



***Rejoinder Expert Report of
SC Market Analytics***

November 6, 2017

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I. INTRODUCTION

1. SC Market Analytics (“SCMA”) has been retained by the Government of Canada in the context of the damages phase of the *Bilcon of Delaware et al. v. Government of Canada* NAFTA Chapter 11 arbitration. In our first expert report dated June 9, 2017 (“First SCMA Report”), we evaluated the pricing assumptions relied on by Claimants’ experts, conducted an analysis of aggregates pricing in the New York City region (“NYC”), and assessed grits pricing in New Jersey (“NJ”). We also provided an opinion on certain capital and operating expenditures budgeted for the proposed quarry and marine terminal project at Whites Point in Nova Scotia (“the Project”) based on the yield of the aggregates materials at the Whites Point quarry.
2. On August 23, 2017, Claimants filed their Reply Damages Memorial, along with a number of expert reports and witness statements that addressed topics raised in the First SCMA Report. We have been asked to respond to Claimants’ submissions. In our response, we have focused on issues that illustrate the errors and incorrect assumptions in Claimants’ approach. The fact that we do not directly address all of the issues raised by Claimants does not mean that we agree with them on issues we do not address.

a. Summary of Conclusions

3. In summary, after careful review, nothing from Claimants’ expert reports and comments on SCMA’s first report would cause us to alter its conclusions in any material way. The five main themes running through these voluminous comments – considered in their entirety – were that:

- [REDACTED]
[REDACTED]
[REDACTED]
 - *This is an unreasonable conclusion because* [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- SCMA inappropriately used NY State level data from the USGS to determine stone prices in NYC and failed to consider the impact of long term reserve depletion on the supply side of the equation thereby invalidating our analysis.
 - *In fact, SCMA used NYSS data supplied by Claimants to establish the prevailing NYC price and only used State level data to infer the competitive impact on prices in NYC after* [REDACTED]

- SCMA grossly underestimates the [REDACTED] [REDACTED] and has used amateurish tools in its analysis far inferior to the “AggFlow” software they have employed.

➤ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]. *It results in the planned quarry producing* [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Again, SCMA confidently stands behind its first report, its analytical methodologies and, most importantly, its conclusions.

II. PRICING OF AGGREGATES IN THE NYC REGION MARKET

4. In the First SCMA Report, we concluded that the addition of higher quality aggregates from the Whites Point Quarry, or any other supply, would have caused aggregates prices in the NYC region to decline by approximately [REDACTED].¹ Claimants state that we “misapprehend” the NYC market and distort the effect of Whites Point aggregate on prices in that market. In the sections that follow, we address issues related to: who constitutes a competitor for the Whites Point Quarry; the demand for aggregates in the NYC region; data on crushed stone prices and volumes; [REDACTED]; the regional U.S. market for crushed stone from White’s Point; and Whites Point’s alleged competitive advantages.

a. SCMA Properly Defined the NYC Market for its Analysis

i. Aggregates Supply: Water-Based Competitors

5. Mr. Wick and Mr. Dooley share the view that no Canadian water-based quarries would present competition to Whites Point because of [REDACTED].² In particular, Claimants’ experts assert repeatedly that [REDACTED]

¹ RE-8, Expert Report of SC Market Analytics, June 9, 2017 (“SCMA Report I”), ¶ 80.

² Reply Expert Report of John T. Boyd Co., August 16, 2017 (“Wick Reply Report”), ¶ 2; Reply Witness Statement of Tom Dooley, August 18, 2017 (“Dooley Reply Statement”), ¶ 11.

[REDACTED]
[REDACTED]. This position is incorrect for several reasons.

6. First, Mr. Wick and Mr. Dooley mistake [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] We understand that at the relevant time in 2007, NYSS was a joint venture between Amboy Aggregates and New York Sand, LLC.³ Amboy Aggregates is, in turn, a joint venture between a Ralph Clayton & Sons Materials LP and Great Lakes Dredge and Dock Company.⁴ In short, at the relevant time, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

7. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

8. [REDACTED]
[REDACTED]

³ Witness Statement of Joe Forestieri, December 13, 2016 (“Forestieri Memorial Statement”), ¶¶ 14-16. We also understand that in 2010, years after the permits for the Whites Point project were denied, Amboy Aggregates became the sole owner.

⁴ Forestieri Memorial Statement, ¶ 14.

⁵ C-1050, Amboy Aggregates Joint Venture Agreement, January 24, 1989, section 4.2.

⁶ Wick Reply Report, ¶¶ 36, 39.

- _____
- i) US based quarries within a 35-mile radius of Central Brooklyn, with _____ quarries shaded in blue on our cost curve and its US based competitors' quarries shaded in yellow;
 - ii) Existing Eastern Canadian quarries on water, shaded in red; and,
 - iii) Proposed Canadian quarries of Black Point, NS and Belleoram, NL, cross-hatched in red with Whites Point cross-hatched in green.
12. We then focused on various sub-sets of quarries in different parts of the First SCMA Report. For example, the first sub-set of our presentation of the cost curves, found in Figure 7a of the first SCMA Report,¹² includes categories (ii) & (iii) above and any US based quarry identified as a NYSS competitor by Mr. Dooley in his first witness statement.¹³ The final sub-set, presented in Figure 7b of the First SCMA Report, examines only those with the potential to deliver by water.¹⁴
13. Second, Mr. Lizak misinterprets our report when he states that we “incorrectly assume, implicitly or explicitly that: (1) the stone reserve base is non-finite, (2) reserve depletion is irrelevant, and (3) the regional reserve base can be theoretically sustained by ‘other new entrants’.”¹⁵ We made no such assumptions. It should also be noted that Claimants and their experts make no explicit or implicit assumptions on any of these topics in any of their earlier or most recent submissions. This is not surprising as determining the timeline for reserve exhaustion, location and permitting of future reserves, future transport costs for companies that own their own ships, like Vulcan, and potential strategies that large national and international companies might adopt is an extremely complex and speculative exercise. It is one in which neither we, nor Claimants, have engaged. Furthermore, while reserve depletion could factor into the supply equation over the 50-year life of a quarry like Whites Point, there are numerous approaches to extending reserve lives of quarries, i.e. market supply, especially when the profit opportunities from remaining in operation are compelling as they are in the case of selling stone in NYC.
14. The quarries we reviewed showed sufficient reserve area to be a competitor of the Whites Point quarry for the period of market entry and for some time thereafter. No one knows the 50-year path of marginal costs for aggregates delivered to NYC and there is no reason to

¹² RE-8, SCMA Report I, p. 19.

¹³ See Witness Statement of Tom Dooley, December 9, 2016 (“Dooley Memorial Statement”), Exhibit 2, “Confidential Information Memorandum”, pp. 15-16.

¹⁴ RE-8, SCMA Report I, p. 20.

¹⁵ Expert Reply Report of Mineral Valuation & Capital, Inc. (John Lizak), August 8, 2017 (“Lizak Reply Report”), p. 20.

believe it is necessarily on a steadily increasing trajectory. There are many potential sources of stone (for example, Bahamas, Quebec, Labrador, sub-ocean, etc.) and significant technological changes on the horizon, such as autonomous mobile quarry equipment. SCMA therefore expects longer term marginal costs to supply aggregates to remain more or less steady in real terms with ocean freight rate volatility providing some variability from cycle to cycle.

15. Markets are efficient and, over time, prices will be capped at the FOB delivered cost of the marginal supplier. This is what we have seen happen in the Portland cement sector over the past 30-40 years, and was the driving force for the approach we took in the First SCMA Report of developing cost curves. It is worth noting, however, that the movement of aggregates over great distances, in large ocean-going vessels, is a relatively recent commercial phenomenon and some inefficiencies could be expected to persist for some time before the laws of economics fully assert themselves.
16. As described in the First SCMA Report, the cost curve comparison was not purported to be a factual representation of costs. Instead, it was constructed on the basis of comparative data and is accurate in its relative comparisons. We have sufficient knowledge of the actual historic costs of a fair number of these quarries (such as Mount Hope, Hamburg, Bayside, Auld's Cove) to establish a factual baseline. Furthermore, we have Mine Safety and Health Administration ("MSHA") data on hours worked, know the rock's physical properties from State sources, and from Google Earth Pro we can identify equipment, plant layout, number of trucks, haul distances, quarry bench sizes and more. This visual data – which we checked for all locations – is especially useful in establishing relative differences between operations. As such, while we cannot be 100% certain, we are highly confident our cost estimates are within pennies per ton of what the actual costs were in 2007.
17. Third, Claimants' witnesses claim that [REDACTED]
[REDACTED]¹⁶.
Friction stone is only required for the wearing course (top ~2 inches) in pavement resurfacing or the very top layer in asphalt paving. Since there is considerable recycling of asphalt pavement, the amount of virgin stone is relatively small and the largest demand is in construction of new roads and highways. Since other competitive suppliers can supply the friction stone, we believe that our analysis remains valid.

¹⁶ See, e.g., Dooley Reply Statement, ¶ 37.

18. Finally, Claimants' experts suggest that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

iii. Market Demand for Aggregates in the NYC Region

19. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

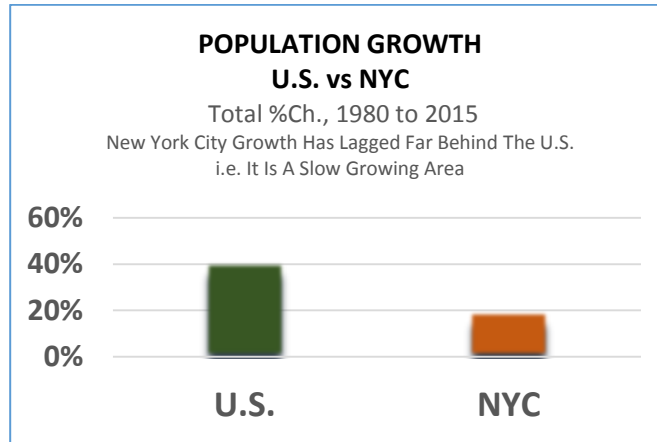
[REDACTED]

[REDACTED]

20. Figure 1 below, which shows that NYC's percentage population growth has lagged far behind that of the U.S. as a whole, provides clear evidence of the demographic headwinds we refer to:

¹⁷ Fougere Reply Statement, ¶ 38; Wick Reply Report, ¶ 25a.
¹⁸ See R-756, SCMA, Cost Curve Analysis (Jun. 9, 2017), tab "JW Full Data Revisions 05.03", cell 32.
¹⁹ Wick Reply Report, ¶ 39.

Figure 1



b. SCMA Assessed the Effect of Whites Point Aggregate Based on the Best Available Data

i. Crushed Stone Prices and Volumes Data

21. [Redacted text block]

22. [Redacted text block]

²⁰ Lizak Reply Report, p. 12.

²¹ See, e.g., Lizak Reply Report, Appendix I: USGS 2005 Minerals Yearbook.

[REDACTED]

23. Nothing in the historic NY district data conflicts with our analysis and conclusions. More importantly, our assumed pricing levels – [REDACTED] – are based on [REDACTED]. Again, the market price SCMA uses is not derived from USGS State level data.

24. As we explained in the First SCMA Report,²² we are confident using this information as a reliable proxy for NYC region data because [REDACTED].

25. [REDACTED]

26. For all of these reasons, we do not believe that using district- and construction-specific volumes and prices would materially change any of our conclusions.

ii. [REDACTED]

27. Claimants’ experts and witnesses also disagree in a number of ways with our assessment of [REDACTED]. Nothing that they have said changes our conclusions.

²² RE-8, SCMA Report I, ¶¶ 48-50.

²³ Lizak Reply Report, pp. 12-13.

28. First, Mr. Lizak believes that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

29. Accordingly, we have very high confidence in this approach. SCMA uses [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

30. Second, Mr. Lizak describes [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

31. Third, Mr. Dooley states that [REDACTED]
[REDACTED]⁶ However, while
[REDACTED]

²⁴ Lizak Reply Report, pp. 14-15.
²⁵ Lizak Reply Report, pp. 15-16.
²⁶ Dooley Reply Statement, ¶¶ 48-49.

[REDACTED]

[REDACTED]

33. Fourth, Mr. Wick comments that: [REDACTED].²⁷ We wrote that [REDACTED]

34. Finally, Mr. Lizak produces Table 1 in his reply report, which purports to show that [REDACTED]

²⁷ Wick Reply Report, ¶¶ 23(d), 32.

[REDACTED]

c. Other Issues Raised by the Claimants’ Experts and Witnesses with respect to Market Pricing

i. Regional U.S. Market for Whites Point’s Crushed Stone

35. Mr. Lizak asserts that our conclusions are “negatively impacted” by our “failure to analyze, or even consider, the regional market for Bilcon’s stone.”²⁸ For his part, Mr. Rosen does not explicitly consider the broader regional effects of alternative markets on the price that Whites Point would receive for its aggregates when selling to NYC (or NJ, in the case of grits). We were asked to review the pricing assumptions that fed into Mr. Rosen’s analysis, using the same assumptions about where Bilcon of Nova Scotia would sell its products.
36. Even if we had considered other regional markets, our conclusions would not likely have been markedly different. Markets tend to be efficient. When a significant upside price discrepancy appears between two markets, it will usually be arbitrated away over time. It may take time due to logistics, but eventually the price discrepancy will begin to disappear. We have seen this take place in the case of cement. Suppliers will redistribute supplies where possible to take advantage of any markets that offer higher-than-usual prices, bringing prices across marine-accessible markets roughly in line, accounting for differences in transport costs to reach alternative markets. This means that prices net of freight would be expected to be somewhat similar for many markets that could be reached by Whites Point or other potential waterborne foreign suppliers from Canada or elsewhere.

²⁸ Lizak Reply Report, p. 17.

Exhibit C-1001, which Claimants have identified as representing the “Revision D” design of the plant, [REDACTED]⁴²

42. Claimants’ 2017 Mass Flow Balance shows the volumes of various sized rock that would result

[REDACTED]

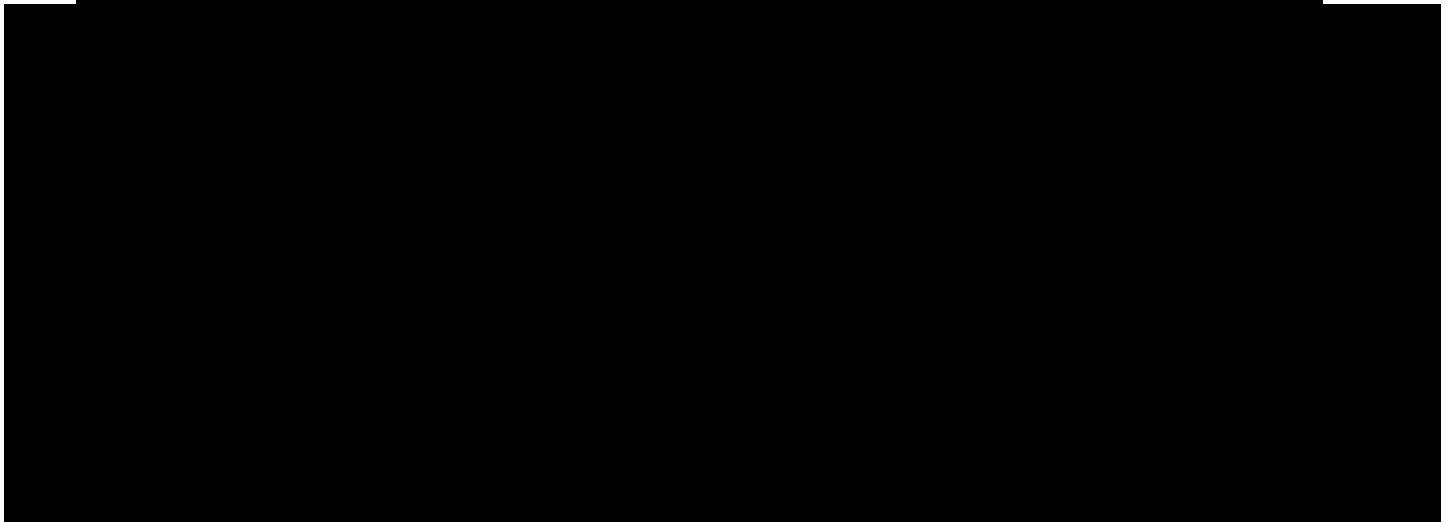
43. Figure 2 shows the output of the Whites Point crushing plant as presented in the 2017 Mass Flow

[REDACTED]

⁴² C-1001, Crushing Plant Drawings and Schedule with George Bickford’s Handwritten Notes (see pile labeled “grits”); Witness Statement of George Bickford, December 8, 2016 (“Bickford Memorial Statement”), ¶ 54: [REDACTED]

⁴³ R-842, SCMA, Whites Point Production Output Based on [REDACTED] referencing R-843, The Cement Grinding Office, Particle Size Distribution Representation (Part 3) and R-844, Mineral Tech, Technical Notes 2 – Particle Populations and Distribution Functions.

⁴⁴ Expert Report of Howard Rosen, December 15, 2016 (“Rosen Memorial Report”), ¶ 5.25, fn 48; C-1010, Whites Point Operating Costs, 2011-2015, p. 1; Rosen Reply Report, ¶ 5.50. In the table in C-1010 it is stated that [REDACTED]

Figure 2⁴⁵

44. [REDACTED]
45. Operating to produce [REDACTED] creates other problems. For example, overall production volumes are higher, which results in excess inventory of materials in other sales categories for which Claimants have not made any plans. As shown in Figure 2 above, the plant will also produce [REDACTED] [REDACTED] as labeled in exhibit C-1001 and the [REDACTED]. [REDACTED]
- In our opinion, [REDACTED] [REDACTED] discussed in the First SCMA Report, the fine sand dredged in New Jersey was too fine to be sold on its own,

⁴⁵ R-842, SCMA, Whites Point Production Output Based on [REDACTED].

⁴⁶ See RE-8, SCMA Report, ¶ 95; Appendix IV, pp. 41-44.

⁴⁷ Witness Statement of John Wall, December 8, 2016 (“Wall Memorial Statement”), ¶ 55; Wall Reply Statement, ¶ 17.

⁴⁸ R-842, SCMA, Whites Point Production Output Based on [REDACTED].

_____ and needed the grit to produce saleable concrete sand.⁴⁹ As such, we consider the excess “concrete sand” to be a waste product.

46. The calculations presented in the First SCMA Report present a more efficient and realistic picture of the _____

_____ As such, we see no reason to alter our conclusions.

IV. CLAIMANTS CONTINUE TO UNDERSTATE OPERATING AND CAPITAL COSTS

47. Claimants’ experts disagree with a number of items in our operating and capital cost analysis. Their primary reason for disagreeing is their continued reliance on _____
_____. While we comment on a number of specific critiques here, with one exception, we do not see any basis to change the assumptions or conclusions from the First SCMA Report.

48. First, Mr. Wall and Mr. Fougere state that it is industry practice to _____
_____⁵⁰ We understand the reference to _____
_____, according to Mr. Dooley and Mr. Rosen. _____

49. Second, Mr. Wall asserts that the design of the Whites Point Quarry requires _____

⁴⁹ See RE-8, SCMA Report, ¶ 86.
⁵⁰ Wall Reply Statement, ¶ 21. See also Fougere Reply Statement, ¶ 58.
⁵¹ Wall Reply Statement, ¶¶ 24-32.

[REDACTED]

50. Third, Mr. Washer and Mr. Collins state that the items below were included in their initial plant/marine terminal costing information:

- A 10% contingency.⁵² However, in some of Claimants' cost estimates, the contingency appears to be a part of the quoted costs.⁵³ It is unusual to assume that there is adequate contingency in the quoted prices, and risks the adequate funding of the project.
- [REDACTED]
- The anticipated effect of geography and weather on maintenance costs.⁵⁵ After reviewing the report of Mr. Collins, we are satisfied that the maintenance adjustment we applied for climatic conditions is not necessary for the marine terminal equipment. However, we have not seen similar information to satisfy us that such climatic conditions have been sufficiently accounted for in the plant equipment, and maintain our views on this adjustment. We provide updated maintenance figures in Appendix II.

51. Finally, Mr. Wall asserts that our fuel consumption figures, based on the equipment's actual use, are incorrect.⁵⁶ However, fuel usage and equipment utilization rely on the production level. [REDACTED]

[REDACTED] The fuel consumption figures in the First SCMA Report are also averages for medium use.

⁵² Reply Witness Statement of Michael G. Washer, August 8, 2017 ("Washer Reply Statement"), ¶¶ 5-8.

⁵³ C-1344, Bilcon of Nova Scotia Corporation Quarry Manpower Schedule – Whites Point Quarry, October 18, 2004, pp. 3-4; C-1011, Plant/Infrastructure Costing 2008 USD, 2016, p. 26.

⁵⁴ Washer Reply Statement, ¶¶ 9-11.

⁵⁵ Washer Reply Statement, ¶¶ 12-15 (plant maintenance); Reply Expert Report of SNC-Lavalin (Bill Collins), August 14, 2017 ("Collins Reply Report"), section 3 (marine terminal).

⁵⁶ Wall Reply Statement, ¶¶ 33-34.

As such, they are subject to increasing in most intense quarry operations and rolling resistance situations. Accordingly, SCMA sees no reason to change its fuel consumption figures.

V. CONCLUSIONS

52. Bilcon’s experts have grossly exaggerated the profit opportunities from a Whites Point quarry. They have overestimated prices, underestimated production costs and underestimated competitive reactions. Taken in its entirety, their analysis represents a “Goldilocks Scenario” where everything they wish for comes true and inconvenient details can be ignored. Further, they posit this scenario in the super-competitive New York City environment where capitalist behavior can be raw and harsh.

53. [REDACTED]

54. Additionally, to produce the mix of material they planned to sell to the market, [REDACTED]

55. In summary, there is nothing inherently wrong from an economic perspective with the Claimants’ idea of constructing a quarry in Nova Scotia; the problem is that they have presented an unrealistic plan.



Colin Sutherland



David Chereb

Appendix A: [REDACTED] Are Not Absolute

1. [REDACTED]

[REDACTED]

[REDACTED]

Appendix B: Updated Whites Point Production Costs

