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EXPERT REPLY REPORT OF PROFESSOR GEORGE A. HAY

1. This supplemental report responds to the expert report prepared by Professor Baye on behalf of the Commissioner. In this supplemental report I am primarily concerned with those points on which there appears to be fundamental disagreement where that disagreement affects our ultimate conclusions. There is no need to dwell on the points of agreement or on minor differences that do not significantly affect the analysis. In this supplemental report, I incorporate the implications of recent developments concerning the Adams Mine project.

A. GTA Waste

2. There are two significant differences between the analysis contained in my original expert report and that contained in Professor Baye's original expert report. First, although the Application defines the market to include both residential and ICI waste, Professor Baye limits the product market to ICI waste. In my original report, I addressed the product market alleged by the Commissioner in his Application. However, as will become clear, the substantive problems with Professor Baye's analysis exist regardless of which product market he is addressing. Second, on the supply side, Professor Baye wants to limit the geographic market so to exclude landfills in the US. I believe this to be the principal error in Professor Baye's analysis and much of this supplemental report is aimed at addressing that error.

3. Professor Baye attempts to support his narrow geographic market definition with extensive statistical analysis. However, with respect to his key empirical point, occupying three pages of text and several tables, there is no fundamental disagreement. Indeed, his findings are fully compatible with the analysis in my original report. Specifically, I refer to his conclusion, based on his regression analysis, that there are added costs associated with utilizing US landfills, such that rational transfer stations (in Southern Ontario) will pay a higher disposal fee to use Southern Ontario sites. I have no reason to dispute these findings and, indeed, they are anticipated and acknowledged in Paragraph 24 of my original report. However, if Professor Baye believes that a locational advantage for landfills located in Southern Ontario is sufficient to support a conclusion that the relevant geographic market can be limited to landfills located in Southern Ontario, he is guilty of a fundamental misunderstanding of the principles of market definition.

4. As I point out in Paragraphs 19-31 of my original report, the fact that some of the costs of using US landfills (essentially transport costs) are higher than the corresponding costs for using Southern Ontario landfills does not preclude US landfills from competing successfully for GTA waste, since the relevant costs to the transfer station are the total costs of using the landfill; i.e., the sum of the transport and the disposal costs. So long as US landfills are willing to charge lower tipping fees (i.e., the disposal portion of the t&d costs) to offset the higher transport costs, they will be able to compete effectively against the local suppliers.¹

¹It does not matter whether the higher transport costs are a function solely of the additional distance traveled or whether there are additional costs (e.g., tolls) of crossing the border. Indeed, the analysis is unchanged even if part of the disadvantage of shipping to the US is some unspecified "hassle" factor.

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5. While regression analysis is not really necessary to establish the point, Professor Baye's regression analysis confirms that this is precisely what has happened. Specifically, US landfills have reduced tipping fees to offset the higher transport costs and, in doing so, have successfully attracted a substantial share of the disposal business for GTA and other Southern Ontario waste.² So, instead of supporting his hypothesis that the market should be limited to Southern Ontario landfills, his analysis is fully consistent with the opposite conclusion - that US landfills can compete effectively for GTA business and therefore cannot be excluded from the relevant market.³

6. Beginning in Paragraph 72 of his report, Professor Baye attempts to set out an alternative scenario in which the geographic market is narrowed and the merger will give CWS market power. (He asserts, "the landscape will change dramatically by the year 2002.") In this scenario, all of the proposed expansions for Southern Ontario landfills will have been permitted for the full volumes applied for and this will result in more than enough capacity to meet the demands of the Province. As a result, in this scenario the competitive price for Southern Ontario landfills would have fallen dramatically as the individual landfills scramble to use their respective landfills to capacity,⁴ but, as a result of the acquisition, CWS can use its market power (based on a large share of the intra-Ontario capacity) to prevent price from falling.⁵

7. Assuming that I have set out Professor Baye's alternative theory more-or-less accurately, our differences with respect to this alternative theory are more empirical than theoretical. That is, I can imagine, purely as a theoretical matter, a scenario in which competition from US landfills would no longer be a relevant constraint on the price for disposal of GTA waste and in which a firm controlling most or all of the capacity in Southern Ontario would be able to prevent prices

² In Table 4 of his report Professor Baye has indicated that only 56,877 tonnes of GTA ICI waste is disposed of at Arbor Hills. However, the Agreed Statement of Facts states that 347,871 tonnes of GTA waste is disposed of at Arbor Hills. In omitting the GTA residential waste that has been going to Michigan, Professor Baye's tables present a misleading picture of the extent to which disposal sites in Michigan have successfully competed for GTA waste against the landfills in Southern Ontario.

³ If we followed Professor Baye's argument about locational advantage to its logical conclusion, it would make a mockery of geographic market definition. For any product in which there are non-trivial transportation costs for imported product (whether imported from foreign countries or simply from neighboring provinces), Professor Baye would apparently argue for a narrow geographic market even where the imported product is by far the largest source of supply.

⁴ According to the argument, the excess capacity will cause prices to fall below the level at which US landfills are competitive; hence, according to the argument, the only competition that matters is the competition among the Ontario landfills. A corollary of the argument is that all GTA waste not contractually bound to go to the US will remain within Ontario.

⁵ Note that even under this scenario, prices do not increase above current levels; they cannot because competition from US landfills would prevent it.

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from falling below current levels. One necessary ingredient in this scenario (as Professor Baye indicates) is substantial excess capacity in Southern Ontario. However, I think the set of circumstances under which this might occur do not equate with any reasonable forecast of what is likely to happen in Southern Ontario after 2002.

8. To establish my claim, it is first necessary to emphasise the critical role excess capacity within Southern Ontario plays in Professor Baye's alternative theory. If, contrary to his speculation, there is not enough low-cost capacity within Southern Ontario to satisfy all of the demand generated for those landfills, price for that capacity, even in a competitive market, will have to be at a level that renders the overall cost of using US landfills comparable. The mechanism by which this happens is straightforward. Assume, hypothetically, that the net cost of using Southern Ontario landfills is less than that of using US landfills. All collectors of waste and transfer stations will now want to use Southern Ontario landfills but there will not be enough capacity to satisfy everyone. Very quickly, even in a vigorously competitive market, each Southern Ontario landfill will realize that it can increase price without losing sales so long as the price is not so high that the overall cost of using an Ontario landfill (transport costs and disposal fees combined) exceeds the overall cost of using US landfills (transport costs and disposal fees combined). While the Ontario landfills will receive a higher tipping fee than the US landfill, this is simply a locational rent and has nothing to do with market power. Put differently, it would not matter whether there were a dozen independent operators of the local landfills or they were all owned by one company. The overall cost of using the Ontario landfill will not remain below the overall cost of using the US landfills and cannot increase above it.

9. The key question, therefore, is whether it is likely that, effective in 2003, there will be more than enough low-cost capacity within Southern Ontario to satisfy overall demand. In attempting to deal with that question, I have followed a methodology that is generally consistent with that used by Professor Baye. In particular, at least as an initial step, I focus on the capacity that is potentially available in Southern Ontario to accommodate GTA waste ("GTA-permitted landfills"). Hence, I omit from the analysis those municipal landfills that are limited to accepting local residential waste. Table 1 below sets out the overall capacity situation in 2003, under the assumption that all of the anticipated closures take place and that all the scheduled expansions are approved and go forward as planned. The result is a total capacity of 2,797,000 tonnes. Note that this estimate omits the capacity associated with the Adams Mine as it now appears that project will not go forward.

10. Table 2 shows the demand conditions relevant to GTA-permitted landfills for the year 1999. It identifies three major waste streams; GTA waste managed by the City of Toronto and GTA transfer stations, non-GTA waste that currently goes to GTA-permitted landfills in Southern Ontario, and non-GTA waste that currently goes to the US. Total demand exceeds 4.3 million tonnes. Assuming that this pattern continues through 2003, it is clear that the relevant demand will exceed the capacity available by a very substantial margin.

11. Of course the substantial portion of this capacity deficit is attributable to the collapse of the Adams Mine contract. At this writing it is unclear how the City intends to deal with the waste

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that was to have been shipped to Adams Mine. (Currently, this waste goes to Keele Valley, which will be closed by 2003). One possibility would be an expansion of the contract with Republic which permits most or all of that waste to be shipped to Michigan. If so, a situation in which the majority of the waste generated in the GTA is shipped to the US would seem to be flatly inconsistent with any claim that Michigan is not part of the relevant geographic market. But in addition, such a contract would not resolve the capacity deficit problem for purposes of Professor Baye's post-2002 scenario unless, contrary to expectations, all of the volume in the contract is guaranteed by the City. If, as seems likely, the contract guarantees only certain minimum volumes, as soon as the Ontario price dropped to where it was more attractive than the contractual price (in Professor Baye's scenario), a rational buyer would seek to redirect all but the minimum guaranteed quantity back to Ontario. Assuming that the contract price is at or above current levels, the clear consequence would be excess demand at any price below the current level. Hence, the market-clearing competitive price will remain at a level which makes the US landfills a viable competitive alternative. Since it has previously been established that competition from the US landfills will not permit the price to exceed current levels, the result is that there is simply no scope for the exercise of market power. In other words, Professor Baye's critical conclusion that, but for the proposed acquisition, prices for the disposal of GTA will fall significantly once we get past 2002, is simply not a plausible one, based on the anticipated capacity in 2003 and the demand patterns established in 1999.

12. Of course it is possible to argue that the assumptions and projections contained in the preceding paragraphs are subject to error and that demand and supply conditions might result in excess capacity. However, while many things are possible, I think that a reasonable observer would have to acknowledge that the most reasonable alternative scenarios would result in an even greater capacity deficit.

13. First, the demand/capacity analysis assumes that the proposed expansions will receive regulatory approval and will be implemented as planned. Failure of only one of the significant expansion projects - Warwick or Richmond - to go forward as planned would cause a substantial increase in the capacity deficit.

14. Second, the analysis made adjustments for Green Lane and Essex-Windsor that may be too conservative. Table 1 excluded the capacity of Green Lane and Essex-Windsor and Table 2 excluded from the demand for the cost-effective GTA-permitted landfills those volumes of non-GTA waste that have been sent to Green Lane and Essex-Windsor in the past. In effect, I assumed that the non-GTA waste that has historically gone to Green Lane and Essex-Windsor (but no more) would continue to go there. But if Professor Baye is correct that these landfills are not cost-competitive with the Michigan landfills, then when, in Professor Baye's scenario, price falls for disposal in Ontario, those who control the non-GTA waste that has gone to Green Lane and Essex-Windsor in the past may seek to redirect some or all of that waste to the cost-effective Ontario landfills. This could add substantial volume to the demand facing those landfills, making it even less likely that there is enough low-cost Ontario capacity to satisfy the entire demand.

15. Third, the analysis assumes that the amount of the non-GTA waste that currently goes to municipal landfills will remain constant in the future. If the Ontario price were to drop

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temporarily below current levels, it would become attractive to seek to divert more of this to the lower cost GTA-permitted landfills. This would exacerbate the pressure on capacity causing the Ontario prices to return to former levels.

16. Of course, there are some factors that might act in the opposite direction. Additional landfills might be approved and implemented, although Professor Baye has asserted (Paragraphs 94-100) that this is highly unlikely. Alternatively, the amount of diversion might increase, thus reducing overall demand although this could easily be offset by general population growth. (In any event, a temporary decline in prices would have the effect of reducing diversion.) Overall, however, the contingencies that would increase the overall capacity deficit seem more likely than those contingencies that would reduce it. The end result is that, regardless of who owns the Ontario capacity, a price significantly below current levels is simply not sustainable, rendering Professor Baye's concerns moot.

B. Chatham-Kent

17. The portion of the Agreed Statement of Facts dealing with Chatham-Kent had not been completed at the time my original expert report was prepared. I had anticipated that it might be available in order for me to address the Chatham-Kent issue in this supplemental report, but I am told that the document has still not been finalised. However, since Professor Baye made reference to Chatham-Kent, I will make a few comments based on information available, lest my silence be interpreted as reflecting complete agreement with Professor Baye on this issue.

18. It is my understanding that the following can be established:

(a) Based on 1999 data, the total annual volume of waste generated in Chatham-Kent is approximately [REDACTED] tonnes annually. Of that total, [REDACTED] tonnes is residential waste.

(b) [REDACTED] tonnes of the residential waste annually is disposed of at the Ridge under a Host Community Agreement at a fixed price of \$36.06 per tonne, subject to adjustments for overall volumes and inflation.

(c) Of the remaining [REDACTED] tonnes of ICI waste, approximately [REDACTED] tonnes goes to the Ridge, [REDACTED] tonnes to Gore Road, [REDACTED] tonnes to Essex-Windsor, and [REDACTED] tonnes to CWS Sarnia (under favourable terms pursuant to an earlier divestiture order).

(d) The sources of the [REDACTED] tonnes of ICI waste are:

(i) CWS collection operations – [REDACTED] tonnes disposed of at Gore;

(ii) BFI collection operations – [REDACTED] tonnes disposed of at Ridge;

(iii) CER collection operations – [REDACTED] tonnes disposed of at Lasalle;

(iv) Erie Environmental collection operations – approximately [REDACTED] tonnes of which [REDACTED] was disposed of at Gore and [REDACTED] tonnes were disposed of at Essex-Windsor facilities;

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(v) Jomac Disposal collection operations - [REDACTED] tonnes of which [REDACTED] tonnes were disposed of at Ridge and [REDACTED] tonnes were disposed of at Gore;

(vi) Wastewood Disposal collection operations and transfer station - [REDACTED] tonnes disposed of at Gore;

(vii) approximately 65 other ICI direct haul customers. Approximately 20 of these customer disposed of a total of [REDACTED] tonnes at the Ridge. Approximately 45 of these customers disposed of [REDACTED] tonnes at Gore.

(e) Excluding the CWS volumes the amount of ICI waste originating in Chatham-Kent is thus approximately [REDACTED] tonnes;

(f) The Wastewood Disposal facility is located a short distance north of Dresden, in Chatham-Kent. WWD operates a transfer station which it uses for waste collected by its roll off business as well as waste (primarily residential) that WWD transports to the Gore landfill for Chatham-Kent. WWD has a permit for a MRF. Faced with a price increase at the Gore Road landfill, it is my understanding that the owner of WWD will testify that he would likely build and open the MRF to process waste and would also likely transfer waste to Michigan and seek other ICI waste volumes for the transfer station. I also understand that WWD has a permit for a landfill that is not operational, and which could be made operational again. However, I have made no independent assessment of the feasibility or likelihood of such responses or the extent to which they would be significant enough to render a price increase by CWS unprofitable.

(g) Another possible alternative for waste from Chatham-Kent is the Tilbury transfer station. All permits are in place but the facility is not being used to transfer more than minimal volumes of ICI waste at the present time. Therefore, I have no information from which to determine whether this is a realistic alternative for buyers in the event CWS attempted to increase prices after the acquisition.

19. Based on the forgoing, it is possible that there are alternatives for Chatham-Kent customers if CWS were to attempt to increase price following the acquisition of the Ridge. However, even assuming no other realistic alternatives are available, the problem created by the acquisition is small in terms of the amount of waste that is affected and will persist only so long as Gore would otherwise continue to operate. (Once Gore ceases to operate, whoever owns Ridge might still enjoy market power, but the degree of market power would be unaffected by the acquisition.)

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Facility	Annual Capacity – Tonnes
Walker	617,000
Ridge	680,000
Warwick	750,000 ²
Richmond/Napanee	750,000 ³
Total	2,797,000

¹ Green Lane and Essex-Windsor are not included as potential landfills for GTA waste on the basis that they can not compete with Michigan landfills according to Professor Baye's analysis.

² Regulatory approval for an expansion from a current permitted annual capacity of 56,000 tonnes, and for an expansion of the service area to include the GTA area, has been sought but not obtained. For the purpose of analysis only, a possible expansion, in the full amount applied for has been assumed.

³ Regulatory approval for an expansion from a current permitted annual capacity of 125,000 tonnes has been sought but not obtained. For the purpose of analysis only, a possible expansion, in the full amount applied for, has been assumed.

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Table 2: Demand in 1999 for landfills that are permitted to receive GTA SNHW¹ adjusted to reflect closure of Britannia in 2002/2003²

Source	Tonnes
Waste managed by the City of Toronto, CWS transfer stations and independent transfer stations	3,020,319 ⁶
Non-GTA waste received at Walkers, CWS Sarnia, Richmond, Ridge and Warwick ⁷	[REDACTED] ⁸
Non-GTA Ontario waste received at Michigan facilities	189,930 ⁹
Non-GTA Ontario waste received at Ref-Fuel	[REDACTED] ¹⁰
Non-GTA Ontario waste received at BFI Niagara Falls landfill	[REDACTED] ¹¹
Britannia landfill	197,619 ¹²
Total	4,353,466

¹ Information on Ontario waste that was disposed of at the Modern Disposal landfill in New York is not available at this time

² Demand has not been included for volumes that currently are received at the Halton and Caledon landfills and the Peel incinerator on the assumption that they will not close and will not lose volume to other facilities. To the extent they lose volume, demand would increase.

⁶ Table 3 - paragraph 75 of the Agreed Statement of Facts.

⁷ Non-GTA demand for Green Lane and Essex Windsor is not included on the assumption that it will continue to be sent to those landfills and therefore will not add to the demand on the capacity identified in Table 1.

⁸ Total capacity less volumes from GTA - Agreed Statement of Facts, Confidential Appendix B, Table III. [REDACTED]

[REDACTED]

[REDACTED] see Tables 5 and 6.

⁹ Michigan DEQ Report for October 1, 1998 to September 31, 1999. Total received was 2,339,500 cubic yards. Converted at a rate of 3 cubic yards per tonne this equals 779,883 tonnes. Deducting the volume of GTA waste disposed of in Michigan in 1999 according to Table 3 - Paragraph 75 of Agreed Statement of Facts leaves 189,930 tonnes

¹⁰ Ref-Fuel annual report for 1999 [REDACTED] tonnes from Canada [REDACTED]. Deducting the [REDACTED] tonnes that is GTA waste as set out in paragraph 75 of the Agreed Statement of Facts leaves [REDACTED] tonnes

¹¹ BFI Niagara Falls landfill annual report for 1999. [REDACTED] tonnes from Ontario - [REDACTED] tonnes. Deducting the [REDACTED] tonnes from the GTA as set out in Confidential Appendix B, Table III of the Agreed Statement of Facts leaves [REDACTED] tonnes.

¹² I understand that the Britannia landfill is anticipated to close in 2002 - 2003 and that the 1998 disposal volume was 197,619 tonnes.