for the pollutant.” (Draft NSR Manual, B. 44)

As shown below, the rejected control falls within the range of costs required at other facilities. The MDEQ attempts to invent a new rule of comparing its control costs to the average of other control costs at other facilities. We are able to find no reference to the use an average among facilities in EPA guidance, and the MDEQ has provided no regulatory backing for its use of an averaging concept in its document.

In fact, existing guidance clearly states that the MDEQ must show the control alternative is "**significantly beyond the range of recent costs**". This interpretation is consistent with the margin of error discussion above that shows that the rejected technologies must be “significantly beyond” the range (not the average) to compensate for the rough estimate nature of the data used.

The MDEQ Analysis, Even With Its Limitations, Supports Requiring Controls

Even given the number of fatal flaws in the MDEQ analysis, an objective analysis of the numbers shows that in fact the costs are within the range of costs that GMs competitors have incurred to control emissions. The cost of control the basecoat auto zones (\$2,356) clearly is not outside the range of control costs which have been required at other facilities.

Comparison of Control Costs

Plant	BACT (Cost Per Ton)
Honda	2,804
DiamlerChrysler	2,698
GM Delta(2)	2,356
Ford Dearborn	1,943
GM Grand River	1,941
GM Oklahoma	1,209
GM Delta(1)	1,057
Nissan	709

- (1) Permitted Controls
- (2) Next Rejected Controls

Given that the costs estimated for the control of VOCs from the waterborne portion of the spray booth falls within the range of control costs required at similar facilities around the country, MDEQ has failed to demonstrate that the costs of the rejected controls are “significantly beyond the range of recent costs normally associated with BACT.”

The MDEQs Analysis of Other Factors Is Incomplete, Selective And Does Not Support The Final Decision

The MDEQ also conducted a series of other analysis comparing the facilities to each other. These analysis fall into two categories; normalizing cost based on production and reporting a limited set of other operational factors.

a) Production

All efforts to normalize GM Delta data based on vehicle production are not comparable because GM Delta will be spraying up to 3 1/2 times more paint per vehicle than their competitors. These types of operational variations are precisely why a comparison of cost to per ton of pollutant controlled is the only fair way to establish BACT.

b) Operational Details

The MDEQ compared the following operation details: percent topcoat abated, percent clearcoat abated, and percent topcoat applied automatically.

The MDEQ has again incorrectly used averaging to make a number of comparisons of operational details between the plants under review. It is precisely because of these site-specific factors that the cost of controlling the auto basecoat zones is cost effective at GM Delta. However, the existence of the operational differences is in no way supportive, one way or another, of a final BACT decision. The use of averaging obscures a wide range of operating conditions at auto facilities. The operational ranges vary widely, from 18 to 55% for percent topcoat emissions abatement, 47 to 69% for the next best percent topcoat emission abated, 20 to 83% for the BACT percent clearcoat emission abated and 45 to 100% for the level of topcoat automatic spray.

GM is near the upper range of some of these variables; however, the MDEQ has provided no information as to why these particular variables are relevant to a BACT determination. Other important operational variables, such as gallons of coatings applied per vehicle, vehicle surface area and paint formulation, was not considered. These variables have an equally significant impact on the final BACT determination. **GM Delta, for instance, sprays 3 1/2 times as much VOCs or paint as Honda and almost double the average of the seven facilities the MDEQ used for comparison.** Controls are more cost effective at this facility because GM chooses to spray large quantities of VOCs and paint. The absence of a complete comparison of these facilities by the MDEQ continues confuse the issue.

Comparison Paint Sprayed Per Vehicle

Facility	Pounds VOC Sprayed Per Vehicle (Topcoat)
Honda	2.77
Nissan	4.55
DaimlerChrysler	4.78
Ford Dearborn	5.12
GM Grand River	5.98
GM Oklahoma City	9.56
Average	5.52
GM Delta	9.73

Finally, the MDEQ analysis does not look at the actual environmental performance of the facility. The table below illustrates that the actual emissions from the plant are the worst of any of the plants used in the comparison. Delta, as permitted, will emit over double the emissions per vehicle of at least two of the most recent permitted facilities. Delta's "gallon of applied coating solid" limit is worse than three of the most recently permitted facilities.

Comparison Of Emission (Permitted) Rates Per Vehicle For Topcoat Sections

Facility	Production Capacity (vehicles/year)	Topcoat VOC Sprayed (tons/year)	Topcoat VOC Emitted After Controls (tons/year)	Topcoat VOC BACT Abated (tons/year)	Topcoat Emissions (lbs. per vehicle)	Coatings Limit (gacs)	Total Emissions Per Vehicle (lbs VOC per vehicle)
Honda, Lincoln, Alabama	195,000	269.8	153.3	116.5	1.6	7.15	6.1
Nissan, Canton, Mississippi	500,000	1,138.7	510.4	628.3	2.0	5.2	7.6
GM Grand River, Lansing, Michigan	211,622	633.2	299.9	331.5	2.8	5.2	4.9
Ford, Dearborn, Michigan	376,000	962.6	604.0	382.8	3.2	6.5	6.5
DaimlerChrysler, Toledo, Ohio	388,416	928.0	756.6	171.4	4	12.27	9.3
GM, Oklahoma City, Oklahoma	338,400	1,617.4	732.7	884.5	4.3	5.3	7.0
Average	334,906	924.9	509.5	419.2	3.0	6.9	6.9
GM Delta	356,480	1,734.6	771.0	957.3	4.3	5.42	7.2
GM Delta w/controls	356,480	1,734.6	536.6	1198	3.0	??	5.8

The MDEQ Incorrectly Defines "Similar" Facility -- Additional Plants Should Be Reviewed.

The MDEQ has asserted that only water based basecoat facilities are "similar" for the purposes of BACT analysis. We continue to strongly object to this distinction. We are aware of no authority in NSR regulation or guidance that justifies creating a separate standard for water/high solids topcoat systems versus high solids/high solids systems (or any other combinations of coating systems). By limiting the analysis to only water based systems, the MDEQ is de facto creating a new standard which only applies to this particular configuration of a paint shop. Additional review of a diverse set of facilities should be completed. A number of these facilities are in Michigan and therefore the review could be completed without significant delay.

The MDEQ has also asserted that smaller volume production facilities are not "similar" for the purpose of BACT analysis. This exclusion flies in the face of MDEQs historic practice of evaluating these facilities as auto assembly plants and applying the same \$8,000 per ton standard that is used for all assembly plants. The MDEQ also has not provided any reasonable explanation for why these facilities are not similar. These plants use identical materials, processes and control equipment and as such should be considered auto coatings plants. Specifically, both the Hummer plant in Indiana and GM Lansing Craft should be included in the analysis. The MDEQ possesses detailed records on each of these plants and further analysis would not pose significant delays to the process.

The limited scope of review creates a misleading and inaccurate view of the costs that have been incurred by the industry.

The MDEQ Failed To Review All Processes -- MDEQ Should Review Control Costs for Controlling Primer Processes and Sealer Ovens

The MDEQ compares BACT controls to last rejected controls in an attempt to determine the actual cost borne by the industry to control emissions. However, the MDEQ has presented the costs to control topcoat operations as representative of the costs borne for an entire paint shop. A limited review of just a few facilities is sufficient to show that inclusion of the remainder of the paint shop is necessary to give a complete picture of costs. There is no way to determine automotive paint shop control costs without reviewing the entire facility.

About half of recently permitted facilities control sealer oven emissions. The costs which are incurred to control emissions from sealer ovens (often done in combination with topcoat ovens) should be investigated to determine how these control costs compare to those cited in the Fact Sheet. In addition, a range of facilities, but not all, control primer booths and ovens. These processes should be review to determine if they are part of the "last rejected" BACT option.

Michigan Truck evaluated BACT controls for the CC-bells, BC-bells and Recips. The last rejected option that included controlling the #2 Basecoat Robots was rejected at a cost of \$40,287 per ton (a number that would drop substantially if the EPA Cost Control Model was used). Michigan Truck also evaluated controls of the sealer oven at a cost of \$22,898. Michigan Truck also installed controls of the high solids primers. Ford Dearborn rejected controls on the water prime system they installed at \$25,033 per ton (Ford cost estimate) and \$13,755 based on MDEQ-AQD OAQPS model calculations. The original Ford Dearborn permit included the installation of controls on high solids primer at a cost of \$4,159 based on MDEQ-AQD OAQPS model calculations and \$11,500 based on Ford cost estimates.

Nissan evaluated and rejected controlling the primer surfacer booth & clear coat auto zones via a concentrator/RTO unit. Nissan reviewed and rejected costs of \$10,439. These are assumed to be company cost estimates.

Honda evaluated control of primer booth auto zones and rejected controls at \$17,815 per ton. Honda also evaluated a range of option which included controls on the sealer oven. The MDEQ analysis has artificially removed processes which were part of Honda's "last rejected" BACT option.

In summary, a broader analysis of VOC control cost in various paint shop configurations would give the MDEQ a better sample of facilities from which to compare control costs, and the costs of the next rejection control.

Conclusion

We would emphasize that this is a draft review of the Fact Sheet issued by the MDEQ. However, from our review, we think the proposed final action fails to comply with the remand of the EPA Appeal Board (Board) and the requirements of the Clean Air Act (CAA) in the following respects:

- It fails to demonstrate that the rejection of a more effective technology is justified even though its average costs falls well within the cost range for VOC controls that MDEQ has found acceptable in previous BACT determinations;
- Its comparison with other permitting agencies decisions is flawed for failing to properly characterize the basis for their rejection of the next level of control costs;
- It fails to consider the substantial margin of error inherent in EPA Control Cost Model which make its decision unsupportable by the data generated;
- It misapplied BACT by rejecting control technology even though its own data demonstrates costs well within the range of similar facilities.

Additional review may reveal further factual and regulatory issues. We have completed this initial review in an attempt to facilitate the resolution on these issues in a timely manner. We are willing to continue to work with you to insure pollution control equipment required by the CAA is utilized and the public health of Lansing residents is protected.

Sincerely,

Jeff Gearhart
Ecology Center

James Clift
Michigan Environmental Council