

CT-~~07~~ 2001/004

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THE COMPETITION TRIBUNAL

IN THE MATTER OF an Application by the Commissioner of Competition for an Order pursuant to sections 92 and 105 of the *Competition Act*, R.S. 1985, c. C-34, as amended;

AND IN THE MATTER OF the proposed acquisition by Lafarge S.A. of Blue Circle Industries plc, a company engaged in the construction materials business.

BETWEEN:

THE COMMISSIONER OF COMPETITION

Applicant

-and-

LAFARGE S.A.

Respondent

FILED	COMPETITION TRIBUNAL TRIBUNAL DE LA CONCURRENCE	PRODUIT
	JUN 15 2001 <i>[Signature]</i>	
	<small>REGISTRAR -- REGISTRAIRE</small>	
OTTAWA, ONT.		<i># 1(j)</i>

AFFIDAVIT OF HALLDOR P. PALSSON

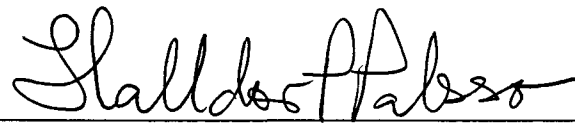
1. I, Halldor P. Palsson, of the City of Ottawa, in the District of Ottawa-Carleton, in the Province of Ontario, Public Servant, MAKE OATH AND SAY:
2. I am a senior economist in the Enforcement Economics Division of the Competition Bureau at Industry Canada. I was assigned to be the investigative economist in the above captioned matter. In the course of my duties I analyzed the competitive process in the cement, concrete, aggregates, and asphalt/paving (road construction) markets. Counsel for the Commissioner of Competition asked me to undertake an economic analysis of how Lafarge

and Blue Circle interact in these markets in Ontario. Attached hereto as Exhibit "A" is a true copy of the Report prepared pursuant to the aforesaid request.

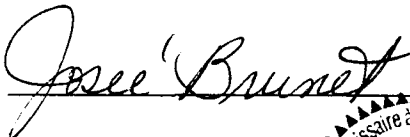
3. I have a Ph.D. in economics and my area of specialization is industrial organization. I have studied issues of competition and market power in a number of industries. Included as Exhibit "B" to the aforesaid Report is a true copy of my Curriculum Vitae.

SWORN BEFORE ME at the City of

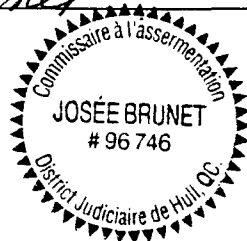
Hull, Quebec, this 14th day of June, 2001.



DR. HALLDOR P. PALSSON



A Commissioner, etc.



THIS IS EXHIBIT A (Public) TO THE
AFFIDAVIT OF
HALLDOR P. PALSSON
SWORN BEFORE ME THIS 14th DAY
OF JUNE 2001

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Josée Brunet
COMMISSIONER FOR OATHS

Exhibit A

Report by Halldor P. Palsson, Ph.D.

June 14, 2001



I. Qualifications and Introduction

1. I have been an economist with the Economic Policy and Enforcement Division of the Competition Bureau (the "Bureau") since 1992. In my position I am responsible for providing economic analysis of cases at the Competition Bureau, including, in this case, the likely competitive impact in Canada of the proposed acquisition by Lafarge S.A. ("Lafarge") of Blue Circle Industries plc ("Blue Circle") (the "Proposed Transaction").
2. I have a Ph.D. in economics and my area of specialization is industrial organization economics. I have studied issues of competition and market power in a number of industries including the cement industry. A copy of my C.V. is attached hereto as Exhibit "A".
3. In conducting this analysis I examined: (1) the Commissioner's Application to the Competition Tribunal; (2) the records of the Mergers Branch of the Competition Bureau pertaining to its review of the Proposed Transaction, and (3) economic literature relevant to cement, concrete, aggregates and asphalt/paving (road construction). In addition, I participated with Bureau competition law officers in meetings and interviews with several industry participants. These sources have been used to form my opinions and draw my conclusions on how markets relevant to these products operate in Ontario.
4. In analyzing the competitive effects of the Proposed Transaction, I proceeded in four steps. First, I defined the relevant product and geographic markets, having particular regard to features of market supply, as well as demand. Second, I examined the position of Lafarge and its affiliates and of Blue Circle and its affiliates in the relevant markets. Third, I examined the likely impact on competition under the Proposed Transaction, and particularly the likely effect on prices if Blue Circle were to effectively exit from the market as a result of the Proposed Transaction. Finally, I considered possible remedies.
5. In brief, I conclude that Lafarge already possesses market power in many relevant product and geographic markets, which would only be enhanced if the Proposed Transaction were to proceed. In my opinion, the merger between Lafarge and Blue Circle would likely result in a substantial lessening of competition in these markets, absent the remedies described herein.

6. I will deal with cement, concrete, aggregates, and asphalt/paving (road construction) in turn.

II Cement

(a) Overview of the Cement Industry

7. Cement is a graded¹ homogeneous intermediate product that is the essential binding ingredient that users mix with water and aggregates (granular rock and sand) to form concrete.
8. Cement is a combination of materials that contain certain elements including calcium, silicon, aluminium and iron. Typically materials such as limestone, shale, iron ore, clay and fly ash are used. These materials are crushed, placed in a rotating cement kiln and heated in the kiln to produce small pellets known as clinker. Clinker is then ground to produce cement. A small amount of gypsum is added during the grinding process to control the cement's set or rate of hardening.
9. The term cement includes Portland, masonry and mortar and other specialized cements. Portland cement accounts for over 90 percent of cement production in Canada. Blended hydraulic cements, such as Portland-slag, are produced by blending two or more types of cementitious materials, such as slag (a by-product of steel production) and fly-ash (a by-product of coal-fired power generation), and are used in some concrete production.
10. Cement comes in bulk or bagged forms. Bulk cement represents approximately 90 percent of the total volume of cement sold in the United States and Canada. The major end user of bulk cement is the ready-mix concrete industry. Approximately 70 percent of the bulk cement produced is used for ready-mix concrete with the remainder going towards road paving and pre-cast concrete products. Bagged cement, which accounts for about 10 percent of the total volume of cement produced, is used to prepare concrete on-site.
11. Cement is produced at relatively large plants and is then transported directly to customers or to terminals for distribution to more distant geographic areas. Most cement producers in the region surrounding the Great Lakes have access to waterside terminals. Barges are used to supply more distant areas within the Great Lakes region of the United States and Canada.

¹ Portland cement used in Canada should conform to the specifications of CAN 3-A5-M83, published by the Canadian Standards Association (CSA). Canadian Portland Cement types are: 10 Normal; 20 Moderate sulfate resistance; 30 High early strength; 40 Low heat of hydration and 50 High sulfate resistance.

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12. Industry practice in Canada is to deliver cement to the customer and price on this basis, whereas in the United States, the majority of cement is picked up by the customer at the plant or terminal location.
13. Capacity utilization at cement plants in the region surrounding the Great Lakes has been relatively high in recent years, with most plants effectively operating at capacity.
14. There is a high degree of vertical integration between cement manufacturing, ready-mix concrete, and aggregates. The leading cement firm in a particular region is frequently also the leading ready-mix concrete manufacturer, or a major aggregate producer, or all three.

(b) Product Market

15. As described above, there are various types of cement and they are not perfect substitutes in end-use. As a practical matter, however, the power to influence prices in relation to one type of cement coincides with the power to influence prices with respect to other types of cement.
16. As indicated above, both slag and fly-ash can be used in so-called "blended" cement production or mixed with cement in ready-mix concrete production and, to the extent they are used, substitution for cement is on a 1:1 basis. However, slag and fly-ash do not generally comprise more than 30 percent of the cement mixture, such that they are only a partial substitute for, and sometimes an ingredient in, cement. Moreover, both fly-ash and slag are sold at prices significantly lower than cement² and therefore one would expect that they are already being used to the greatest extent possible and could not effectively discipline a cement price increase. Accordingly, I have excluded slag and fly ash from the relevant product market for cement, but included "blended" cement in which they are used as ingredients.
17. With the exception of slag and fly-ash as just described, no other product is reasonably functionally interchangeable with cement in cement production.
18. It is generally accepted in the economic literature that the own price elasticity of cement demand is low. Changes in annual cement consumption closely correspond to changes in total construction put in place in constant dollars. This low price elasticity of demand is useful for product market definition. It is consistent with a dearth of substitutes for cement.

² In 2000, slag was sold at approximately 70 percent of the price for cement. Fly ash currently sells for approximately 80 percent of the price of cement.

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19. On the basis of the foregoing, including the typical price level differences and the low level of interchangeability of slag and fly-ash for cement, I have concluded that cement is a relevant product market for antitrust purposes.
20. If slag and fly-ash are part of the product market definition, the relevant cement market for analysis of the Proposed Transaction expands by about 10 percent. However, in this case Lafarge's post-merger market share would only be larger than in a narrower, cement-only, product market, and my conclusions would be the same.

(c) Geographic Market

21. Given its relatively low ratio of value to weight, cement is shipped limited distances. A 1977 study by the U.S. Bureau of the Census found that over 80 percent of shipments were less than 200 miles and almost 95 percent of shipments were less than 300 miles. Low-cost water transport permits shipments to more distant destinations.
22. These findings are consistent with the information gathered by the Bureau in its review of the Proposed Transaction. Industry participants interviewed in the course of the Bureau's investigation of the Proposed Transaction confirmed that the delivery patterns in Canada are similar to those in the U.S.
23. Therefore, as a general matter, geographic markets for cement are regional. With respect to defining the relevant regional market(s) for cement in Canada I have considered a number of factors.
24. First, Blue Circle has no cement plants (in Canada) outside of Ontario. Therefore, the relevant geographic market(s) for the purposes of this merger should be defined around regions that are, or could be, competitive with cement plants in Ontario.
25. Second, the international trade in cement in Ontario is one-way. Because the production capacity of Ontario plants significantly exceeds demand, imports into Ontario are low, while cement exports from Ontario are over 3 million tonnes annually, comprising more than 50 percent of Ontario production.
26. My investigations indicate that Ontario plants get significantly better net back returns from sales of cement locally compared to elsewhere in the Great Lakes region. This is due to both lower freight costs and higher prices locally.³

³ Kleit, Andrew N. and Palsson H. (1999) Horizontal Concentration and Anticompetitive Behaviour in the Central Canadian Cement Industry: Testing Arbitrage Cost Hypothesis, the *International Journal of Industrial Organization*, Vol. 17, (1999) pp. 1189-1202; and Kleit, Andrew N. and Palsson, H. (1996) Is There Anticompetitive Behaviour in the Central Canadian Cement

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27. Third, while there are also cement plants in Quebec that could supply into some parts of Ontario, they do not typically do so, because owners have existing plants closer to Ontario customers.
28. Based on the foregoing, I have concluded that the relevant geographic market in Canada is no larger than Ontario. Parts of the United States bordering the Great Lakes could be included in the relevant geographic market for some purposes, but for purposes of analyzing the likely effects of the Proposed Transaction in Canada, I have taken the relevant geographic market for cement to be Ontario. I note that my conclusions would not change had I used a broader geographic market encompassing, for example, the Great Lakes region served by Blue Circle cement plants in the U.S. and Ontario. I note also that even if the Ontario market could be subdivided further based on 200 to 500 kilometre zones around the Blue Circle cement plants (for example: the Greater Toronto Area, Central Ontario, Eastern Ontario and Western Ontario), the relevant competition analysis is not significantly different than if Ontario as a whole is treated as the geographic market. Therefore, I treat Ontario as a single cement market.

(d) Position of Lafarge and Blue Circle in the Ontario Cement Market

29. Lafarge has plants in British Columbia, Alberta, Ontario, Quebec and Nova Scotia. Lafarge — the only cement company with operations in all major regions of Canada — has 33 percent of clinker and 37 percent of finished grinding capacity nationally.
30. Lafarge and Blue Circle each have two cement plants in Ontario. Lafarge's plant at Bath, Ontario is located on the north shore of Lake Ontario near Kingston, and ships by rail and truck to Eastern Ontario and also by water to terminals in the Greater Toronto Area ("GTA") and the U.S. side of the Great Lakes and the northern shores of Lake Huron and Lake Superior in Ontario. Lafarge's Woodstock plant in Southern Ontario is land-locked and ships by truck and rail to customers in Southern Ontario and the GTA and to terminals in the northern U.S.
31. Similarly, Blue Circle has a large, waterside plant at Bowmanville, also on the north shore of Lake Ontario, and a smaller land-locked plant at St. Marys, Ontario, about 20 kilometres northwest of Woodstock.
32. As mentioned, both Blue Circle and Lafarge export a majority of their cement production from Ontario to the United States, with the majority of exports coming from their waterside plants, Bowmanville and Bath respectively.

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33. In addition to Lafarge and Blue Circle, there are two other cement producers in Ontario: Essroc (owned by Italcementi) and St. Lawrence (owned by Holderbank). Essroc has a cement plant at Picton, Ontario and St. Lawrence has a cement plant at Mississauga, Ontario.
34. The six cement plants in Ontario, including data in regard to their capacity both in respect of clinker and finished grinding production, are listed by company in Table 1.⁴ Plant capacity, rather than cement sales in Ontario, is used as a measure of market share. I assume that production of cement currently for sale outside Ontario would be available to respond to a price increase for cement in Ontario and cement production has generally been at or near capacity in recent years.

Table 1. The Estimated Capacity Shares of Cement Companies in Ontario in 1999.
(000s metric tonnes)

Company	Clinker Capacity	Share (percent)	Finish Grinding	Share (percent)
Blue Circle	2482	35.9	1990	30.1
Bowmanville	1744		1305	
St. Marys	738		685	
St. Lawrence(Holderbank)	1762	25.5	2009	30.4
Mississauga	1762		2009	
Lafarge	1509	21.8	1856	28.1
Bath	984		1082	
Woodstock	525		774	
Essroc (Cementi)	1156	16.7	746	11.3
Picton	1156		746	
Total	6909	100.00	6601	100.00

Source: Portland Cement Association: U.S. and Canadian Portland Cement Industry: Plant Information Summary, December 31, 1999.

35. On the basis of the data in Table 1, Lafarge and Blue Circle have similar shares of Ontario finish grinding capacity (approximately 30 and 28 percent, respectively), while Blue Circle has approximately 36 percent and Lafarge has approximately 22 percent of

⁴ As mentioned above, clinker is the calcined product of a kiln, which is ground to make cement. The grinding of clinker into cement, usually with the addition of 3-6 percent gypsum, is called finish grinding. Cement production capacity is measured in terms of clinker and finish grinding capacities, although ultimately it is finish grinding capacity which is required to make the final product

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clinker capacity in Ontario. I note that the plant of Federal White Cement in Woodstock, which has 200,000 tonnes of finish grinding capacity, is excluded from share calculations.⁵ The four-firm concentration ratio ("CR4") is 100 percent.

36. The estimated shares of cement sales to Ontario customers are as follows: Lafarge, [] percent; Blue Circle, [] percent; St. Lawrence, [] percent; Essroc, [] percent; and others, [] percent.

(e) Likely Effect of the Proposed Transaction on Competition in the Ontario Cement Market

37. I have taken into consideration a number of key factors related to the potential effects of the Proposed Transaction in forming my opinion as to the likely effects thereof.
38. First, the Proposed Transaction would lead to Lafarge holding a post-merger share of approximately 58 percent of both clinker and finish grinding capacity in Ontario.
39. Second, there are currently very few imports of cement into Ontario, and entry barriers in relation to cement production are significant, such that it is unlikely that a new entrant would begin production within Ontario within 2 years of the Proposed Transaction.⁶ There are substantial scale economies in cement production so entry has to be on a large scale to be efficient,⁷ and suitable limestone reserves would have to be located and licensed. In addition, approximately 50 to 60 percent of cement sales in Ontario by the same producers are made internally to integrated ready-mix operations. This high degree of vertical integration is significant because it suggests that to enter the cement market, a firm may need to enter the ready-mix concrete business as well, to ensure sufficient demand for efficient levels of its cement production.
40. Third, only three firms would remain in the Ontario cement market post-merger.
41. Fourth, as mentioned above, demand for cement is relatively price-inelastic.
42. Fifth, the pre-merger Herfindahl-Hirschman Index (HHI) is 2735, which would increase to 4379 post-merger. The Proposed Transaction therefore raises concerns relating to both the unilateral and the interdependent exercise of market power.

⁵White cement conforms to Portland cement specifications. White cement is made from low-iron raw materials (such as kaolin) and burned with special methods to reduce colouring effects and trace elements. It sells at a premium of about 20 percent over Portland cement.

⁶ There has been no green field entry into cement production in Ontario since the 1970s.

⁷G. Norman (1979) Economies of Scale in the Cement Industry, *Review of Industrial Economics*, Vol. XXVII:317-337.
David I Rosenbaum (1994) Efficiency v. Collusion: Evidence Cast in Cement, *Review of Industrial Organization* 9:379-392.

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43. On the basis of the foregoing, in my opinion the Proposed Transaction, absent the proposed remedy (see below), is likely to lead to a substantial lessening of competition in the Ontario cement market.

(f) Remedies

44. The proposed remedy is to divest all of the Canadian cement business of Blue Circle, including the two cement plants and their limestone quarries, related Canadian and U.S. distribution facilities, and all sales administration and distribution related thereto.⁸ In my view, the remedy will be effective in removing the substantial lessening of competition, which would otherwise have been likely to result from the Proposed Transaction. However, in view of the role of ready-mix concrete in permitting cement producers in Ontario to achieve the necessary scale of production to be competitive in the Ontario cement market, it is my view that the remedial ready-mix concrete divestitures discussed further below should be linked to the sale of the cement assets of Blue Circle.

III. Ready-Mix Concrete

(a) Overview of the Ready-Mix Concrete Industry

45. Ready-mix concrete ("RMC") refers to concrete that has been pre-mixed at a concrete plant and then transported to the point of use in special mixer trucks (commonly mis-identified as "cement" trucks). The essential part of the manufacture of RMC is the mixing of the various components (including cement, water, aggregates and various additives) to the consistency and specification required by a particular customer. As RMC is prepared for the customer in advance, it must be transported to the customer quickly before the quality deteriorates and/or the product begins to set. This limitation restricts the distance within which RMC can, in practice, be transported.
46. RMC is a readily adaptable material that is usually poured on site. It is generally used in applications ranging from large engineering projects, such as highways and office buildings, to smaller residential property projects.
47. As noted above, the Ontario cement industry is typically vertically integrated downstream into RMC, with approximately 50 to 60 percent of cement sales made to internal or related RMC operations in Ontario. As mentioned previously, RMC operations (both related and external to the cement producers) account for about 70 percent of Canada's

⁸ With the exception of an unused cement terminal at Coniston, Ontario, which is not and is not likely to be used in the cement business.

cement consumption. Thus, RMC is an important outlet for cement distribution in Ontario.

(b) Product Market

48. RMC differs from all other types of building materials in its physical composition, functional characteristics, customary uses, and pricing. RMC of a given strength and grade is regarded by buyers as a fungible product. Building codes and engineering requirements determine which strength has to be used so substitution between grades is limited. Moreover, the total demand for RMC is relatively price inelastic because of specifications for construction, and the time and cost required for testing and evaluating potential alternative materials.
49. "On-site" concrete production is a substitute for RMC in certain (generally large) construction applications. As well, pre-cast concrete products are substitutes for RMC in some applications. However, there are very few, if any, applications for which RMC is typically chosen for which either on-site production or pre-cast products would be substituted for RMC in sufficient quantities to prevent a non-transitory but significant price increase for RMC.
50. In view of the foregoing, I have concluded that a relevant product market is RMC.

(c) Geographic Market

51. RMC in its plastic state is a very heavy, bulky, and perishable product. This necessitates comparatively short delivery runs from the point of production to the point of consumption. RMC operators consider one hour in the truck to be a practical upper limit of their geographic reach, or 50-100 kilometres depending on local traffic conditions. The plant networks of Lafarge and Blue Circle in Ontario support this geographic market definition.
52. As a result, I conclude that the geographic markets for RMC in Ontario are local. The relevant markets for analysis of this transaction are, generally speaking, the municipalities where Blue Circle RMC operations are located, and the immediately surrounding areas.

(d) Position of Lafarge and Blue Circle in Ontario RMC Markets

53. Lafarge has 53 wholly-owned RMC operations in Ontario, and 6 additional RMC operations in Ontario through its interest in Innocon, a 50/50 joint venture in the GTA with Essroc. Total sales of Lafarge in 2000 are estimated to be about [] cubic metres of RMC, or approximately [] percent of all RMC sales in

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Ontario. In addition, Innocon's sales in the GTA in 2000 were approximately [] cubic metres, or approximately [] percent of all RMC sales in Ontario.

54. Blue Circle has 40 RMC operations in Ontario, and 1 RMC operation in Quebec. Total sales of Blue Circle in Ontario in 2000 were approximately [] cubic meters of RMC or approximately [] percent of all RMC sales in Ontario. Blue Circle has a strong position in most Ontario markets, but particularly in Toronto, with [] percent of its RMC business serving the GTA.
55. Lafarge and Blue Circle overlap in all but two local markets: Orillia and Bracebridge, Ontario. The markets in which they overlap are identified in Schedule "A" of the Draft Consent Order.
56. Lafarge and Blue Circle are leading firms in RMC in the overlapping markets. Each generally has a market share in the range of [] percent. I would characterize each of the overlapping markets as an oligopoly with a relatively small number of market participants, and four firm concentration ratios ("CR4s") in excess of 65 percent.

(e) Likely Effect of the Proposed Transaction on Competition in Ontario RMC Markets

57. There are some barriers to entry into ready-mix concrete production. At the higher strength levels⁹ used in industrial and commercial applications, continuous pours and quality control and testing are more important. This requires size and sophistication that is generally acquired as the entrant grows from a 20 to a 40-truck operation. There also exist some strategic barriers to expansion of production of higher strength levels by RMC producers, where such expansion involves competition with vertically integrated competitors.
58. That said, the barriers to entry are not high for ready-mix for the low-rise residential market segment. An entrant needs a plant and 5-8 trucks. The high prices of concrete in the early 1990s in Toronto permitted the entry of small independent ready-mix producers that did not have the high fixed cost structure or the union wages of the incumbent cement producers.
59. Thus, while not as pronounced as in the case of cement, dealt with above, the competitive impact of a merger between two leading firms in the Ontario RMC markets at issue is expected to be high. The merged firm would generally have a market share based on sales well in excess of 35 percent and CR4s in excess of 65 percent.

⁹The higher strength levels start at 25-30 MPa (megapascals) or 2500-3000 PSI (pounds per square inch).

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60. In addition, there is an important vertical relationship between the Blue Circle cement plants and the RMC operations in Ontario. The Blue Circle cement plants would be at a competitive disadvantage in Ontario without the bulk of the RMC operations as an outlet for their cement.
61. I conclude that the Proposed Transaction would likely lessen competition substantially in the identified Ontario RMC markets.

(f) Remedies

62. To remedy the substantial lessening of competition in the RMC markets in which Lafarge and Blue Circle overlap, 39 Blue Circle RMC operations should be sold with the cement assets. In my view, this is the only clear remedy that maintains competition substantially at the pre-merger level.

IV. Aggregates

(a) Overview of Aggregates

63. Aggregates can be characterized as (i) granular material, of mineral, natural or artificial origin between 8 and 88 mm in size, originating either from alluvial deposits, or from larger rocks and other materials, such as slag or recycled asphalt, that have been processed to the desired size, and (ii) sand.
64. Aggregates are generally produced from quarries, sand and gravel pits and recycled concrete and asphalt. The choice of aggregate for a particular purpose depends largely upon the size and shape of the aggregate particle. Depending upon the local geology, the desired particle may occur naturally, or it may need to be crushed or ground from larger particles.
65. Aggregates are used in asphalt, RMC, road base, drainage and other construction applications.
66. To be competitive in aggregates production in Ontario, an aggregates production facility must be able to produce sufficient amounts of consistent quality aggregates in close proximity to asphalt and/or RMC plants or other sources of demand (e.g. large construction projects or road constructions projects for which asphalt or concrete may be manufactured on-site).

(b) Product Market

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67. While most raw aggregates can be processed to meet the requirements of a particular customer, on the basis of supply side substitutability, end-use and price, aggregates can be divided into three broad relevant product groups: (i) specification concrete and asphalt aggregate from quarries -- known as "washed granulars", "clears", or "stone"; (ii) granular aggregate from sand and gravel deposits, also known as "unwashed granulars", or "gravel"; and (iii) sands or "fines".
68. During the 2000 to 2001 time period in Ontario, granular aggregate from sand and gravel deposits has been priced on the order of 50 to 55 percent per tonne less than specification concrete and asphalt aggregate from quarries, and sands are priced on the order of 35 to 55 percent per tonne less than specification concrete and asphalt aggregate from quarries. Bureau records indicate, for example, that in 1998 coarse concrete aggregate from crushed stone had an average selling price of approximately 10 percent above the same product from a sand and gravel pit.
69. Specification concrete and asphalt aggregate from quarries generally differs from all other types of stone products in its physical composition, functional characteristics, customary uses, and, as just noted above, pricing. With regard to functional uses, it must meet the Ontario Ministry of Transportation or CSA specifications for the specific type of asphalt or RMC being produced. For example, the Ontario Ministry of Transportation formally has a Granular "A", "B", "M" and "Select" subgrade material standard for use in provincial roads. If the base aggregate is to be used in 400-series highway work it must meet the aggregate physicals test for Granular "A" and almost always be from a stone quarry. Granular "A" from a quarry is usually priced at approximately 20% more than Granular "A" from a sand and gravel deposit. The particle shape and absence of deleterious elements with Granular "A" from a quarry enhances performance relative to Granular "A" from a sand and gravel deposit and justifies the price difference. In addition, manufacturers of asphalt and RMC in Ontario do not view other types of stone products as good substitutes for quarry stone. Accordingly, I conclude that the production and sale of specification concrete and asphalt aggregates from quarries is a relevant product market for antitrust purposes.
70. Unwashed granular aggregate from sand and gravel deposits covers a wide range of materials used in road base and other fill applications. Granular aggregate from sand and gravel deposits generally differs from other types of stone products in its physical composition, functional characteristics, customary uses, and pricing. That said, both stone and gravel can be used in some specification mixes for concrete and asphalt. The choice in low-end specifications largely depends on the delivered cost of gravel and stone. Stone can generally be a functional substitute for gravel but gravel is not a substitute for stone. However, subject to these exceptions for some applications, the users of granular aggregates from sand and gravel pits in Ontario do not view other types of stone products

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as good substitutes. Accordingly, I conclude that the production and sale of granular aggregate from sand and gravel deposits is a relevant product market for antitrust purposes.

71. Finally, in addition to granular aggregates stones, sands or “fines” are also required for the production of concrete and asphalt. Sand either occurs naturally or results from the crushing of larger stones down to specified sizes. Larger stones cannot be substituted for sand in its end-use application and, in any event, sell at a substantial premium to sand, as noted above. Accordingly, I also conclude that the production and sale of sand is a relevant product market for antitrust purposes.

(c) Geographic Market

72. The low ratio of value to weight dictates that aggregates are shipped quite limited distances. Based on shipment patterns from quarries, it is estimated that specification aggregates travel a maximum of approximately 100 kilometres from a quarry. Granular aggregates and sand travel a maximum of approximately 50 to 60 kilometres from sand and gravel deposits.
73. For this reason, geographic markets are defined around major urban centres served by the quarries or pits in question.
74. In my opinion, the relevant geographic markets for analytical purposes are those in which both Lafarge and Blue Circle have licensed aggregates reserves: the GTA West,¹⁰ GTA East, Guelph/Kitchener-Waterloo/Cambridge (“Tri-City”),¹¹ London,¹² Niagara Peninsula, Cobourg/Belleveille,¹³ Brantford/Paris, Simcoe,¹⁴ Ottawa-Hull and Stratford. The single Blue Circle aggregates site in the Stratford area is to be divested with the St. Marys cement facility, eliminating that aggregates market as a concern for the Commissioner.

¹⁰GTA - the municipalities of Halton, Peel, York, Durham, Victoria, and Dufferin. Yonge Street divides the GTA East from the GTA West.

¹¹Tri-City - the municipalities of Waterloo, Hamilton-Wentworth and Wellington.

¹²London - the municipalities of Oxford, Essex, Elgin, Perth and Middlesex.

¹³Cobourg/Belleveille - the municipalities of Northumberland and Hastings.

¹⁴Simcoe - the municipalities of Simcoe and Grey.

(d) Position of Lafarge and Blue Circle in Ontario Aggregates Markets and the Likely Effect Therein of the Proposed Transaction

75. To calculate market shares, I have had regard to both licensed reserves of aggregates held by each firm in the market and recent sales figures of those firms. The Bureau's *Merger Guidelines*, at page 22, state that: "Market shares can be measured in terms of dollar sales, unit sales, production capacity or, in certain natural resource industries, reserves."
76. An important measure I relied upon is market shares based on reserves. In my opinion, market shares based on reserves are the best indicator of aggregates markets position and competitive influence in the market looking forward.
77. Aggregate producers claim that quarry reserves close to GTA will be a "major issue" in approximately 10 years and that most of the depleting reserves are those of premium aggregate suppliers. Obtaining permits for new limestone reserves suitable for specification aggregate production is very expensive and time consuming. The licensing of new sand and gravel reserves is more straightforward and takes generally less time, although seven years is an industry average. Thus, in general, entry barriers are high and the expected life of existing reserves will affect market shares of existing producers in the next five to 10 years.
78. For each local market the Bureau obtained information about the licensed reserves of all market participants. The reserve numbers were used to calculate the relevant shares and the CR4s.
79. The Commissioner's estimated pre-merger and post-merger shares of licensed aggregates reserves in these markets are set out below in Table 2.

**Table 2: Share Estimates of Licensed Aggregates Reserves in Relevant Markets
(000s of metric tonnes)**

Relevant Market	Lafarge - Pre-merger Share	Blue Circle Pre-Merger Share	Pre-Merger CR4	Lafarge - Post-Merger Share
GTA West	[]%	[]%	94%	[]%
GTA East	[]%	[]%	87%	[]%
Tri-City	[]%	[]%	89%	[]%
London	[]%	[]%	70%	[]%
Niagara Peninsula	[]%	[]%	94%	[]%
Brantford/Paris	[]%	[]%	89%	[]%
Cobourg/Belleville	[]%	[]%	98%	[]%
Simcoe	[]%	[]%	90%	[]%
Ottawa/Hull	[]%	[]%	80%	[]%

80. Pre-merger, in most relevant markets, Lafarge has shares of aggregates reserves exceeding 35 percent, and the CR4s in these have been estimated by the Commissioner to vary between 70% and 94%. Thus, further acquisitions by Lafarge in these markets generally give rise to concerns with respect to the potential for Lafarge to exercise market power.
81. For each market, the parties have provided information concerning 2000 sales of aggregates as set out below in Table 3.

Table 3: Share Estimates of Aggregates Sales in Relevant Markets

Relevant Market	Lafarge Share of 2000 Sales	Blue Circle Share of 2000 Sales	Lafarge <u>Post-Merger</u> Share of 2000 Sales
GTA West	[]%	[]%	[]%
GTA East	[]%	[]%	[]%
Tri-City	[]%	[]%	[]%
London	[]%	[]%	[]%
Niagara Peninsula	[]%	[]%	[]%
Brantford/Paris	[]%	[]%	[]%
Cobourg/Belleville	[]%	[]%	[]%
Simcoe	[]%	[]%	[]%
Ottawa-Hull	[]%	[]%	[]%

82. Other features of these aggregates markets relevant to my competitive analysis, and my conclusions in regard to such analysis are as follows.

GTA West and GTA East

83. Other competitors with significant shares of aggregate sales in the GTA include Dufferin (approximately [] tonnes, or [] percent), James Dick (approximately [] tonnes, or [] percent), and Crupi (approximately [] tonnes, or [] percent). However, in view of the data above and high barriers to entry, I have concluded that the Proposed Transaction would likely lessen competition substantially in both the GTA East and GTA West aggregates markets.

84. In the GTA East, Lafarge has agreed to divest all Blue Circle aggregates operations and reserves (hereinafter “operations”). Due to its high proportion of sales to Blue Circle RMC plants, the “Sunderland” operations should be sold with the RMC businesses. Additional operations at “Mosport” should also be divested, but not necessarily to the RMC buyer.

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85. In regard to the GTA West, it is my opinion that the sale of the “Acton” and “Aberfoyle” operations is sufficient to remove the likelihood of a substantial lessening of competition resulting from the Proposed Transaction. Acton sells very little aggregates to Blue Circle RMC plants compared to its total production, such that it need not be sold to the RMC buyer.
86. The only remaining operations in which Lafarge would have an interest are at Caledon. Pursuant to an agreement with the landlord, Armbro Construction Ltd. (“Armbro”), Lafarge will only retain a 50% production interest in the Caledon operations, which production it will market independently from that of its joint venture partner. In my opinion, Lafarge’s retention of a 50% interest in the Caledon operations would not likely substantially lessen competition in this market.

Tri-City

87. Based on the data shown above and the barriers to entry, I conclude that the acquisition of the aggregates assets of Blue Circle in the Tri-City market is likely to substantially lessen competition in that market. In addition, both the “Aberfoyle” and “Cambridge” operations sell significant portions of their output to Blue Circle RMC plants and should therefore be sold to the RMC buyer.

London

88. Based on the data shown above and barriers to entry, I conclude that the acquisition of all three of Blue Circle’s aggregate operations in this market would substantially lessen competition. However, if Lafarge only retains the Byron operations, this will increase its licensed reserves market share by only [] percentage points and will bring Lafarge’s reserve market share to approximately [] percent and its share of sales based on 2000 estimates to approximately [] percent. As a consequence, I conclude that competition in London will not be substantially lessened as a result of the acquisition by Lafarge of the Byron operations. The North London sites and reserves should be divested to the RMC buyer, while the Putnam site should be sold but not necessarily to the buyer of Blue Circle’s RMC plants.¹⁵

Niagara

89. In Niagara, Lafarge will acquire the Fonthill sand deposit from Blue Circle. Lafarge is not currently a supplier of sand in Niagara. With the acquisition, Lafarge replaces Blue

¹⁵ I note that Blue Circle also leases to Oxford Sand and Gravel an aggregates pit near Woodstock, located approximately 20 kilometres north of the Putman site. Because the Woodstock pit could clearly represent replacement reserves for Putman when that site is depleted, the Woodstock pit is also to be divested, but again, not necessarily with Blue Circle’s RMC plants.

Circle as the principal supplier of sand in Niagara, as the Fonthill deposit is the only licensed sand reserve in the Niagara Peninsula. The anti-competitive impact of this acquisition hinges on Lafarge's ability to leverage it into other product lines. In my view, potential for anti-competitive effects resulting from this acquisition is effectively dealt with by requiring Lafarge to supply aggregates on a non-discriminatory basis.

Cobourg/Belleville

90. Based on the data shown above and barriers to entry, I conclude that the acquisition of Blue Circle's Brighton operations is likely to substantially lessen competition in the Cobourg/Belleville aggregates market.

Simcoe

91. In Simcoe, Lafarge has approximately 49 percent of licensed reserves pre-merger and the CR4 is approximately 90 percent, it is also the case that Walker Brothers has approximately 44 percent of licensed reserves pre-merger and a share of 2000 sales of approximately 16 percent. Lafarge's acquisition of the Orillia RMC operations and aggregates pit will only increase its reserve market share by 0.4 percentage points. The Orillia quarry had a minimal market impact pre-merger. I conclude that the Proposed Transaction will not substantially lessen competition in Simcoe.

Ottawa-Hull

92. Although the former Blue Circle Ottawa quarry has already been sold, Blue Circle still owns a sand deposit in Wakefield, Quebec. While Wakefield's share of reserves is small, Lafarge already has, as indicated above, the leading share of Ottawa-Hull reserves. As a result, I conclude that the acquisition of the Wakefield reserves of Blue Circle by Lafarge is likely to substantially lessen competition in a market and should be divested.

Brantford/Paris

93. Based on the data shown above, I conclude that Lafarge's acquisition of Blue Circle's three aggregates operations is likely to substantially lessen competition in the Brantford/Paris market. Given the relatively low portion of sales from these sites to Blue Circle RMC, these assets need not to be sold to the RMC buyer.

(e) Remedies

94. As indicated above, I have concluded that the acquisition by Lafarge of Blue Circle's aggregates operations in the GTA West, GTA East, Tri-City, Cobourg, Brantford/Paris

and Ottawa-Hull markets is likely to prevent or lessen competition substantially in those areas. Nevertheless it is my opinion that this substantial lessening or prevention of competition will be eliminated by the implementation of the Draft Consent Order, as explained more fully in the Consent Order Impact Statement at Tab 3.

95. By way of summary, the divestiture of aggregate assets falls into two distinct groups, the Great Lakes Aggregates Package and the Other Aggregates Package. The Great Lakes Aggregates Package is offered to the buyer of the Blue Circle Great Lakes Package to make them competitive with the other integrated cement companies. Operationally, these assets go together because there are significant internal aggregate sales to the RMC facilities sold in the Great Lakes Package.
96. The operations identified as the Other Aggregates Package are to be offered to independent buyers and the purchaser of the Great Lakes Package. If the purchaser of the Great Lakes Package buys these assets, this will replicate the pre-merger situation. If the Other Aggregates Package is sold to a new entrant it will result in a market with the same or an increased number of firms in some local markets. The proposed Draft Consent Order remedy will result in markets that are not more concentrated in terms of reserve holdings compared to pre-merger levels.
97. The proposed Draft Consent Order remedy for aggregates is primarily a structural remedy. The Other Aggregates Package is being sold separately from the Great Lakes Aggregates Package to try to maximize the value Lafarge receives for them. Any competition concern with this remedy would relate to whether the buyer(s) of the Other Aggregates Package would have the strength and incentive to effectively run the businesses. I conclude that this is very likely to be the case because the Other Aggregates Package is the core of a Blue Circle aggregate business that was profitably run as an independent operating unit. Indeed, in my opinion, it is also likely that each quarry in the Other Aggregates Package could individually meet this test. Regardless, the Commissioner has reserved unto himself the discretion to approve any proposed buyer of the Other Aggregates Package and may bear in mind these issues in considering a proposed buyer.

V. Asphalt/Paving (Road Construction)

(a) Overview of Asphalt/Paving (Road Construction) Market

98. The asphalt business is the supply of sand, gravel, stone chips and asphalt used in the building, surface treating, repair and resurfacing of provincial, county, township and municipal roads

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99. Paving essentially involves laying asphalt in road construction projects for provincial, municipal, and other governments, and private works for commercial entities (roads in new subdivisions, parking lots, and driveways).
100. The asphalt used for paving is a mixture of both coarse and fine aggregates with liquid asphalt cement produced in hot mix plants which are either fixed or portable. Pavers produce asphalt primarily for their own needs and usually sell only marginally to third parties. Third party customers are generally smaller paving companies that do not have their own asphalt producing facilities because it is more economical for them to purchase asphalt than to invest in their own equipment. Consequently, the third party sales generally consist of small volumes of relatively simple mixes used in commercial and residential applications. As a general rule, pavers generally lay between 80-100 percent of the asphalt they produce. For this reason, asphalt production is an integral part of the paving.
101. Provincial or municipal governments, by way of public tenders, award approximately 70 percent of road construction contracts. The remaining part of the business, awarded by private commercial entities, is also very often tendered, with the result that 80 to 90 percent of road construction contracts are awarded as a result of a private or public tendering process.
102. There are some barriers to entry into asphalt/paving. These include a plant, the sunk cost and time to get permits, and the financial capacity to meet tender requirements.
103. There is an important vertical link between asphalt/paving and aggregates production. Asphalt/paving tends to purchase well over half of the output of most quarries and sand and gravel operations.

(b) Product Market

104. Blue Circle's asphalt/paving business, known as TCG Asphalt and Construction Inc. ("TCG"), is located in Brantford and London, Ontario. It produces hot-mixed asphalt for internal use and, to some extent, for sale to third parties. Asphalt itself could form a separate product market, given its unique functional characteristics as compared to concrete, for example. However, given that Lafarge's own road construction business (formerly Warren Paving, which it acquired in 2000) also supplies its own asphalt, it is unnecessary in the context of the Proposed Transaction to treat them separately.

(c) Geographic Market

105. Asphalt laid by pavers is produced at both fixed and portable plants. Pavers with fixed plants generally operate on a regional basis, i.e. in a territory that can extend up to 150

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kilometres from their plant. Hot-mixed asphalt can be transported for 2 to 4 hours without deteriorating. Portable plants are not limited to any particular region and can be moved depending upon where they are required and will source aggregates locally at that site. Approximately 20-25 percent of asphalt laid in Ontario is laid by portable plants, principally in rural areas. Given the nature of paving work and the necessity of having portable plants, the geographic markets for asphalt and paving are considerably larger than for aggregates.

(d) Position of Lafarge and Blue Circle in Ontario Asphalt/ Paving Markets and Likely Competitive Effects

106. Lafarge's Warren Paving and Blue Circle's TCG are leading asphalt paving firms in Brantford and London, and are each other's principal competition in those areas. While market shares fluctuate with major tenders won and lost, each would generally have a market share in the range of [] to [] percent. CR4s in each of Brantford and London would be over 65 percent. Accordingly, the acquisition of Blue Circle's TCG would substantially lessen competition in the relevant markets.

(f) Remedies

107. To remedy the substantial lessening of competition in the two asphalt/paving (road construction) markets, TCG should be sold. This is the only clear remedy that maintains competition at the pre-merger level.

VI. Cold-Patch Asphalt

108. Blue Circle has a wholly-owned company, called QPR Corp. ("QPR"), in the "cold patch" asphalt business. "Cold patch" asphalt allows for the repair of potholes, significant cracks, ruts, etc. regardless of the weather outside. There are two types of cold patch asphalt, premium or high-performance (hereinafter "Premium") and regular. QPR makes and sells Premium cold patch asphalt in liquid and bulk forms in Ontario, Quebec, New Brunswick and Nova Scotia. Lafarge Canada Inc. ("LCI"), recently began selling Premium bulk cold patch asphalt in Ontario, alone. Under any available estimate of market share, as a recent (and small) entrant, LCI is not an effective or strong competitor to the market leaders in the Premium cold patch asphalt business in Ontario. Accordingly, I conclude that the acquisition of QPR is not likely to prevent or lessen competition substantially in respect of the cold patch asphalt market.

VII. Pre-Cast Concrete

109. Pre-cast concrete structures are used in large construction/engineering projects such as high rise buildings, low and mid-rise apartment buildings, hotels, motels and nursing

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homes. Blue Circle's pre-cast concrete business (Pre-Con Inc.) involves the provision of specialized engineering and other technical expertise to a variety of customers who require customized pre-cast concrete structures. It has operations in Woodstock, Belleville and Brampton, Ontario. Lafarge competes with Blue Circle in the provision of some of these services. However, I have concluded that the extent of the competitive overlap between the parties is minimal. I therefore conclude that the acquisition is not likely to prevent or lessen competition in this market.

VIII. Concrete Pipe

110. As with all concrete products, the basic materials of concrete pipe are cement, aggregates, and water. Concrete pipe serves as a conduit for irrigation, water supply lines, sanitary sewers, culverts, and storm drains. Lafarge and Blue Circle are already the 50/50 owners of Centennial Concrete and Pipe Products Inc. The acquisition simply results in Lafarge acquiring the remaining 50 percent share of this company. There are several effective competitors remaining in the Ontario concrete pipe market. Accordingly, I conclude that the acquisition is not likely to prevent or lessen competition substantially in respect of this market.
111. I have read the Consent Order Impact Statement and believe that it accurately reflects the above and the findings of the Competition Bureau's investigation.

EXHIBIT B

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1991 Ph.D. in Economics, Carleton University, Ottawa, Ontario, Canada.

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Other:

- Vice President of the Chess Federation of Canada 2000-2001
Secretary of the Chess Federation of Canada 1999-2000

THIS IS EXHIBIT B TO THE
AFFIDAVIT OF HALLDOR P. PALSSON

EXHIBIT B

SWORN BEFORE ME THIS 14th DAY
OF JUNE 2001

CURRICULUM VITAE

Josee Brunet
COMMISSIONER FOR OATHS



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Scientific Committee of the International Whaling Commission 1991-92.

Other:

Vice President of the Chess Federation of Canada 2000-2001
Secretary of the Chess Federation of Canada 1999-2000

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Commissioner of Competition for an Order pursuant to sections 92 and 105 of the *Competition Act*, R.S.C. 1985, c. C-34, as amended;

AND IN THE MATTER OF the proposed acquisition by Lafarge S.A. of Blue Circle Industries plc, a company engaged in the construction materials business.

BETWEEN:

The Commissioner of Competition

Applicant

- and -

Lafarge S.A.

Respondent

AFFIDAVIT OF HALDER PALSSON

André Brantz
John Symes
Department of Justice
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